

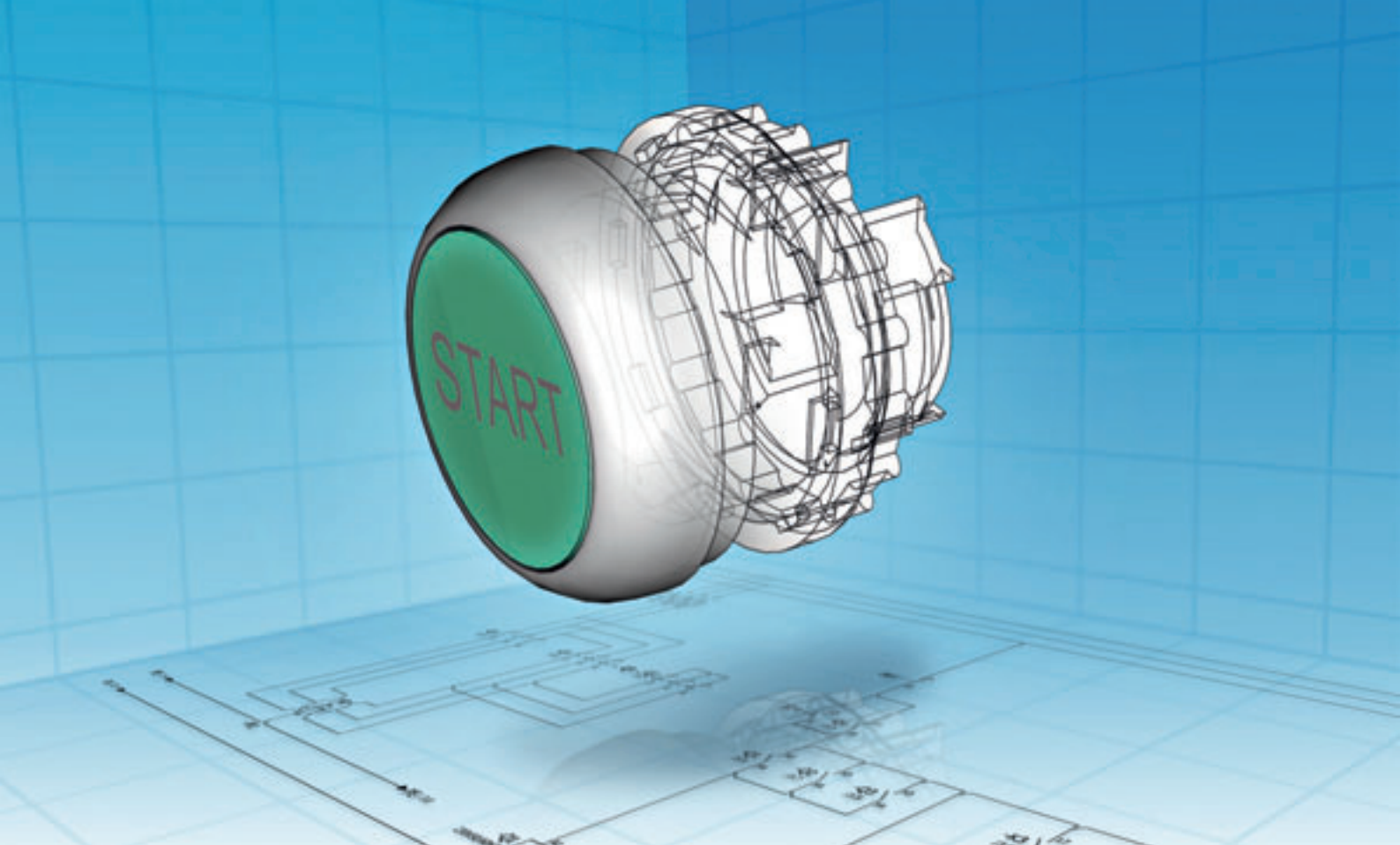
Automation
Power Management

Command and Signalling
Motor Applications

Product Overview for Machinery. Build it in.



Powering Business Worldwide



Planning safety and process optimization: CAD data at the click of a mouse!



- 10,800 article data items and macros
- Convenient selection tool
- Version P8



- Models for approx. 11,000 products
- 80 different neutral & native formats

Eaton is providing its customers with CAD data to offer optimum support during planning. Both electrical and mechanical design data can be called up quickly and conveniently from the Internet at any time. This reduces processing times, minimizes errors and thus reduces costs already in the engineering phase of control panels, systems and machinery.

eCAD: Eaton has product data and macros available for EPLAN Electric P8. After downloading the small EPLANSelection program, you will not only be able to select the items you need from a database containing more than 10,800 products, but will also be able to export them and import them into your own EPLAN item database.

mCAD: Eaton makes 2D and 3D data available for more than 11,000 products. Over 80 different neutral and native formats guarantee compatibility with the project engineering systems of the customer. The models can either be integrated directly into the planning software from the Partcommunity Portal on the Internet or via the CADENAS Partsolution software.



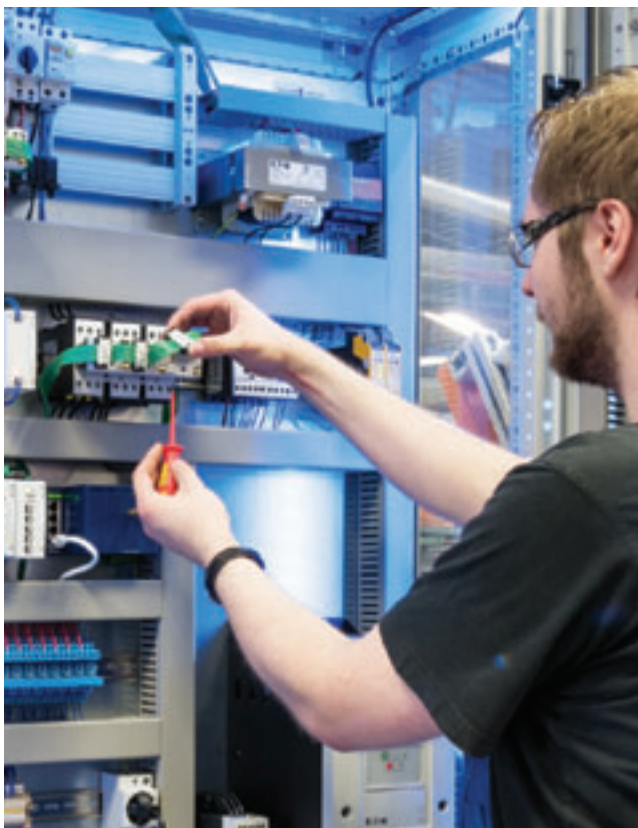
www.eaton.eu/cad

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At Eaton, we serve the needs of machine builders and their customers across the globe.

As one of the world's leading power management companies, we provide energy efficient solutions designed to help our customers use electrical, fluid and mechanical power more reliably, efficiently, safely and sustainably. With a commitment to innovation, our solutions can help you differentiate and build a more sustainable business.



Eaton brings a new dimension of expertise.

With shorter product lifecycles, customers now expect you to design and build highly customized machines, or retrofit existing ones, faster, and at a lower cost than ever before. Your customers demand machines that operate without fault for longer, and at the highest possible level of energy efficiency.

When designed with our best-in-class electrical and hydraulic solutions, your machines are guaranteed to deliver higher levels of accuracy, speed, energy efficiency, reliability, and flexibility. Eaton is the only solutions provider that combines hydraulic and electrical systems for a machine with power density and precision power control.

A legacy of innovation

As we have developed, our portfolio of solutions has diversified; integrating the unique capabilities of industry leading product ranges from the likes of Aeroquip, Moeller, Vickers, Bussmann, F&G and Heinemann we now deliver innovation on a greater scale than ever before. This gives our clients the opportunity to choose the best technologies from a broad offer.

For a more profitable business, build an integrated machine with Eaton solutions

A more simplified, compact and lower cost machine

Eaton significantly speeds time to market for machine builders and reduces the footprint and operating costs of machines without compromising performance. We reduce the time and expense of machine wiring, with our unique SmartWire-DT panel-wiring solution. Our solutions, including compact hydraulic systems, also reduce machine equipment footprint and increase the speed of the manufacturing process while reducing errors.

A safer machine

Safety needs to be a top priority as machines can create risk for your people, operation and the environment. It is vital these risks are identified and mitigated in both the design and build phases. Eaton's functional safety solutions help you meet and exceed safety regulations through product design that reduces risk of machine overload, damage and fire.

A more reliable machine

Machines and production facilities equipped with Eaton products are more reliable, minimizing costly downtime. Extend the service life of products by predicting hose failure before it happens with our intelligent hydraulic hose monitoring system. Uninterruptible power supplies at the machine level minimize production downtime and data loss caused by voltage dips, power outages or surges.

A more energy efficient machine

Increase energy efficiency with Eaton solutions that enable advanced control of electric motors and hydraulic pumps, valves and cylinders. We control and protect energy efficient IE3 and IE4 motors. Our monitoring solutions help to reduce energy consumption.



Optimise space and budget

Eaton are dedicated to offering innovative solutions that are safe, compact, reliable and financially efficient. With budgets across the sector increasingly squeezed, the importance of reducing costs across engineering, wiring, testing and commissioning is paramount to future profitability. Eaton can help you achieve this cost reduction and improve downtime in the process.

Standardize Operations

Our portfolio of standardised solutions can revolutionise your operational efficiency. Designed to meet global standards, manage costs and reduce energy consumption, Eaton can help you build state-of-the-art systems that are both easy to maintain and service.

Improve integrated performance

Offering compatibility with a wide variety of technology our solutions can be integrated into ready built systems to enhance flexibility, improve diagnostic output and increase communication between machines within a network.

Prioritize Safety

Safety is one of Eaton's greatest priorities throughout the machine building process, we are dedicated to developing safer working environments and reducing operational risks. Our solutions have been efficiently designed to meet all regulatory requirements without duplicating wiring or generating resource waste. The safeguards we implement at every stage of the process ensure risk of overload, damage or fire is minimized.





Helping you to improve all parts of the machine

Intelligent Wiring

Using state-of-the-art intelligent wiring technology Eaton can help significantly reduce the costs and downtimes of your machines and systems. Our intelligent wiring solutions enhance productivity, simplify maintenance and increase flexibility when designing, installing and commissioning a plant. With a potential cost saving of up to 85% on installation costs and a guaranteed fast, error free connection, intelligent wiring presents machine builders with a great opportunity to improve profitability and performance.

Control and operation

Human machine Interfaces can help improve ergonomic performance, maximizing user comfort, efficiency and creates a better looking machine. Our XV300 touch panel delivers intuitive operation, precise gesture control and multimedia integration enabling you to manage your system effectively. Our pilot devices help to design an attractive machine. They are flexible and can be combined for a wide range of applications.

Energy Efficiency

The implementation of new ErP directives presents significant opportunities for machine builders. Eaton enables you to achieve compliance simply and efficiently while reducing energy costs in the process.

Circuit Protection

Eaton offers a wide range of protective solutions designed to maximise safety and protect assets. Delivering a high level of reliability our broad portfolio of solutions reduces downtime and maintenance costs, improving efficiency and reducing the risk of operational issues. Designed for the worldwide market, Eaton's circuit protection solutions are ideal for machine builders operating in the engineering, production, maintenance and exporting sectors globally.



Energizing a world that demands more.

Discover today's Eaton.

Powering business worldwide

As a global power management company, we help customers worldwide manage the power needed for buildings, aircraft, trucks, cars, machinery and businesses.

Eaton's innovative technologies help customers manage electrical, hydraulic and mechanical power more reliably, efficiently, safely and sustainably.



Powering Business Worldwide



We deliver:

- **Electrical solutions** that use less energy, improve power reliability and make the places we live and work safer and more comfortable
- **Hydraulic and electrical solutions** that enable machines to deliver more productivity without wasting power
- **Aerospace solutions** that make aircraft lighter, safer and less costly to operate, and help airports operate more efficiently
- **Vehicle drivetrain and powertrain solutions** that deliver more power to cars, trucks and buses, while reducing fuel consumption and emissions

We provide integrated solutions that help make energy, in all its forms, more practical and accessible.

With 2014 sales of \$22.6 billion, Eaton has approximately 100,000 employees around the world and sells products in more than 175 countries.



Eaton's electrical business

Eaton is a global leader with expertise in:

- Power distribution and circuit protection
- Backup power protection
- Solutions for harsh and hazardous environments
- Lighting and security
- Structural solutions and wiring devices
- Control and automation
- Engineering services

Eaton is positioned through its global solutions to answer today's most critical electrical power management challenges. With 100 years of electrical experience behind us, we're energized by the challenge of powering up a world that demands twice as much energy as today. We're anticipating needs, engineering products and creating solutions to energize our markets today and in the future.

We are dedicated to ensuring that reliable, efficient and safe power is available when it's needed most.

Eaton.com

Our flip catalog: Get information, select, order – the fast and easy way!



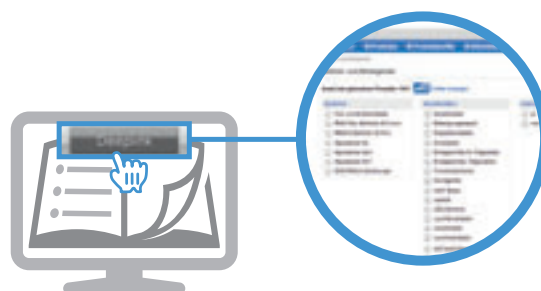
This product overview is designed as a quick selection aid for our core range of machine building products. And to make it even more powerful, we have an online version with comprehensive extra features available: our digital flip catalog. The result? Getting information and placing orders is easier and faster than ever before.

How does our digital flip catalog work? Easy: Its contents are linked to the Eaton online catalog and to the relevant product pages on the Internet, meaning that clicking on a part number or article number will take you directly to all the pertinent product information. In other words, the flip catalog is the perfect way to obtain comprehensive, up-to-date information, perfectly complementing our hard copy catalog.

Explore our flip catalog and its powerful features

Our full range of products and our product pages only a mouse click away

Often you need more than just the items in our core range of products. This is why the pages in the flip catalog feature deep links to relevant accessories, products with expanded performance ranges, and additional product versions. And when it comes to introduction pages with general information on a product, the deep link function will take you to the relevant detailed product pages on the Internet.



Technical data at a glance

Clicking on a product will show the corresponding data sheet with all technical data and dimensional drawings. In addition, you can use the available options to access CAD data, trip characteristics, manuals, instruction leaflets, and other information.



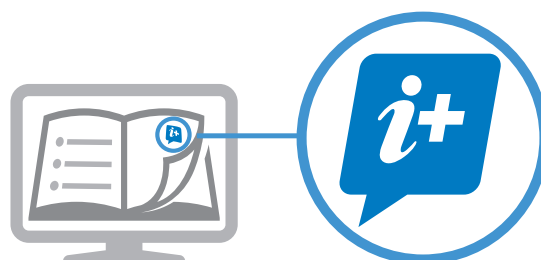
Easily generate parts lists and place orders

You can use the flip catalog to select products and group them together in a parts list. This parts list can then be used together with the online catalog to request quotations, place orders, or maintain required documentation.



The InfoPlus icon: your access to more information

Clicking on the InfoPlus icon will show additional information such as configurators, selection aids, software, tutorial videos, technical essays, and Internet pages. This information ensures that you will get a comprehensive view that perfectly complements our product overview for machinery.



Up-to-date information on the entire range of products in the online catalog

More than 25,000 data sheets, extensive selection aids, and up-to-date product information in a variety of languages – all in our online catalog <http://eaton.eu/ecat>



SmartWire-DT in the control panel
 "Connect, don't wire" standard devices

HMI/PLC, Open HMI



HMI and HMI/PLC XV 300

- Display sizes of 7" and 10,1"
- Gesture-based controls made possible by capacitive multi-touch technology



HMI and HMI/PLC XV102

- Display sizes of 3.5", 5.7", 7"; flush-mounting devices

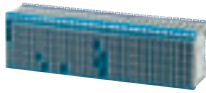
XV112

- Display sizes of 5.7", 7"; rear-mounting devices

XV152

- Display sizes: 5.7", 8.4", 10"

Remote I/O



XN300, slice-card-based modular I/O system

- Compact, up to 20 channels per slice card (12.5 x 102 mm)
- Easy and efficient to use



XI/ON ECO, modular I/O system

- Space-saving
- High channel density

PLC



EC4P compact PLC

- Centralized and decentralized expandable



Compact PLC XC152

- Onboard SmartWire-DT (depending on model)
- Control and visualization software in one single device

easyRelay, MFD-Titan



easy500 control relay

- For applications with up to 12 I/Os
- "Circuit diagram programming"



easy700 control relay

- For applications with up to 40 I/Os
- Expandable
- "Circuit diagram programming"



MFD-80 MFD-Titan display/operating unit

- Remote monochrome text display for all easyRelays



MFD-CP8/CP10 MFD-Titan power supply/CPU module

- easy800 functionality plus visualization
- MFD-CP4 MFD-Titan power supply/CPU module**
- For remote text display

Safety Technology



Detect hazards quickly with the RMQ-Titan emergency-stop actuator

- A variety of emergency stop switch designs
- Self-monitoring contact elements

Page 96 ff.



Keeping movement safely under control with the LS-Titan position switch

- Safety door switches
- Safety position switch

Page 122 ff.



SmartWire-DT in distributed devices

"Connect, don't wire" sensors and actuators

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HMI and HMI/PLC XV400 / XVS400

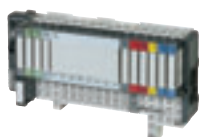
- Display sizes: 5.7", 8.4", 10.4", 12.1", 15"
- Versatile and powerful communications



Multi-touch industrial panel PC XP-503

- 10.1"; 15.6"; 21.5", wide-screen
- Same intuitive ease of use as a smartphone

Page 48



XI/ON standard, modular I/O system

- Fine granularity
- Communicative

XI/ON PLC

- Featuring a CANopen gateway that can be programmed with CODESYS



Programming and visualization software

- HMI
- HMI/PLC
- PLC

Page 88



- easy control relay
- MFD-Titan

Page 60



XC101 modular PLC

- Expandable with XI/OC modules
- Fiber optic CAN interface (depending on model)



XC201/202 modular PLC

- High computing power
- High processing speed
- CODESYS Target Viso

Page 68



easy800 control relay

- Expandable, networkable via easyNet
- For applications with up to 328 I/Os
- "Circuit diagram programming"



Control relay easy800 with SmartWire-DT

- Can be networked with easyNet (depending on the model)
- Can accommodate up to a max. of 1,328 I/Os
- "Circuit diagram programming"



MFD-Titan I/O modules

- For digital and analog I/Os
- Pt100
- Ni1000



24 V DC power supplies

- Single-phase or three-phase devices with currents of 0.35 A to 40 A

Page 80

Safety manual Page 82



ESR5 Safety Relays

- A separate safety relay for each safety application

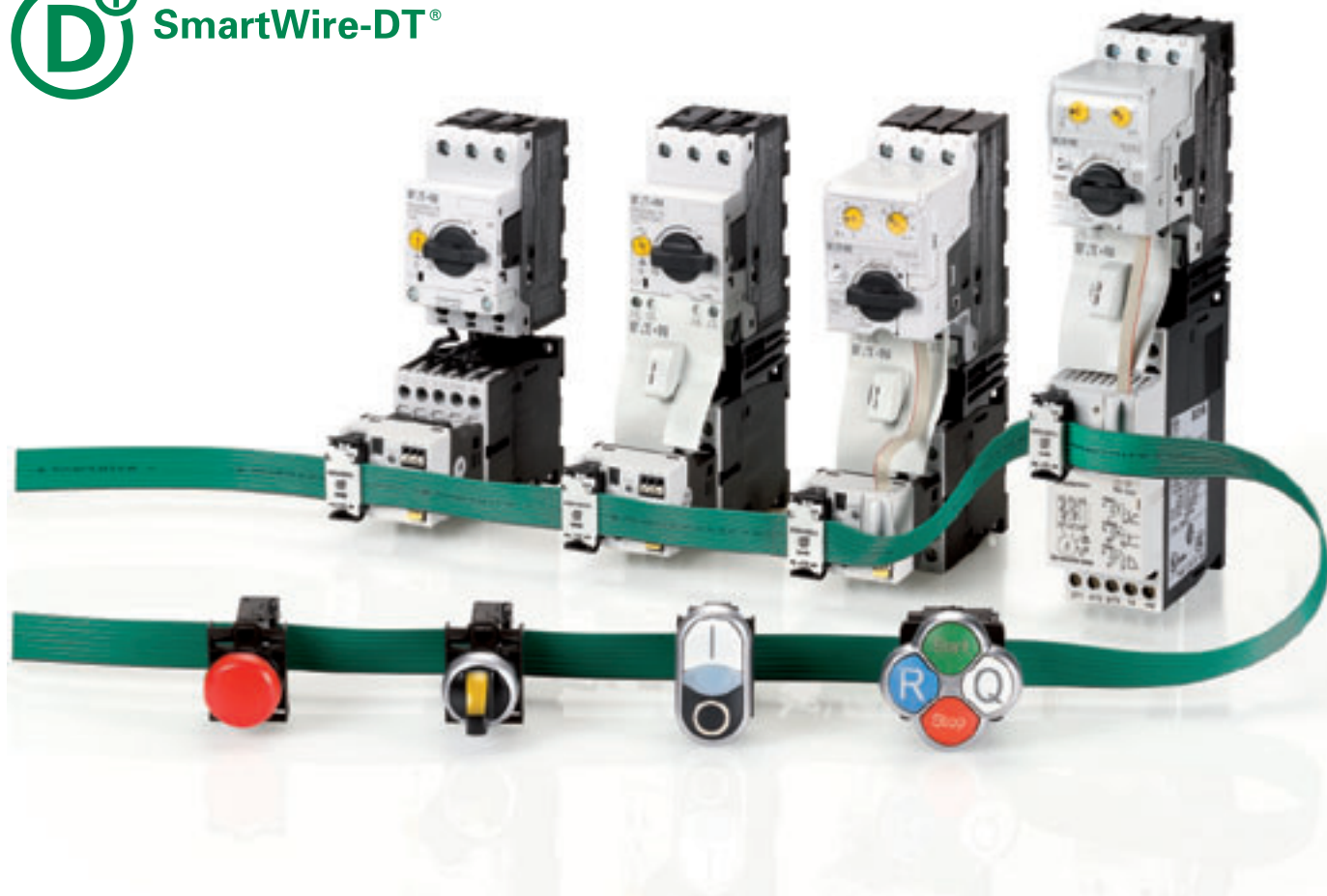


Control relays suitable for safety circuits – easySafety

- "All-in-one" versatile safety functions and easy functionality combined in a single device

Page 84 ff.

Build it in.



SmartWire-DT®: The communication and wiring system for more profitability



Catalog download:
www.eaton.eu/catalog

Customer expectations today are focused on increased performance in a more compact design, shorter delivery times, and the right price. To meet these requirements, machines need to be built in shorter time frames, using smaller control cabinets with intelligent, energy-saving devices that allow a smaller footprint compared with existing components.

For plants and systems the availability is the key to higher profitability. SmartWire-DT is a unique wiring solution that streamlines connection and communications inside and outside control panels.

Machine and system builders globally are finding that SmartWire-DT can be integrated easily into machines in a smaller control cabinet, reducing the time and effort for wiring their machines and systems by up to 85 %. In Operation the profitability of the machines and system can be raised. Digital and analog data help to improve the performance and to avoid downtimes.



Simplify wiring. Reduce costs. Improve flexibility

Today, control wires are used to connect devices like switchgear or pilot devices to PLC I/O-modules. Using SmartWire-DT, these modules and the control wiring becomes obsolete. All devices are connected to this intelligent wiring system, reducing engineering and installation costs for the machine builder.

Less complex, more compact machines

Eliminating the PLC I/O and the control wiring means more compact control panels and machines, and makes automation structures simple to design and configure.

Simplified connectivity

By replacing conventional, time-consuming control circuit wiring with one single cable, SmartWire-DT enables the simple connection of switchgear in control panels, as well as sensors and actuators outside control panels. This results in safe and error-free switchgear installations combined with significantly shorter commissioning times.

Higher flexibility

With industrial fieldbus gateways, SmartWire-DT can be connected to PLCs from any manufacturer, giving the machine builder the flexibility to easier meet customer demand.

More compact machines with Eaton controllers

For small and medium machines, Eaton offers HMI/PLCs, compact PLC and control relays with integrated SmartWire-DT communication interface. This offers machine builders the opportunity to develop simpler, more compact automation solutions.



Extended communication improves system effectiveness

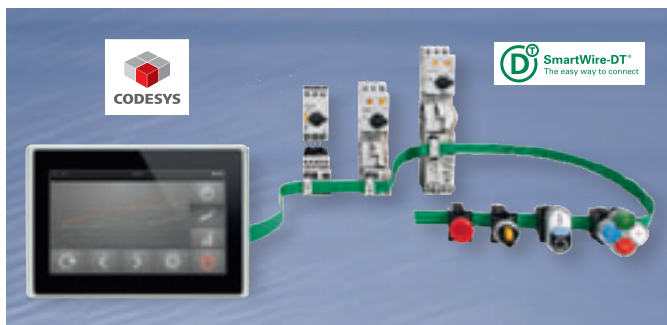
Plants need multiple drives, control and pilot devices to be designed, installed and controlled, along with distributed sensors and actuators. Automation of the process environment can be quite challenging, especially if continuous process availability is required. SmartWire-DT is an intelligent wiring system that provides more data on installed devices, central to increased availability and preventive maintenance.

More data, increased availability

More detailed information enables better process control, more detailed diagnostics, reduced downtime and increased availability. SmartWire-DT switchgear devices provide continuous real-time data information on motor load conditions that allows an interaction before an overload situation occurs and the system stops. Monitoring motor current values also helps with preventive maintenance. The overall result is improved system availability and higher economic effectiveness.

Easy expansion

SmartWire-DT makes it easy to add expansions during operation. New devices are simply connected to the communication cable inside or outside the control panel. An overall length of up to 600m simplifies distributed control architectures.



Automate with CODESYS

The compact PLC series XC152 combines a modern control architecture and comprehensive communication interfaces in a single device.

Meanwhile, HMI PLCs combine the latest IT technologies with traditional PLC and HMI technologies by grouping control, visualization, and data management tasks together in a single device. In both cases, the integrated SmartWire-DT interface makes it much easier to communicate with switchgear.



SmartWire-DT – twice as easy with easySoft

Our new easy800 devices with SmartWire-DT combine the functions of an easy800 control relay with a direct connection to SmartWire-DT. Instead of having to connect switchgear inputs and outputs to the corresponding controller individually, they can simply be connected via a SmartWire-DT line instead. Programming remains the same, using ladder diagrams in easySoft-Pro.



Open for every master with different gateways

Eaton offers gateways for a wide variety of standard field bus systems so that you can establish communications with any controller. The following protocols are supported: PROFIBUS-DP, CANopen, EtherNet/IP, Modbus/TCP, PROFINET, Ethercat and Powerlink.



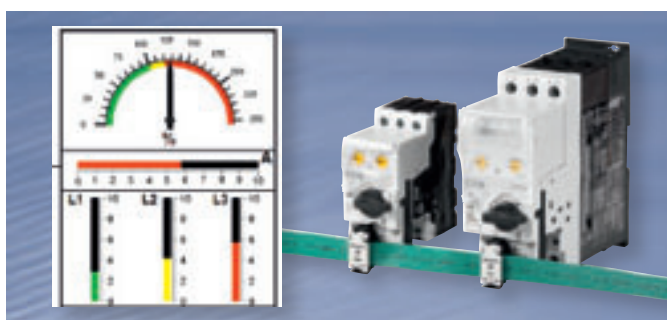
Convenient control and signaling

Due to the fact that every single contact and indicator light has to be wired individually to a controller's input/output modules, conventional pilot device wiring is associated with a high level of complexity and cost. The perfect alternative is SmartWire-DT, which instead connects pilot devices with just a single click. Functions that previously needed to be set up separately, such as those in double pushbuttons with LED indicators, now require a single SmartWire-DT function element only. Moreover, SL signal towers can also be connected to SmartWire-DT.



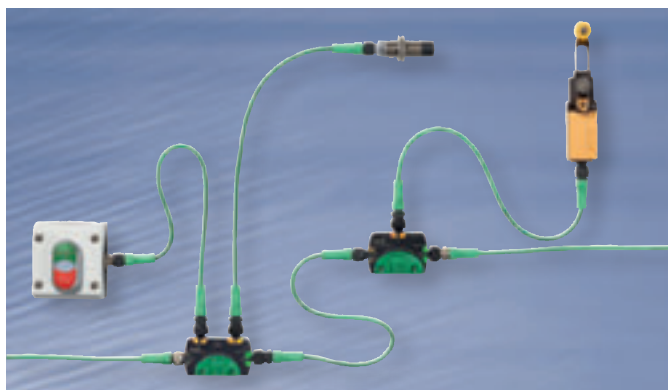
SmartWire-DT: All the information you need regarding your motors

With SmartWire-DT, PKE motor-protective circuit breakers rated for currents of up to 65 A can be easily integrated into automation systems. The function element for these circuit breakers not only reports their trip setting, but also their trip state and the cause of any trips. Moreover, it also sends data concerning the motor current and the thermal motor load, providing advance warning of potential faults and shutdowns due to overload. The result is increased availability and serviceability.



Efficient power distribution monitoring

The modular design behind PKE motor-protective circuit breakers ensures that they can also be used as circuit breakers for load currents of 15 A to 65 A in power distribution applications. In addition, combining them with the PKE-SWD-CP SmartWire-DT module makes it possible to evaluate phase current, trip state, breaker setting, and advance overload warning monitoring signals, eliminating the need for conventional measuring equipment.



Connect machine sensors directly

IP67 I/O modules provide SmartWire-DT systems with a fine-grained I/O solution that features a high degree of protection and can be used directly on machines. The small number of I/O channels means that even individual sensors and actuators can be connected to a SmartWire-DT system directly in the field by using these modules. This not only reduces the amount of wiring needed, but also renders a machine's wiring simpler. All in all, digital and analog sensors and actuators can be easily connected in any order and amount, and expansions can be conveniently added by simply adding new cards.



Compact motor start

Combining an EMS electronic motor starter with SmartWire-DT results in a compact package with a width of 30 mm that can be used to drive and monitor motor feeders carrying up to 3 kW (400 V). Moreover, integrated functions for motor DOL starting, reversing starting, motor protection, and emergency stop functionality up to SIL 3 not only eliminate the need to use several standard components, but also the need to wire them. Finally, driving and monitoring the electronic motor starter's drive via SmartWire-DT makes wiring faster and enables users to detect critical machine states in advance.



PowerXL variable frequency drives/variable speed starters – communicate efficiently

PowerXL variable frequency drives and variable speed starters can be combined with SmartWire-DT as well. To do so, it is only necessary to plug a SmartWire-DT function element into the device, completely eliminating the need for conventional control circuit wiring. The new interface makes it possible to configure the variable frequency drives centrally, and the network connection can be used to send control commands to the devices and read diagnostic data from them.



DS7 soft starters – direct access to all parameters

DS7 soft starters are available within a performance range of 1.1 to 110 kW, and by connecting them to SmartWire-DT, you can obtain easy and convenient access to all their parameters. Users can read and overwrite potentiometer settings. Extended status, error, and diagnostic messages can be retrieved directly. The result: absolute data transparency. The plug-in units make installation fast and error-free, and the resulting connection includes the soft starter's control current supply.



Visualization and logging system – BreakerVisu

Measuring electrical parameters is the foundation of any energy management system. With SmartWire-DT, the operational data of NZM circuit breakers and PKE motor-protective circuit breakers can be visualized and logged using BreakerVisu. This self-configuring system allows for up to 16 cards to be connected to it via SmartWire-DT and, alternatively, another 32 via Modbus RTU. Once connected, it can be used to read important information, such as phase currents, trip states, and configuration parameters, via SmartWire-DT. In addition, energy values can be obtained via energy measuring modules.

One system, countless possibilities.

SmartWire-DT enables distributed intelligence that changes automation. Interface modules installed on standard switchgear replace the digital and analog I/O layer on PLCs. Gateways to any industrial fieldbus make it not just possible, but simple to access the SmartWire-DT network independent of the PLC system. At the same time, SmartWire-DT technology is available as an integrated part of our controllers. The result: easy-to-configure, linear automation structures with few components.

Powerful technology

Up to 99 devices can be connected on a single SmartWire-DT line. The maximum permissible total length is 600m, while the maximum data volume for cyclic process data is 1,000 bytes. The SmartWire-DT cable also includes the required power supply for the SmartWire-DT electronics as well as for installed contactors.

Flexible integration in every automation environment

Fieldbus gateways are used to connect the SmartWire-DT communication system to your individual PLC system. SmartWire-DT can communicate via industrial fieldbus using standardised mechanisms for configuring and parameter setting.

SmartWire-DT modules

Two different types of SmartWire-DT modules are available. Special function modules replace the electrical interfaces of contactors, pushbuttons, pilot devices and auxiliary switches. Intelligent devices like electronic motor protective devices, softstarters and drives transmit digital and analog information (e.g. current, overload..) directly onto the SmartWire-DT network.

Visualization



HMI
XV100/XV300

any
PLC



Control relay
easy806



Compact PLC
XC152



HMI/PLC
XV100/XV300

Control

KEY



SmartWire-DT®
Any fieldbus

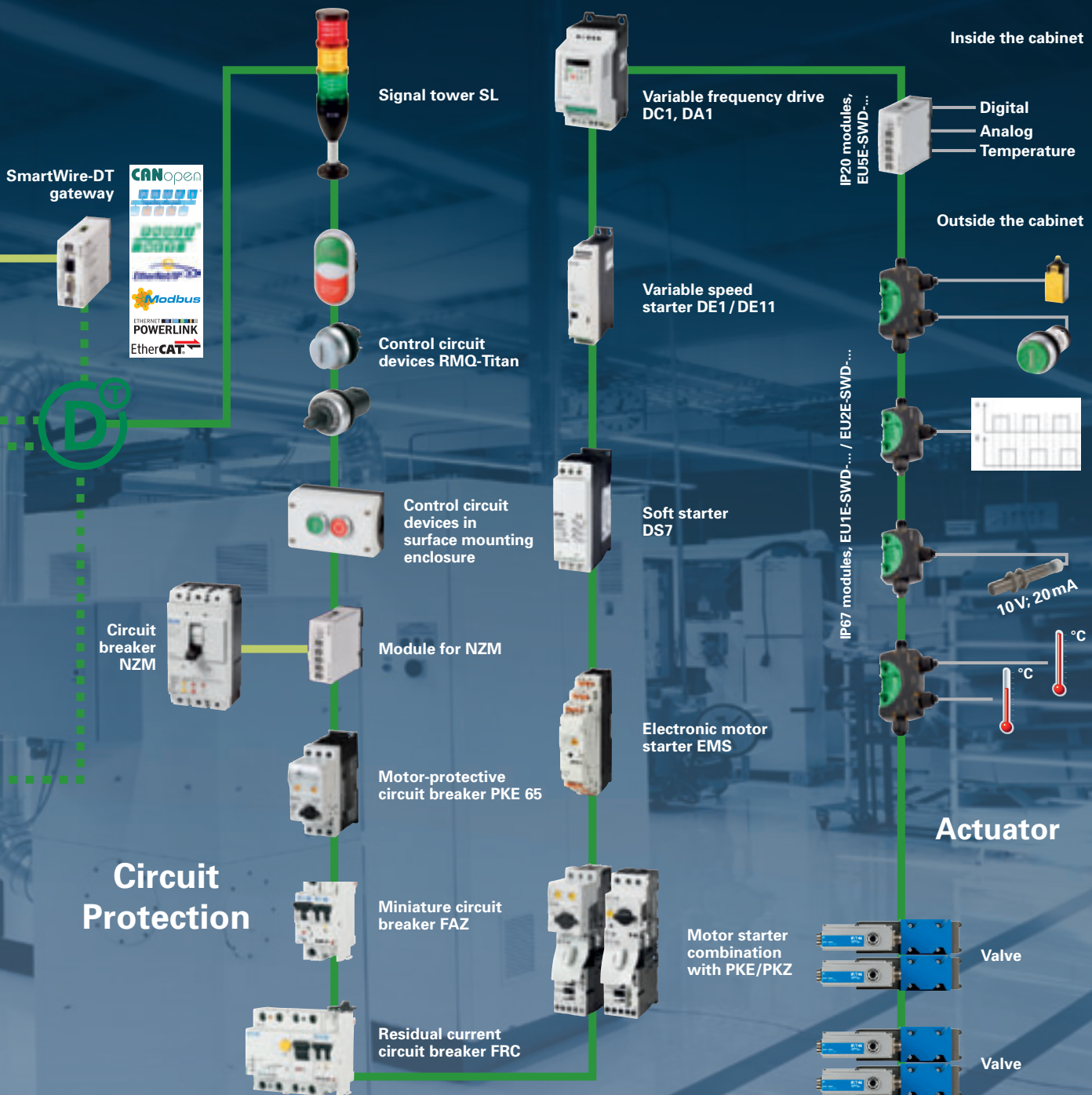
Inside and outside the cabinet

SmartWire-DT can also be used to directly connect sensors and actuators in the field. This is done with T-Connectors, available as digital and analog I/O modules with an IP67 degree of protection.

Operate

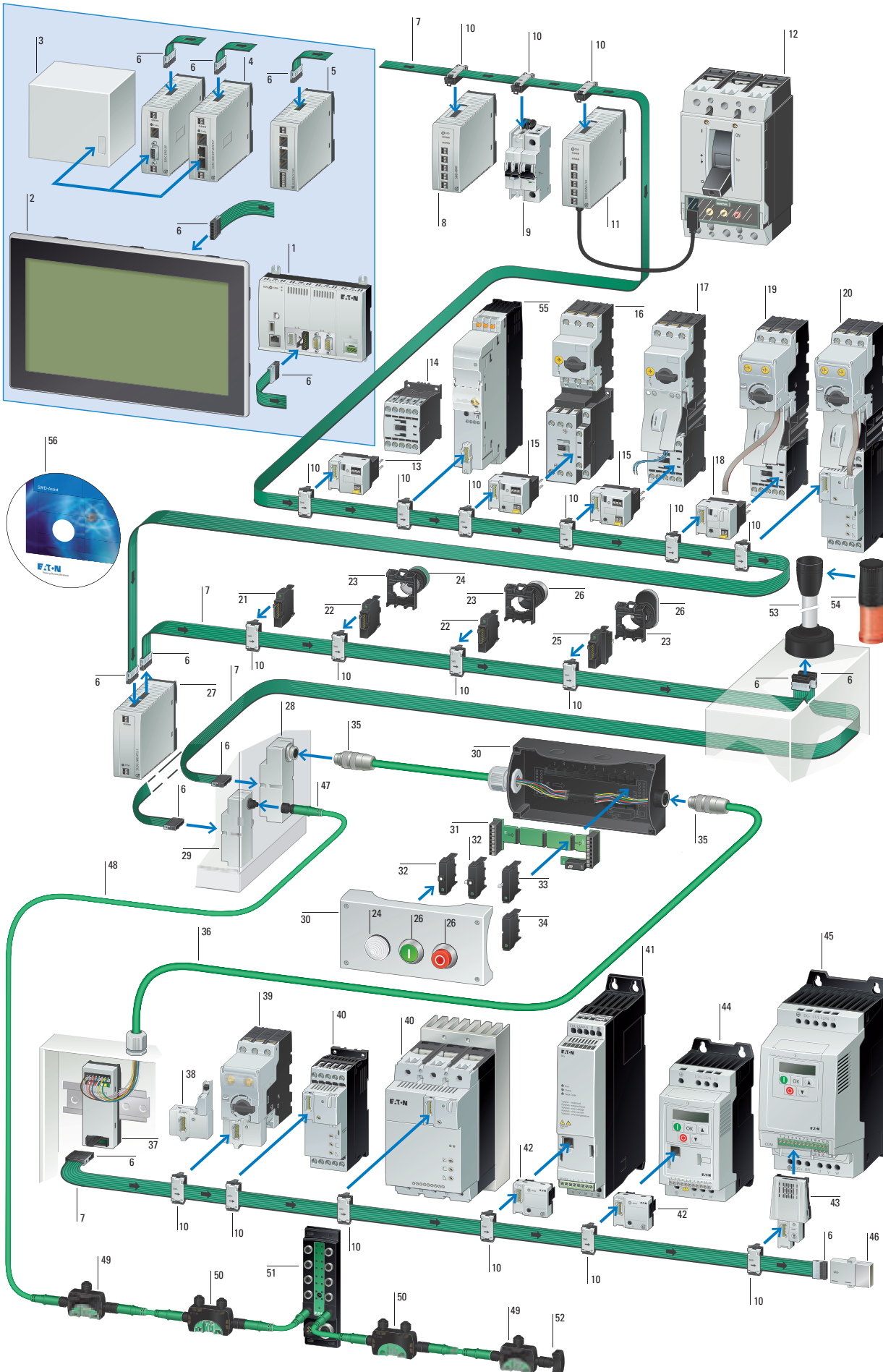
Start a motor

Input/Output



Electrical and Hydraulic

Special dedicated SmartWire-DT modules can be used to directly control 2/3-position or proportional hydraulic valves.



Moeller® series

1 Compact PLC	17 MSC motor starters	31 SWD card for function elements, base fixing	45 DA1 variable frequency drives
2 Touch panel	18 SWD PKE module (motor starter)	32 SWD LED elements for base fixing	46 SWD bus termination resistor for 8 pole flat band conductor
3 PLC with field bus interface	19 Motor starters with PKE electronic motor protection	33 SWD function elements for base fixing	47 M12 plug connector, 5 pole
4 Gateways	20 DS7 soft starters with PKE electronic motor protection	34 SWD universal modules, base fixing	48 Round cable, 5-pole
5 Control relays	21 SWD universal module, front mount	35 SWD plug-in connector, 8 pole	49 SWD I/O module IP67, 2 I/O
6 SWD blade terminal, 8 pole	22 SWD LED element, front mount	36 SWD round cable, 8 pole	50 SWD I/O module IP67, 4 I/O
7 SWD ribbon cable, 8 pole	23 RMQ-Titan mounting clamps for flush mounting plates	37 SWD adapter for flat/round cable for top-hat rail mounting	51 SWD I/O module IP67, max. 16 I/O
8 SWD I/O module	24 RMQ-Titan indicator lights	38 SWD PKE module (motor-protective circuit-breaker)	52 SWD bus termination resistor IP67 for 5 pole round cable, M12
9 SWD module for circuit-breakers and residual current circuit-breakers	25 SWD function elements for front mount	39 PKE motor-protective circuit-breakers	53 Base module signal tower SL4/SL7
10 SWD external device plug, 8 pole	26 SWD operating elements	40 Soft Starter DS7	54 Signal towers SL4 /SL7
11 SWD interface for NZM	27 SWD power feeder module	41 DE1 Variable speed starter	55 Electronic Motor Starter EMS
12 NZM circuit-breakers	28 SWD control panel bushing ribbon cable to 8 pole round cable, M20	42 SWD function element for DC1 variable frequency drive, DE1 variable speed starter	56 SmartWire-DT planning and ordering aid (SWD-Assist)
13 SWD contactor module	29 SWD control panel bushing ribbon cable to 5 pole round cable, M12	43 SWD function element for DA1 variable frequency drive	
14 DILM contactor	30 Surface mounting enclosure RMQ-Titan	44 DC1 variable frequency drives	
15 SWD contactor module with manual 0 automatic switch			
16 Motor-protective circuit-breakers			

Features

SmartWire-DT coordinators

Touch panel

With SWD master switch and PLC function
3.5", 5.7", 7" or 10" TFT-LCD screen, additional field bus interfaces, Ethernet, WEB server

Compact controller

With SWD master switch
Additional fieldbus interfaces, Ethernet, WEB server

Control relay

With SWD master switch

Gateways

Connection of SmartWire-DT to fieldbus (e.g. CANopen, Profibus, Profinet ...)
Supply voltage for the SmartWire-DT modules
Feeder unit for the control voltage for the motor starter or contactor
Support of up to 99 SmartWire-DT modules

SmartWire-DT module

I/O modules to connect digital and analog input/output signals in IP20, IP67 degree of protection

DS7 Soft starter with integrated connection

Function element to connect to:

- Pilot devices RMQ-Titan
- SL4/7 signal tower
- Contactor DILM
- Motor-protective circuit-breaker PKZ/PKE
- PKE32,65 circuit-breaker
- NZM2,3,4 circuit-breakers
- Miniature circuit breaker (MCB)
- DE1 Variable speed starter
- DC1, DA1 variable frequency drives

SmartWire-DT-Assist (SWD-Assist)

Easily create SmartWire-DT networks integrated validity check
Generate order lists.

Online functions:

- Configuration check and comparison
 - Display of all input/output data, setting outputs
 - Display of parameters and diagnostics
- Free download at www.eaton.eu/swd

	Screen diagonal Inch	Resolution Pixel	Built-in interfaces							Part no.	Article no.		
			1 x Ethernet 10/100 Mbps	1 x RS485	1 x USB host 2.0	1 x USB device	1 x CANopen®/easyNet	1 x PROFIBUS/MPI	1 x SmartWire-DT				
Touch display with integrated controller													
XV100 Windows CE 5.0 (licence incl.), Approvals: cUL (UL508) Slots for SD card: 1 Resistive touch with TFT display, 64 k colors Standard front with standard membrane (fully enclosed)													
Insulating enclosure and front plate													
	3.5	QVGA 320 x 240	✓	-	-	✓	-	-	✓	XV-102-BE-35TQRC-10	153524		
	5.7	VGA 640 x 480	✓	✓	✓	✓	✓	-	✓	XV-102-E6-57TVRC-10	153525		
			✓	✓	✓	✓	-	✓	✓	XV-102-E8-57TVRC-10	153526		
	7	WVGA 800 x 480	✓	✓	✓	✓	✓	-	✓	XV-102-E6-70TWRC-10	153527		
			✓	✓	✓	✓	-	✓	✓	XV-102-E8-70TWRC-10	153528		
XV150													
Metal enclosure and front plate													
	5.7	VGA 640 x 480	✓	✓	✓	✓	✓	-	✓	XV-152-E6-57TVRC-10	166700		
			✓	✓	✓	✓	-	✓	✓	XV-152-E8-57TVRC-10	166701		
	8.4		✓	✓	✓	✓	✓	-	✓	XV-152-E6-84TVRC-10	166702		
			✓	✓	✓	✓	-	✓	✓	XV-152-E8-84TVRC-10	166703		
	10.4		✓	✓	✓	✓	✓	-	✓	XV-152-E6-10TVRC-10	166704		
			✓	✓	✓	✓	-	✓	✓	XV-152-E8-10TVRC-10	166705		
			Built-in interfaces							Part no.	Article no.		
			1 x Ethernet 10/100 Mbps	2 x Ethernet 10/100 Mbps	1 x RS232	1 x RS485	1 x USB host 2.0	1 x USB device	1 x CANopen®/easyNet	1 x PROFIBUS/MPI	1 x SmartWire-DT		
XV300 Windows Embedded Compact 7 Pro, Approvals: cUL 61010-2-201 Slots for SD card: 1 Resolution: WSVGA 1024 x 600 Pixel PLC licence inclusive Capacitive multi-touch technology (PCT), Number of colours: 16 mil. Model: Plastic enclosure and glass panel in plastic frame													
XV300 7"													
			✓	-	✓	✓	✓	✓	✓	-	✓	XV-303-70-BE0-A00-1C	179655
			-	✓	✓	✓	✓	✓	✓	-	✓	XV-303-70-CE0-A00-1C	179656
			✓	-	✓	✓	✓	✓	✓	✓	✓	XV-303-70-BE2-A00-1C	179657
			-	✓	✓	✓	✓	✓	✓	✓	✓	✓	XV-303-70-CE2-A00-1C
XV300 10.1"													
			✓	-	✓	✓	✓	✓	✓	-	✓	XV-303-10-BE0-A00-1C	179667
			-	✓	✓	✓	✓	✓	✓	-	✓	XV-303-10-CE0-A00-1C	179668
			✓	-	✓	✓	✓	✓	✓	✓	✓	XV-303-10-BE2-A00-1C	179669
			-	✓	✓	✓	✓	✓	✓	✓	✓	✓	XV-303-10-CE2-A00-1C

Built-in interfaces							Part no.	Article no.	
1 x Ethernet 10/100 Mbps	1 x RS232	1 x RS485	1 x USB host 2.0	1 x CANopen®/easyNet	1 x PROFIBUS/MPI	1 x SmartWire-DT			
XC compact PLCs									
24 V DC power supply Lot for memory card RUN/STOP switch and LED displays OPC Server Integrated Web server Approvals: CE, cULus Application/marker/retain data 64 MB/4 KB/32 KB KByte Cycle time for 1 k of instructions (Bit, Byte) 0.04 ms									
	✓	✓	-	✓	-	-	✓	XC-152-E3-11	167850
	✓	-	✓	✓	✓	-	✓	XC-152-E6-11	167851
	✓	-	✓	✓	-	✓	✓	XC-152-E8-11	167852

	Inputs			Outputs		Real time clock	Part no.	Article no.
	Digital	Of which can be used as outputs	SmartWire-DT	Transistor	SmartWire-DT			
easy800 control relay								
Combines the functionality of an easy800 with direct connection to SmartWire-DT communication system Up to 99 SmartWire-DT modules with a total of up to 166 digital inputs/outputs and/or up to 128 analog inputs/outputs can be connected via a SmartWire-DT line Supply voltage 24 V DC								
	-	-	83	-	83	✓	EASY802-DC-SWD	152901
	4	2	83	2	83	✓	EASY806-DC-SWD	152902

		Baud Rates	Number of SmartWire-DT slaves	Part no.	Article no.
Gateways					
Used to connect the SmartWire-DT communication system to industrial field bus systems. Powers SmartWire-DT modules and switchgear					
	For connection to PROFIBUS-DP field bus Field bus connection via 9 pole SUB-D socket Separate RS232 diagnostics interface (RJ45)	up to 12 MBit/s	Max. 58	EU5C-SWD-CAN	116307
	For connection to CANopen® field bus Field bus connection via 9 pole SUB-D plug Separate RS232 diagnostics interface (RJ45)	up to 1 MBit/s	Max. 99	EU5C-SWD-DP	116308
	For connection to the Ethernet-IP/MODBUS-TCP field bus Field bus connection via Ethernet Switch Separate RS232 diagnostics interface (RJ45)	10/100 MBit/s	Max. 99	EU5C-SWD-EIP-MODTCP	153163
	For connection to field bus PROFINET as PROFINET IO-Device Field bus connection via Ethernet Switch Separate USB diagnostics interface (Mini-USB)	100 MBit/s	Max. 99	EU5C-SWD-PROFINET	170124
	For connection to a POWERLINK field bus as a slave Field bus connection via Ethernet hub Separate USB diagnostics interface (Mini-USB)	100 MBit/s	Max. 99	EU5C-SWD-POWERLINK	171797
	For connection to an EtherCAT fieldbus as a slave Field bus connection via Ethernet Switch Separate USB diagnostics interface (Mini-USB)	100 MBit/s	Max. 99	EU5C-SWD-ETHERCAT	177354

		Inputs		Outputs			Part no.	Article no.
		Digital	Analog	Relay	Transistor	Analog		
Input/output modules (IP20)								
Digital modules IP20								
For connection of digital I/O signals								
For use with: ribbon cable, SWD coordinators								
		8	-	-	-	-	EU5E-SWD-8DX	116381
	The outputs are short-circuit proof.	4	-	-	4	-	EU5E-SWD-4D4D	116382
		4	-	2	-	-	EU5E-SWD-4D2R	116383
	The outputs are short-circuit proof.	-	-	-	8	-	EU5E-SWD-X8D	144061
	Inputs with supply for sensor system.	4	-	-	-	-	EU5E-SWD-4DX	144060
Analog modules IP20								
For connection of analog I/O signals								
For use with ribbon cable, SWD coordinators								
	Inputs configurable: 0 - 10 V, 0 - 20 mA	-	4	-	-	-	EU5E-SWD-4AX	144062
	Inputs/outputs, configurable: 0 - 10 V, 0 - 20 mA	-	2	-	-	2	EU5E-SWD-2A2A	144063
	Configurable inputs: PT100, PT1000, Ni1000 Temperature range °C : PT100, PT1000: -50 - +200 Ni1000: -50 - +150	-	4	-	-	-	EU5E-SWD-4PT	144064
	Configurable inputs: PT100, PT1000, Ni1000 Temperature range °C : PT100, PT1000: -100 - +400 Ni1000: -50 - +200	-	4	-	-	-	EU5E-SWD-4PT-2	172560

Short Description		Inputs Digital	Analog	Outputs Transistor	Analog	Part no.	Article no.
Input/output modules (IP67)							
Digital modules IP67 For connection of digital I/O signals							
	-	2	-	-	-	EU1E-SWD-2DX	174711
	Freely configurable inputs/outputs, max. 2 The outputs are short-circuit proof.	≤ 2	-	≤ 2	-	EU1E-SWD-2DD	174715
	-	4	-	-	-	EU2E-SWD-4DX	174726
	Freely configurable inputs/outputs, max. 4 The outputs are short-circuit proof.	≤ 4	-	≤ 4	-	EU2E-SWD-4DD	174732
Analog modules IP67 For connection of analog I/O signals							
	Input: 0 - 10 V	-	1	-	-	EU1E-SWD-1AX-1	174717
	Input: 0 - 20 mA	-	1	-	-	EU1E-SWD-1AX-2	174718
	Output: 0 - 10 V	-	-	-	1	EU1E-SWD-1XA-1	174719
	Output: 0 - 20 mA	-	-	-	1	EU1E-SWD-1XA-2	174720
	Configurable inputs: PT100, PT1000, Ni1000 Temperature range °C : PT100, PT1000: -100 - +400 Ni1000: -50 - +200	-	2	-	-	EU2E-SWD-2PT	174733
Counter module IP67 For connecting a meter							
	Meter/incremental encoder 24 V DC, max. 30 kHz	-	-	-	-	EU1E-SWD-1CX	174721

Contacts		Colour	Front fixing Part no.	Article no.	Base fixing Part no.	Article no.
SmartWire-DT RMQ connections						
For combination with RMQ-Titan operating elements M22-...						
Function elements						
	1 changeover contact	without LED	M22-SWD-K11	115964	M22-SWD-KC11	115995
	2 changeover contact	without LED	M22-SWD-K22	115965	M22-SWD-KC22	115996
	1 changeover contact		M22-SWD-K11LED-W	115972	M22-SWD-K11LEDC-W	116003
			M22-SWD-K11LED-B	115973	M22-SWD-K11LEDC-B	116004
			M22-SWD-K11LED-G	115974	M22-SWD-K11LEDC-G	116005
			M22-SWD-K11LED-R	115975	M22-SWD-K11LEDC-R	116006
	2 changeover contact		M22-SWD-K22LED-W	115978	M22-SWD-K22LEDC-W	116009
			M22-SWD-K22LED-B	115979	M22-SWD-K22LEDC-B	116010
			M22-SWD-K22LED-G	115980	M22-SWD-K22LEDC-G	116011
			M22-SWD-K22LED-R	115981	M22-SWD-K22LEDC-R	116012
LED elements						
	-		M22-SWD-LED-W	115966	M22-SWD-LEDC-W	115997
	-		M22-SWD-LED-B	115967	M22-SWD-LEDC-B	115998
	-		M22-SWD-LED-G	115968	M22-SWD-LEDC-G	115999
	-		M22-SWD-LED-R	115969	M22-SWD-LEDC-R	116000

Description	Tube length	For use with	Part no.	Article no.
Signal towers Basic modules				
For horizontal mounting, including cover, max. 5 modules,				
	Base with base adapter for slipping onto place (rapid mounting and wiring system) Blade terminal SWD4-8MF2 max. 0.3 A per module	100 mm	SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-...	SL4-SWD 171311
	External power supply connectable (24 V DC) Configurable with SWD-Assist (planning and ordering help) Further technical data, see manual MN05006001Z.	100 mm	SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-...	SL7-SWD 171459

Description	Configuration	Part no.	Article no.
Potentiometer			
 Front element SmartWire-DT potentiometer Only in conjunction with M22-SWD-R function element		M22-R-SWD	179292
 Function element SmartWire-DT potentiometer Only in conjunction with M22-R-SWD front element	 M22-SWD-R M22-SWD-INC	M22-SWD-R	179293
Encoder			
 Front element SmartWire-DT encoder With actuation function Only in conjunction with M22-SWD-INC function element		M22-INC-SWD	179981
 Function element SmartWire-DT encoder Only in conjunction with M22-INC-SWD front element	 M22-SWD-R M22-SWD-INC	M22-SWD-INC	179982

Description		For use with	Part no. Article no.
Contactor modules^{1),2)}			
For connecting the contactors to SmartWire-DT Per contactor 1 module necessary.			
	Messages Switch status Contactor, status of the digital inputs 1 and 2 Commands Contactor actuation	DILM(C)7... - DILM(C)32 DILM38 DILA MSC-D(E)-...(24VDC)	DIL-SWD-32-001 118560
	1-0-A switch for manual or automatic operation. Messages Switch status Contactor, status of the digital inputs 1 and 2, 1-0-A switch position Commands Contactor actuation	DILM(C)7... - DILM(C)32 DILM38 DILA MSC-D(E)-...(24VDC)	DIL-SWD-32-002 118561
PKE module (motor-starter combinations)¹⁾			
For connecting PKE motor-starter combination MSC-DEA... with PKE-XTUA-... trip blocks with a rated motor output of 15 kW/400 V to SmartWire-DT SmartWire-DT module for connection of motor-starter combination, model "Extended" 24 V DC (MSC-DEA-...) up to 15 kW. 1 module per contactor and PKE.			
	Mounting on DILM contactor with 24 V DC control voltage. One module per contactor and PKE necessary Additional SWD contactor module required for actuation of reversing starter. 1 electrical interlock for the surface mounting of reversing starters. 1-0-A switch for manual or automatic operation. Selectable overload relay function (ZMR) for switching off the contactor on overload. Connecting cable between module and trip block PKE-XTUA-... included as standard. Messages Switch position contactor/PKE/1-0-A switch Motor current in % Thermal motor image in % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set time lag (CLASS) Part no. of trip block Commands Contactor actuation Activation Overload relay function (ZMR)	DILM(C)7... - DILM(C)32 MSC-DEA	PKE-SWD-32 126895
PKE module (motor-protective circuit-breaker)			
For connecting the motor-protective circuit-breaker with PKE-XTU(W)A-... trip blocks(motor protection) to SmartWire-DT			
	Fitted on PKE motor-protective circuit-breaker Messages Contactor state PKE Motor current in % Thermal motor image in % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set time lag (CLASS) Part no. of trip block Commands Remote disconnection of motor-protective circuit-breaker	PKE12 PKE32 PKE65	PKE-SWD-SP 150614
PKE module (circuit-breaker)			
For connecting the PKE circuit-breaker with PKE-XTU(W)ACP-... trip blocks(motor protection) to SmartWire-DT for 2 function elements M22-SWD-K22...			
	For attachment to PKE circuit-breakers Messages Contactor state PKE All phase currents in % Thermal load as a % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set short-circuit release value Part no. of trip block Commands Remote circuit-breaker de-energization	PKE32 PKE65	PKE-SWD-CP 172735

Notes

- For current consumption of the contactor coils > 3 A (UL: 2 A) use additional power feed module.
A2 connections must not be bridged.
Wiring sets DILM 12-XRL and PKZM0-XRM12 cannot be used.
- Connection terminals for electrical interlocking are not suitable for safety technology.

Description		Setting range of overload releases	Part no.	Article no.			
		I_r A_x 					
Electronic motor starter							
For connecting to SmartWire-DT for expanded diagnostics.							
		DOL starters (complete devices)	0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51)	EMS-DO-T-2,4-SWD EMS-DO-T-9-SWD	170106 170107		
		Reversing starters (complete devices)	0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51)	EMS-RO-T-2,4-SWD EMS-RO-T-9-SWD	170108 170109		
			Controlled stop via additional enable signal terminal up to SIL3/Plc.	DOL starters (complete devices)	0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51)	EMS-DOS-T-2,4-SWD EMS-DOS-T-9-SWD	170110 170111
				Reversing starters (complete devices)	0,18 - 2,4 1,5 - 7 (AC-53a) 9 (AC-51)	EMS-ROS-T-2,4-SWD EMS-ROS-T-9-SWD	170112 169790

	Rated operational current device (AC-53)	Assigned motor rating		Part no. Article no.
		at 400 V, 50 Hz	at 460 V, 60 Hz	
	I _e A	P kW	P HP	
Soft starters				
Soft starters for three-phase loads, Mains supply voltage (50/60 Hz) U _{LN} 200 - 480 V AC Control voltage U _C = 24 V DC, Supply voltage U _s = 24 V DC				
	4	1.5	2	DS7-34DSX004N0-D 134943
	7	3	5	DS7-34DSX007N0-D 134945
	9	4	5	DS7-34DSX009N0-D 134946
	12	5.5	10	DS7-34DSX012N0-D 134947
	16	7.5	10	DS7-34DSX016N0-D 134948
	24	11	15	DS7-34DSX024N0-D 134949
	32	15	25	DS7-34DSX032N0-D 134950
	41	22	30	DS7-34DSX041N0-D 134952
	55	30	40	DS7-34DSX055N0-D 134953
	70	37	50	DS7-34DSX070N0-D 134954
	81	45	60	DS7-34DSX081N0-D 134955
	100	55	75	DS7-34DSX100N0-D 134956
	135	75	100	DS7-34DSX135N0-D 134957
	160	90	125	DS7-34DSX160N0-D 134958
	200	110	150	DS7-34DSX200N0-D 134959

Connection technique		For use with	Part no. Article no.
Power XL™ variable frequency drives			
Fieldbus connection (optional)			
	For connecting DA1 variable frequency drives (IP20/IP55) to SmartWire-DT Plug-in module with slot for SWD4-8SF2-5 external device plug	DA1 (IP20, IP55)	DX-NET-SWD1 169129
	For connecting DE1 variable speed starter and DC1 variable frequency drives (IP20) to SmartWire-DT Plug-in module (front) with slot for SWD4-8SF2-5 external device plug	DE1, DE11, DC1 (IP20)	DX-NET-SWD3 169131
Description			Part no. Article no.
NZM compact circuit breakers			
SmartWire-DT interface for NZM The module implements the data connection between the NZM2/3/4 with electronic release and the SmartWire-DT.			
	A switch with a remote operator can also be remotely operated with the module. Two digital inputs for the switch status 2 transistor outputs for remote switching Retentive memory for energy data (kWh) Energy data is transmitted through digital input (S0) from an external energy measuring module NZN...-XMC-S0. A connection cable (1.90 m) for the circuit-breaker and two NZM auxiliary contacts (1 x NO, 1 x NC) are included as standard.		NZM-XSWD-704 135530
Short Description	Side mounting	Part no. Article no.	
Safety switching devices XEffect			
The module establishes the connection to miniature circuit-breakers, residual current circuit-breakers, and residual current operated circuit-breakers with overcurrent protection			
	Fuse auxiliary contact Accessories for combined residual-current/power circuit-breakers Accessories for residual current circuit breakers Accessories for miniature circuit breaker	for fitting on left to: FI for fitting on right to: LS, FI/LS	MCB-HK-SWD 177175
Description			Part no. Article no.
Power feeder module			
	For feeding control voltage in order to connect additional motor starters and contactors to the SmartWire-DT ribbon cable For the formation of emergency switching off groups for motor starters and contactors		EU5C-SWD-PF1-1 116309
	For feeding supply voltage in order to connect additional SmartWire-DT modules to the SmartWire-DT ribbon cable For additional control voltage feeder for the motor starter and contactors For the formation of emergency switching off groups for motor starters and contactors		EU5C-SWD-PF2-1 116380
	For feeding supply voltage in order to connect additional SmartWire-DT modules (IP 67) and connected sensors/actuators		EU1S-SWD-PF1-2 174724

Description		Protection type (IEC/EN 60529, EN50178, VBG 4)	Length m	Part no. Article no.
SWD Connection cables				
SWD ribbon cable For connecting the SmartWire-DT modules within the control panel				
	8 pole Not ready-assembled	IP20	100	SWD4-100LF8-24 116026
	8 pole Prefabricated with two blade terminals SWD4-8MF2	IP20	10	SWD4-10LF8-24-2S 116029
		IP20	3	SWD4-3LF8-24-2S 116027
		IP20	5	SWD4-5LF8-24-2S 116028
SWD round cable For connecting pilot devices in CI surface mounting enclosures				
	8 pole HK-S0-Li2YY, 8 mm diameter	IP67	50	SWD4-50LR8-24 116030
		IP67	250	SWD4-250LR8-24 144878
SWD round cable For connecting peripheral SmartWire-DT cards				
	5 pole Prefabricated with M12 socket and M12 plug, A-keyed	IP67	0.1	SWD4-M1LR5-2S 174760
		IP67	0.3	SWD4-M3LR5-2S 174761
		IP67	0.6	SWD4-M6LR5-2S 174762
		IP67	1	SWD4-1LR5-2S 174763
		IP67	1.5	SWD4-1M5LR5-2S 174764
		IP67	2	SWD4-2LR5-2S 174765
		IP67	3	SWD4-3LR5-2S 174766
		IP67	4	SWD4-4LR5-2S 174767
		IP67	5	SWD4-5LR5-2S 174768
		IP67	10	SWD4-10LR5-2S 174769
		IP67	20	SWD4-20LR5-2S 174770
I/O round cable For directly connecting sensors/actuators to IP67 SWD modules				
	5 pole prefabricated on one side with M12 plug, A-keyed	IP67	0.3	SWD4-M3LR5-S 174771
		IP67	0.6	SWD4-M6LR5-S 174772
		IP67	1	SWD4-1LR5-S 174697
		IP67	2	SWD4-2LR5-S 174698
I/O round cable For directly connecting sensors/actuators to IP67 SWD modules				
	5 pole Prefabricated with M12 socket and M12 plug, A-keyed	IP67	0.3	SWD4-M3LR5-1-2S 179543
		IP67	0.6	SWD4-M6LR5-1-2S 179544
		IP67	1	SWD4-1LR5-1-2S 179545
		IP67	2	SWD4-2LR5-1-2S 179546

	Description	Function	Protection type (IEC/EN 60529, EN50178, VBG 4)	Length m	Part no. Article no.
SWD enclosure and control panel cable gland					
	8 pole M20 socket 8 prefabricated cables for connection to PCB M22-SWD-I...	For flush mounting in M22-I... surface mounting enclosure	IP67	0.15	SWD4-SF8-20 116031
	8 pole M20 plug 8 prefabricated cables for connection to PCB M22-SWD-I...		IP67	0.15	SWD4-SM8-20 116032
	Connection round cable via socket Connection of ribbon cable with blade terminal SWD4-8MF2 8 pole Double conductor run pluggable Additional control voltage feeder for the motor starter and contactors.	For transition from SWD ribbon cable to SWD round cable SWD4-...LR8-24	IP67	-	SWD4-SFL8-20 121380
	Connection round cable via plug Connection of ribbon cable with blade terminal SWD4-8MF2 8 pole Double conductor run pluggable Additional control voltage feeder for the motor starter and contactors.		IP67	-	SWD4-SML8-20 121381
	SmartWire-DT control panel bushing for 8-conductor ribbon cable to 5-conductor round cable, separate 24 VDC 4 A power supply for round cable	For transition from SWD round cable to SWD ribbon cable SWD4-...LR5-2S	IP67	-	SWD4-SFL8-12 174756
	From IP67 to IP20, from 5-conductor round cable to 8-conductor ribbon cable, integrated 15 VDC 180 mA power supply unit for SmartWire-DT modules on the ribbon cable	For transition from SWD round cable SWD4-...LR5-2S to SWD ribbon cable	IP67	-	SWD4-SML8-12 174755
	Control panel cable gland for 5-conductor SWD4-...LR8-24 M12 SmartWire-DT round cable, M12 plug/socket	For flush mounting in an enclosure	IP67	-	SWD4-SML5-12 174757
	5 pole M12 socket, A-coded 5 prefabricated cables	For flush mounting in an enclosure	IP67	1	SWD4-PRF5-1-S 174758
	5 pole M12 plug, A-coded 5 prefabricated cables	For flush mounting in an enclosure	IP67	1	SWD4-PRM5-1-S 174759
	5 pole M12 socket, A-coded 5 prefabricated cables	For flush mounting in an enclosure	IP67	0.15	SWD4-PRF5-2-S 179541
	5 pole M12 plug, A-coded 5 prefabricated cables	For flush mounting in an enclosure	IP67	0.15	SWD4-PRM5-2-S 179542
SWD plugs and plug-in connections					
	8-pin SmartWire-DT external device plug that can be connected at any point on the ribbon cable. External device plugs can be used to connect the function elements of any SmartWire-DT module in a control panel.	For connecting the ribbon cable to SmartWire-DT modules in the control panel	IP20		SWD4-8SF2-5 116022
	8-pin SmartWire-DT blade terminal that can be installed at both ends of the SmartWire-DT ribbon cable. The following components can be connected: SmartWire-DT coordinators such as easy800-SWD / SmartWire-DT gateway, SmartWire-DT power feeder module, SmartWire-DT coupling, SmartWire-DT bus termination resistor, SmartWire-DT control panel bushings	For connecting the ribbon cable to the gateway, power feeder module, coupling, SWD4-RC8-10 bus termination resistor	IP20		SWD4-8MF2 116023
	Cap with monitoring function for M12 bushings on SWD connector (IP67)	Cover cap with monitoring function for M12 socket	IP67		SWD4-ACAP-10 174751
	Cap for M12 sockets on SWD connector (IP67)	Cap for M12 socket	IP67		SWD4-PCAP-F 174752
	Cap for M12 plugs on SWD connector (IP67)	Cover cap for M12 plug	IP67		SWD4-PCAP-M 174753

	Description	Function	Protection type (IEC/EN 60529, EN50178, VBG 4)	Part no. Article no.
SWD plugs and plug-in connections				
	8 pole socket Straight Soldering connection	Plug connector for 8-pole SWD4-...LR8-24 round cables	IP67	SWD4-SF8-67 116033
	8-pin plug connector Straight Soldering connection		IP67	SWD4-SM8-67 116034
	Splitter with IP67 degree of protection, M12 plug into two M12 sockets with I/O signal on pin 4	For splitting an M12 I/O connection's I/O signals	IP67	SWD4-SP-4124 174703
	Splitter with IP67 degree of protection, M12 plug into two M12 sockets with I/O signal on pin 2		IP67	SWD4-SP-4122 174704
	Splitter with IP67 degree of protection, M12 plug into two 4 pole M8 sockets with I/O signal on pin 2		IP67	SWD4-SP-4084 174705
	Splitter with IP67 degree of protection, M12 plug into two 4 pole M8 sockets with I/O signal on pin 4		IP67	SWD4-SP-4082 174706
	Splitter with IP67 degree of protection, M12 plug into two 3 pole M8 sockets		IP67	SWD4-SP-3084 174707
	5 pole socket Straight Screw connection	Plug connector for 5 pole SWD4-...LR5-... round cables	IP67	SWD4-SF5-67 179547
	5 pole plug Straight Screw connection	Plug connector for 5 pole SWD4-...LR5-... round cables	IP67	SWD4-SM5-67 179548
SWD coupling				
	Coupling via two 8-pin blade terminals	To connect SWD ribbon cables over SWD4-8MF2 blade terminals	IP20	SWD4-8SFF2-5 116024
SWD cable adapters				
	For connection flat cable (plug) on round cable (terminal)	SWD cable adapters	IP20	SWD4-8FRF-10 121377
	SWD power supply module for modules (IP20) on a local SWD segment	SWD power supply module	IP20	SWD4-FFR-PF1-1 168880
	SmartWire-DT cable adapter for putting together a local SmartWire-DT segment	SWD cable adapters	IP20	SWD4-FFR-ST1-1 168881
	To set up a local SWD network with SWD modules (IP67)	Local SmartWire-DT branch	IP67	EU2A-SWD-PBWN 174734
SWD bus termination resistor				
	SmartWire-DT bus termination resistor; plugged onto SWD4-8MF2 blade terminal at the end of the SmartWire-DT ribbon cable	For the SmartWire-DT bus termination resistor on the SmartWire-DT ribbon cable	IP20	SWD4-RC8-10 116020
	SmartWire-DT bus termination resistor with IP67 degree of protection, connected to 5-conductor SWD4-...LR5-... round cable or directly to SmartWire-DT T-Connectors (IP67 I/O modules)	For IP67, M12 SWD bus termination resistor	IP67	SWD4-RC5-10 174754

	Function	Protection type (IEC/EN 60529, EN50178, VBG 4)	Part no. Article no.
Link			
	For bridging open mounting locations for SWD4-8SF2-5 external device plugs	-	SWD4-SEL8-10 116021
RMQ			
	For 2 function elements M22-SWD-K22... For two M22-SWD-NOP universal modules	-	M22-SWD-A4 116016
	For mounting 1 base function element	-	M22-SWD-I1-LP01 115990
	For mounting 2 base function elements	-	M22-SWD-I2-LP01 115991
	For mounting 3 base function elements	-	M22-SWD-I3-LP01 115992
	For mounting 4 base function elements	-	M22-SWD-I4-LP01 115993
	For mounting 6 base function elements	-	M22-SWD-I6-LP01 115994
	For bridging of open mounting locations on card	-	M22-SWD-SEL8-10 116698
Universal module			
	For configured but not yet installed SWD modules connected to the SWD ribbon cable	IP20	M22-SWD-NOP 147637
	For configured but not yet installed SWD modules on the M22-SWD-I... card	IP20	M22-SWD-NOPC 147638
	For configured but not yet installed SWD modules connected to the SWD ribbon cable SWD4-..LR5-2S	IP67	EU1M-SWD-NOP 174716
Tools for plugs			
	Crimping tool for joining external device plugs and ribbon cable	-	SWD4-CRP-1 116025
	Crimping tool for making contacts with blade terminals and ribbon cables	-	SWD4-CRP-2 116699
Programming accessories			
	For transferring the user program to the PLC or for diagnosing SmartWire-DT networks	-	EU4A-RJ45-CAB1 106726
	For transferring the user program to the PLC or for diagnosing SmartWire-DT networks	-	EU4A-RJ45-USB-CAB1 115735
	Programming and visualisation software	-	EASY-SOFT-PRO 266040

Build it in.



XV HMI/PLC: Systematic visualization and control



All devices can also be used in portrait format

With the XV HMI-PLC touch panels Eaton is offering customers in the machine and system building sector a systematically coordinated range that can be integrated perfectly into different performance classes. The smart implementation of the PLC runtime into a slim and efficient embedded platform strategy in combination with powerful processors creates a state-of-the-art, scalable and cost-efficient automation concept. The use of the CODESYS programming standard, together with a comprehensive range of ports and interfaces and the ability to use over 100 protocols as an HMI, demonstrates the system's open nature. Display sizes from 3.5" to 15"; plastic, metal, and stainless steel models; and the option of using capacitive, resistive, or infrared touch panels allow for an extremely wide range of applications.

Unique on the market: XV panels with an onboard SmartWire-DT master interface. This offers potential savings affecting all aspects of a project, from hardware planning to software creation, to wiring and commissioning.

XV300: The new face of today's industry

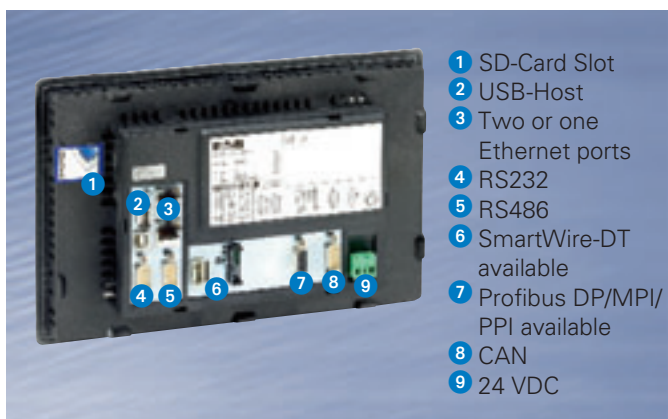
Intuitive user guidance, precise gesture-based controls, multimedia integration – the ease of use we experience every day on our smartphones and tablets has now become a reality in industrial applications as well: Our new XV300 panels with

capacitive multi-touch technology are not just tremendously intuitive – they are redefining how man and machine interact. Streamlined, high-resolution devices ready to meet your needs – even in harsh industrial conditions. The devices are cULus type approved.



XV300

- Two display sizes: 7" and 10.1" widescreen
- Available in front-mounting and rear-mounting versions
- Sleek, space-saving design
- Flat, anti-glare toughened glass panel
- The ability to switch between landscape and portrait mode as needed
- Perfect fit in control consoles, resulting in a flat surface without any sharp edges
- High system performance and a powerful graphics processing unit



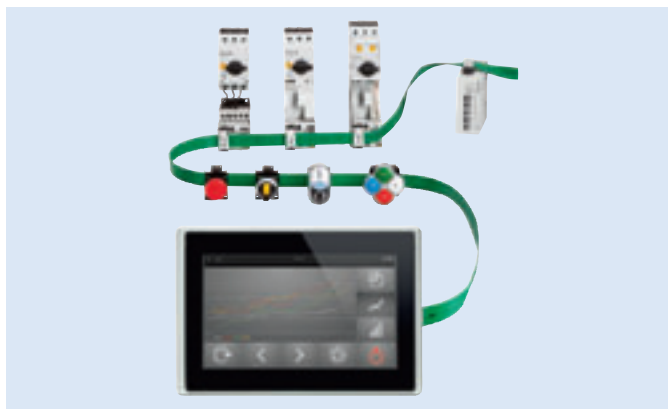
Numerous interfaces and expandable memory

An impressive variety of ports and interfaces provides maximum versatility for extensive networking. Whether you need CANopen®, EtherNet/IP, EtherCAT, Modbus (TCP/RTU), PROFIBUS-DP®, or SmartWire-DT® – the wide variety of fieldbus interfaces ensures that you will be able to use the right protocol for your application. Moreover, the two Ethernet ports, which are independent from each other, make it possible to safely and reliably separate the open control layer from the function-specific field layer. An SD card slot makes it possible to expand the device's internal memory if necessary. In addition, the SD card can be used to conveniently load system updates or to boot and run the entire system from it if necessary.



One-stop hardware and software

With Galileo Version 10, Eaton has brought its visualization software to a whole new level designed to make planning and configuring systems easier than ever. Featuring design styles and gestures such as swipe, scroll, and pinch-to-zoom, Galileo is the ideal companion to the advantages provided by the XV300 series. Moreover, HMI/PLC models can be programmed with either XSoft-CODESYS Version 2 or 3.



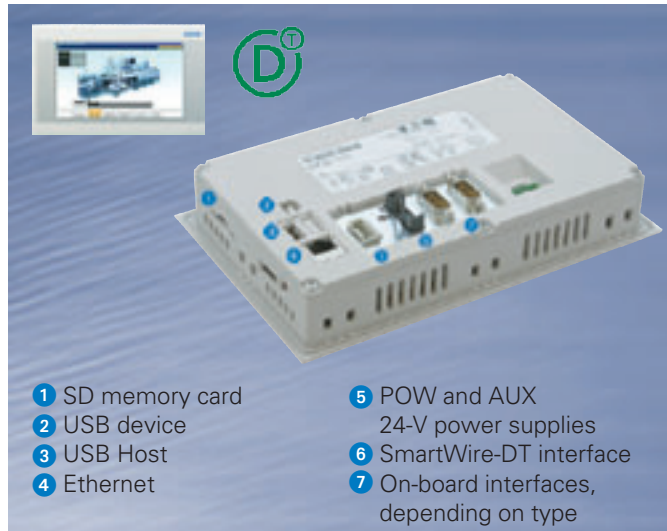
SmartWire-DT on board

SmartWire-DT supports Eaton's concept by helping create flexible automation solutions with fewer components and less engineering work. How? Simple: SmartWire-DT integrates communications and the I/O layer directly into the corresponding operating units, display devices, and switchgear. This enables PLCs to use SmartWire-DT to directly access digital and analog data from sensors all the way to circuit breakers and lets systems efficiently process control commands, eliminating the need for a separate gateway and I/O layer.

XV100: Compact and powerful operating units

XV100 touchscreen panels are based on a common hardware platform. More specifically, all of them run on Windows CE 5.0, are powered by the same high-performance 400 MHz processor, and feature a modular interface concept, which makes it possible to offer devices with a wide variety of interface and interface combinations. Moreover, all the devices in the XV100 family have been cULus type approved.

- Can be used in portrait or landscape mode
- Removable SD card
- Integrated web server
- Programmable with CODESYS V2 and V3
- CODESYS Targetvisu
- Visualization with GALILEO

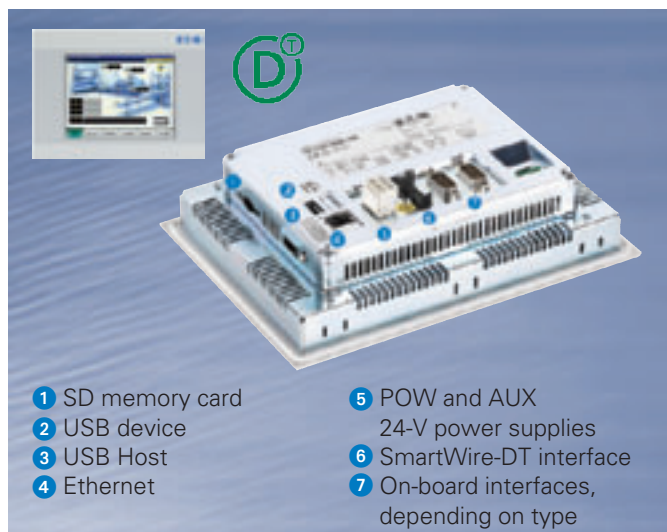


- | | |
|------------------|--|
| 1 SD memory card | 5 POW and AUX 24-V power supplies |
| 2 USB device | 6 SmartWire-DT interface |
| 3 USB Host | 7 On-board interfaces, depending on type |
| 4 Ethernet | |

XV-102

Resistive touchscreen panel in a plastic enclosure with a plastic bezel ; 3.5", 5.7", 7" wide

- Devices at the perfect price point and with the ideal functions for applications requiring pure HMIs, HMI PLCs, or HMIs that can be retrofitted with a PLC function
- Shallow mounting depth
- Interface and interface combinations: CAN, PROFIBUS/MPI, SmartWire-DT, RS485, RS232



- | | |
|------------------|--|
| 1 SD memory card | 5 POW and AUX 24-V power supplies |
| 2 USB device | 6 SmartWire-DT interface |
| 3 USB Host | 7 On-board interfaces, depending on type |
| 4 Ethernet | |

XV-152

Resistive touchscreen panel in a metal housing with an aluminum bezel; 5.7", 8.4", 10.4"

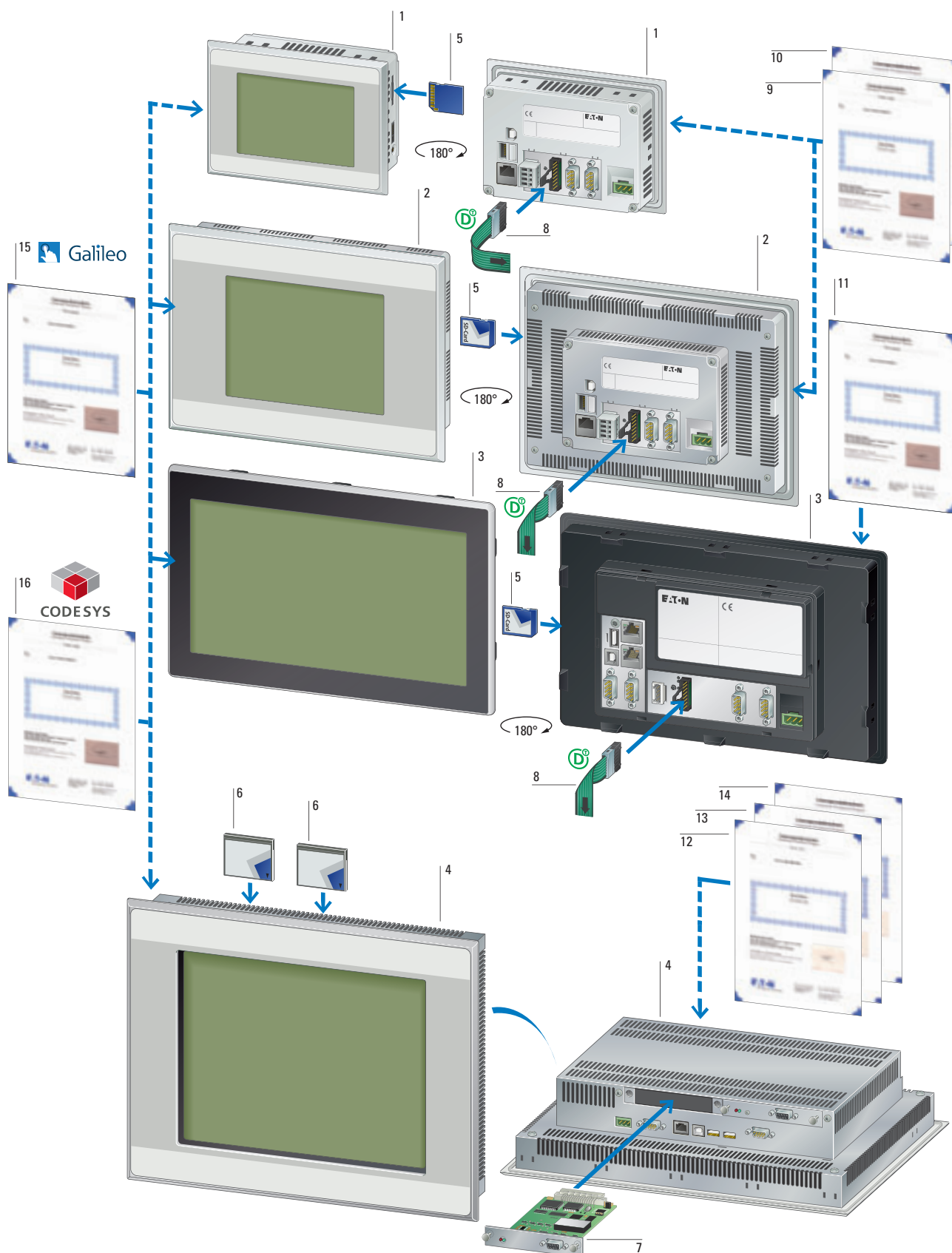
- With their shallow mounting depth, heavy-duty metal housing, fully laminated aluminum structure bezel, and plenty of basic features, XV-152 devices are as compelling as it gets.
- Versions for use as HMI PLCs or as HMIs that can be retrofitted with a PLC function
- Interface and interface combinations: CAN, PROFIBUS/MPI, SmartWire-DT, RS485, RS232
- Mounting dimensions fully compatible with XV(S)400 devices



XV-112

Resistive touchscreen panel in a metal enclosure for use as a rear-mounted unit; 5.7" and 7" wide

XV-112 devices are designed to be mounted from behind on an enclosure door or with a front frame of your choice. A film on the front, which is flexible and transparent in the display's viewing area, seals off the structure in the front. These rear-mounting devices can be used as operating and monitoring devices or as integrated operating and control devices. A 7" version meets with the approval requirements of the following classification societies: Lloyd's Register (LR), Germanischer Lloyd (GL), Det Norske Veritas (DNV), and Bureau Veritas (BV).



- 1 XV-102/XV-112 touch display with PLC, resistive touch technology 3.5", 5.7" and 7.0" widescreen
- 2 XV-152 touch display with PLC, resistive touch technology 5.7", 8.4" and 10.4"
- 3 XV-3x3 touch display with PLC, capacitive multi-touch technology, 7.0" or 10.1" widescreen
- 4 XV(S)-400 touch display with PLC, infrared or resistive touch technology, 5.7", 8.4", 10.4", 12.1", or 15"
- 5 SD memory card
- 6 Compact flash memory card
- 7 Communication module for XV-400
- 8 SmartWire-DT

- 9 License product certificate PLC for XV-1x2
- 10 License product certificate for communication expansion for XV-1x2
- 11 License product certificate PLC for XV-3x3
- 12 License product certificate PLC for XV(S)-400
- 13 License product certificate for communication expansion for XV(S)-400
- 14 License product certificate for Windows CE5
- 15 License product certificate GALILEO
- 16 License product certificate XSOFT-CODESYS-2/3

XV100

HMI/HMI-PLC touch display with PLC

Screen diagonal Inch		PLC-licence	Built-in interfaces					Part no.	Article no.
			1 x RS232	1 x RS485	1 x USB host 2.0	1 x CANopen®/ easyNet	1 x PROFIBUS/MPI		
XV100 without PLC									
Resistive-Touch Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 1 x Ethernet 10/100 Mbps 1 x USB device									
Number of colours: 32 grey levels									
	3.5	No PLC function possible	-	-	-	-	-	XV-102-A0-35MQR-10	141759
			-	-	-	-	✓	XV-102-A2-35MQR-10	141820
			✓	-	-	-	-	XV-102-A3-35MQR-10	141821
			-	✓	-	-	-	XV-102-A4-35MQR-10	141822
			✓	-	-	✓	-	XV-102-A5-35MQR-10	141823
Number of colours: 64 k Colours									
	3.5	No PLC function possible	✓	-	-	-	-	XV-102-H3-35TQRL-10	171158
			-	✓	-	-	-	XV-102-H4-35TQRL-10	171159
	5.7		✓	-	✓	-	-	XV-102-H3-57TVRL-10	171160
			-	✓	✓	-	-	XV-102-H4-57TVRL-10	171161
	7		✓	-	✓	-	-	XV-102-H3-70TWRL-10	171162
			-	✓	✓	-	-	XV-102-H4-70TWRL-10	171163

PLC-licence		Built-in interfaces					Part no.	Article no.	
			1 x RS232	1 x RS485	1 x CANopen®/ easyNet	1 x PROFIBUS/MPI	1 x SmartWire-DT		
XV100 3.5"									
Resistive-Touch, QVGA 320 x 240 Pixel Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 1 x Ethernet 10/100 Mbps 1 x USB device									
Number of colours: 32 grey levels									
	Including	-	-	-	-	-	XV-102-B0-35MQR-10-PLC	140012	
		✓	-	-	-	-	XV-102-B3-35MQR-10-PLC	140013	
		✓	-	✓	-	-	XV-102-B5-35MQR-10-PLC	140015	
		-	✓	✓	-	-	XV-102-B6-35MQR-10-PLC	140016	
		-	✓	-	✓	-	XV-102-B8-35MQR-10-PLC	140017	
Number of colours: 64 k Colours									
	Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT	-	-	-	-	-	XV-102-B0-35TQR-10	140007	
		-	-	-	✓	-	XV-102-B2-35TQR-10	140008	
		✓	-	-	-	-	XV-102-B3-35TQR-10	140009	
		-	✓	-	-	-	XV-102-B4-35TQR-10	140010	
		✓	-	✓	-	-	XV-102-B5-35TQR-10	140011	
	Including	-	-	-	-	-	XV-102-B0-35TQR-10-PLC	140018	
		✓	-	-	-	-	XV-102-B3-35TQR-10-PLC	140019	
		-	✓	-	-	-	XV-102-B4-35TQR-10-PLC	140020	
		✓	-	✓	-	-	XV-102-B5-35TQR-10-PLC	140021	
		-	✓	✓	-	-	XV-102-B6-35TQR-10-PLC	140022	
		-	✓	-	✓	-	XV-102-B8-35TQR-10-PLC	140023	
		-	-	-	-	✓	XV-102-BE-35TQRC-10	153524	

PLC-licence		Built-in interfaces							Part no.	Article no.
		1 x RS232	1 x RS485	1 x CANopen@/easyNet	2 x CANopen@/easyNet (electrically isolated)	1 x USB host 2.0	1 x PROFIBUS/MPI	1 x SmartWire-DT		
XV100 5.7"										
Resistive-Touch, VGA 640 x 480 Pixel Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB device										
	Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT	✓	-	-	-	✓	-	-	XV-102-D0-57TVR-10	142530
		✓	✓	-	-	✓	-	-	XV-102-D4-57TVR-10	150620
		✓	✓	✓	-	✓	-	-	XV-102-D6-57TVR-10	142531
		✓	✓	-	-	✓	✓	-	XV-102-D8-57TVR-10	142532
	Including	✓	✓	✓	-	✓	-	-	XV-102-D6-57TVRC-10	142533
		✓	✓	-	-	✓	✓	-	XV-102-D8-57TVRC-10	142534
		-	✓	✓	-	✓	-	✓	XV-102-E6-57TVRC-10 	153525
		-	✓	-	-	✓	✓	✓	XV-102-E8-57TVRC-10 	153526
Without front plate Rear mounting	Including	✓	✓	✓	-	✓	-	-	XV-112-D6-57TVRC-00	153469
										
XV100 7"										
Resistive-Touch, WVGA 800 x 480 Pixel Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB device										
	Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT	✓	-	-	-	✓	-	-	XV-102-D0-70TWR-10	142535
		✓	✓	-	-	✓	-	-	XV-102-D4-70TWR-10	150621
		✓	✓	✓	-	✓	-	-	XV-102-D6-70TWR-10	142536
		✓	✓	-	-	✓	✓	-	XV-102-D8-70TWR-10	142537
	Including	✓	✓	✓	-	✓	-	-	XV-102-D6-70TWRC-10	142538
		✓	✓	-	-	✓	✓	-	XV-102-D8-70TWRC-10	142539
		-	✓	✓	-	✓	-	✓	XV-102-E6-70TWRC-10 	153527
		-	✓	-	-	✓	✓	✓	XV-102-E8-70TWRC-10 	153528
Without front plate Rear mounting	Including	✓	-	-	✓	✓	-	-	XV-112-DB-70TWRC-00	153470
										
Without front plate Rear mounting Shipping classification GL, LR, DNV, BV	Including	✓	-	-	✓	✓	-	-	XV-112-DB-70TWRC-70	172909
										

XV150

HMI-PLC touch display with PLC

PLC-licence		Built-in interfaces					Part no.	Article no.
		1 x RS232	1 x RS485	1 x CANopen®/easyNet	1 x PROFIBUS/MPI	1 x SmartWire-DT		
XV150 5.7"								
Resistive-Touch, VGA 640 x 480 Pixel, Recommended flush mounting cutout 198 x 142 MM Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB host 2.0 1 x USB device								
	Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT	✓	-	-	-	-	XV-152-D0-57TVR-10	150525
		✓	✓	-	-	-	XV-152-D4-57TVR-10	150526
		✓	✓	✓	-	-	XV-152-D6-57TVR-10	150527
		✓	✓	-	✓	-	XV-152-D8-57TVR-10	150528
	Including	✓	✓	✓	-	-	XV-152-D6-57TVRC-10	150529
		✓	✓	-	✓	-	XV-152-D8-57TVRC-10	150600
		-	✓	✓	-	✓	XV-152-E6-57TVRC-10	 166700
		-	✓	-	✓	✓	XV-152-E8-57TVRC-10	 166701
XV150 8.4"								
Resistive-Touch, VGA 640 x 480 Pixel, Recommended flush mounting cutout 261 x 194 MM Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB host 2.0 1 x USB device								
	Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT	✓	-	-	-	-	XV-152-D0-84TVR-10	150601
		✓	✓	-	-	-	XV-152-D4-84TVR-10	150602
		✓	✓	✓	-	-	XV-152-D6-84TVR-10	150603
		✓	✓	-	✓	-	XV-152-D8-84TVR-10	150604
	Including	✓	✓	✓	-	-	XV-152-D6-84TVRC-10	150605
		✓	✓	-	✓	-	XV-152-D8-84TVRC-10	150606
		-	✓	✓	-	✓	XV-152-E6-84TVRC-10	 166702
		-	✓	-	✓	✓	XV-152-E8-84TVRC-10	 166703
XV150 10.4"								
Resistive-Touch, VGA 640 x 480 Pixel, Recommended flush mounting cutout 329 x 238 MM Windows CE 5.0 (licence incl.), Approvals cUL (UL508) Slots for SD card: 1 Number of colours: 64 k Colours 1 x Ethernet 10/100 Mbps 1 x USB host 2.0 1 x USB device								
	Can be fitted by user with article no. 142581 LIC-PLC-MXP-COMPACT	✓	-	-	-	-	XV-152-D0-10TVR-10	150607
		✓	✓	-	-	-	XV-152-D4-10TVR-10	150608
		✓	✓	✓	-	-	XV-152-D6-10TVR-10	150609
		✓	✓	-	✓	-	XV-152-D8-10TVR-10	150610
	Including	✓	✓	✓	-	-	XV-152-D6-10TVRC-10	150611
		✓	✓	-	✓	-	XV-152-D8-10TVRC-10	150612
		-	✓	✓	-	✓	XV-152-E6-10TVRC-10	 166704
		-	✓	-	✓	✓	XV-152-E8-10TVRC-10	 166705

PLC-licence		Built-in interfaces										Part no.	Article no.
		1 x Ethernet 10/100 Mbps	2 x Ethernet 10/100 Mbps	1 x RS232	1 x RS485	1 x USB host 2.0	1 x USB device	1 x CANopen®/easyNet	1 x PROFIBUS/MPI	1 x SmartWire-DT			
XV-303 Front installation Windows Embedded Compact 7 Pro, Approvals: cUL 61010-2-201 Slots for SD card: 1 Resolution: WSVGA 1024 x 600 Pixel Capacitive multi-touch technology (PCT), Number of colours: 16 mil. Front type: Anti-glare tempered glass in plastic bezel													
7"													
	Can be fitted by user with article no. 181585 LIC-PLC-A	✓	-	✓	✓	✓	✓	✓	-	-	XV-303-70-B00-A00-1B	179647	
		-	✓	✓	✓	✓	✓	✓	-	-	XV-303-70-C00-A00-1B	179648	
		✓	-	✓	✓	✓	✓	✓	✓	-	XV-303-70-B02-A00-1B	179651	
		-	✓	✓	✓	✓	✓	✓	✓	-	XV-303-70-C02-A00-1B	179652	
	PLC licence inclusive	✓	-	✓	✓	✓	✓	✓	✓	-	-	XV-303-70-B00-A00-1C	179649
		-	✓	✓	✓	✓	✓	✓	✓	-	-	XV-303-70-C00-A00-1C	179650
		✓	-	✓	✓	✓	✓	✓	✓	✓	-	XV-303-70-B02-A00-1C	179653
		-	✓	✓	✓	✓	✓	✓	✓	✓	-	XV-303-70-C02-A00-1C	179654
		✓	-	✓	✓	✓	✓	✓	✓	-	✓	XV-303-70-BE0-A00-1C 	179655
		-	✓	✓	✓	✓	✓	✓	✓	-	✓	XV-303-70-CE0-A00-1C 	179656
		✓	-	✓	✓	✓	✓	✓	✓	✓	✓	XV-303-70-BE2-A00-1C 	179657
		-	✓	✓	✓	✓	✓	✓	✓	✓	✓	XV-303-70-CE2-A00-1C 	179658
10.1"													
	Can be fitted by user with article no. 181585 LIC-PLC-A	✓	-	✓	✓	✓	✓	✓	-	-	XV-303-10-B00-A00-1B	179659	
		-	✓	✓	✓	✓	✓	✓	-	-	XV-303-10-C00-A00-1B	179660	
		✓	-	✓	✓	✓	✓	✓	✓	-	XV-303-10-B02-A00-1B	179663	
		-	✓	✓	✓	✓	✓	✓	✓	-	XV-303-10-C02-A00-1B	179664	
	PLC licence inclusive	✓	-	✓	✓	✓	✓	✓	✓	-	-	XV-303-10-B00-A00-1C	179661
		-	✓	✓	✓	✓	✓	✓	✓	-	-	XV-303-10-C00-A00-1C	179662
		✓	-	✓	✓	✓	✓	✓	✓	✓	-	XV-303-10-B02-A00-1C	179665
		-	✓	✓	✓	✓	✓	✓	✓	✓	-	XV-303-10-C02-A00-1C	179666
		✓	-	✓	✓	✓	✓	✓	✓	-	✓	XV-303-10-BE0-A00-1C 	179667
		-	✓	✓	✓	✓	✓	✓	✓	-	✓	XV-303-10-CE0-A00-1C 	179668
		✓	-	✓	✓	✓	✓	✓	✓	✓	✓	XV-303-10-BE2-A00-1C 	179669
		-	✓	✓	✓	✓	✓	✓	✓	✓	✓	XV-303-10-CE2-A00-1C 	179670
XV-313 Rear flush mounting Windows Embedded Compact 7 Pro, Approvals: cUL 61010-2-201 Slots: for SD card: 1 Resolution: WSVGA 1024 x 600 Pixel Capacitive multi-touch technology (PCT) Number of colours: 16 mil. Front type: Anti-glare tempered glass without bezel													
7"													
	PLC licence inclusive	✓	-	✓	✓	✓	✓	✓	✓	-	-	XV-313-70-B00-A00-1C	179671
10.1"													
	PLC licence inclusive	✓	-	✓	✓	✓	✓	✓	✓	-	-	XV-313-10-B00-A00-1C	179672

XV400

HMI-PLC touch display with PLC

	PLC-licence	Touch-technology		Front type			Part no.	Article no.
		Infra-red touch	Resistive-Touch	Satin-finish brushed stainless steel	Standard front with standard membrane	Laminated safety glass, non-reflective		
XV400 Built-in interfaces - 1 x CAN - 1 x Ethernet 100base-TX/10base-T - 1 x RS232 - 1 x USB device Number of colours: Adjustable: 65536 or 256 colours Windows CE (license required), CompactFlash card required, Approvals cUL (UL508)								
XV400 5.7" Slots - for Compact-Flash™-Cards: 1 - for communication modules: 1 1 x USB host QVGA 320 x 240 Pixel, Recommended flush mounting cutout 198 x 142 MM								
	Can be fitted by user with article no. 140389 LIC-PLC-MXP-SMALL	✓	-	-	✓	✓	XV-460-57TQB-1-10	139897
		✓	-	✓	-	✓	XV-460-57TQB-1-50	139898
		-	✓	-	✓	-	XV-450-57TQB-1-10	139899
XV400 8.4" Slots - for Compact-Flash™-Cards: 1 - for communication modules: 1 1 x USB host VGA 640 x 480 Pixel, Recommended flush mounting cutout 261 x 194 MM								
	Can be fitted by user with article no. 140389 LIC-PLC-MXP-SMALL	✓	-	-	✓	✓	XV-460-84TVB-1-10	139900
XV400 10.4" Slots - for Compact-Flash™-Cards: 2 - for communication modules: 2 2 x USB host VGA 640 x 480 Pixel, Recommended flush mounting cutout 329 x 238 MM								
	Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM	-	✓	-	✓	-	XV-430-10TVB-1-10	139902
		✓	-	-	✓	✓	XV-440-10TVB-1-10	139904
		✓	-	✓	-	✓	XV-440-10TVB-1-50	139908
XV400 12.1" Slots - for Compact-Flash™-Cards: 2 - for communication modules: 2 2 x USB host SVGA 800 x 600 Pixel, Recommended flush mounting cutout 344 x 262 MM								
	Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM	-	✓	-	✓	-	XV-430-12TSB-1-10	139909
		✓	-	-	✓	✓	XV-440-12TSB-1-10	139911
		✓	-	-	✓	✓	XV-460-12TSB-1-10	169824
		✓	-	✓	-	✓	XV-440-12TSB-1-50	139915

PLC-licence	Touch-technology		Front type			Part no.	Article no.		
	Infra-red touch	Resistive-Touch	Satin-finish brushed stainless steel	Standard front with standard membrane	Laminated safety glass, non-reflective				
XV400 Built-in interfaces - 1 x CAN - 1 x Ethernet 100base-TX/10base-T - 1 x RS232 - 1 x USB device Number of colours: Adjustable: 65536 or 256 colours Windows CE (license required), CompactFlash card required, Approvals cUL (UL508)									
XV400 15" Slots - for Compact-Flash™-Cards: 2 - for communication modules: 2 2 x USB host XVGA 1024 x 768 Pixel, Recommended flush mounting cutout 410 x 315 MM									
	Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM		✓	-	-	✓	✓	XV-460-15TXB-1-10	139916
			✓	-	✓	-	✓	XV-460-15TXB-1-50	139918

Description		Supported protocols	Part no.	Article no.
Communication modules for XV4...				
	Multiple protocol board MPI	Eaton Suconet Siemens MPI Matsushita FP series Mitsubishi A-Series/F-Series Omron C-H-K-Series Telemecanique Unitelway new See manual for other protocols	COM-MPB2-TP	139847
	Multiple protocol board	Eaton Suconet Matsushita FP series Mitsubishi A-Series/F-Series Omron C-H-K-Series Telemecanique Unitelway new See manual for other protocols	COM-MPB1-TP	139850
	Log board	Profibus DP-Slave (12 MBaud)	COM-PDP-TP	139849
	Log board	Profibus DP-Master (12 MBaud)	COM-DPM-MC2	139853

XVS400

HMI/HMI-PLC touch display with PLC

PLC-licence		Touch-technology		Front type			Part no.	Article no.
		Infra-red touch	Resistive-Touch	Satin-finish brushed stainless steel	Standard front with standard membrane	Laminated safety glass, non-reflective		
XVS400 Built-in interfaces - 1 x Ethernet 100base-TX/10base-T - 1 x RS232 - 1 x PROFIBUS/MPI - 1 x USB device Number of colours: Adjustable: 65536 or 256 colours Windows CE (license required), CompactFlash card required, Approvals cUL (UL508)								
XVS400 5.7" Slots - for Compact-Flash™-Cards: 1 1 x USB host QVGA 320 x 240 Pixel, Recommended flush mounting cutout 198 x 142 MM								
	Can be fitted by user with article no. 140389 LIC-PLC-MXP-SMALL	-	✓	-	✓	-	XVS-450-57MPI-1-10	139969
		✓	-	-	✓	✓	XVS-460-57MPI-1-10	139970
XVS400 8.4" Slots - for Compact-Flash™-Cards: 1 1 x USB host VGA 640 x 480 Pixel, Recommended flush mounting cutout 261 x 194 MM								
	Can be fitted by user with article no. 140389 LIC-PLC-MXP-SMALL	✓	-	-	✓	✓	XVS-460-84MPI-1-10	139971
XVS400 10.4" Slots - for Compact-Flash™-Cards: 2 2 x USB host VGA 640 x 480 Pixel, Recommended flush mounting cutout 329 x 238 MM								
	Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM	-	✓	-	✓	-	XVS-430-10MPI-1-10	139972
		✓	-	-	✓	✓	XVS-440-10MPI-1-10	139973
XVS400 12.1" Slots - for Compact-Flash™-Cards: 2 2 x USB host SVGA 800 x 600 Pixel, Recommended flush mounting cutout 344 x 262 MM								
	Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM	-	✓	-	✓	-	XVS-430-12MPI-1-10	139974
		✓	-	-	✓	✓	XVS-440-12MPI-1-10	139975
XVS400 15" Slots - for Compact-Flash™-Cards: 2 2 x USB host XVGA 1024 x 768 Pixel, Recommended flush mounting cutout 410 x 315 MM								
	Can be fitted by user with article no. 140390 LIC-PLC-MXP-MEDIUM	✓	-	-	✓	✓	XVS-460-15MPI-1-10	139976

Description	For use with	Part no.	Article no.
Windows CE licenses			
 License for Windows CE 5.0 Core, incl. license label	XV-4... XVS-4...	LIC-OS-CE50-C	140406
License for Windows CE 5.0 Professional Plus incl. license label	XV-4... XVS-4...	LIC-OS-CE50-PP	140408
Memory cards			
 SD memory card with min. 1 GB Without operating system	XV-3... XV-1..	MEMORY-SD-A2-S	181638
SD memory card with min. 256 MByte Without operating system	XV-3... XV-1..	MEMORY-SD-A1-S	139807
 Compact flash with min. 128 MByte Without operating system	XV-4... XVS-4...	MEMORY-CF-A1-S	139528
Compact flash with min. 128 MByte WINDOWS CE 5.0 CORE preinstalled Windows license, article no. 140406 LIC-OS-CE50-C, required	XV-4... XVS-4...	OS-FLASH-A1-C	140368
XV license product certificates			
 License product certificate for PLC upgrading	XV-3.3-...-1B	LIC-PLC-A	181585
License product certificate for PLC upgrading with COMPACT license label	XV-1...-B... XV-1...-D...	LIC-PLC-MXP-COMPACT	142581
License product certificate for PLC upgrading with SMALL license label	XV-4...-57... XV-4...-84... XVS-4...-57... XVS-4...-84...	LIC-PLC-MXP-SMALL	140389
License product certificate for PLC upgrading with MEDIUM license label	XV-4...-10... XV-4...-12... XV-4...-15... XVS-4...-10... XVS-4...-12... XVS-4...-15...	LIC-PLC-MXP-MEDIUM	140390
License product certificate 40 points	XV-1... XV-4... XVS-4...	LIC-OPT-1ST-LEVEL	140391
License product certificate 80 points	XV-1... XV-4... XVS-4...	LIC-OPT-2ND-LEVEL	140392

Notes

Licensing for Panel XV100, XV400 and XVS400

The panels of the device series XV100, XV400 und XVS400 are supplied with license points saved to the device. License points are required to be able to perform certain functions with the device

- XSOFT-CODESYS runtime for the PLC function (not possible with: XV-102-A... and XV-102-H...)
- Galileo runtime for visualization
- Communication (e. g. Ethernet, CANopen, Siemens MPI)

Number of license points supplied with standard devices:
 - 140 license points: XV100 (without PLC function), XV400, XVS400
 - 240 license points: XV100 with PLC function

Additional license points must be purchased if the license points of the device are not sufficient for the required functions or if the XV panel is to be upgraded with the PLC function. For this you need one or more license certificates. They are:
 - License certificates for the PLC function: The LIC-PLC-MXP license certificates are required to activate the PLC function on XSOFT-CODESYS; they contain an appropriate license sticker for the device type, which must be affixed to the device for licensing reasons.
 - License certificates for the extended communication with Galileo (LIC-OPT-...)

Determining required license points

Add the required license points by function for visualization and communication options used. Communication options for several devices with the same protocol only have to be counted once. Deduct from this total the number of points already on the device (e.g. 140 points). The difference is the number of the license points that you have to install using license certificates for the communication options (LIC-OPT-...).

Detailed information and examples can be obtained at: www.eaton.eu/XV for XV devices on the "Licensing" tab

Licensing for Panel XV300

If you want to add the PLC function to the XV-3.3-...-1B panel, you will need to purchase an additional license. To do this, you will need license product certificate LIC-PLC-A. Due to licensing reasons, the license sticker must be affixed to the device.

Build it in.



XP500 industrial touch panel PC



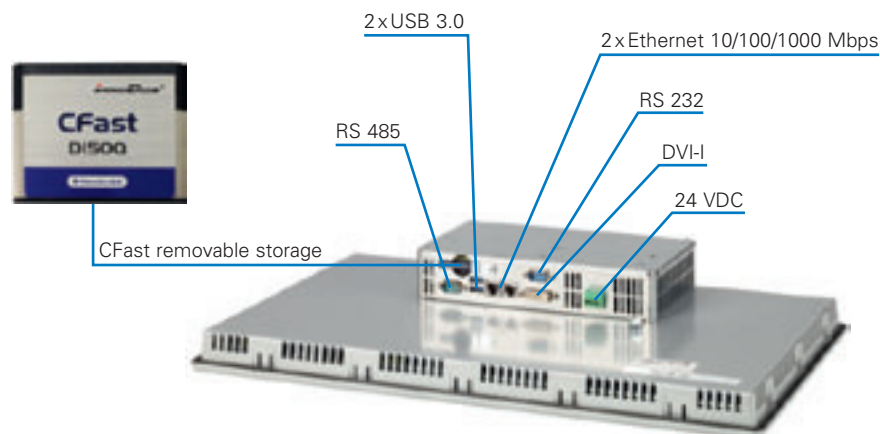
Zoom, scroll, swipe with two fingers – the industrial world can now enjoy the benefits of intuitive ease-of-use as well!

The XP500 series from Eaton, developed especially for the requirements of mechanical and plant engineering, enhances the field of automation with contemporary control interfaces and command methods familiar from consumer electronics. The Projected Capacitive Touch (PCT) technology provides a more intuitive user interface. This includes multitouch functionality, allowing users to press functional buttons on the screen either with multiple fingers on one hand or using two hands.

The devices are being launched onto the market with the following three widescreen display sizes: 10.1", 15.6", and 21.5". Their slim design, featuring a non-reflective glass front, delivers a modern look. In addition, their heavy-duty, scratch-resistant front and their open Windows operating system make these panel IPCs ideal for use in virtually any industrial branch in the field of machine building and plant engineering.



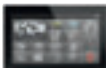
www.eaton.eu/xp500



XP-503

- Elegant, slim design
- Heavy-duty glass front in protective aluminum bezel
- Industrial capacitive multi-touch technology (PCT)
- Widescreen display
- Tempered glass with anti-reflective coating
- Powder-coated diecast aluminum housing for flush mounting
- Passively cooled

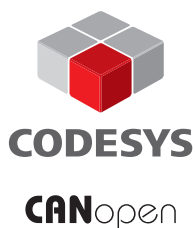
High availability guaranteed by the **Eaton ProtectMode**, even without a UPS. Thanks to the Eaton Protect Mode and two separate mass memory devices, drive C (internal solid-state drive) can be protected against data corruption and other undesirable changes. Process data can be written to the second mass memory device (CFast memory card). All three device sizes are also available with ATEX Zone 22, Cat. 3D certification.

	Display	Resolution	Fitting dimensions	Part no. Article no.
XP-503-xx-A10-				
1.65 GHz dual-core CPU Powerful integrated graphics processor 4GB DDR3-RAM ≥ 32 GB of internal flash memory ≥ 4 GB CFast Removable memory 2x Ethernet 10/100/1000 Mbps 2x USB 3.0 1x RS232 1x RS485 1x DVI-I Windows Embedded Standard 7 GALILEO Open Runtime License CE, cUL508 cUL Class 1 Div 2				
	10.1" widescreen	1024 x 600	261 x 164mm	XP-503-10-A10-A00-1B 174474
	15.6" widescreen	1366 x 768	388 x 239mm	XP-503-15-A10-A00-1B 174475
	21.5" widescreen	1920 x 1080	519 x 313mm	XP-503-21-A10-A00-1B 174476

Build it in.



XN300: The slice card modular I/O system for the machine building industry

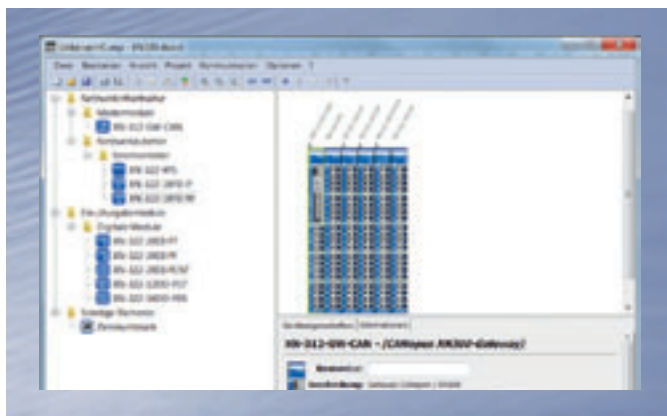


Eaton's ultra-compact, slice-card-based XN300 modular I/O system features a high channel density plug-in connection system and can be combined with HMI PLC products in order to create the ideal system solution for your applications. The secret? Application-oriented functions that result in lower device costs and make it possible to obtain the perfect system solution while taking up a minimal amount of space.

All this is combined with a sleek design and a convenient installation concept that makes handling easier and allows users to pre-assemble their I/O stations and the components they will be connecting. Moreover, the plug-in terminal system and the way in which signals are clearly identified make commissioning easier and round off the system's characteristics, making it the perfect solution for the needs of machine building applications meant for mass production.

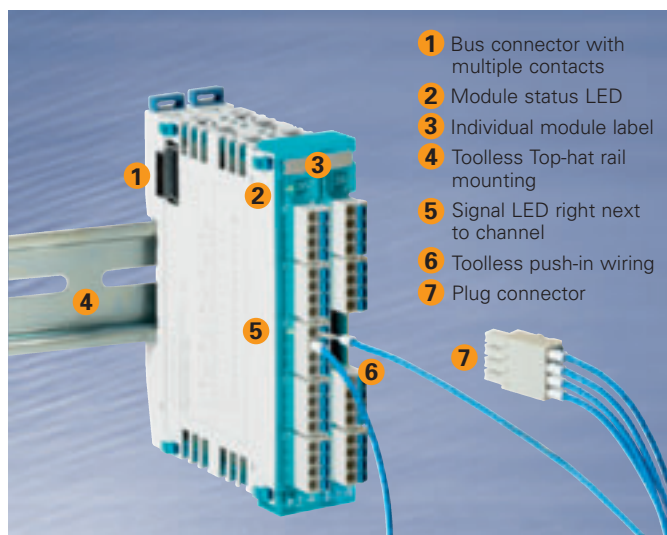


www.eaton.eu/xn300



Ideal assistance: XN300 Assist

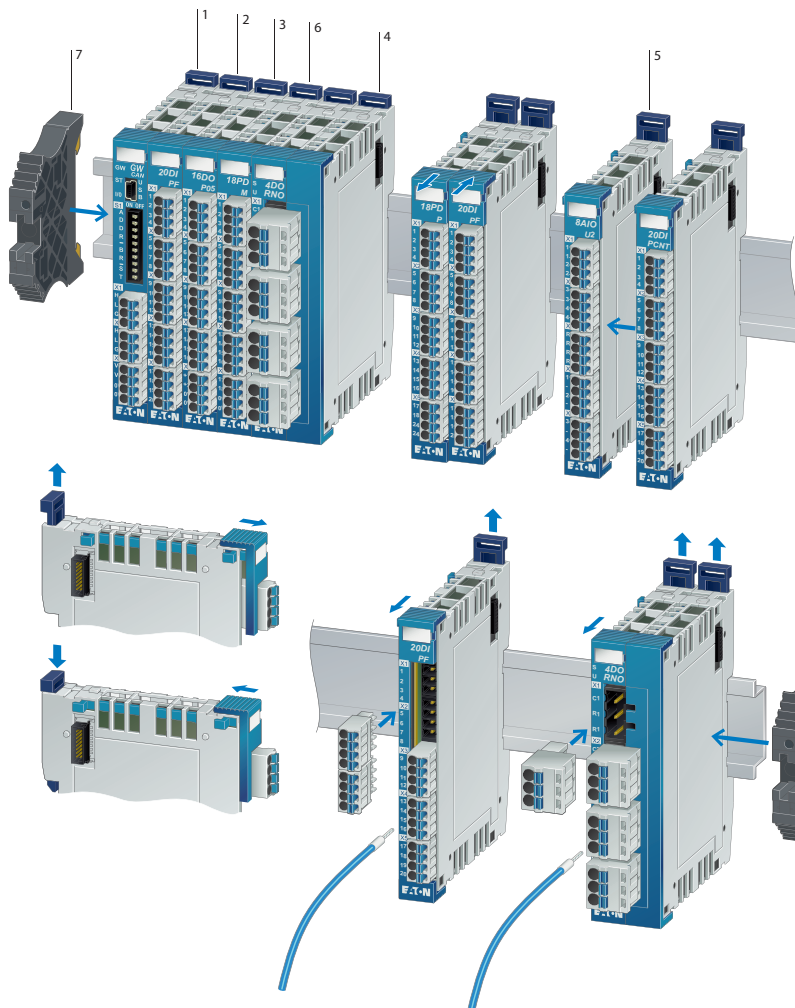
XN300 Assist provides maximum convenience and outstanding ease of use when planning your systems. For example, the tool will run a plausibility check while you are putting together your system configuration, preventing misconfigurations from the get-go. Moreover, XN300 Assist can be used to generate order lists and device description files (e.g., EDS files) even when offline. And in addition to these offline functions, online functions such as „signal state reading and setting“ can prove invaluable during commissioning and installation.



Simple, quick and intuitive

A plug-in connection system and the ability to conveniently split installation work into two different steps (putting together a block and then installing it on a mounting rail) are just two examples of how the XN300 system is unbeatable when it comes to saving time. In fact, its installation can be broken down into perfectly efficient steps that allow for pre-assembly – and all without the need for any tools!

Moreover, a clear functional layout makes it possible to easily keep track of things despite the modules' high channel density. LEDs are used to show signal states right next to where channels are connected.



- 1 Gateway
- 2 Digital input modules
- 3 Digital output modules
- 4 Relay modules
- 5 Analog input/output modules
- 6 Power distributor
- 7 End bracket

Other module models

- Digital input/output modules
- Analog input modules
- Analog output modules
- Technology modules
- Power supply modules

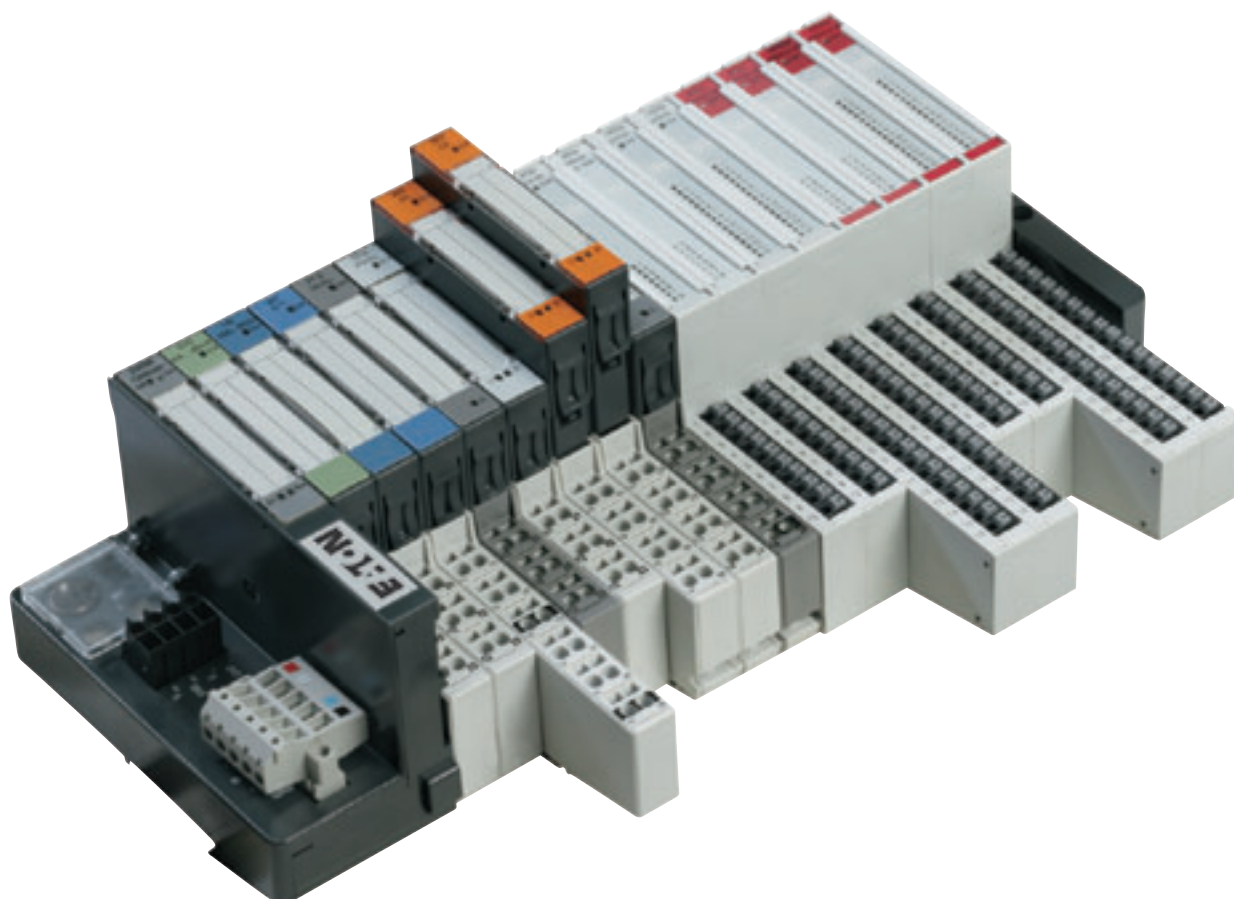
I/O system

Modular I/O system XN300

Description		Part no. Article no.
XN300 gateway		
	Digital gateway for CANopen field bus in the form of an XN300 I/O system slice module Field bus connection CANopen® Addressing DIP switches Data transfer rate 10, 20, 50, 125, 250, 500, 800, 1000 kBit/s Maximum station configuration 32 modules (XN-322) in slice design System supply 24 V DC Push-in spring-cage terminal Approvals: CE, cULus	XN-312-GW-CAN 178782
XN300 power supply modules		
Push-in spring-cage terminal Approvals: CE, cULus		
Field potential distributor module		
	Power distribution with XN-322 slice module in XN300 I/O system, 18 channels, GND.	XN-322-18PD-M 178769
	Power distribution with XN-322 slice module in XN300 I/O system, 18 channels, VCC.	XN-322-18PD-P 178770
Power supply module		
	The power supply module distributes the supplied power to XN300 system components. The module features nine short-circuit proof outputs (24 VDC/GND) grouped into four power supply groups, with each group being able to handle a max. load of 2 A.	XN-322-4PS-20 178796
XN300 technology modules		
Push-in spring-cage terminal		
Counter module		
	Counter module with RS422/TTL inputs for frequencies of up to 125 kHz and 4 digital inputs and 4 digital outputs with 2 A. These modules are particularly useful for reading counter values used in positioning applications.	XN-322-1CNT-8DIO 178795
Interface module		
	Interface module for interpreting data from two absolute encoders via the RS422 interface, specifically designed with SSI encoders (e.g., absolute linear encoders) in mind. Natural binary and Gray code encoders (Gray code is internally converted to natural binary) are supported. 32-bit / 125 kHz, 250 kHz, 500 kHz, 1 MHz.	XN-322-2SSI 178773
Weigh module		
	Weigh slice module for connecting two Wheatstone bridges (strain gauge load cells). With a 24-bit resolution, readings will be available with an accuracy of $\pm 0.035\%$.	XN-322-2DMS-WM 178793
Motor driver module		
	Current regulator module for operating a DC motor (brushed motor) with a supply voltage of 12–30 V and a max. motor current of 3.5 A. In addition, this module features two 20 mA / 350 mA (maximum current) LED drivers.	XN-322-1DCD-B35 178794

Short Description	Part no.	Article no.
Digital input cards		
Push-in spring-cage terminal Approvals: CE, cULus		
 8 digital inputs 24 V DC each, pulse-switching, 5.0 ms	XN-322-8DI-PD	183172
16 digital inputs 24 V DC each, pulse-switching, 5.0 ms	XN-322-16DI-PD	183173
20 digital inputs 24 V DC each, pulse-switching, 5.0 ms	XN-322-20DI-PD	178786
20 digital inputs 24 V DC each, pulse-switching, 0.5 ms	XN-322-20DI-PF	178768
20 digital inputs 24 V DC each, pulse-switching, 2/4 CNT, 25 kHz	XN-322-20DI-PCNT	178767
20 digital inputs 24 V DC each, negative switching, 5.0 ms	XN-322-20DI-ND	183174
Digital output modules		
Push-in spring-cage terminal Approvals: CE, cULus		
 8 digital outputs short-circuit proof 24 V DC/0.5 A each, pulse-switching	XN-322-8DO-P05	183175
16 digital outputs short-circuit proof 24 V DC/0.5 A each, pulse-switching	XN-322-16DO-P05	178787
12 digital outputs short-circuit proof 24 V DC/1.7 A each, pulse-switching	XN-322-12DO-P17	178788
Digital input/output modules		
Push-in spring-cage terminal Approvals: CE, cULus		
 4 digital inputs and 4 digital outputs 24 V DC each, pulse-switching	XN-322-8DIO-PD05	183178
8 digital inputs and 8 digital outputs 24 V DC each, pulse-switching	XN-322-16DIO-PD05	183179
8 digital inputs and 8 digital outputs 24 V DC each, pulse-switching, CNT, 25 kHz	XN-322-16DIO-PC05	183180
Relay modules		
Push-in spring-cage terminal		
 4 digital relay outputs, N/O	XN-322-4DO-RN0	178779
Analog input cards		
Push-in spring-cage terminal Approvals: CE, cULus		
 4 analog resistance inputs, Pt/Ni/KTY/R with 2-wire or 3-wire connection	XN-322-4AI-PTNI	178772
6 analog inputs, +/-10V, 1 PT/KTY, Uref	XN-322-7AI-U2PT	178789
8 analog current inputs, 0/4 up to 20 mA	XN-322-8AI-I	179288
8 analog thermocouple inputs and two KTY inputs	XN-322-10AI-TEKT	178792
Analog output modules		
Push-in spring-cage terminal Approvals: CE, cULus		
 8 analog outputs, +/-10 V	XN-322-8AO-U2	178790
Analog input/output modules		
Push-in spring-cage terminal Approvals: CE, cULus		
 2 analog inputs and 2 analog outputs, +/-10 V, Uref	XN-322-4AIO-U2	183181
4 analog inputs and 4 analog outputs, +/-10 V, Uref	XN-322-8AIO-U2	178791
2 analog inputs and 2 analog outputs, 0/4 to 20 mA	XN-322-4AIO-I	183182
4 analog inputs and 4 analog outputs, 0/4 to 20 mA	XN-322-8AIO-I	178771

Build it in.



XI/ON: The modular I/O system



CODESYS

CANopen

DeviceNet™

Ethernet



Whether for controlling movements, measuring temperature or speed, or logging currents and voltages! the application ranges for remote I/Os are as extensive as the different applications involved. They are used wherever decentralized signal processing is the essential element of the automation concept.

Thanks to the high modularity of the XI/ON system and the wide range of functions, Eaton is able to offer the right I/O solution for every application. XI/ON: A modular concept with simple handling – adaptable to any application, intelligent and ready for future developments.



www.eaton.eu/xion

- ECO gateways with integrated bus terminating resistors
- Full compatibility with the standard XI/ON system
- No base module required
- High channel density (up to 16 DI/DO on 13 mm width)
- “Push-In” spring-loaded terminals
- Multi-functional slices
- Diagnostics interface



I/Oassistant checks the station, reads the process data, outputs values and visualizes the diagnostics data of the channel. This enables you to commission your station without a higher-level PLC and ensure that a section of the system is functioning correctly.

- 1 Gateways
- 2 Relay modules
- 3 Coding element
- 4 Base modules
- 5 Relay jumpers
- 6 Cover plate
- 7 End bracket
- 8 Power supply modules
- 9 Analog input cards
- 10 Digital output modules
- 11 Analog output modules
- 12 Technology modules
- 13 Marker

Field bus connection		Data transfer rate	Connection design for field bus		Addressing	Part no. Article no.	
XI/ON ECO Gateways							
Push-In spring-cage terminals System supply 24 /5 V DC Approvals CE, cULus							
	PROFIBUS-DP (DPV0/DPV1 protocol)	9.6 Kbit/s to 12 Mbit/s	Push-In spring-cage terminals	DIP switches		XNE-GWBR-PBDP 140045	
	CANopen®	1000 Kbit/s, 800 Kbit/s, 500 Kbit/s, 250 Kbit/s, 125 kbit/s, 50 Kbit/s, 20 Kbit/s	Push-In spring-cage terminals	DIP switches		XNE-GWBR-CANOPEN 140044	
	Ethernet (Ethernet-IP protocol)	10/100 MBit/s	2 x RJ45 (Ethernet Switch)	DIP switch, BootP, DHCP or PGM		XNE-GWBR-2ETH-IP 140047	
	Ethernet (Modbus-TCP protocol)	10/100 MBit/s	2 x RJ45 (Ethernet Switch)	DIP switch, BootP, DHCP or PGM		XNE-GWBR-2ETH-MB 152279	
Channels		Rated voltage through supply terminal	Input delay		Input voltage High level	Part no. Article no.	
		U _L	t _{Rising edge}	t _{Falling edge}	U _{eH}		
			µs	µs	V		
XI/ON ECO digital input modules							
Integrated base module Approvals CE, cULus							
	8	24 V DC	< 100	< 200	11 - 30 V	XNE-8DI-24VDC-P 140035	
	16	24 V DC	< 150	< 300	11 - 30 V	XNE-16DI-24VDC-P 140040	
Channels		Rated voltage through supply terminal	Operating frequency at resistive load		Utilization factor	Part no. Article no.	
		U _L	f		%		
			Hz		g		
XI/ON ECO digital output modules							
Integrated base module Can be connected Resistive loads, Inductive loads, Lamp loads Approvals CE, cULus							
	8	24 V DC	100	100		XNE-8DO-24VDC-0.5A-P 140036	
	16	24 V DC	100	50 %, max. 4 A		XNE-16DO-24VDC-0.5A-P 140039	
Channels	Rated voltage through supply terminal	Measured variables ¹⁾	Measurement ranges	Measured value representation	Limit frequency (-3 db)	Part no. Article no.	
	U _L				Hz		
XI/ON ECO analog input modules							
Integrated base module Approvals CE, cULus							
	8 (U/I), 4 (PT/Ni/R)	24 V DC	Voltage, current, temperature (PT, Ni), resistance R	-10/0 to +10 V DC 0/4 - 20 mA PT: -200 - +850 (-328 - +1562)/ -200 - +150 (-328 - +302) °C, (°F) Ni: -60 - +250 (-76 - +482)/ -60 - +150 (-76 - +302) °C, (°F)	16-bit signed integer 12-bit full range, flush left Standard/extended range/PA (NE43)	1.5	XNE-8AI-U/I-4PT/Ni 140037

Notes

¹⁾ : Platinum sensors: Pt100, Pt500, Pt1000 (as per IEC 751) Nickel sensors: Ni100, Ni1000 (as per DIN 43760)

	Channels	Rated voltage through supply terminal U_L	Measured variables	Measurement ranges	Measured value representation	Part no. Article no.
XI/ON ECO analog output modules						
Integrated base module Approvals CE, cULus						
	4	24 V DC	Voltage, Current	-10/0...+10 V DC 0/4 - 20 mA	16-bit signed integer 12-bit full range, flush left Standard/extended range/PA (NE43)	XNE-4AO-U/I 140034

	Channels	Control mode	Pulse duration	Resolution Bit	Part no. Article no.
XI/ON ECO meter, PWM module					
Integrated base module Rated voltage through supply terminal 24 V DC Signal evaluation A, B: Pulse and direction; single/double/quadruple rotary transducer Approvals CE, cULus PWM (parameters can be defined): 0.01 Hz - 20 kHz Output Number of pulses : 32 Bit Operating modes Pulse output: Once, endless					
	2	Infinite counter, once only count, periodic count	32 Bit/max. 120 s	32	XNE-2CNT-2PWM 140038

56 **EATON** CA08103003Z-EN-INT Complete assortment -> www.eaton.eu/ecat

	Channels	Rated voltage through supply terminal U_L	Operating frequency at resistive load f Hz	Utilization factor %	Part no. Article no.	
XI/ON Standard digital output modules						
Base module required Connectable: Resistive loads, Inductive loads, Lamp loads Approvals CE, cULus						
	2	24 V DC	5000 ($R_{L0} < 1 \text{ k}\Omega$)	100	XN-2DO-24VDC-0.5A-P 140053	
	2	24 V DC	100 ($R_{L0} < 1 \text{ kohm}$)	100	XN-2DO-24VDC-0.5A-N 140060	
	2	120/230 V AC (45 - 65 Hz)	-	100 (observe derating)	XN-2DO-120/230VAC-0.5A 140150	
	2	24 V DC	5000 ($R_{L0} < 1 \text{ k}\Omega$)	100	XN-2DO-24VDC-2A-P 140055	
	4	24 V DC	1000 ($R_{L0} < 1 \text{ k}\Omega$)	100	XN-4DO-24VDC-0.5A-P 140148	
	16	24 V DC	100 ($R_{L0} < 1 \text{ k}\Omega$)	100	XN-16DO-24VDC-0.5A-P 140141	
	32	24 V DC	100 ($R_{L0} < 1 \text{ k}\Omega$)	Max. 10 A (total module current)	XN-32DO-24VDC-0.5A-P 140161	
	Channels	Measured variables	Measurement ranges	Measured value representation	Limit frequency (-3 db) Hz	Part no. Article no.
XI/ON Standard analog input modules						
Base module required Rated voltage through supply terminal: 24 V DC Approvals CE, cULus						
	1	Current	0/4 - 20 mA	16-bit signed integer 12-bit full range left-justified	200	XN-1AI-I(0/4...20MA) 140063
	2	Current	0/4 - 20 mA	16-bit signed integer 12-bit full range left-justified	> 50	XN-2AI-I(0/4...20MA) 140144
	1	Voltage	-10/0 to +10 V DC	16-bit signed integer 12-bit signed integer left-justified 12-bit full range left-justified	200	XN-1AI-U(-10/0...+10VDC) 140064
	2	Voltage	-10/0 to +10 V DC	16-bit signed integer 12-bit full range left-justified	> 50	XN-2AI-U(-10/0...+10VDC) 140145
	4	Voltage, Current	-10/0 to +10 V DC	16-bit signed integer 12-bit signed integer, flush-left	20	XN-4AI-U/I 140158
	Channels	Measured variables	Temperature range $^{\circ}\text{C}$, ($^{\circ}\text{F}$)	Measured value representation	Part no. Article no.	
XI/ON standard temperature modules						
Base module required Rated voltage through supply terminal: 24 V DC Approvals CE, cULus						
	2	Temperature (Thermocouple) ¹⁾	Type B: +100 - +1820 (+212 - +3308) Type E: -270 - +1000 (-454 - +1832) Type J: -210 - +1200 (-346 - +2192) Type K: -270 - +1370 (-454 - +2498) Type N: -270 - +1300 (-454 - +2372) Type R: -50 - +1760 (-58 - +3200) Type S: -50 - +1540 (-58 - +2804) Type T: -270 - +400 (-454 - +752)	16-bit signed integer 12-bit full range left-justified	XN-2AI-THERMO-PI 140068	
	2	Temperature (PT, NI), resistance R ²⁾	PT: -200 - +850 (-328 - +1562)/-200 - +150 (-328 - +302) Ni: -60 - +250 (-76 - +482)/-60 - +150 (-76 - +302)	16-bit signed integer 12-bit full range left-justified	XN-2AI-PT/NI-2/3 140067	

Notes
¹⁾ According to DIN IEC 584, Class 1, 2, 3

²⁾ Platinum sensors: PT100, PT200, PT500, PT1000 (according to DIN IEC 751)
Nickel sensors: Ni100, Ni1000 (according to DIN 43760)

	Channels	Measured variables	Measurement ranges	Measured value representation	Part no. Article no.
XI/ON Standard analogue output modules					
Base module required Rated voltage through supply terminal: 24 V DC Approvals CE, cULus					
	1	Current	0/4 - 20 mA	16-bit signed integer 12-bit full range left-justified	XN-1AO-I(0/4...20MA) 140065
	2	Current	0/4 - 20 mA	16-bit signed integer 12-bit full range left-justified	XN-2AO-I(0/4...20MA) 140146
	2	Voltage	-10/0...+10 V DC	16-bit signed integer 12-bit signed integer left-justified 12-bit full range left-justified	XN-2AO-U(-10/0...+10VDC) 140066

	Contact type art	Rated load voltage	Maximum continuous current, resistive load	Part no. Article no.
XI/ON Standard relay modules				
Base module required Rated voltage through supply terminal: 24 V DC Connectable sensors: Resistive loads, Inductive loads, Lamp loads Approvals CE, cULus				
	2 break contacts	230 V AC, 30 V DC	5 A	XN-2DO-R-NC 140061
	2 make contacts	230 V AC, 30 V DC	5 A	XN-2DO-R-NO 140062
	2 Changeover contact	230 V AC, 30 V DC	5 A	XN-2DO-R-CO 140054

	Type	Transmission channels	Bit transfer rate	Cable length RS232 m	Part no. Article no.
XI/ON Standard interface modules					
Base module required Rated voltage through supply terminal: 24 V DC Approvals CE, cULus					
	RS232	RxD, TxD, RTS, CTS	Max. 115200 bit/s (parameterizable), default setting: 9600 Bit/s, 7 data bits, odd parity, 2 stop bits	max. 15	XN-1RS232 140151
	RS 484/RS 422	RxD, TxD	Max. 115200 bit/s (parameterizable), default setting: 9600 Bit/s, 7 data bits, odd parity, 2 stop bits	max. 30	XN-1RS485/422 140152
	SSI	CL, D	Max. 1 MHz (parameterizable), default settings: 500 kBit/s	max. 30	XN-1SSI 140153

	Base modules															
	XN-S3...-SBB	XN-S3...-SBC	XN-S4...-SBBC	XN-S4...-SBBS	XN-S4...-SBBS-CJ	XN-S6...-SBBS-SBB	XN-S6...-SBBS-SBC	XN-B3...-SBB	XN-B3...-SBC	XN-B4...-SBBC	XN-B6...-SBBS-SBB	XN-B6...-SBBS-SBC	XN-P3...-SBB	XN-P3...-SBB-B	XN-P4...-SBBC	XN-P4...-SBBS-CB
Electronic modules																
Digital input cards																
XN-2DI-24VDC-P	●		●													
XN-2DI-24VDC-N	●		●													
XN-2DI-120/230VAC	●		●													
XN-4DI-24VDC-P				●		●										
XN-4DI-24VDC-N				●		●										
XN-16DI-24VDC-P								●		●						
XN-32DI-24VDC-P											●					
XNE-8DI-24VDC-P ¹⁾																
XNE-16DI-24VDC-P ¹⁾																
Digital output modules																
XN-2DO-24VDC-0.5A-P		●			●											
XN-2DO-24VDC-0.5A-N		●			●											
XN-2DO-24VDC-2A-P		●			●											
XN-2DO-120/230VAC-0.5A		●			●											
XN-4DO-24VDC-0.5A-P					●		●									
XN-16DO-24VDC-0.5A-P								●								
XN-32DO-24VDC-0.5A-P									●							
XNE-8DO-24VDC-0.5A-P ¹⁾												●				
XNE-16DO-24VDC-0.5A-P ¹⁾																
Relay modules																
XN-2DO-R-NC				●	●											
XN-2DO-R-NO				●	●											
XN-2DO-R-CO				●												
Analog input cards																
XN-1AI-I(0/4...20mA)	●			●												
XN-2AI-I(0/4...20mA)	●			●												
XN-1AI-U(-10/0...+10VDC)	●			●												
XN-2AI-U(-10/0...+10VDC)	●			●												
XN-2AI-PT/Ni-2/3	●			●												
XN-2AI-THERMO-PI					●											
XN-4AI-U/I						●										
XNE-8AI-U/I-4PT/Ni ¹⁾							●									
Analog output modules																
XN-1AO-I(0/4...20mA)	●															
XN-2AO-I(0/4...20mA)	●															
XN-2AO-U(-10/0...+10VDC)	●															
XNE-4AO-U/I ¹⁾																
Technology modules																
XN-1RS232				●												
XN-1RS485/422				●												
XN-1SSI				●												
XNE-1SWIRE ¹⁾																
XNE-2CNT-2PWM ¹⁾																
Power supply modules																
XN-BR-24VDC-D													● ²⁾	● ³⁾	● ²⁾	● ³⁾
XN-PF-24VDC-D													●		●	
XN-PF-120/230VAC-D													●		●	
Notes																
	1) No base module required															
	2) Base modules for gateway power supply															
	3) Base modules for bus refreshing within the station															

Build it in.



Compact and modular PLCs

The compact PLCs XC152 facilitate cost-effective solutions of automation tasks using their computing power, the SmartWire-DT interface as well as a whole range of further interfaces.

An important feature is their ability to be integrated in modern communication concepts. Innovative solutions can be created thanks to the possibility to exchange data with OPC clients via the Ethernet interface and the integrated web server.

The compact class with the EC4P controllers now offer the performance of a PLC in the housing of the renowned easy control relay. This enables the convenient creation of solutions for small and medium-sized control tasks.

The XC100 and XC200 modular PLCs stand out on account of their highly scalable design. Different CPU performance classes and a wide range of expansion modules are available.



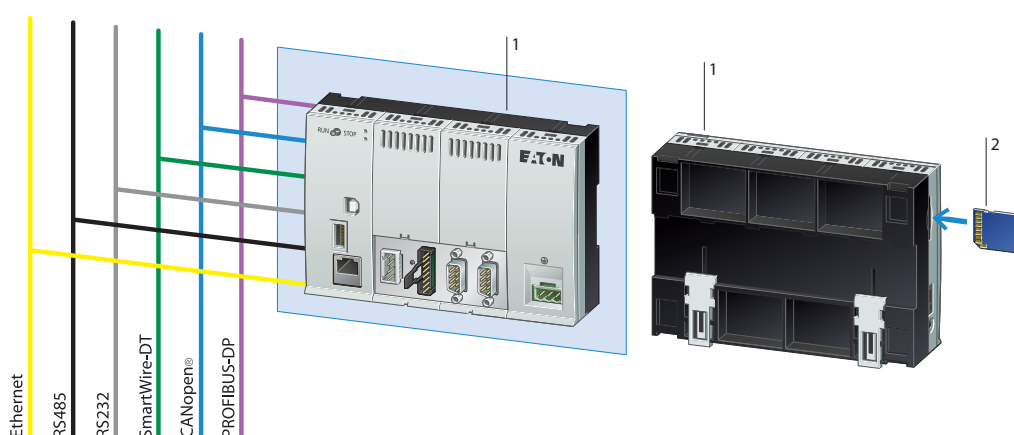
www.eaton.eu/xc152
www.eaton.eu/ec4p
www.eaton.eu/xc



XC152 – Compact PLC

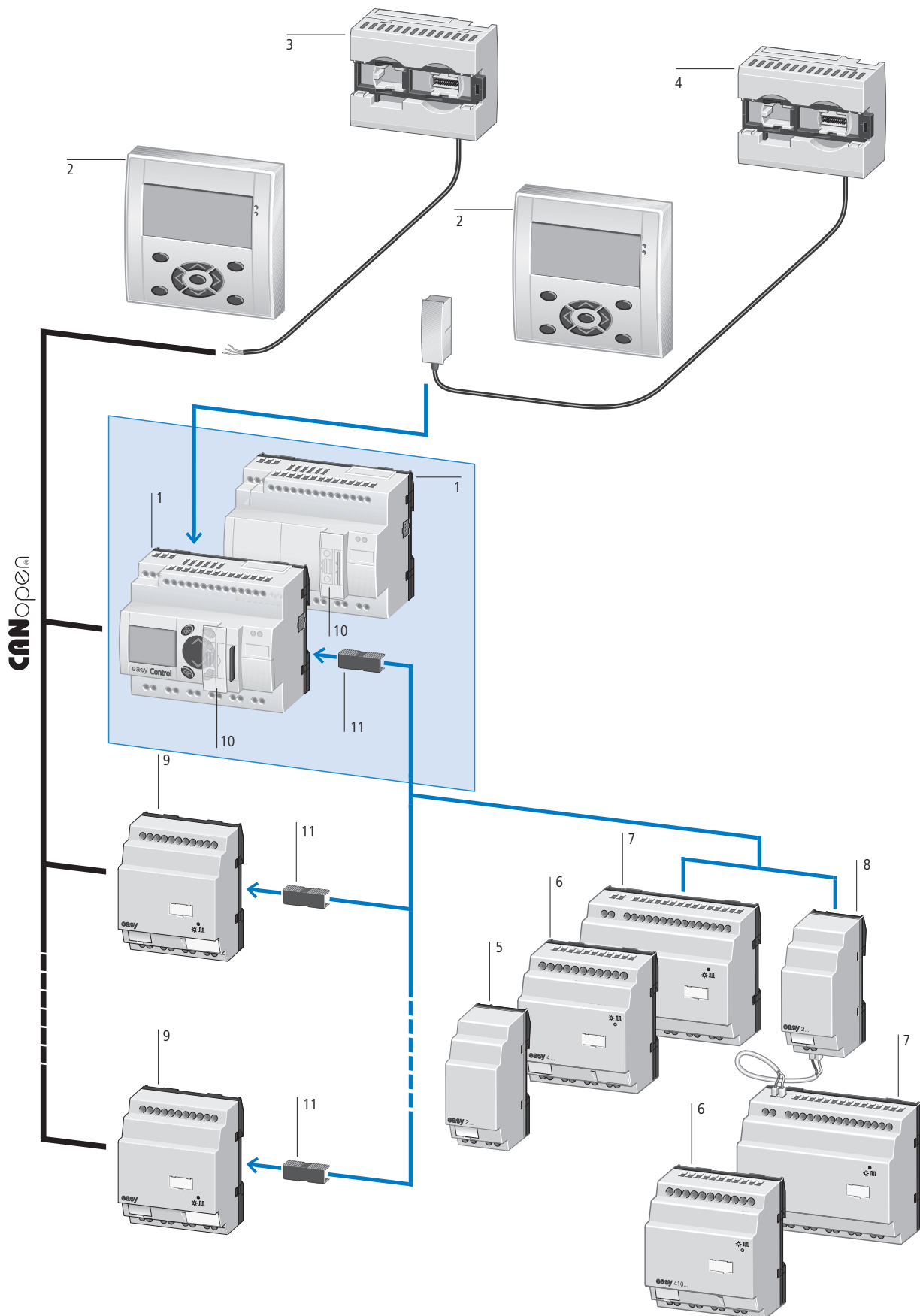
The compact PLCs combine PLC performance with a range of communication interfaces.

- OS: Windows CE 5
- Processor: RISC CPU, 32 bit, 400 MHz
- USB device, USB-Host
- Ethernet interface
- Communication interface depending on the type: RS232, RS485, Profibus/MPI and CANopen
- SmartWire-DT interface depending on the type
- Program, data and retain variable memory: 64MB
- External memory: 1 x SD card
- Programming: CODESYS
- Web server: CODESYS
- Target visualization: GALILEO/CODESYS (remotely viewable)



1 Compact PLCs XC152
2 SD-Memory Card

Built-in interfaces								Application / marker / retain data KByte	Part no. Article no.	
1 x CANopen®/easyNet	1 x Ethernet 10/100 Mbps	1 x USB-Host	1 x SmartWire-DT	1 x RS232	1 x RS485	1 x PROFIBUS-DP/MPI				
XC compact PLCs										
24 V DC power supply Slot for memory card RUN/STOP switch and LED displays OPC Server WEB server Remote Server Approvals: CE, cULus										
Compact PLC XC152										
	-	✓	✓	-	✓	✓	✓	64 MB / 4 KB / 32 KB	XC-152-D8-11 167849	
	-	✓	✓	✓	✓	-	-	64 MB / 4 KB / 32 KB	XC-152-E3-11 167850	
	✓	✓	✓	✓	-	✓	-	64 MB / 4 KB / 32 KB	XC-152-E6-11 167851	
	-	✓	✓	✓	-	✓	✓	64 MB / 4 KB / 32 KB	XC-152-E8-11 167852	
	✓	✓	✓	-	✓	✓	-	64 MB / 4 KB / 32 KB	XC-152-D6-11 167855	



- 1 Compact PLC EC4P
- 2 Display/operating unit MFD-80-B
- 3 MFD-CP4-CO CANopen® connection
- 4 Power supply unit/communication module, including connection cable for EC4P
- 5 EASY202-RE output expansion

- 6 EASY410... I/O expansion, digital
- 7 EASY6... I/O expansion, digital
- 8 EASY200-EASY Coupling module
- 9 CANopen® expansion EC4E-221-...6
- 10 EU4A-MEM-CARD1 memory card
- 11 EASY-LINK-DS bus connector plug

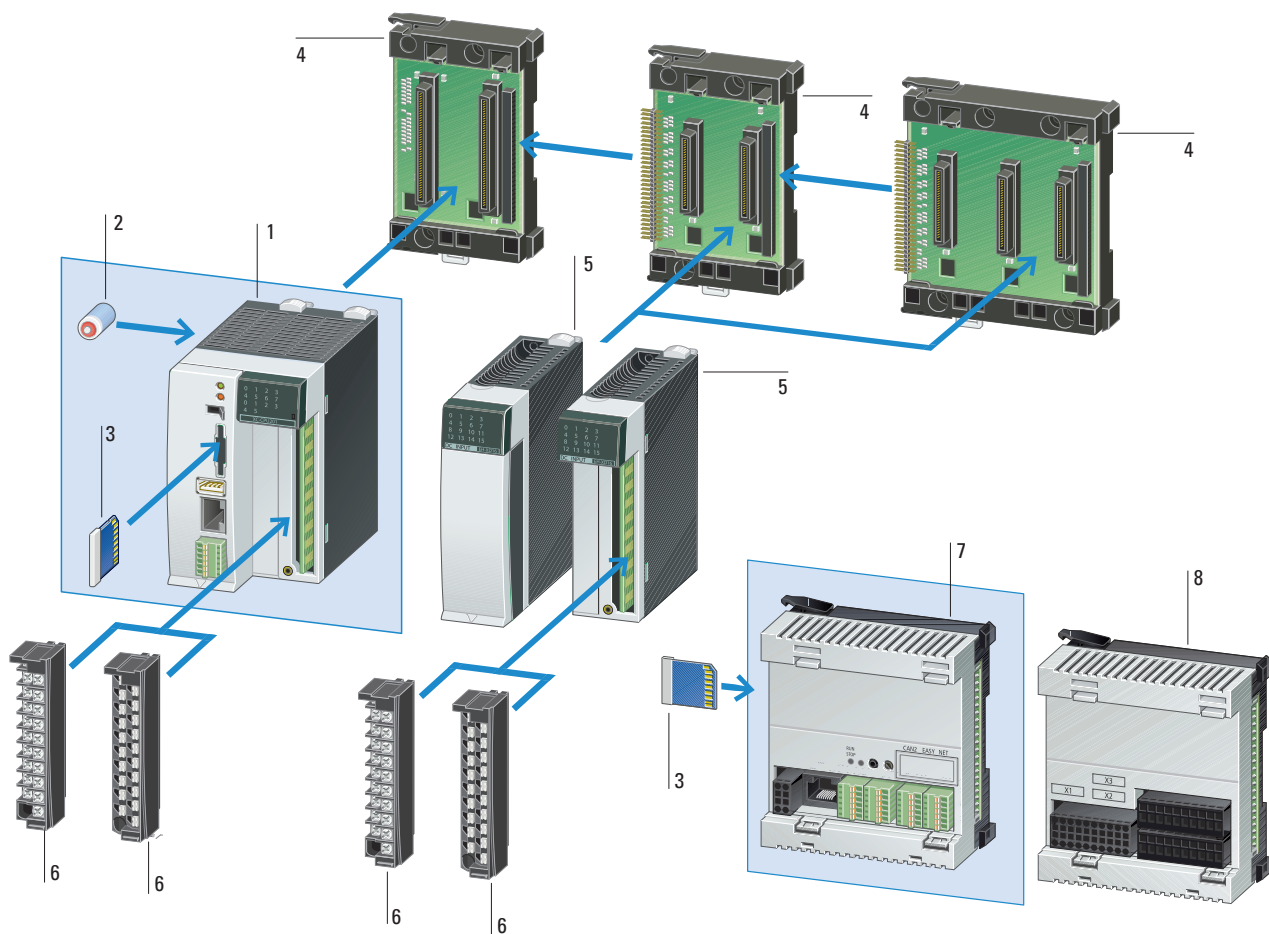
	Inputs Digital	Of which can be used as analog	Outputs Relay 10 A (UL)	Transistor	Analog	Display & keypad	Part no.	Article no.
Compact PLC EC4P								
Expandable: Inputs/outputs and bus systems Individual laser inscription possible with EC4-COMBINATION-*								
Supply voltage 24 V DC								
UL/CSA approvals								
DNV, GL, ABS, BV, LR shipping classifications								
easyNet/CANopen® on board								
	12	4	-	8	-	✓	EC4P-221-MTXD1	106391
	12	4	-	8	-	-	EC4P-221-MTXX1	106392
	12	4	6	-	-	✓	EC4P-221-MRXD1	106393
	12	4	6	-	-	-	EC4P-221-MRXX1	106394
	12	4	-	8	1	✓	EC4P-221-MTAD1	106395
	12	4	-	8	1	-	EC4P-221-MTAX1	106396
	12	4	6	-	1	✓	EC4P-221-MRAD1	106397
	12	4	6	-	1	-	EC4P-221-MRAX1	106398
easyNet/CANopen® and Ethernet on board								
	12	4	-	8	-	✓	EC4P-222-MTXD1	106399
	12	4	-	8	-	-	EC4P-222-MTXX1	106400
	12	4	6	-	-	✓	EC4P-222-MRXD1	106401
	12	4	6	-	-	-	EC4P-222-MRXX1	106402
	12	4	-	8	1	✓	EC4P-222-MTAD1	106403
	12	4	-	8	1	-	EC4P-222-MTAX1	106404
	12	4	6	-	1	✓	EC4P-222-MRAD1	106405
	12	4	6	-	1	-	EC4P-222-MRAX1	106406
Memory card								
Adapter with at least 128 MByte memory card							EU4A-MEM-CARD1	106409

	Inputs Digital	Outputs Relay 10 A (UL)	Transistor	Supply voltage	Part no.	Article no.
Expansions						
usable via CANopen®						
	6	4	-	24 V DC	EC4E-221-6D4R1	114296
	6	-	4	24 V DC	EC4E-221-6D4T1	114297
More digital and analog expansions → Page 78						

Description	Part no.	Article no.
Remote text display		
Display/operating unit Monochrome display 132 × 64 pixels with switchable backlight Removable Titan front frame Custom laser inscriptions possible with MFD-COMBINATION (article no. 2010801) product IP65		
 With keypad With Eaton company logotype NEMA type 3R; NEMA type 12; NEMA type 4x together with MFD-XM-80 protective diaphragm	MFD-80-B	265251
 With keypad Without Eaton company logotype NEMA type 3R; NEMA type 12; NEMA type 4x together with MFD-XM-80 protective diaphragm	MFD-80-B-X	284905
CANopen® connection for multi-function display		
 Communication module with CANopen® interface Automatic baud rate setting up to 1 Mbaud Up to 64 display pages can be saved For use with display/operating unit MFD-80-B(-X) and connection cable EU4A-RJ45-CAB2 Supply voltage 24 V DC	MFD-CP4-CO	115736

Modular PLCs

System overview



- 1 Modular PLCs XC100/XC200
- 2 Battery
- 3 Memory card
- 4 Rack
- 5 XI/OC I/O and communications modules
- 6 XI/OC terminal block (screw or spring-cage terminal)
- 7 XC121 expandable compact PLC
- 8 I/O expansion for XC121

	Digital input count	Quantity of outputs	Built-in interfaces							Cycle time for 1 k of instructions (Bit, Byte) ms	Application/marker/retain data KByte	Integrated Web server	Part no. Article no.
			CANopen®/easyNet	CANopen® (FO cable)	Ethernet 100Base-TX/10Base-T	USB Host	RS232	RS485/RS232	2 x CANopen®				
Modular PLCs													
24 V DC power supply Can be locally expanded with 15 XI/OC modules and remotely extendable Slot for memory card RUN/STOP switch and LED displays UL/CSA approval The following accessory equipment is required: terminal clamps, module rack, battery													
Modular PLC XC-CPU101													
	Digital: 8; of which usable as interrupt: 4	Transistor: 6	✓	-	-	-	✓	-	-	< 0.5	64 KB/4 KB/ 4 KB	No	XC-CPU101-C64K-8DI-6DO 262152
			✓	-	-	-	✓	-	-	< 0.5	128 KB/8 KB/ 8 KB	No	XC-CPU101-C128K-8DI-6DO 262146
			-	✓	-	-	✓	-	-	< 0.5	128 KB/8 KB/ 8 KB	No	XC-CPU101-FC128K-8DI-6DO 289169
			✓	-	-	-	✓	-	-	< 0.5	256 KB/8 KB/ 8 KB	No	XC-CPU101-C256K-8DI-6DO 274399
Modular PLC XC-CPU201													
	Digital: 8; of which usable as interrupt: 6	Transistor: 6	✓	-	✓	-	✓	-	-	< 0.15	256 KB/16 KB/ 32 KB	No	XC-CPU201-EC256K-8DI-6DO 262155
			✓	-	✓	-	✓	-	-	< 0.15	256 KB/16 KB/ 32 KB	Yes	XC-CPU201-EC256K-8DI-6DO-XV 262156
			✓	-	✓	-	✓	-	-	< 0.15	2 MB/16 KB/ 32 KB	No	XC-CPU201-EC512K-8DI-6DO 262157
			✓	-	✓	-	✓	-	-	< 0.15	2 MB/16 KB/ 32 KB	Yes	XC-CPU201-EC512K-8DI-6DO-XV 262158
Modular PLC XC-CPU202													
	Digital: 8; of which usable as interrupt: 6	Transistor: 6	✓	-	✓	✓	✓	-	-	< 0.03	4 MB/16 KB/ 32 KB	Yes	XC-CPU202-EC4M-8DI-6DO-XV 134238
Modular PLC XC-CPU121													
	Can be locally expandable with I/O module XIO-EXT-121-1 244 kByte data memory shipping classification: DNV, LR, BV, GL, ABS		-	-	-	-	✓	✓	✓	< 0.3	256 KB/16 KB/ 8 KB	No	XC-CPU121-2C256K 290446
I/O Expansion for XC-CPU121													
	Inputs expansion (number) Digital: 10; of which can be used as interrupts: 6; analog: 6 (0 - 10V: 2 or 0 - 20 mA: 2 or Pt100: 2) Digital: An additional 8 (also usable as outputs) Outputs expansion (number) Digital: 8 (also usable as inputs) Analog: 2 (0 - 10 V)									-	-	-	XIO-EXT121-1 290450

Description		Part no.	Article no.
I/O expansions XI/OC			
Compact I/O system for connection to XC100/200 Modular PLCs XC100/200 expandable with up to 15 XI/OC modules Optionally, screw terminals or spring-loaded terminals for digital/analog modules UL/CSA approvals			
Analog modules 	Inputs 8 Inputs 4 - 20 mA	XIOC-8AI-I2	262549
	Inputs 8 voltage input 0 - 10 V	XIOC-8AI-U1	257899
	Inputs 8 voltage inputs, ±10 V	XIOC-8AI-U2	257900
	Inputs 4 inputs for temperature monitoring, Pt100/1000	XIOC-4T-PT	257901
	Inputs 4 inputs for thermocouples Type K, J, B, N, E, R, S, T	XIOC-4AI-T	289933
	Outputs 2 outputs, ±10 V	XIOC-2AO-U2	257904
	Outputs 2 Outputs 0 - 10 V 2 outputs 4 - 20 mA	XIOC-2AO-U1-2AO-I2	257902
	Outputs 4 Outputs 0 - 10 V	XIOC-4AO-U1	257903
	Combination modules 2 Inputs and 1 Output 0 - 10 V 1 ms conversion time	XIOC-2AI-1AO-U1	262409
	Combination modules 2 Inputs and 1 Output 0 - 10 V, 0 - 20 mA 1 ms conversion time individual changeover	XIOC-2AI-1AO-U1-I1	281545
	Combination modules 4 Inputs und 2 Outputs 0 - 10 V 1 ms conversion time	XIOC-4AI-2AO-U1	262405
	Combination modules 4 Inputs and 2 Outputs 0 - 10 V, 0 - 20 mA 1 ms conversion time individual changeover	XIOC-4AI-2AO-U1-I1	281544
Digital modules 	8 inputs, 24 V DC	XIOC-8DI	257891
	16 inputs, 24 V DC	XIOC-16DI	257892
	32 inputs, 24 V DC	XIOC-32DI	267411
	8 outputs, 24 V DC, 0.3 A	XIOC-8DO	257894
	12 relay outputs	XIOC-12DO-R	257897
	16 outputs, 24 V DC, 0.3 A	XIOC-16DO	257896
	16 outputs, 24 V DC, 0.8 A short-circuit proof	XIOC-16DO-S	257895
	16 connections, 4 inputs, 12 freely parameterizable as inputs/outputs, 24 V DC outputs 0.5 A	XIOC-16DX	262322
	32 outputs, 24 V DC, 0.2 A	XIOC-32DO	267413
	1 input up to 100 kHz, (24 V DC, 5 V DC) 2 digital transistor outputs Optocoupled, 24 V DC 30 pole connector required for counter module	XIOC-1CNT-100KHZ	257906
Counter modules 	2 inputs up to 100 kHz, (24 V DC or 5 V diff), 2 inputs up to 100 kHz, (24 V DC or 5 V diff), 4 digital transistor outputs, optocoupled, 24 V DC, 30 pole connector required for counter module	XIOC-2CNT-100KHZ	257907
	2 incremental encoders up to 400 kHz, 5 V DC, 2 analog outputs, ±10 V	XIOC-2CNT-2AO-INC	262417
Communication modules 	PROFIBUS-DP master module	XIOC-NET-DP-M	257908
	PROFIBUS DP slave module	XIOC-NET-DP-S	286419
	Suconet K master module	XIOC-NET-SK-M	289982
	Serial interface RS232C, RS485, RS422 Modes of operation: Transparent mode MODBUS Master/Slave SUCOM-A Suconet-K slave	XIOC-SER	267191
	Serial interface RS232C, RS485, RS422 Modes of operation: Transparent mode MODBUS Master/Slave SUCOM-A DNP3-Protocol	XIOC-TC1	135265

Description		For use with	Part no.	Article no.
Terminations				
One 18 pole terminal plug is required for each digital and analog module as well as XC modular PLCs.				
	18 pole terminal connector with spring-cage terminals for digital or analog I/O	-	XIOC-TERM-18T	258104
	18-pin terminal connector with screw terminals for digital or analog I/O	-	XIOC-TERM-18S	258102
	30 pole connector for counter module, with 4 m cable	XIOC-1CNT-100KHZ XIOC-2CNT-100KHZ	XIOC-TERM30-CNT4	262248
	40 pole connector for digital module, with 4 m cable	XIOC-32DI XIOC-32DO	XIOC-TERM32	267414
Racks				
	Basic rack for mounting XC100/200 on top-hat rail, expandable Width: 2 slots for controller	-	XIOC-BP-XC	260792
	Expander rack for mounting XI/OC modules on top-hat rail, expandable Width: 2 slots for controller	-	XIOC-BP-2	260794
	Basic rack for mounting XC100/200 on top-hat rail, expandable Width: 3 slots for controller and one XI/OC module	-	XIOC-BP-XC1	260793
	Expander rack for mounting XI/OC modules on top-hat rail, expandable Width: 3 slots for XI/OC modules	-	XIOC-BP-3	260795
	Expander rack for mounting XI/OC modules on top-hat rail, expandable Width: 3 slots for XI/OC modules Note: Module rack for expansion with up to 15 modules, must be plugged into the 6th slot	-	XIOC-BP-EXT	274291
Add-on functions				
	For storage of programs, data, recipes 512 MByte		XT-MEM-MM512M	138257
	For storage of programs, data, recipes 256 MByte		XT-MEM-MM32M	262731
	For back-up of real-time clock and retentive data		XT-CPU-BAT1	256209
	Empty module to cover free XI/OC slots		XIOC-NOP	288894

Build it in.

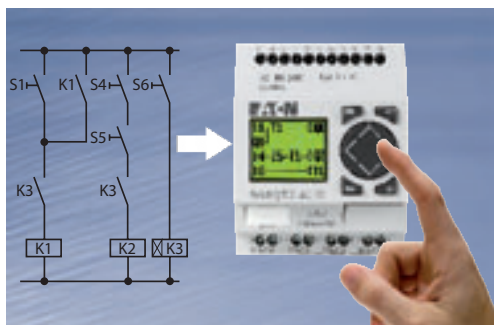


easyRelay control relays MFD-Titan multi-function display

The easy500/easy700/800 control relays as well as the MFD-Titan multi-function display come with a full range of technical resources to implement applications for industrial and building automation, machine building or plant construction. A host of different device versions with various functions, voltage types, expansion and networking options are available for implementing the right solution. As well as offering the main functions of the easy500/easy700 such as multi-function timing relays, counters, analog value comparators, time switches etc., the easy800 and MFD-Titan offer a host of function blocks such as PID controllers, maths and value scaling function blocks and many more. The MFD-Titan also offers user-friendly operator and visualization options such as button functions, bitmaps or bar graphs as well as text displays, value entry and display functions. Protection to IP65 means that the display can be used in aggressive environments.



www.eaton.eu/easy
www.eaton.eu/mfd



easy500

For small-scale applications with up to 12 I/O:

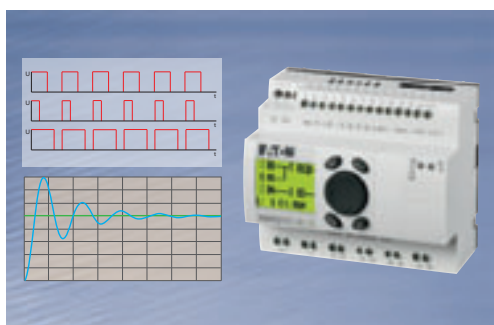
- 1:1 electronic circuit diagram entry
- Circuit diagram entry directly on the device possible
- 128 rungs with 3 contacts each and 1 coil in series
- Functions such as multi-function timing relays, impulse relays, counters, analog value comparators, week and year time switches, value entry, value display...
- Connection possible to Ethernet (programming and OPC functionality)



easy700

For solving medium-sized control tasks up to 40 I/O:

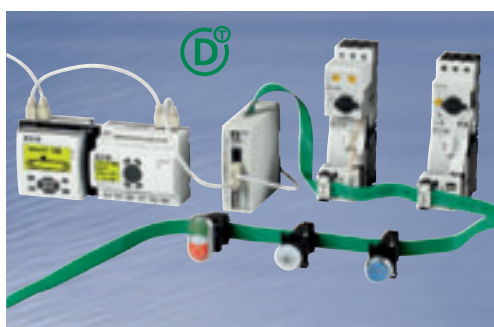
- Full functional range of an easy500
- 128 rungs with 3 contacts each and 1 coil in series
- Local and remote expansion possible for flexibility in the application
- Connection possible to standard bus systems (Profibus, CANopen, Device-Net, Asi) and Ethernet (programming and OPC functionality)



easy800

Ideal for large open-loop and closed-loop control tasks with up to 328 I/O:

- Full functional range of an easy700
- A host of additional functions such as PID controller, maths functions, pulse width modulation, value scaling, high-speed counters (5 kHz),...
- 256 rungs with 4 contacts each and 1 coil in series
- Digital and analog expandability
- Integrated communication via easyNet (up to 8 stations – up to 1000 m)
- Connection possible to standard bus systems (Profibus, CANopen, Device-Net, Asi) and Ethernet (programming and OPC functionality)



easy800 with SmartWire-DT

Combines the functions of an easy800 with the direct connection to the communication system for switchgear SmartWire-DT (SW-DT):

- Exchange of data as well as power supply for the SmartWire-DT devices and contactors via the communication system SmartWire-DT
- Up to 99 SmartWire-DT devices in total with up to 166 inputs/outputs can be connected
- easyNet as well as 4 additional fast inputs, 2 of which can be used as fast outputs
- Serial interface for programming or for connection of a remote text display or touch panel or for connection to the Ethernet



MFD-Titan

Combines the functions of an easy800 with user-friendly visualization for large-scale applications with more than 300 I/O:

- Display, operation, open and closed-loop control as well as communication in a single device
- Fast and easy to install in 22.5 mm standard fixing holes
- I/O modules for direct temperature measuring (Pt100 / Ni1000)
- Individual laser inscription of devices, for example with own company logo
- Digital and analog expandability
- Communication via easyNet possible (up to 8 stations – up to 1000 m)
- Connection possible to standard bus systems (Profibus, CANopen, Device-Net, Asi) and Ethernet (programming and OPC functionality)



EASY802-DC-SWD / EASY806-DC-SWD

In addition to the easy800 features with which the industry is already familiar, these two control relays feature an integrated SmartWire-DT master. This means that the SmartWire-DT line can be configured by simply pressing a button. After this, SmartWire-DT module switching states, status messages, motor load currents, and diagnostic data can all be easily processed in the corresponding circuit diagram. On top of the functionalities featured by the EASY802-DC-SWD, the EASY806-DC-SWD comes with an additional 4 fast inputs (5 kHz), 2 of which can also be configured as fast outputs (5 kHz) (24 VDC, 0.1 A transistor). Finally, in addition to this extra I/O, the EASY806-DC-SWD can be connected to easyNet.



easySoft-Basic / easySoft-Pro

This programming software is used to program the various easyRelay output classes, as well as the MFD-Titan. To do so, the corresponding circuit diagram is created in the form of a ladder diagram with the use of straightforward dragging and dropping. Moreover, the software programs feature simulation, real-time communication, and documentation options. On top of the functions available in easySoft-Basic, easySoft-Pro features a screen editor that can be used to create screens for the MFD-Titan. The integrated SmartWire-DT Assist program is used to integrate the SmartWire-DT line into the program. Finally, the easySoft-Pro CD comes with a free OPC server that makes it possible to connect to higher-level computer systems (OPC clients) in a standardized manner. Both software programs can be installed in 13 languages.



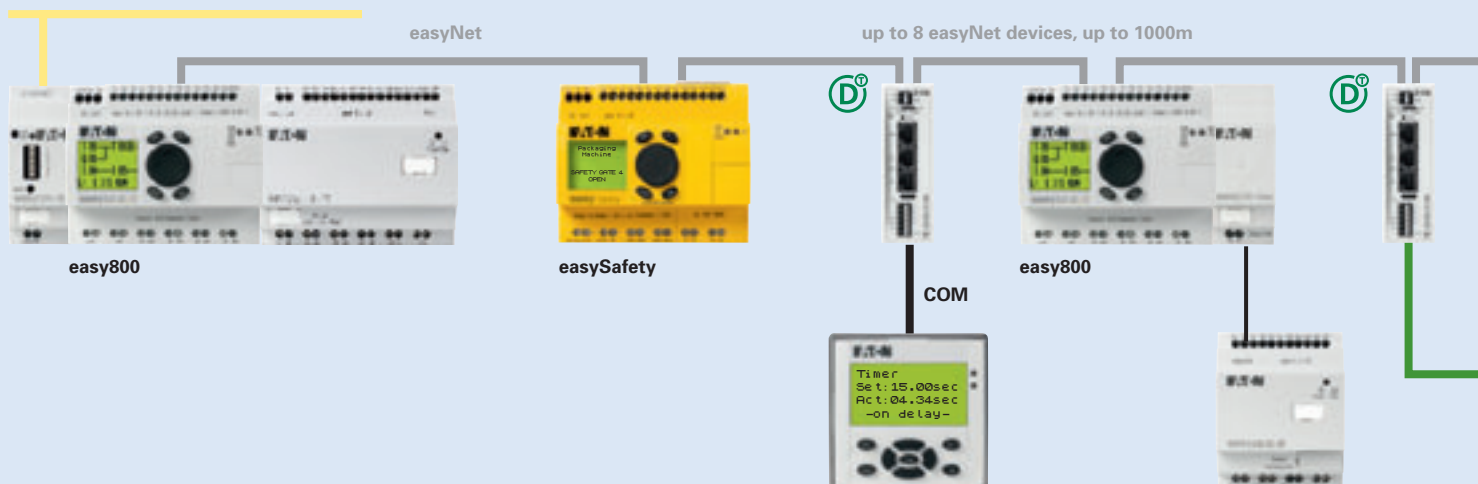
Bluetooth-Adapter and easyApps for Android Smartphones

Commissioning and operation of machines and equipment is now easier than ever – thanks to the Bluetooth adapter and easyApps. The free easyRemote Display App offers convenient access for Android smartphones to all available display and operating functions on the easy800 – almost like working on the control relay itself. The easyParameter App allows for customization of individual smartphone user interfaces. The administrator has flexibility in adjusting the user interface for the app user and determines which parameters can be read and modified from the smartphone. Thanks to the practical Bluetooth adapter, Android smartphones and easy800 can communicate directly via Bluetooth. It is also used for communications between the control relay and the computer.

Download easyApps from



Ethernet





Remote text display

For display and operation in the control panel door, on the machine or on the operator panel up to 5 m from the basis unit. This makes it possible to remotely display texts and values and enter values. The remote text display can be used for all easyRelay, easySafety, and easyControl units. It is made up of an MFD-80(-B) display/operating unit, an MFD(-AC)-CP4 power supply unit/communication module, and an MFD-CP4-...CAB5 or EU4A-RJ45-CAB2 connecting cable. Moreover, a high degree of protection of IP65 makes it suitable for use in harsh environments as well.



easy500/700 with XV Touch Panel as a HMI

Via the programming cable EASY-PC-CAB, control relays such as the easy500/700 can be connected to the XV Touch Panels. The touch panel reads data from the control relay or writes setting values to it. easy500/700 assumes the control of the application. Display and operation are implemented through the comfortable visualisation options of the HMIs.

This was created using the GALILEO visualization software. After selecting "easy 500/700" in Communications, the corresponding data types for the control relay are automatically created in GALILEO in the correct structure. This provides the visualization software with convenient access to the function block parameters for easy, allowing them to be linked to the visualization elements.



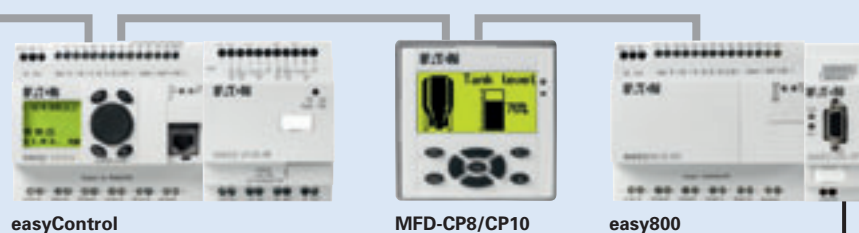
easy800 with XV Touch Panel as a HMI

In addition to the connection of easy800 and easySafety to an XV Touch Panel via the programming cable EASY800-PC-CAB, a connection via EASY-MO-CAB is also possible. Baud transfer rates up to 57600 Baud can be implemented here. Both cables are about 2 m in length. The MFD-CP4-800-CAB facilitates an extended cable length up to 5 m between the devices.

As with easy500/700, the touch panel accesses the control relay data via the GALILEO visualization software. In Communications, select "easy 800/MFD" and enjoy easy access to the function block parameter for the control relay.

Communication and data exchange

In addition to the communication via easyNet, it is possible to exchange data with higher-level automation systems. Bus modules for connection to the AS-i, PROFIBUS-DP, CANopen and DeviceNet are available for this purpose. With the EASY209-SE, a connection possibility is available from easyRelay and MFD-Titan to the Ethernet. This facilitates remote access and programming via easySoft, as well as OPC functionality.



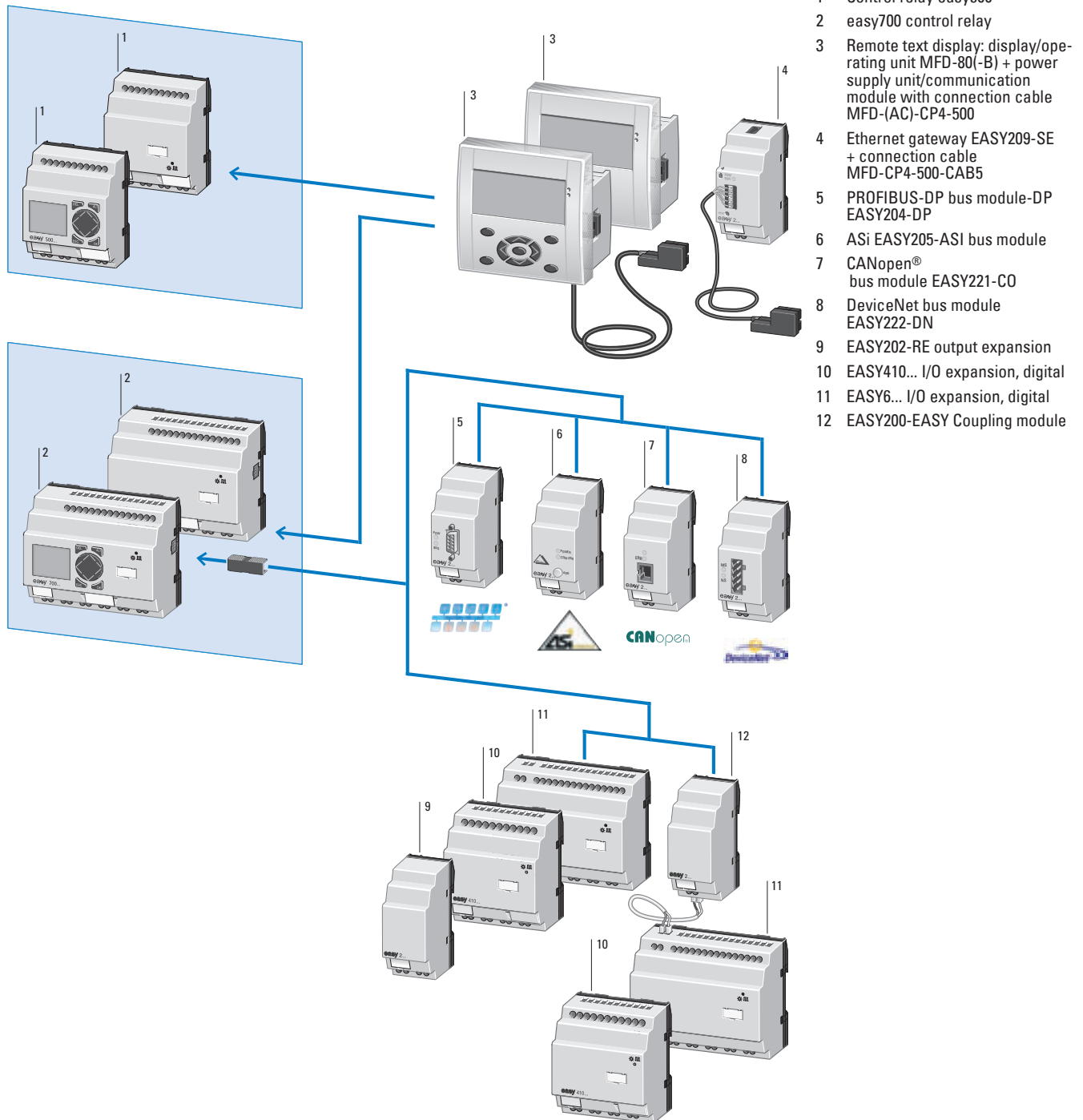
SmartWire-DT



CANopen



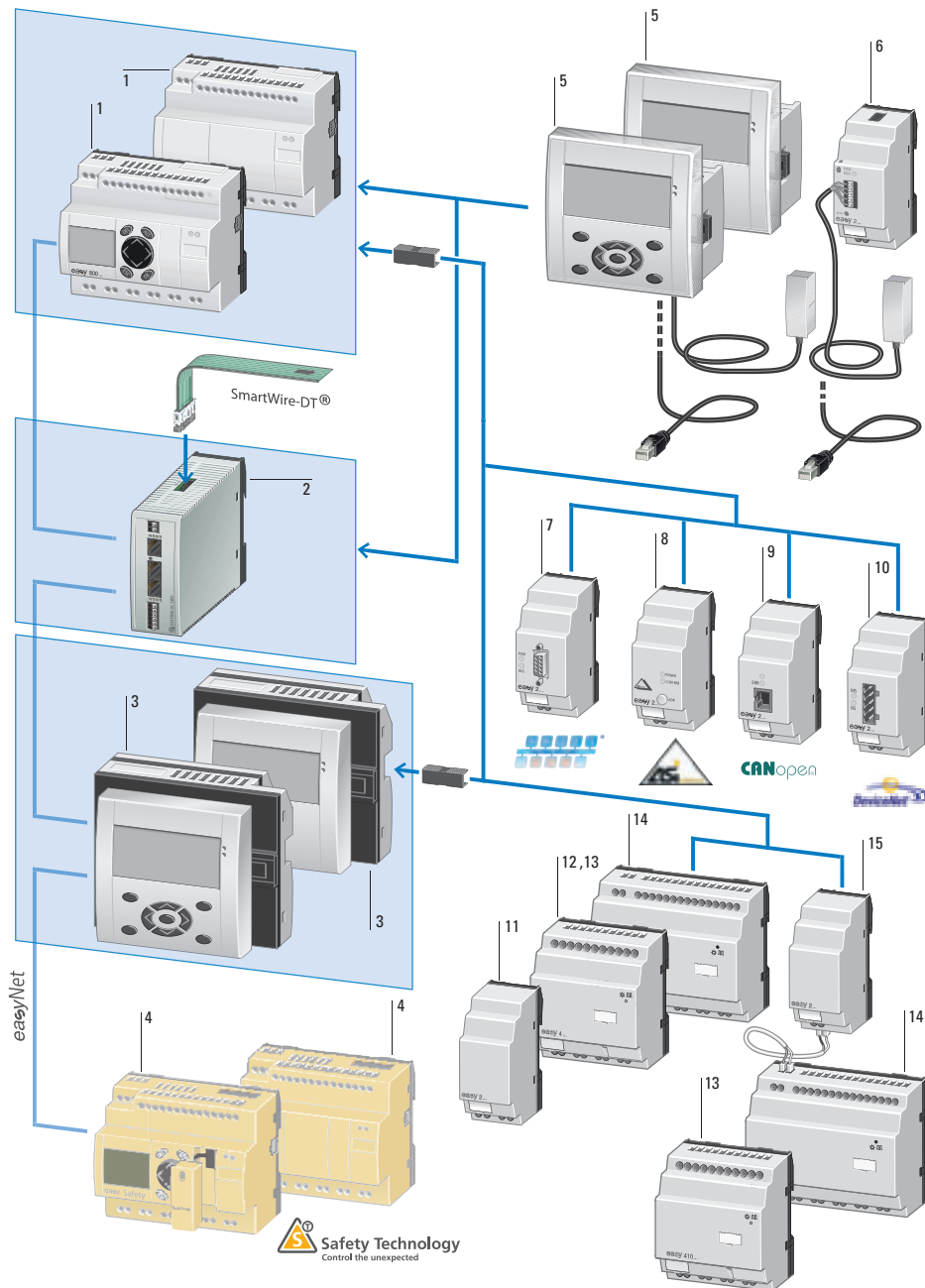
DeviceNet™



Functions

- 16 counting relays (0 to 32000, up and down counting)
- 2 frequency counters (max. 1 kHz)
- 2 high-speed counters (max. 1 kHz)
- 4 hours-run counters (the operating hours value is super retentive, i.e. also retained with program change)
- 8 weekly timers (4 channels per time switch, 1 on/off point per channel)
- 8 year time switches
- 16 timing relays (0.01 s – 99 h 59 min, on-delayed and/or off-delayed (optional random switching), pulse shaping, flashing)
- 8 jump function blocks
- 3 master reset function blocks
- 16 analog value comparators
- 16 comparators
- 16 text displays (4 x 12 characters, editable via programming software)
- Value entry (counter values, setpoints, ...)
- Value display (actual values, ...)
- Date and time entry
- Date and time display

	Inputs Digital	Of which can be used as analog	Outputs Relay 10 A (UL)	Transistor	Additional features Real time clock Display & keypad		Supply voltage	Part no. Article no.
easy500								
Stand alone								
Customized laser inscription or delivery with user program possible with EASY-COMBINATION-* product (article No. 2010781)								
	8	2	4	-	✓	✓	24 V AC	EASY512-AB-RC 274101
	8	2	4	-	✓	-	24 V AC	EASY512-AB-RCX 274102
	8	-	4	-	-	✓	100 - 240 V AC	EASY512-AC-R 274103
	8	-	4	-	✓	✓	100 - 240 V AC	EASY512-AC-RC 274104
	8	-	4	-	✓	-	100 - 240 V AC	EASY512-AC-RCX 274105
	8	2	4	-	✓	✓	12 V DC	EASY512-DA-RC 274106
	8	2	4	-	✓	-	12 V DC	EASY512-DA-RCX 274107
	8	2	4	-	-	✓	24 V DC	EASY512-DC-R 274108
	8	2	4	-	✓	✓	24 V DC	EASY512-DC-RC 274109
	8	2	4	-	✓	-	24 V DC	EASY512-DC-RCX 274110
	8	2	-	4	✓	✓	24 V DC	EASY512-DC-TC 274111
	8	2	-	4	✓	-	24 V DC	EASY512-DC-TCX 274112
easy700								
Expandable: Digital inputs/outputs, bus systems AS-Interface, PROFIBUS-DP, CANopen®, DeviceNet								
Customized laser inscription or delivery with user program possible with EASY-COMBINATION-* product (article No. 2010781)								
	12	4	6	-	✓	✓	24 V AC	EASY719-AB-RC 274113
	12	4	6	-	✓	-	24 V AC	EASY719-AB-RCX 274114
	12	-	6	-	✓	✓	100 - 240 V AC	EASY719-AC-RC 274115
	12	-	6	-	✓	-	100 - 240 V AC	EASY719-AC-RCX 274116
	12	4	6	-	✓	✓	12 V DC	EASY719-DA-RC 274117
	12	4	6	-	✓	-	12 V DC	EASY719-DA-RCX 274118
	12	4	6	-	✓	✓	24 V DC	EASY719-DC-RC 274119
	12	4	6	-	✓	-	24 V DC	EASY719-DC-RCX 274120
	12	4	-	8	✓	✓	24 V DC	EASY721-DC-TC 274121
	12	4	-	8	✓	-	24 V DC	EASY721-DC-TCX 274122
Programming and visualization software								
	13 installation languages Operating systems: Windows XP SP3, Windows Vista (32 bit), Windows 7 (32 bit + 64 bit), Windows 8 (32 bit + 64 bit) For use with easy400/500/600/700							EASY-SOFT-BASIC 284545
	13 installation languages Operating systems: Windows XP SP3, Windows Vista (32 bit), Windows 7 (32 bit + 64 bit), Windows 8 (32 bit + 64 bit) For use with easy400/500/600/700/800/MFD-...-CP8/CP10							EASY-SOFT-PRO 266040
Function				Description		Length		
Programming cable								
	For downloading the user program from PC to device For use with easy500, easy700				SUB-D, 9 pole, serial		2 m	EASY-PC-CAB 202409
	For downloading the user program from PC to device For use with easy500, easy700				USB		2 m	EASY-USB-CAB 107926



- 1 Control relay easy800
- 2 Control relay easy800 with SmartWire-DT
- 3 Multi-function display MFD-Titan
- 4 easySafety safety relays
- 5 Remote text display: display/ operating unit MFD-80(-B) + power supply unit/communication module MFD-(AC)-CP4 + connection cable MFD-CP4-800-CAB5 and EU4A-RJ45-CAB2
- 6 Ethernet gateway EASY209-SE + connection cable MFD-CP4-800-CAB5 and EU4A-RJ45-CAB2
- 7 PROFIBUS-DP bus module EASY204-DP
- 8 ASi EASY205-ASi bus module
- 9 CANopen® bus module EASY221-CO
- 10 DeviceNet bus module EASY222-DN
- 11 EASY202-RE output expansion
- 12 I/O expansion, analog EASY406-DC-ME / EASY411-DC-ME
- 13 EASY410... I/O expansion, digital
- 14 EASY6... I/O expansion, digital
- 15 EASY200-EASY Coupling module

Functions easy800 / MFD-Titan (MFD-CP8/CP10)

- 32 counter relays (+/- 2³¹, up, down counting)
- 4 frequency counters (easy800: max. 5 kHz, MFD-CP8/CP10: max. 3 kHz)
- 4 high-speed counters (easy800: max. 5 kHz, MFD-CP8/CP10: max. 3 kHz)
- 2 incremental counters (easy800: max. 5 kHz, MFD-CP8/CP10: max. 3 kHz)
- 4 hours-run counters (operating hours value is super retentive, i.e., also retained after program change)
- 32 weekly timers (4 channels per time switch, 1 on/off point per channel)
- 32 year time switches
- 1 set cycle time
- 32 timing relays (0.005 s – 2³² min, on-delayed and/or off-delayed (optional random switching), pulse shaping, flashing)
- 32 jump function blocks
- 32 conditional jumps
- 32 master resets
- 32 analog value comparators
- 32 comparators (ADD, SUB, MUL, DIV)
- 32 PID controllers
- 32 PT1 signal smoothing filters
- 32 value scaling function blocks
- 32 numerical converters
- 2 pulse outputs (easy800)
- 2 pulse width modulations
- 32 value limitations
- 32 block comparisons
- 32 block transfers
- 32 Boolean sequences (AND, OR, NOT)
- 32 comparators
- 32 data function blocks
- 32 data multiplexers (easy800 and MFD-CP10..)
- 32 shift registers
- 32 table functions
- 32 get values from NET
- 32 put values to NET
- 32 Bit outputs via NET
- 32 Bit inputs via NET
- 32 serial protocols (easy800)
- 9 diagnostic alarms
- 1 synchronize clock via NET
- 32 text displays (4 x 16 characters) (easy800)
- Value entry (counter values, setpoints, etc.) (easy800)
- Value display (actual values, ...) (easy800)
- Date and time input (easy800)
- Date and time display (easy800)

Visualization elements MFD-Titan (MFD-CP8/CP10)

- Static text
- Message text
- Screen menu
- Running text
- Rolling text
- Date and time display
- Numerical value display (actual values, ...)
- Timing relay value display
- Value entry (counter values, setpoints, etc.)
- Timing relay value entry
- Date and time entry
- Weekly timer entry
- Year time switch entry
- Latching pushbutton
- button field
- Bit display
- Bitmap
- Message bitmap
- Bargraph

	Inputs		Outputs		Additional features		Supply voltage	Part no. Article no.	
	Digital	Of which can be used as analog	Relay 10 A (UL)	Transistor	Analog	Real time clock			Display & keypad
easy800									
Expandable: Digital/analog inputs/outputs and AS-Interface, PROFIBUS-DP, CANopen®, DeviceNet bus systems Bus system easyNet on board Customized laser inscription or delivery with user program possible with EASY-COMBINATION-* product (article No. 2010781)									
	12	4	6	-	-	✓	✓	24 V DC	EASY819-DC-RC 256269
	12	4	6	-	-	✓	-	24 V DC	EASY819-DC-RCX 256270
	12	4	6	-	1	✓	✓	24 V DC	EASY820-DC-RC 256271
	12	4	6	-	1	✓	-	24 V DC	EASY820-DC-RCX 256272
	12	4	-	8	-	✓	✓	24 V DC	EASY821-DC-TC 256273
	12	4	-	8	-	✓	-	24 V DC	EASY821-DC-TCX 256274
	12	4	-	8	1	✓	✓	24 V DC	EASY822-DC-TC 256275
	12	4	-	8	1	✓	-	24 V DC	EASY822-DC-TCX 256276
	12	-	6	-	-	✓	✓	100 - 240 V AC	EASY819-AC-RC 256267
12	-	6	-	-	✓	-	100 - 240 V AC	EASY819-AC-RCX 256268	
	Inputs Digital	Of which can be used as outputs	SmartWire-DT	Outputs Transistor	SmartWire-DT	Additional features Real time clock Display & keypad		Supply voltage	Part no. Article no.
easy800 with SmartWire-DT									
Combines the functionality of an easy800 with direct connection to SmartWire-DT communication system Up to 99 SmartWire-DT modules with a total of up to 166 digital inputs/outputs and/or up to 128 analog inputs/outputs can be connected via a SmartWire-DT line									
	-	-	83	-	83	✓	-	24 V DC	EASY802-DC-SWD 152901
	4	2	83	2	83	✓	-	24 V DC	EASY806-DC-SWD 152902
Programming and visualization software									
	13 installation languages Operating systems: Windows XP SP3, Windows Vista (32 bit), Windows 7 (32 bit + 64 bit), Windows 8 (32 bit + 64 bit) For use with easy400/500/600/700/800/MFD-...-CP8/CP10								EASY-SOFT-PRO 266040
Function		Description		Length m		Part no. Article no.			
Programming cable									
	For downloading the user program from PC to device For use with easy800, MFD-...-CP8, MFD-...-CP10, ES4P				SUB-D, 9 pole, serial	2	EASY800-PC-CAB 256277		
	For downloading the user program from PC to device For use with easy800, MFD-...-CP8, MFD-...-CP10, EC4P, ES4P				USB	2	EASY800-USB-CAB 106408		
	For transferring the user program to the PLC or for diagnosing SmartWire-DT networks For use with EC4P, XC100, XC200, XC121, easy800-SWD, EU5C				SUB-D, 9 pole, serial	2	EU4A-RJ45-CAB1 106726		
	For transferring the user program to the PLC or for diagnosing SmartWire-DT networks For use with EC4P, XC100 XC200, XC121, easy800-SWD, EU5C				USB	2	EU4A-RJ45-USB-CAB1 115735		
Bluetooth adapter									
	For secure radio connection between control relay and PC (programming and online communication)/Android smartphone and tablet (easyRemote display app, easyParameter app) For use with easy81..., easy82..., MFD-CP8, MFD-CP10 ≥ V. 3.0, EC4P								EASY800-BLT-ADP 167651

Description		Part no. Article no.
Display/keypad		
Monochrome display 132 × 64 pixels with switchable backlight, removable Titan front frame, Custom laser inscriptions possible with MFD-COMBINATION (article no. 2010801) product IP65		
	With keypad, with Eaton company logotype NEMA type 3R; NEMA type 12; NEMA type 4x together with MFD-XM-80 protective diaphragm	MFD-80-B 265251
	With keypad, without Eaton company logotype NEMA type 3R; NEMA type 12; NEMA type 4x together with MFD-XM-80 protective diaphragm	MFD-80-B-X 284905
	Without keypad, with Eaton company logotype NEMA type 3R, NEMA type 12, NEMA type 4x	MFD-80 265250
	Without keypad, without Eaton company logotype NEMA type 3R, NEMA type 12, NEMA type 4x	MFD-80-X 284904

Supply voltage	Description	Part no. Article no.
Power supply unit/CPU modules		
Can be combined with display/operating unit MFD-80-.. and I/O module, Expandable: Digital/analog inputs/outputs and AS-Interface, PROFIBUS-DP, CANopen®, DeviceNet bus systems, Bussystem easyNet optional on board, Program and screen memory, Delivery with user program possible with MFD-COMBINATION product (Article no. 201801) IP20, Spring-cage terminals		
	100 - 240 V AC	Program and screen memory
	100 - 240 V AC	Program and screen memory, with easyNet
	24 V DC	Program and screen memory
	24 V DC	Program and screen memory, with easyNet
	24 V DC	Double program and screen memory like MFD-CP8...
	24 V DC	Double program and screen memory, as MFD-CP8..., with easyNet
		MFD-AC-CP8-ME 274091
		MFD-AC-CP8-NT 274092
		MFD-CP8-ME 267164
		MFD-CP8-NT 265253
		MFD-CP10-ME 133801
		MFD-CP10-NT 133800

	Supply voltage	Description	For use with	Part no. Article no.
Power supply unit/communication module				
Degree of protection IP20 Can be combined with display/operating unit MFD-80...as stand-alone text display				
	24 V DC	With connection cable (5 m, can be cut to length)	easy500 easy700	MFD-CP4-500 274094
	24 V DC	With connection cable (5 m, can be cut to length)	easy800 ES4P	MFD-CP4-800 274095
	100 - 240 V AC	With connection cable (5 m, can be cut to length)	easy500 easy700	MFD-AC-CP4-500 286823
	100 - 240 V AC	With connection cable (5 m, can be cut to length)	easy800 ES4P	MFD-AC-CP4-800 286824
	24 V DC	Without connection cable	MFD-80...	MFD-CP4 280888
	100 - 240 V AC	Without connection cable	MFD-80...	MFD-AC-CP4 286822

	Supply voltage	For use with	Inputs Digital	Of which can be used as analog	Pt100	Outputs Relay 10 A (UL)	Transistor	Analog	Temperature range	Part no. Article no.
I/O modules										
	24 V DC	MFD-CP8.. MFD-CP10..	12	4	-	4	-	-	-	MFD-R16 265254
	24 V DC		12	4	-	-	4	-	-	MFD-T16 265255
	24 V DC		12	4	-	4	-	1	-	MFD-RA17 265364
	24 V DC		12	4	-	-	4	1	-	MFD-TA17 265256
	100 - 240 V AC	MFD-AC-CP8...	12	-	-	4	-	-	-	MFD-AC-R16 274093
I/O modules with temperature measuring										
	24 V DC	MFD-CP8... from device version 08 MFD-CP10..	6	2	2	-	4	-	-40...+90 °C 0...+250 °C 0...+400 °C	MFD-TP12-PT-A 106042
	24 V DC		6	2	2	-	4	1		MFD-TAP13-PT-A 106045
	24 V DC		6	2	2	-	4	-	-200...+200 °C 0...+850 °C	MFD-TP12-PT-B 106043
	24 V DC		6	2	2	-	4	1		MFD-TAP13-PT-B 106046
	24 V DC		6	2	-	-	4	-	-40...+90 °C 0...+250 °C	MFD-TP12-NI-A 106044
	24 V DC		6	2	-	-	4	1		MFD-TAP13-NI-A 106047

	Inputs Digital	Outputs Relay 10 A (UL)	Transistor	Supply voltage	Part no.	Article no.
I/O expansions, digital						
Can be used through easyLink						
	12	6	-	100 - 240 V AC	EASY618-AC-RE	212314
	12	-	8	24 V DC	EASY620-DC-TE	212313
	12	6	-	24 V DC	EASY618-DC-RE	232112
	-	2	-	24 V DC	EASY202-RE¹⁾	232186
	6	4	-	24 V DC	EASY410-DC-RE	114293
	6	-	4	24 V DC	EASY410-DC-TE	114294
	For remote connection of a digital I/O extension up to 30 m.				EASY200-EASY	212315

	Inputs Digital	Analog	Of which usable as digital inputs	Outputs Relay 10 A (UL)	Transistor	Analog	Supply voltage	Part no.	Article no.
I/O expansions, analog									
Can be used through easyLink									
	1	2 ²⁾	2	-	2	1	24 V DC	EASY406-DC-ME	114295
	1	6 ³⁾	2	-	2	2	24 V DC	EASY411-DC-ME	116567

Notes

- ¹⁾ Not for use in combination with EASY719-DA-... basic devices
Cannot be used on the EASY200-EASY coupling module
- ²⁾ 2 x 0 - 10 V or 2 x 0 - 20 mA or 2 x RTD (2/3-wire connection);
Voltage inputs (0 - 10 V), optionally usable as digital inputs
- ³⁾ 2 x 0 - 10 V and 2 x 0 - 20 mA and 2 x RTD (2/3-wire connection);
Voltage inputs (0 - 10 V), optionally usable as digital inputs

Inputs			Supply voltage	Part no. Article no.
Bus modules				
Can be used through easyLink				
	AS-Interface	Slave 4 inputs 4 outputs 4 parameter bits Addresses available: 0 - 31	-	EASY205-ASI 221598
	PROFIBUS-DP	Slave Addresses available: 1 - 126	24 V DC	EASY204-DP 212316
	CANopen®	Addresses available: 1 - 127	24 V DC	EASY221-CO 233539
	DeviceNet	Addresses available: 0 - 63	24 V DC	EASY222-DN 233540
Ethernet gateway				
	Serial interface easyRelay or MFD-...CP8/CP10... to Ethernet for connection to easyOPC server, easySoft, or easyCom		24 V DC	EASY209-SE 101520

Build it in.



easyPower, ELC-PS and PSG power supply units

Whether at the machine or plant, in the control cabinet or service distribution board – the easyPower, ELC-PS and PSG 24 V DC power supply units provide the right solution and design for any requirement. These rail-mounted power supply units provide a reliable 1-phase and 3-phase supply for efficient operation. In addition to the wide range inputs and approvals for worldwide use, these devices stand out on account of their optimum efficiency and large temperature range. The short-circuit proof design and overload withstand capability ensure a safe power supply. The compact housing saves space and costs. The adjustable output voltage range of the PSG power supply units ensures optimum adaptability. With an output current of 1 A to 40 A, the power supply units are designed to supply machines and plants with low power requirements as well as large current loads.

	Input voltage range	Rated output voltage	Rated output power W	Rated output current A	Part no. Article no.
Single-phase power supplies					
Nominal input voltage: 100 - 240 V AC					
	85 - 264 V AC	24 V DC (± 3%)	-	0.35	EASY200-POW 229424
		12 V DC (± 4%)	-	0.02	
		24 V DC (± 3%)	-	1.25	EASY400-POW 212319
		24 V DC (± 3%)	-	2.5	EASY500-POW 110941
	85 - 264 V AC	24 V DC (± 3%)	24	1	ELC-PS01 135239
			48	2	ELC-PS02 135240
	85 - 264 V AC (120 - 375 V DC)	24 V DC (± 2%)	60	2.5	PSG60N24RP 172890
			60	2.5	PSG60E24RM 172891
			120	5	PSG120E24RM 172892
			240	10	PSG240E24RM 172893
			480	20	PSG480E24RM 172894
			3-phase power supplies		
Nominal input voltage: 3 x 400 - 500 V AC					
Setting range for the output voltage: 24 - 28 V DC					
 	320 - 600 V AC (450 - 800 V DC)	24 V DC (± 2%)	60	2.5	PSG60F24RM 172882
			120	5	PSG120F24RM 172883
			240	10	PSG240F24RM 172884
			480	20	PSG480F24RM 172885
			960	40	PSG960F24RM 172886
Part no. Article no.					
Power supplies PSG, Redundancy module					
For decoupling power supplies of the same type that are connected in parallel on the output side for redundancy purposes					
Input voltage range 22 - 60 V DC					
	Rated output current 20 A				PSG480R24RM 172888
	Rated output current 40 A				PSG960R24RM 172889
Power supplies PSG, Buffer module					
For maintaining operation during brief power failures; the backup time can be multiplied by connecting in parallel					
	Input voltage range 22,8 - 28,8 V DC				PSG480B24RM 172887
	Rated output current 20 A Backup time depends on load current 250 ms (20 A) to max. 5 s (1 A)				

Build it in.



Functional safety for persons, machine and environment



Safety Technology
Control the unexpected



A machine poses dangers to persons, machinery and the environment over the entire life cycle of a machine – from manufacture to dismantling. It is therefore vital that these dangers are identified already during the design phase of the machine and reduced with suitable measures.

The Machinery Directive 2006/42/EC requires that machines do not pose any dangers. However, as there is no such thing as 100 % safety in engineering, the objective is to reduce these sources of danger to a tolerable level of residual risk. The overall safety of a machine defines the state which is deemed to be free of unwarranted risks for persons or which is deemed to be danger free. The functional safety describes the proportion of the overall safety of a system that is dependent on the correct function of the safety-related systems and external devices in order to reduce the risks.



www.eaton.eu/fusi

Risk reduction through the use of safety-related parts of control systems

The elements of machine controls which assume safety-related tasks are designated by international standards as "safety-related parts of control systems" (SRP/CS). Safety-related parts of control systems each incorporate the entire functional chain of a safety function, consisting of the input level (sensor), the logic (safe signal processing) and the output level (actuator).

The general objective is to design these parts so that the safety of the control functions as well as the reaction of the control system in the event of a malfunction complies with the degree of risk reduction determined in the risk analysis. The higher the level of risk reduction to be provided by the safety-related parts of a control system, the higher the safety level or the technical safety performance level demanded of the control section.

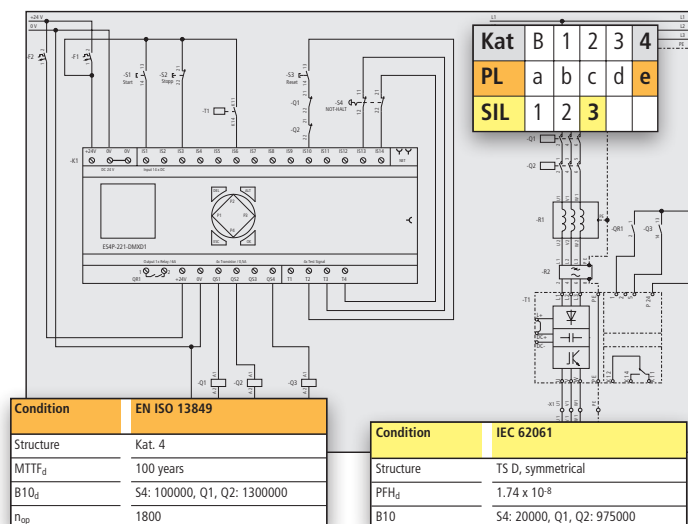


Safety manual for machines and plants in accordance with EN ISO 13849-1 and IEC 62061

Eaton has written the Safety Manual for machine and plant builders, trainers and trainees as well as interested customers having to deal with the issue of "machine and plant safety".

This provides an easy entry level into the extensive range of material on safety technology. The Eaton Safety Manual contains an overview of the most important factors involved in directives, standards and regulations that have to be taken into consideration when using safety equipment on machines. The safety-related contents in this manual have been checked by TÜV Rheinland Industrie Service GmbH.

The manual uses example circuits to show how the functional safety can be implemented with electrical, electronic and programmable components and systems in safety applications.



The Safety Manual also provides a description of the functions as well as a clear presentation of a possible evaluation of each circuit example.

The calculated characteristic values apply to the assumptions made in the safety applications and the safety-related switchgear in use.

Simply register online at www.eaton.eu/shb and work online with the safety manual or download the safety manual free-of-charge.

For safety-relevant characteristic values for our products, please visit our website www.eaton.eu/fusi

Build it in.



Safe monitoring and processing



Machines and plants contain potentially dangerous motion sequences that require a technical solution to make them safe. Safety devices such as emergency-stop pushbuttons, guard doors, light curtains and operating elements for safe setting must be controlled and monitored, and the installation may have to be switched to a safe state. For these tasks, Eaton is offering two safety logic series, the ESR5 electronic safety relay and the easySafety control relay.

Whether on a simple or complex machine, the required protection of personnel and process can be ensured using these Eaton safety products that have been approved by TÜV Rheinland:

- Performance Level PL e to EN ISO 13849-1
- Safety Integrity Level SILCL 3 according to IEC 62061



www.eaton.eu/esr5
www.eaton.eu/es4p



Designing logic processes safely

ESR5 series safety relays monitor the signals of safety devices reliably and switch off safely and rapidly in the event of an emergency. The internal logic of the safety relays monitors the wired safety circuits and activates the enable paths when no faults are present.

The easySafety control relay monitors all typically used safety devices and also performs the control tasks required for the machine. Armed with a host of conventional safety relays in the form of safety function blocks, easySafety not only integrates safety but also standard functions in a single all-in-one device.



Economical monitoring with the ESR5 safety relay

- Many safety switch contacts with up to 5 enable and 2 signal current paths
- Immediate (stop category 0) or delayed (stop category 1) stopping
- Duplication using contact expansion modules
- Optimum space saving thanks to slim 22.5 mm mounting width
- Pluggable screw terminals for fast and fault-free exchange
- Multi-voltage versions 24 – 230 V AC/DC for flexible application range
- World market devices with UL, cUL and TÜV Rheinland certification



All in one – safety and control relay rolled into one

- Safety circuit diagram and standard circuit diagram integrated in the same device
- TÜV-approved safety function blocks
- 14 safety inputs
- 4 safety transistor outputs and 1 redundant relay output or 4 safety relay outputs
- 4 test signals
- Local expandable via integrated easyLink interface
- Remotely expandable via integrated easyNet interface
- With or without display
- Additional stand-alone display can be connected via integrated RS232 interface

	Stopping in the event of an emergency	Protective door	OSSD input	Contact expansion module	Feedback circuit	Reset button monitoring	Single-channel	Dual-channel	Non-delayed enable current paths	Delayed enable current paths	Delayed signal current path	Non-delayed signal current path	PL / Category according to EN ISO 13849-1	SILCL in accordance with 62061	Part no. Article no.
ESR5															
Overall width: 22.5 mm or 45 mm															
	✓	✓	-	-	✓	-	✓	✓	2	-	1	-	PL e / Kat. 4	SILCL 3	ESR5-NO-21-24VAC-DC 118700
	✓	✓	-	-	✓	-	✓	✓	2	-	1	-	PL e / Kat. 4	SILCL 3	ESR5-NO-31-24VAC-DC 118702
	✓	✓	-	-	✓	✓	✓	✓	3	-	1	-	PL e / Kat. 4	SILCL 3	ESR5-NO-31-230VAC 119380
	✓	✓	-	-	✓	✓	✓	✓	3	-	1	-	PL e / Kat. 4	SILCL 3	ESR5-NO-31-AC-DC 118704
	✓	✓	-	-	✓	-	✓	-	4	-	1	-	PL c / Kat. 1	SILCL 1	ESR5-NO-41-24VAC-DC 118701
	✓	✓	-	-	✓	-	✓	-	3	-	1	-	PL c / Kat. 1	SILCL 1	ESR5-NOS-31-230VAC 153152
	✓	✓	✓	-	✓	✓	✓	✓	2	2	-	-	PL e / Kat. 4	SILCL 3	ESR5-NV3-30 118705
	✓	✓	✓	-	-	-	✓	✓	3	2	-	1	PL e / Kat. 4	SILCL 3	ESR5-NV3-300 171858
	-	✓	-	-	✓	-	-	✓	2	-	-	1	PL e / Kat. 4	SILCL 3	ESR5-NZ-21-24VAC-DC 118703
	-	-	-	✓	-	-	✓	-	5	-	1	-	PL e / Kat. 4	SILCL 3	ESR5-NE-51-24VAC-DC 118707
	-	-	-	✓	-	-	✓	-	-	4	1	-	PL d / Kat. 3	SILCL 3	ESR5-VE3-42 118706
With light curtain functionality															
	✓	✓	-	-	✓	✓	-	-	3	-	-	1	PL e / Kat. 4	SILCL 3	ESR5-BWS-31-24VAC-DC 180413

	Transistor outputs	Relay outputs	Display & keypad	Part no. Article no.
ES4P				
– Stopping in the event of an emergency – Protective door – ESPE with muting function – Two-hand control – Highest speed monitoring – Zero speed monitoring – Safety timing relay – Mode selection – Enabling switch – Feedback circuit – Mounting width: 107.5 mm – 14 Inputs (safety) 24 V DC – Rated operational voltage: 24 V DC Safety related characteristics – Performance level according to EN ISO 13849-1 PL e / Cat. 4 – Safety integrity level claim limit in accordance with 62061 SILCL 3				
	4	1 (redundant)	✓	ES4P-221-DMXD1 111017
	-	4	✓	ES4P-221-DRXD1 111019
	4	1 (redundant)	-	ES4P-221-DMXX1 111016
	-	4	-	ES4P-221-DRXX1 111018

Description	Part no. Article no.
ES4P add-on functions	
Programming Software	
 easySoft-Safety Menu selection in German, English, French, and Italian Operating systems: Windows XP SP3, Windows 7 (32 bit + 64 bit), Windows 8 (32 bit + 64 bit)	ESP-SOFT 111460
Memory card	
 256-kB module	ES4A-MEM-CARD1 111461

Function	Description	Length m	Part no. Article no.
Programming cable			
 For downloading the user program from PC to device For use with easy800, MFD-...-CP8, MFD-...-CP10, ES4P	SUB-D, 9 pole, serial	2	EASY800-PC-CAB 256277
 For downloading the user program from PC to device For use with easy800, MFD-...-CP8, MFD-...-CP10, EC4P, ES4P	USB	2	EASY800-USB-CAB 106408

Build it in.



GALILEO: Visualization at a whole new Level



A single visualization program for all XV/XP families

Eaton's GALILEO is a powerful and comprehensive visualization program that can be used to configure any XV or XP touch panel.

GALILEO is an intuitive and powerful engineering environment that not only takes little time to master, but that also meets virtually every requirement involved in on-site machine operation. The visualization software, developed by Eaton, is designed to meet the needs of any industry while providing comprehensive configuration options for all XV devices and PC runtime solutions. As part of this approach, GALILEO puts its full functionality at the disposal of design engineers at all times, avoiding nested variable and screen limitations.



Easy and intuitive to use and test

- An intuitive and powerful design environment
- There are no limits on the number of tags and images that can be used by functions
- Project simulations on the development computer reduce design and commissioning times
- Thanks to the full forward compatibility of all your projects, you can rest assured knowing your investment will yield dividends for a long time



Custom-tailored for international mechanical engineering

- Pre-defined, language-specific keypad configurations
- Change languages online
- Change units in runtime (e.g., °C to °F or cm to inches)
- Unicode support (also Asian character sets)
- The ability to import text from and export text to Excel makes it possible to quickly create error-free translations
- All devices are UL approved



Varied communication possibilities

- Over 100 protocols for almost all current PLCs makes it possible to use GALILEO in conjunction with PLC systems from other makers as well
- Communication to CODESYS-V2 and CODESYS-V3
- Easily import PLC variables in XML format
- Secure, reliable, and easy connection to your control system level and to Office
- Up to eight simultaneous communication processes
- Remote client/server and OPC client
- Remote control via smartphone



Further Galileo highlights

- Powerful and easy-to-use design features such as styles, color gradients, semi-transparency, and full transparency
- Gesture-based controls (swipe, scroll, zoom)
- The ability to reuse object groups
- The ability to scroll through subscreens (that cannot be displayed in their entirety) by using a viewing window
- Supports switching between 16:9 and 4:3 panel aspect ratios
- Single-line and multi-line alarm messages with integrated variables
- Variables, objects, bitmaps, and styles can be copied between projects

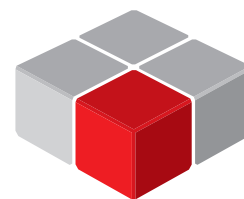
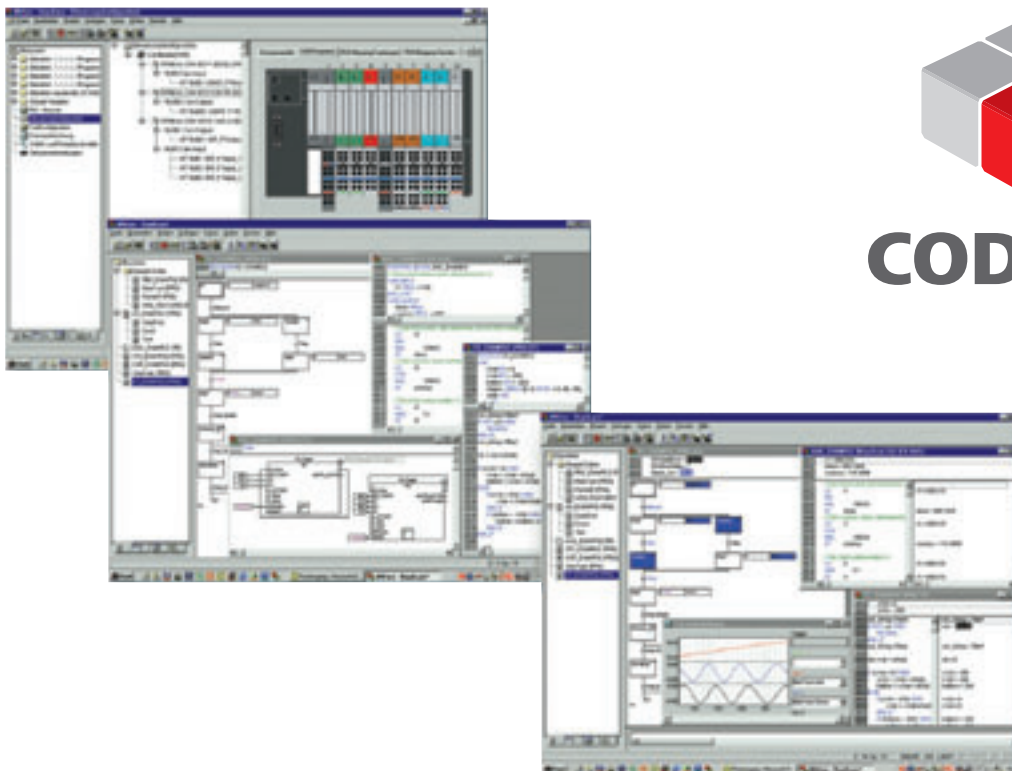
Which visualization software for which device?

	XV-102-A...	XV-102-H...	XV-102-B/-D/-E-...	XV-112...	XV-152...	XV-3x3-...	XV(S)-4...	XC-152-...	XP-503-...-1B
Galileo 8	•	•	•	•	•		•	•	•
Galileo 10		•	• ¹	•	•	•	• ²	•	•
Galileo 10 Webserver						•			•

¹⁾ Except XV-102 with monochrome 3.5" displays ²⁾ Except XV(S) devices with 256 colors

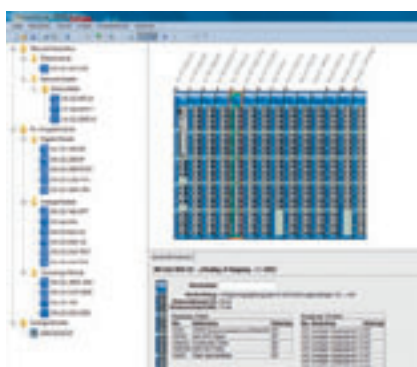
Description	Part no. Article no.
GALILEO	
License certificate for visualization software GALILEO MS Windows™-based intelligent and intuitive visualization tool, single-workstation license	SW-GALILEO-S 171500
License certificate for visualization software GALILEO MS Windows™-based intelligent and intuitive visualization tool, multi-workstation license	SW-GALILEO 140379
GALILEOOpen license for PC For continuous, unrestricted operation of the GALILEO runtime systems on a standard PC.	LIC-GALILEO-OPEN-PC 140385

Build it in.



CODESYS

XSOFT-CODESYS: PLC programming to international standards



Software tools make both engineering and commissioning easier:

- XN300 Assist
- I/O-Assist
- SWD-Assist

Download free of charge at
www.eaton.eu/software

CODESYS is a programming system that is based on 3S' CODESYS standard. And with its sophisticated technical features, ease of use, and popularity as a programming system for automation components from a wide variety of manufacturers, it is no surprise that it has become the system of choice for many a successful company. Eaton offers both **CODESYS Version 2** and **Version 3**, and most XV/XC controllers can be programmed with either version.

CODESYS is the ideal programming tool for applications in which a powerful PLC or HMI PLC with various field bus connections is required. The reason why is its integrated field bus configurators for PROFIBUS, CAN, SmartWire-DT, Modbus TCP/RTU (in Version 3), and EtherNet/IP (in Version 3), which make it possible to quickly, intuitively, and easily connect devices to the field bus of your choice. In short, the software is the ideal programming tool for all machine and process-relevant applications in mechanical and plant engineering environments.



www.eaton.eu/codesys

Push-button

**flush,
titanium ring**
IP67, IP69K –
spring-return /
stay-put



**extended,
titanium ring**
IP67, IP69K –
spring-return /
stay-put

Mushroom actuator

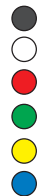
IP67, IP69K –
spring-return /
stay-put

Double actuator

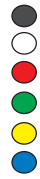
IP66
extended / flush

4 position push-button

IP66
– opposing buttons
not mechanically
interlocked
– opposing buttons
mechanically
interlocked

Indicator lights

flush
IP67, IP69K



extended
IP67, IP69K

**Illuminated push-button
actuators**

**flush,
titanium ring**
IP67, IP69K
spring-return /
stay-put



**extended,
titanium ring**
IP67, IP69K
spring-return /
stay-put

Potentiometer

IP66
Selectable resistance
value

Thumb-grip selector switch

IP66
spring-return /
stay-put

**Illuminated thumb-grip
selector switch**

IP66
spring-return /
stay-put

Key-operated actuator

IP66
spring-return /
stay-put
2 / 3 positions

Selector switch

IP66
spring-return /
stay-put
2 / 3 / 4 positions

Joystick

IP66
spring-return /
stay-put
2 and 4 positions
horizontal and vertical

RMQ compact solution

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Push-button

IP66, IP67, IP69k
(front)
IP65 (on-rear)

Indicator lights

IP66, IP67, IP69k
(front)
IP65 (on-rear)

**Illuminated push-button actuators**

IP66, IP67, IP69k
(front)
IP65 (on-rear)

**Foot and palm switch**

IP67, IP67K
spring-return

Emergency-Stop button

IP67, IP67K
tamper proof
stay-put

FAK switch

Page 113

EMERGENCY-STOP/OFF actuators



Mushroom actuator, 38 mm
IP66, IP69K
pull or turn to reset
illuminated /
not-illuminated



Palm switch 45 and 60 mm
IP66, IP69K
pull or turn to reset,
mechanical switch
position indication

Accessories



Sealable shroud



Guard ring



Encoder
IP65
Confirmation function
Adjustable 16-bit
value range

Page 26

Built-in sockets



for USB 3.0
IP65 with closed
cover
IP20 open



RJ45 cat 5e
IP65 with closed
cover
IP20 with plug
connected

Contact and LED elements



Front and base
fixing, screw /
spring-loaded
terminals,
LED elements

SW-DT interface



Front and
base fixing
with and
without LED

Self-monitoring contacts (SMC)



Single-channel, dual-
channel, dual-channel
with signaling contact
for front and base
fixing

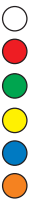
Signal towers



Card with continuous / flashing light



LED,
High Performance
LED,
Filament lamp



Acoustic modules



8 tones adjustable

Basic modules



Basic modules for
9 different assembly
options

Control circuit devices RMQ 16

[i+](#) See Online Catalog

Illuminated actuators



IP65
flush / extended
18 x 18 mm and
25 x 25 mm

Illuminated push-button actuators



IP65
spring-return /
stay-put
18 x 18 mm and
25 x 25 mm

Push-button actuators



IP65
spring-return /
stay-put
18 x 18 mm and
25 x 25 mm

Selector switch actuators



IP65
spring-return /
stay-put
2 / 3 positions
18 x 18 mm and
25 x 25 mm

Key-operated actuators



IP65
spring-return /
stay-put
2 / 3 positions
18 x 18 mm and
25 x 25 mm

EMERGENCY-STOP/OFF buttons



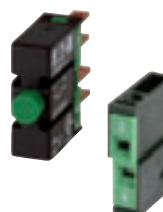
IP65, 25 x 25 mm
illuminated /
not-illuminated

Emergency-Stop labels



in four languages /
blank

Contact blocks



N/O / N/C
terminal connection

Screw connection
with screw
connection adapter
for N/O, N/C, and
lamp sockets

Position switches LS-Titan



Operating heads

Roller lever



Adjustable roller lever



Actuating rod



Analog electronic position switch



Door flap safety switch



Safety position switch

Spring-powered or magnet-powered interlock



Complete unit



Safety switches RS-Titan



Comet series photoelectric sensors / emitters



E58 Harsh Duty



Intelligent and compact E65-SM series



E67 Long Range Serie



E71 NanoView Serie



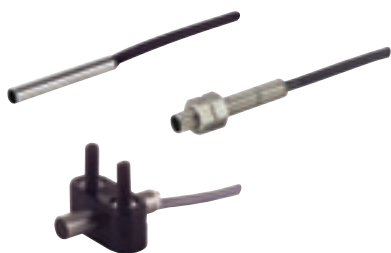
E76 IntelliView Serie



Inductive metal detection

Page 132

Miniature series



Global series



E52 and E56 series



Premium Plus series



See Online Catalog

Intelligent sensor adaption

Page 133

iProx series



ProxView software



Checking capacitive fill levels

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E 53 series



Monitoring pressure

See Online Catalog

Pressure switch

Monitoring of liquid and gaseous media



Detection of times, fill levels and currents

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Electronic timing relay ETR 2



Electronic timing relay ETR 4



Electronic measuring and monitoring relays EMR4



Build it in.



In great shape: The ergonomic control circuit devices RMQ-Titan®



Catalog download:
www.eaton.eu/catalog



Modern styling has been combined with an optimum range of functions. The perfect outfit for use at machines and on panels. The ergonomically shaped button elements are matched to the shape of a fingertip for even more comfortable operation.

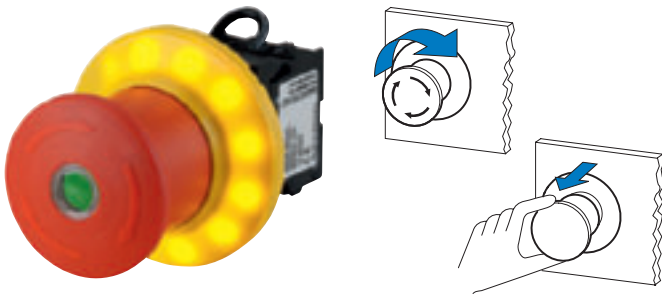
RMQ-Titan pilot devices can be flexibly used in a wide range of applications thanks to their IP67/IP69K degree of protection. The RMQ compact solution series is not only characterized by *compact* dimensions, but also by an unbeatably high degree of protection (IP65) at the back of its devices.

The Emergency-STOP buttons¹⁾ for the worldwide usable control circuit device product range RMQ-Titan are available as palm switches/ mushroom actuators with a diameter of 38, 45 or 60 mm.

RMQ-Titan pilot devices have been granted numerous national approvals and ship classifications, meaning they are ready for use anywhere in the world.

Control circuit devices RMQ-Titan are ingeniously simple to connect with SmartWire-DT.

¹⁾ The EMERGENCY-STOP devices from Eaton can also be used as EMERGENCY-OFF devices.



Safe shutdown with RMQ-Titan

The EMERGENCY-STOP or EMERGENCY-OFF buttons are available with and without a key, turn-release, non-illuminated, illuminated with standard LED or with mechanical switch position display (green/red) in the centre of the actuation element. Self-monitoring contact blocks guarantee comprehensive operational safety: even with incorrect installation or after unduly powerful actuation.



Flush RMQ pushbuttons

RMQ-Titan units with a flush design are the perfect complement to the industry's move towards stylish front panels for machines. These flush pushbuttons feature a modular design and are the perfect match for the RMQ-Titan series, flush contacts, and LED elements. Moreover, the flush transition between their operator and bezel make these units ideal when it comes to sleek looks and cutting-edge applications.



Fast, flexible labelling – The Labeleditor

Use the Labeleditor program to easily and conveniently create your own custom company-specific and project-specific labels, logos, and images for RMQ button plates.



www.eaton.eu/rmq



Direct installation in machine rooms

The new devices in the RMQ *compact* solution series come with their cables, plug connector, and housing already integrated and installed in a non-detachable manner. This turns them into an all-in-one solution that provides full protection against dust, fine foreign particles, and liquids thanks to IP67 and IP69K degrees of protection in the front and IP65 in the back. In other words, these devices can be used right where the corresponding machines are, without the need for any extra enclosures.



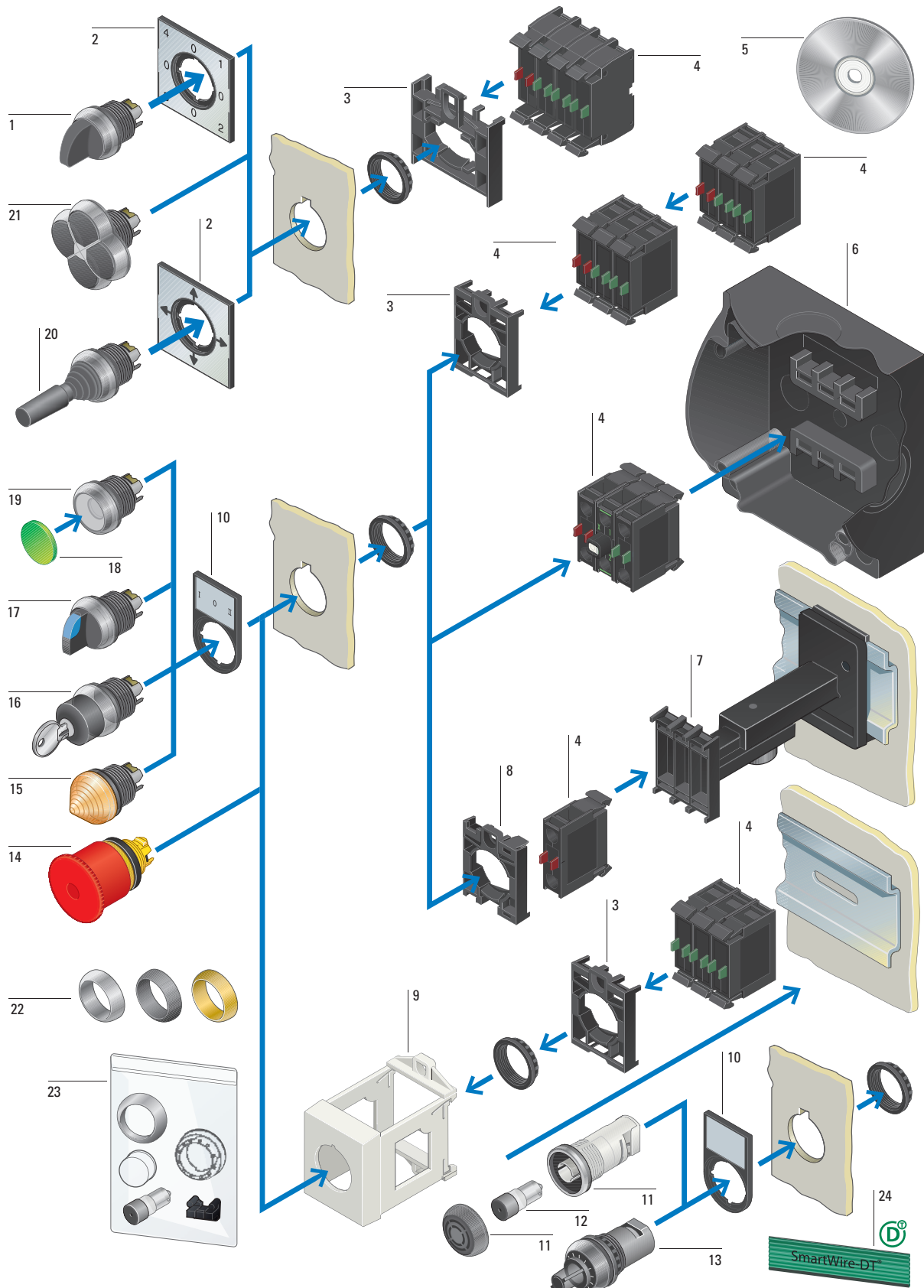
Flush and modular: flat rear elements

The flush contact and LED elements, which have a mounting depth of only 30 mm, are perfect for control panels in which every bit of space counts. These elements feature a one-of-a-kind modular design when it comes to operators, contacts, LED colors, and accessories, making it possible to make customer-specific changes in control panels in record time and without any extra effort.



High-precision settings made easy

The M22-SWD encoder makes it possible to set extremely precise settings on machines by simply turning it and confirming. Moreover, its modular design, combined with a direct SmartWire-DT connection, allows for maximum installation flexibility and ease of diagnostics. The M22-SWD encoder also completely eliminates any potential extra costs that would normally be associated with the use of an encoder, such as those involved in establishing a connection to a PLC. And to top it all off, it is tremendously easy to use with gloves on.



1	4-way selector switch actuators	7	Telescopic clip	13	Potentiometer	19	Pushbutton actuators
2	Labels with label mounts	8	Centring adapter	14	Controlled stop pushbuttons/ emergency-stop buttons	20	Joystick
3	Mounting clamp	9	IVS top-hat rail adapter	15	Indicator light	21	4-way pushbutton
4	Contact/LED elements	10	Label mounts	16	Key-operated actuators	22	Bezels
5	Individual inscription	11	Acoustic device	17	Changeover switches	23	Accessories
6	Surface mounting enclosure	12	Buzzer	18	Button plates/lenses	24	SmartWire-DT ribbon cable

	Button plate	Part no.	Article no.
Double actuators			
IP66 White lens			
	Actuators and indicator lights non-flush	Momentary	
			M22-DDL-GR 216698
			M22-DDL-GR-X1/X0 216700
			M22-DDL-GR-GB1/GB0 216702
			M22-DDL-WS 216704
			M22-DDL-WS-X1/X0 216706
			M22-DDL-WS-GB1/GB0 216708
			M22-DDL-S-X4/X5 218145
			M22-DDL-S-X7/X7 216710
			M22-DDL-S-X226/X26 105227
	Actuators and indicator lights flush		M22-DDLF-GR-X1/X0 284814
			M22-DDLF-WS-X1/X0 284816
	Pushbutton actuator I and indicator light flush, pushbutton actuator O non-flush		M22-DDLM-GR-X1/X0 284830
			M22-DDLM-WS-X1/X0 284832

RMQ-Titan pilot devices

Pushbutton actuators, Mushroom-headed pushbutton

Moeller® series

			Button plate	Part no.	Article no.	Part no.	Article no.	
Pushbutton actuators								
IP67, IP69K				Momentary		Maintained ¹⁾		
	Flat		M22-D-S	216590	M22-DR-S	216613		
			M22-D-W	216592	M22-DR-W	216615		
			M22-D-R	216594	M22-DR-R	216617		
			M22-D-G	216596	M22-DR-G	216619		
			M22-D-Y	216598	M22-DR-Y	216621		
			M22-D-B	216600	M22-DR-B	216623		
			M22-D-GR	132671				
		-	M22-D-X	216602	M22-DR-X	216625		
			M22-D-R-X0	216605	M22-DR-R-X0	216628		
			M22-D-G-X1	216607	M22-DR-G-X1	216630		
			M22-D-S-X0	216609	M22-DR-S-X0	216632		
			M22-D-W-X1	216611	M22-DR-W-X1	216634		
	Extended		M22-DH-S	216636	M22-DRH-S	216663		
			M22-DH-W	216638	M22-DRH-W	216665		
			M22-DH-R	216641	M22-DRH-R	216667		
			M22-DH-G	216643	M22-DRH-G	216669		
			M22-DH-Y	216646	M22-DRH-Y	216671		
			M22-DH-B	216649	M22-DRH-B	216673		
			M22-DH-R-X0	216655	M22-DRH-R-X0	216675		
			M22-DH-G-X1	216657	M22-DRH-G-X1	216677		
			M22-DH-S-X0	216659	M22-DRH-S-X0	216679		
			M22-DH-W-X1	216661	M22-DRH-W-X1	216681		
			Guard-ring	-	M22-DG-X	220921		
Mushroom-headed pushbutton								
IP67, IP69K				Momentary		Maintained ¹⁾		
	Mushroom		M22-DP-S	216712	M22-DRP-S	216743		
			M22-DP-R	216714	M22-DRP-R	216745		
			M22-DP-G	216716	M22-DRP-G	216747		
			M22-DP-Y	216718	M22-DRP-Y	216749		
			M22-DP-R-X0	216720	M22-DRP-R-X0	216751		
			M22-DP-G-X1	216722	M22-DRP-G-X1	216753		
			M22-DP-S-X0	216724	M22-DRP-S-X0	216755		
			M22-DP-W-X1	216726	M22-DRP-W-X1	216757		

Notes

¹⁾ Stay-put/spring-return function can be changed on device

Mushroom head				Part no.	Article no.	
Stop buttons						
Diameter 38 mm Base yellow IP66, IP69K						
	Non-illuminated	Pull-to-release function		M22S-PV	225528	
	Non-illuminated	Turn-to-release function		M22S-PVT	271499	
	Illuminated with LED element	Pull-to-release function		M22S-PVL	230962	
	Illuminated with LED element	Turn-to-release function		M22S-PVLT	271540	
	Non-illuminated	Turn-to-release function		M22Y-PVT	147403	
Function: └> = spring-return └ = stay-put				Part no.	Article no.	
Button plate						
Selector switch actuators						
IP66 Stay-put/spring-return function, can be changed with coding parts M22-XC-Y						
	With rotary head	2 positions	└> 40°		M22-W	216853
		2 positions	└ 60°		M22-WR	216855
		2 positions	└ 60°		M22-WR-X92	216857
		2 positions	└ 60°	AUTO HAND 	M22-WR-X91	216859
		3 positions ¹⁾	40° < > 40°		M22-W3	216861
		3 positions ¹⁾	60° < > 60°		M22-WR3	216863
		3 positions ¹⁾	60° < > 60°		M22-WR3-X94	226838
		4 positions ²⁾			M22-WR4	279419
	With thumb-grip	2 positions	└> 40°	-	M22-WK	216865
		2 positions	└ 60°	-	M22-WRK	216867
		2 positions (V position)	└ 60°	-	M22-WKV	216874
		3 positions ¹⁾	40° < > 40°	-	M22-WK3	216870
		3 positions ¹⁾	60° < > 60°	-	M22-WRK3	216872
		4 positions ²⁾			M22-WRK4	279431
Notes						
¹⁾ With plunger bridge for the middle contact						
²⁾ Not suitable for coding adapters Use M22-A4 fixing adapter → accessories						

Key withdrawable in position						Part no.	Article no.
Key-operated buttons							
IP66 Not suitable for master key systems With 1 key Stay-put/spring-return function, can be changed with coding parts M22-XC-Y Key withdraw convertible with coding adapters M22-XC-...							
	2 positions		40°	-	0	-	M22-WS 216881
	2 positions		60°	-	0	I	M22-WRS 216887
	3 positions		40°		40°	-	M22-WS3 216894
	3 positions		60°		60°	I	M22-WRS3 216900

		Function:	Description	Part no.	Article no.
			= spring-return		
			= stay-put		
Joystick					
With metal shaft IP66					
	2 positions		With one operating point per operating direction	M22-WJS2H	178570
			With 2 operating points per operating direction	M22-WJS2H-2P¹⁾	178565
			With one operating point per operating direction	M22-WJS2V	178571
			With 2 operating points per operating direction	M22-WJS2V-2P¹⁾	178564
			With one operating point per operating direction	M22-WRJS2H	178574
			With one operating point per operating direction	M22-WRJS2V	178575
	4 positions		With one operating point per operating direction	M22-WJS4	178568
			With 2 operating points per operating direction	M22-WJS4-2P¹⁾	178563
			With one operating point per operating direction	M22-WRJS4	178566
			With one operating point per operating direction		

Notes

¹⁾ These joysticks are combined with normal normally open contacts M22-K10 and NO early-make contacts M22-K10P.

		Part no.	Article no.
Pushbuttons			
Actuators non-flush IP66			
	4-fold Opposing pushbuttons not mechanically interlocked	M22-D4-S	279411
	4-fold Opposing pushbuttons not mechanically interlocked	M22-D4-S-X7	286336
	4-fold Opposing pushbuttons mechanically interlocked	M22-D14-S-X7	286338

		Lens	Part no.	Article no.
Indicator lights				
IP67, IP69K				
 	Flush		M22-L-W	216771
			M22-L-R	216772
			M22-L-G	216773
			M22-L-Y	216774
			M22-L-B	216775
			M22-L-A	164374
		Without lens	M22-L-X	216776
	Extended, conical		M22-LH-W	216778
			M22-LH-R	216779
			M22-LH-G	216780
			M22-LH-Y	216781
			M22-LH-B	216782
			M22-LH-A	164375

Button plate		Part no.	Article no.	Part no.	Article no.
Illuminated pushbutton actuators					
IP67, IP69K					
		momentary		maintained ¹⁾	
Flush 		M22-DL-W	216922	M22-DRL-W	216944
		M22-DL-R	216925	M22-DRL-R	216946
		M22-DL-G	216927	M22-DRL-G	216948
		M22-DL-Y	216929	M22-DRL-Y	216950
		M22-DL-B	216931	M22-DRL-B	216952
		M22-DL-A	167429	M22-DRL-A	167431
	Without button plate	M22-DL-X	216933	M22-DRL-X	216954
		M22-DL-R-X0	216936	M22-DRL-R-X0	216957
		M22-DL-G-X1	216938	M22-DRL-G-X1	216959
		M22-DL-W-X0	216940	M22-DRL-W-X0	216961
		M22-DL-W-X1	216942	M22-DRL-W-X1	216963
Extended 		M22-DLH-W	216965	M22-DRLH-W	216788
		M22-DLH-R	216967	M22-DRLH-R	216789
		M22-DLH-G	216969	M22-DRLH-G	216796
		M22-DLH-Y	216971	M22-DRLH-Y	216799
		M22-DLH-B	216973	M22-DRLH-B	216802
		M22-DLH-A	167433	M22-DRLH-A	167435
		M22-DLH-R-X0	216975	M22-DRLH-R-X0	216804
		M22-DLH-G-X1	216977	M22-DRLH-G-X1	216805
		M22-DLH-W-X0	216979	M22-DRLH-W-X0	216806
		M22-DLH-W-X1	216981	M22-DRLH-W-X1	216807
	Guard-ring 	Without button plate	M22-DGL-X	230961	

Notes¹⁾ Stay-put/spring-return function can be changed on device

Function: ▷ = spring-return └ = stay-put			Part no.	Article no.
Illuminated selector switch actuator				
With thumb-grip IP66 Stay-put/spring-return function, can be changed with coding parts M22-XC-Y				
2 positions 	▷ 40°		M22-WLK-W	216812
	▷ 40°		M22-WLK-R	216814
	▷ 40°		M22-WLK-G	216816
	▷ 40°		M22-WLK-Y	216818
	▷ 40°		M22-WLK-B	216820
	└ 60°		M22-WRLK-W	216823
	└ 60°		M22-WRLK-R	216825
	└ 60°		M22-WRLK-G	216827
	└ 60°		M22-WRLK-Y	216829
	└ 60°		M22-WRLK-B	216831
	✓ 60°		M22-WLKV-W	284393
	✓ 60°		M22-WLKV-R	284394
	✓ 60°		M22-WLKV-G	284395
	✓ 60°		M22-WLKV-Y	284396
	✓ 60°		M22-WLKV-B	284397
3 positions 	40° < > 40°		M22-WLK3-W	216833
	40° < > 40°		M22-WLK3-R	216835
	40° < > 40°		M22-WLK3-G	216837
	40° < > 40°		M22-WLK3-Y	216839
	40° < > 40°		M22-WLK3-B	216841
	60° ↓ 60°		M22-WRLK3-W	216843
	60° ↓ 60°		M22-WRLK3-R	216845
	60° ↓ 60°		M22-WRLK3-G	216847
	60° ↓ 60°		M22-WRLK3-Y	216849
	60° ↓ 60°		M22-WRLK3-B	216851

				Part no.	Article no.	Part no.	Article no.
Contacts							
N/O = Normally open				N/C = Normally closed ¹⁾			
Contact elements							
IP20							
Single contact				Screw terminals		Cage Clamp ²⁾	
	Front fixing	1 N/O	-	M22-K10	216376	M22-CK10	216384
		-	1 NC ⊕	M22-K01	216378	M22-CK01	216385
		1 NO early-make	-	M22-K10P	110835		
	Base fixing	-	1 NC late-break	M22-K01D	262165	M22-CK01D	262510
		1 N/O	-	M22-KC10	216380	M22-CKC10	216386
		-	1 NC ⊕	M22-KC01	216382	M22-CKC01	216387
Double contact							
	Front fixing	2 N/O	-			M22-CK20	107898
		-	2 NC ⊕			M22-CK02	107899
		1 N/O	1 NC ⊕			M22-CK11	107940
Self-monitoring contact elements ³⁾							
	Front fixing	1 N/O	1 NC ⊕	M22-K01SMC10	121472		
		1 N/O	2 NC ⊕	M22-K02SMC10	121474		
	Base fixing	1 N/O	1 NC ⊕	M22-KC01SMC10	121473		
		1 N/O	2 NC ⊕	M22-KC02SMC10	121720		
		1 N/O	3 NC ⊕	M22-KC03SMC10	173028		
		2 N/O	2 NC ⊕	M22-KC12SMC10	173029		
Combination of contact element with screw terminals, M22-A fixing adapter and M22-XSMC indication contact actuator. ³⁾							
	Front fixing	1 N/O	3 NC ⊕	M22-AK03SMC10	173026		
		2 N/O	2 NC ⊕	M22-AK12SMC10	173027		

Notes¹⁾ ⊕ = safety function, by positive opening to IEC/EN 60947-5-1²⁾ Cage Clamp is a registered trademark of Wago Kontakttechnik GmbH/Minden, Germany³⁾ The N/O is actuated when mounted on the pushbutton.

		Part no.	Article no.
Mounting adapter			
Mounting clamp (front mounting) for 3-contact LED elements			
	-	M22-A	216374
Mounting clamp (front mounting) for 4-contact LED elements			
	-	M22-A4	279437
Front fixing			
	For 2 function elements M22-SWD-K22...	M22-SWD-A4	116016
	For use with M22-WR4, -WRJ4, -D4 in conjunction with M22-(SWD)-K		

RMQ-Titan pilot devices

LED elements, Potentiometer, Acoustic device

Moeller® series

Rated operational voltage U _e V			Part no.	Article no.	Part no.	Article no.
LED elements						
IP20						
Front fixing			Screw terminals		Cage Clamp ¹⁾	
	12 - 30 V AC/DC, 50/60 Hz		M22-LED-W	216557	M22-CLED-W	216569
			M22-LED-R	216558	M22-CLED-R	216570
			M22-LED-G	216559	M22-CLED-G	216571
			M22-LED-B	218057	M22-CLED-B	218061
	85 - 264 V AC, 50/60 Hz		M22-LED230-W	216563	M22-CLED230-W	216575
			M22-LED230-R	216564	M22-CLED230-R	216576
			M22-LED230-G	216565	M22-CLED230-G	216577
			M22-LED230-B	218059	M22-CLED230-B	218063
Base fixing ²⁾						
	12 - 30 V AC/DC, 50/60 Hz		M22-LEDC-W	216560	M22-CLEDC-W	216572
			M22-LEDC-R	216561	M22-CLEDC-R	216573
			M22-LEDC-G	216562	M22-CLEDC-G	216574
			M22-LEDC-B	218058	M22-CLEDC-B	218062
	85 - 264 V AC, 50/60 Hz		M22-LEDC230-W	216566	M22-CLEDC230-W	216578
			M22-LEDC230-R	216567	M22-CLEDC230-R	216579
			M22-LEDC230-G	216568	M22-CLEDC230-G	216580
			M22-LEDC230-B	218060	M22-CLEDC230-B	218064

Notes

- ¹⁾ Cage Clamp is a registered trademark of Wago Kontakttechnik GmbH/Minden, Germany
²⁾ Can be used for M22-I... surface mounting enclosure

Impedance R kΩ			Part no.	Article no.
Potentiometer				
IP66				
	1		M22-R1K	229489
	2.2		M22-R2K2	171157
	4.7		M22-R4K7	229490
	10		M22-R10K	229491
	47		M22-R47K	229492
	100		M22-R100K	229493
	470		M22-R470K	229494

			Part no.	Article no.
Acoustic device				
	Without buzzer		M22-AMC	229015
	With BA 9s lamp socket			
Buzzer for acoustic device				
	Continuous tone, 18 - 30 V AC/DC		M22-XAM	229025
	Pulsed tone, 24 V DC (+10 %/-15 %)		M22-XAMP	229028

	For use with	Width mm	Height mm	Part no.	Article no.
Legend holder					
IP66					
	For actuators	30	50	M22S-ST-X	216392
	For double actuators	30	75	M22S-STDD-X	216394
Insert label					
		27	18	M22-XST	216480
Bulkhead interface, RJ45 socket					
IP65 (with closed cover) IP20 (with plug connected)					
	Front mounting RJ45, socket to socket 8/8, CAT5e	-	-	M22-RJ45-SA	107413
	Front mounting USB 3.0, Type A socket to socket	-	-	M22-USB	147539
Bulkhead interface, USB socket					
IP65 (with closed cover) IP20 (with plug connected)					
	Front mounting Prefabricated cable with permanently connected USB 2.0 Type A plug, 60 cm.	-	-	M22-USB-SA	107412
	Front mounting Type A socket with prefabricated cable (150 cm) with permanently connected USB 3.0, Type A plug	-	-	M22-USB-SA-150	147543

Number of locations		Degree of Protection	Part no.	Article no.
Surface mounting enclosure				
With high-grade steel screws				
	1	IP67, IP69K	M22-I1	216535
	2	IP67, IP69K	M22-I2	216537
	3	IP67, IP69K	M22-I3	216538
	4	IP67, IP69K	M22-I4	216539
	6	IP66	M22-I6	216540

	Number of locations	Contacts		Key withdrawable in position		Button plate	Part no.	Article no.
Pushbutton actuators								
	1	1 NC ⊖	1 N/O	-	-		M22-D-G-X1/KC11/I	216522
	1	1 NC ⊖	1 N/O	-	-		M22-D-R-X0/KC11/I	216521
	2	2 NC ⊖	2 N/O	-	-		M22-I2-M1	216529
	3	3 NC ⊖	3 N/O	-	-		M22-I3-M1	216532
Key-operated buttons								
	1	1 NC ⊖	1 N/O	0	I	-	M22-WRS/KC11/I	216526

Notes ⊖ = safety function, by positive opening to IEC/EN 60947-5-1

				Part no.	Article no.	Part no.	Article no.
Controlled stop pushbuttons/emergency-stop buttons							
Tamper-proof according to ISO 13850/EN 418 IP66, IP69K							
 Mushroom-shaped	Pull-to-release function	Non-illuminated		Diameter 38 mm M22-PV-ESS	178983		
		Non-illuminated		M22-PV	216876		
		Illuminated with LED element		M22-PVL	216878		
	Turn-to-release function	Non-illuminated		M22-PVT	263467		
		Illuminated with LED element		M22-PVLT	263469		
	Key-release	Non-illuminated		M22-PVS	216879		
				Diameter 45 mm		Diameter 60 mm	
 Palm-tree shape	Pull-to-release function	Non-illuminated		M22-PV45P	152862	M22-PV60P	152864
		Illuminated with LED element		M22-PVL45P	152860	M22-PVL60P	152861
		Non-illuminated		M22-PV45P-MPI¹⁾	152863	M22-PV60P-MPI¹⁾	152865
	Turn-to-release function	Non-illuminated		M22-PVT45P	121462	M22-PVT60P	121464
		Illuminated with LED element		M22-PVLT45P	121460	M22-PVLT60P	121461
		Non-illuminated		M22-PVT45P-MPI¹⁾	121463	M22-PVT60P-MPI¹⁾	121465
	Key-release	Non-illuminated		M22-PVS45P-MS1	121468	M22-PVS60P-MS1	121469
		Non-illuminated		M22-PVS45P-RS	121466	M22-PVS60P-RS	121467

Notes

Max. number of contacts: four M22-(C)K01, ...10 or two M22-(C)K02, ...20, ...11

¹⁾ With mechanical switch position indication

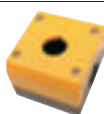
Switch position indicator red → pushbutton actuated

Switch position indication green → pushbutton released

RMQ-Titan pilot devices

Complete units EMERGENCY STOP/EMERGENCY SWITCHING OFF

Moeller® series

For use with	Part no.	Article no.
Surface mounting enclosure		
With high-grade steel screws IP67, IP69K		
	-	M22-IY1 216536
M22-XPV60... illuminated ring		M22-IY1-XPV60 167798

	Lock mechanism	Contacts	Part no.	Article no.	Part no.	Article no.
		N/O = Normally open N/C = Normally closed				
Controlled stop pushbuttons/emergency-stop buttons						
Tamper-proof according to ISO 13850/EN 418 Non-illuminated						
Mushroom-shaped			Diameter 38 mm			
Pull-to-release function	-	1 N/O	M22-PV/KC11/IY	216525		
		1 NC ⊕				
Key-release	-	1 N/O	M22-PVS/KC11/IY	216523		
		1 NC ⊕				
Palm-tree shape			Diameter 45 mm		Diameter 60 mm	
Key-release	MS1	-	C22-PVS45P-MS1-K02	121619	C22-PVS60P-MS1-K02	121621
	MS1	1 N/O	C22-PVS45P-MS1-K11	121618	C22-PVS60P-MS1-K11	121620
Turn-to-release function	-	-	C22-PVT45P-K02	121611	C22-PVT60P-K02	121613
	-	1 N/O	C22-PVT45P-K11	121610	C22-PVT60P-K11	121612
						
						

Notes ⊕ = safety function, by positive opening to IEC/EN 60947-5-1

	Name	Form	Language	Part no.	Article no.
Emergency stop labels					
IP66					
	Symbol (5638) for CONTROLLED STOP	Diameter = 90 mm	-	M22-XAK-ESS	180469
	Symbol (5638) for CONTROLLED STOP	Diameter = 60 mm	-	M22-XBK-ESS	180472
	Symbol (5638) for CONTROLLED STOP	33 x 50 mm	-	M22-XZK-ESS	180470
	Symbol (5638) for CONTROLLED STOP	33 x 50 mm	-	M22-XZK-ESS2	180474
	Symbol (5638) for CONTROLLED STOP	50 x 50 mm	-	M22-XYK-ESS	180471
Emergency-stop labels					
IP66					
		Diameter = 90 mm	de, en, fr, it	M22-XAK1	216465
		Diameter = 60 mm	de, en, fr, it	M22-XBK1	216483
	NOT-AUS	33 x 50 mm	de	M22-XZK-D99	216471
		50 x 50 mm	de, en, fr, it	M22-XYK1	216484
		Rated operational voltage U _e V	Diameter d mm	Part no.	Article no.
LED-Luminous ring					
IP67, IP69K					
	Three groups of 4 LEDs each (series-connected), can be actuated separately (e.g. for continuous light)	24 V AC/DC	60 mm	M22-XPV60-Y-24	121477
	One group of 8 LEDs (series-connected)	120 V AC	60 mm	M22-XPV60-Y-120	121476
	One group of 8 LEDs (series-connected)	230 V AC	60 mm	M22-XPV60-Y-230	138280
Guard-ring					
IP65					
	Protection against accidental actuation	-	-	M22-XGPV	231273
Sealable shroud					
IP65					
	For devices with mushroom diameter 38 mm Transparent with collapse point, can be reused after Emergency-Stop, Emergency switching off operation. With grid 30 x 50 mm the drilling dimensions can be closed with M22(S)-B blanking plug	-	-	M22-PL-PV	216397

RMQ pilot devices *compact* solution

Pushbutton actuators, Indicator lights

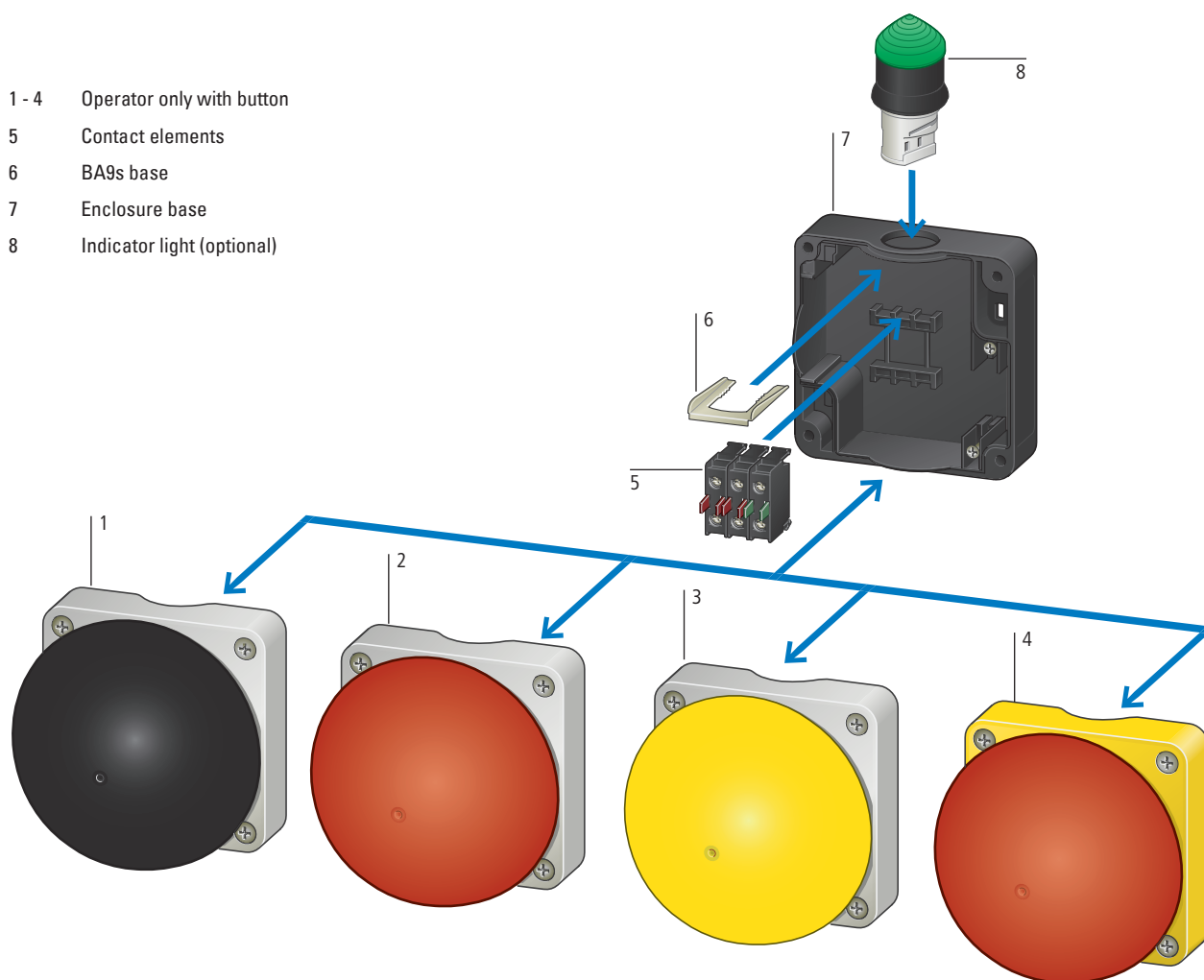
Moeller® series

	Cable Length m	Button plate	Contacts		Momentary		Maintained	
			N/C = Normally closed ¹⁾	N/O = Normally open	Part no.	Article no.	Part no.	Article no.
Complete unit								
IP66, IP67, IP69K (front) IP65 (on rear) M12A plug with cable (black) Flat								
Pushbutton actuators								
	0.5		-	1 N/O	C22-D-G-K10-P3	181632	C22-DR-G-K10-P3	181610
	1		-	1 N/O	C22-D-G-K10-P5	181041	C22-DR-G-K10-P5	181079
	0.5		-	1 N/O	C22-D-W-K10-P3	181635	C22-DR-W-K10-P3	181613
	1		-	1 N/O	C22-D-W-K10-P5	181047	C22-DR-W-K10-P5	181085
	0.5	Without button plate	-	1 N/O	C22-D-X-K10-P3	181607	C22-DR-X-K10-P3	181616
	1	Without button plate	-	1 N/O	C22-D-X-K10-P5	181051	C22-DR-X-K10-P5	181089
	0.5		1 NC ⊖	-	C22-D-R-K01-P3	181633	C22-DR-R-K01-P3	181611
	1		1 NC ⊖	-	C22-D-R-K01-P5	181043	C22-DR-R-K01-P5	181081
	0.5		1 NC ⊖	-	C22-D-S-K01-P3	181634	C22-DR-S-K01-P3	181612
	1		1 NC ⊖	-	C22-D-S-K01-P5	181045	C22-DR-S-K01-P5	181083
	0.5	Without button plate	1 NC ⊖	-	C22-D-X-K01-P3	181605	C22-DR-X-K01-P3	181614
	1	Without button plate	1 NC ⊖	-	C22-D-X-K01-P5	181049	C22-DR-X-K01-P5	181087
	0.5	Without button plate	1 NC ⊖	1 N/O	C22-D-X-K11-P3	181608	C22-DR-X-K11-P3	181617
	1	Without button plate	1 NC ⊖	1 N/O	C22-D-X-K11-P5	181052	C22-DR-X-K11-P5	181090
	0.5	Without button plate	-	2 N/O	C22-D-X-K20-P3	181609	C22-DR-X-K20-P3	181618
	1	Without button plate	-	2 N/O	C22-D-X-K20-P5	181053	C22-DR-X-K20-P5	181091
	0.5	Without button plate	2 NC ⊖	-	C22-D-X-K02-P3	181606	C22-DR-X-K02-P3	181615
	1	Without button plate	2 NC ⊖	-	C22-D-X-K02-P5	181050	C22-DR-X-K02-P5	181088
Illuminated pushbutton actuators								
Rated operational voltage LED: 24 V AC/DC								
	0.5		-	1 N/O	C22-DL-B-K10-24-P3	181624	C22-DRL-B-K10-24-P3	181628
	1		-	1 N/O	C22-DL-B-K10-24-P5	181298	C22-DRL-B-K10-24-P5	181364
	0.5		-	1 N/O	C22-DL-G-K10-24-P3	181625	C22-DRL-G-K10-24-P3	181629
	1		-	1 N/O	C22-DL-G-K10-24-P5	181300	C22-DRL-G-K10-24-P5	181366
	0.5		-	1 N/O	C22-DL-W-K10-24-P3	181627	C22-DRL-W-K10-24-P3	181631
	1		-	1 N/O	C22-DL-W-K10-24-P5	181307	C22-DRL-W-K10-24-P5	181370
	0.5		1 NC ⊖	-	C22-DL-R-K01-24-P3	181626	C22-DRL-R-K01-24-P3	181630
	1		1 NC ⊖	-	C22-DL-R-K01-24-P5	181303	C22-DRL-R-K01-24-P5	181368
Cable Length m								
Lens								
Indicator lights								
Rated operational voltage LED: 24 V AC/DC								
	0.5		-	-	C22-L-B-24-P3	181619		
	1		-	-	C22-L-B-24-P5	181137		
	0.5		-	-	C22-L-G-24-P3	181620		
	1		-	-	C22-L-G-24-P5	181139		
	0.5		-	-	C22-L-R-24-P3	181621		
	1		-	-	C22-L-R-24-P5	181141		
	0.5		-	-	C22-L-W-24-P3	181622		
	1		-	-	C22-L-W-24-P5	181059		
	0.5		-	-	C22-L-Y-24-P3	181623		
	1		-	-	C22-L-Y-24-P5	181061		

Notes

¹⁾ ⊖ = safety function, by positive opening to IEC/EN 60947-5-1

- 1 - 4 Operator only with button
- 5 Contact elements
- 6 BA9s base
- 7 Enclosure base
- 8 Indicator light (optional)



	Function	Colour			Contacts ⊕ = safety function, by positive opening to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed		Part no. Article no.
		Button	Enclosure top	Enclosure base			
Foot and palm switches, IP67, IP69K							
	Momentary				1 N/O	1 NC ⊕	FAK-S/KC11/I 229749
	Momentary				1 N/O	1 NC ⊕	FAK-R/KC11/I 229746
	Maintained				-	1 NC ⊕	FAK-R/V/KC01/IY 229747
					1 N/O	1 NC ⊕	FAK-R/V/KC11/IY 229748
					-	2 NC ⊕	FAK-R/V/KC02/IY 256790

Build it in.



Implement efficient signaling and see your equipment's availability soar



Catalog download:
www.eaton.eu/catalog

Signal towers are just as essential to the smooth and safe operation of machines and systems as they are at airports and supermarkets. Moreover, the tasks they have to perform are as varied as the locations where they have to be used. This is why Eaton has designed its signal towers in such a way as to be able to accommodate extremely versatile light and acoustic modules. On top of this, their high IP66 degree of protection ensures that they can be used virtually anywhere.

In terms of signaling systems, light intensity and signal strength are as crucial to a system's efficiency as are the speed and ease with which complete towers can be assembled and disassembled, e.g., in order to transport a machine.

Moreover, this efficiency can be increased even further by effectively integrating signal towers into an automation solution. Within this context, a SmartWire-DT connection not only significantly reduces wiring complexity, but also considerably enhances a system's communication capabilities. Intelligent switchgear can send alarm messages through the system – when, for example, overloading is imminent – in order to avoid stops and downtimes. Following these signals, signal towers can output their own clearly recognizable signals, thus ensuring higher machine and system availability.

IP66 C E c  US LISTED 



www.eaton.eu/signaltower



Two signal tower configurations: SL4 and SL7

The signal towers are available with a compact diameter of 40 mm or with a standard diameter of 70 mm. In this way Eaton provides an optimal solution for your signaling tasks, even in places where space is scarce.



Significantly brighter and louder signals

All six lamp modules are available with filament lamps, continuous light LEDs, flashing LEDs, strobe LEDs, or high-performance LEDs. This way, the modules' brightness and colors can be adapted to the specific needs of customers and to varying international market requirements. The same holds true for the acoustic modules. 8 different signals and volume that can be adjusted up to 100 dB allow for optimal adaptation to any ambient conditions.



Seamless style

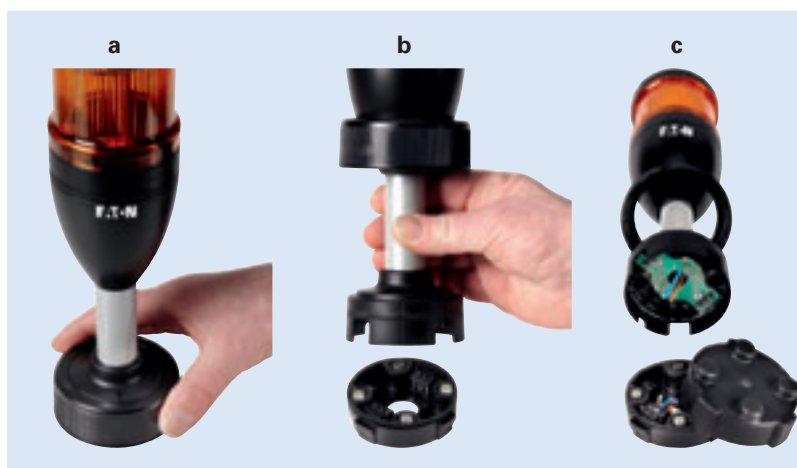
Actuators and indicator lamps have a decisive impact on a machine's appearance. In fact, they are the first thing an operator notices. Because of this, Eaton has designed these elements with a common style, featuring such appealing design elements as sleek, smoothly rounded shapes.



Extremely flexible mounting options

Our new signal towers can be installed in any of 11 different ways. Not only can the cup-shaped base be mounted on the side of equipment, but it can also be mounted directly in a variety of other configurations. If there is not enough clearance to the ceiling, for example, the modules can be installed horizontally. Tubes with lengths of 100, 250, 400 and 800 mm, make the system even more flexible.

www.eaton.eu/selectiontools



Assemble and disassemble in a matter of seconds

Signal towers can be disassembled in order to transport the corresponding machine. With Eaton's rapid mounting system, this can be done in a matter of seconds:

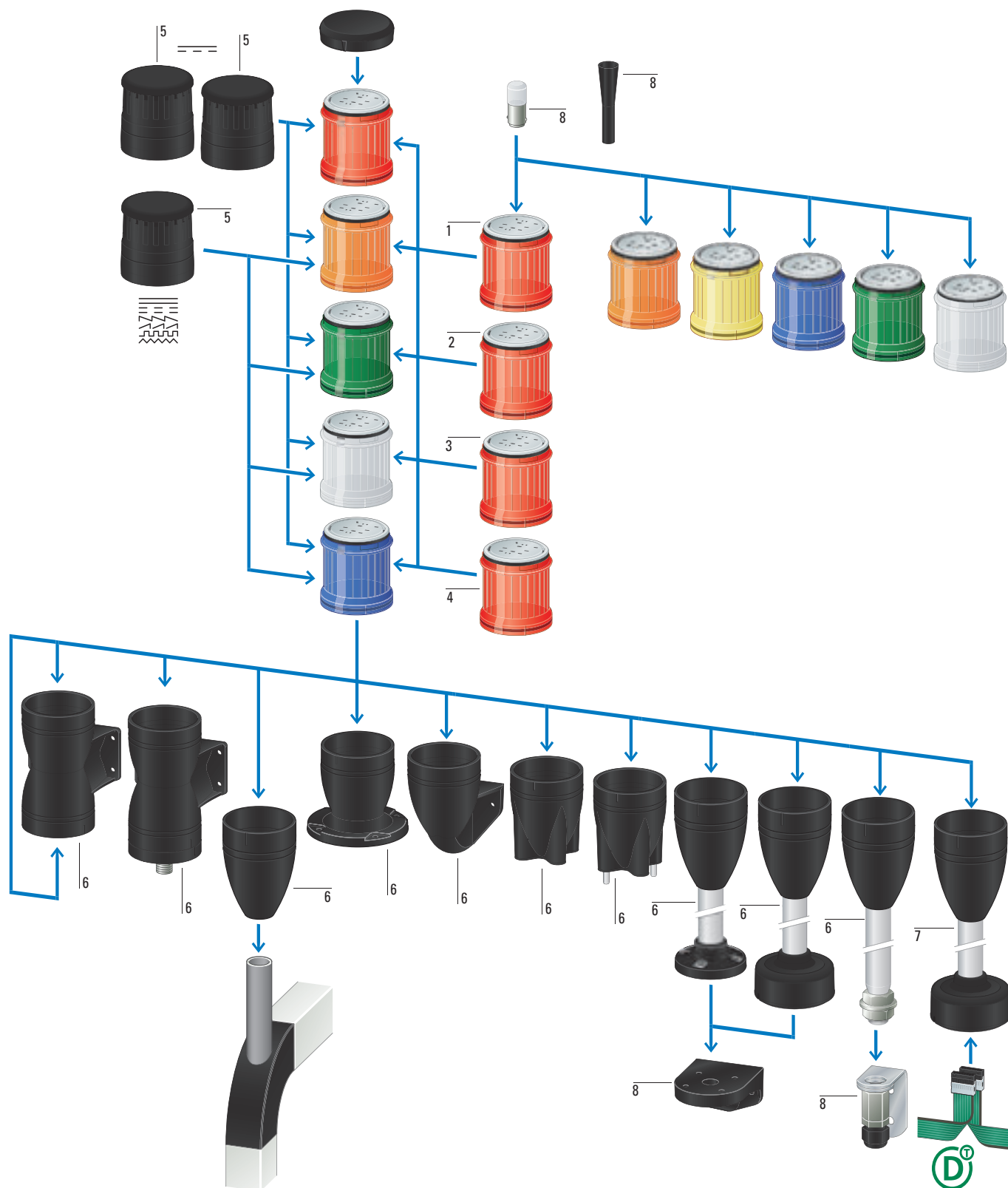
- Loosen the mounting ring.
- Remove the signal tower.
- Put the protection cap on. You are ready to go!

Re-assembling and mounting the signal tower, both electrically and mechanically, is just as simple.

Signal towers SL7, SL4

System overview

Moeller® series



- 1 Card for filament lamp, continuous light
- 2 Module with LED/high power LED, continuous light
- 3 Card with LED, flashing light
- 4 Module with LED/high power LED, strobe light

- 5 Acoustic module
- 6 Base module
- 7 Base module with SWD connection
- 8 Accessory consideration

	Rated operational voltage U_e V	Number of modules	Colour	Module width 70 mm	Module width 40 mm
				Part no. Article no.	Part no. Article no.
IP66 complete units					
	Continuous light, LED, IP66, Base module with foot and 100 mm tube	24 V AC/DC	2		
			3		
				SL7-100-L-RG-24LED 171424	SL4-100-L-RG-24LED 171295
				SL7-100-L-RYG-24LED 171425	SL4-100-L-RYG-24LED 171296
Customised complete unit					
Order on request					
	-	-	-	SL7-COMBINATION 2011955	SL4-COMBINATION 2011956

		Continuous light	Flashing light 2 Hz	Strobe light 1.4 Hz
Rated operational voltage ¹⁾ U _e V	Colour	Part no. Article no.	Part no. Article no.	Part no. Article no.
Module with LED, IP66				
	24 V AC/DC			
				
				
				
				
				
	230/240 V AC			
				
				
				
				
				
		SL7-L24-B 171461	SL7-BL24-B 171439	SL7-FL24-B 171402
		SL7-L24-G 171462	SL7-BL24-G 171440	SL7-FL24-G 171403
		SL7-L24-R 171463	SL7-BL24-R 171441	SL7-FL24-R 171404
		SL7-L24-W 171464	SL7-BL24-W 171442	SL7-FL24-W 171405
		SL7-L24-Y 171465	SL7-BL24-Y 171388	SL7-FL24-Y 171406
		SL7-L24-A 171466	SL7-BL24-A 171389	SL7-FL24-A 171407
		SL7-L230-B 171473	SL7-BL230-B 171396	SL7-FL230-B 171414
		SL7-L230-G 171474	SL7-BL230-G 171397	SL7-FL230-G 171415
		SL7-L230-R 171475	SL7-BL230-R 171398	SL7-FL230-R 171416
		SL7-L230-W 171476	SL7-BL230-W 171399	SL7-FL230-W 171417
		SL7-L230-Y 171477	SL7-BL230-Y 171400	SL7-FL230-Y 171418
		SL7-L230-A 171426	SL7-BL230-A 171401	SL7-FL230-A 171419

Notes

¹⁾ 110/120 V AC → Online Catalog

			Continuous light	Flashing light 2 Hz	Strobe light 1.4 Hz	Multistrobe light 1 - 2.6 Hz
Rated operational voltage ¹⁾ U _e V			Part no. Article no.	Part no. Article no.	Part no. Article no.	Part no. Article no.
Card with high power LED, IP66						
	24 V AC/DC		SL7-L24-B-HP 171427	-	SL7-FL24-B-HP 171420	SL7-FL24-B-HPM 171275
			SL7-L24-G-HP 171428	-	SL7-FL24-G-HP 171421	SL7-FL24-G-HPM 171276
			SL7-L24-R-HP 171429	-	SL7-FL24-R-HP 171422	SL7-FL24-R-HPM 171277
			SL7-L24-W-HP 171430	-	SL7-FL24-W-HP 171423	SL7-FL24-W-HPM 171278
			SL7-L24-Y-HP 171431	-	SL7-FL24-Y-HP 171273	SL7-FL24-Y-HPM 171279
			SL7-L24-A-HP 171432	-	SL7-FL24-A-HP 171274	SL7-FL24-A-HPM 171280
Module with LED, IP66						
	24 V AC/DC		SL4-L24-B 171313	SL4-BL24-B 171337	SL4-FL24-B 171355	SL4-FL24-B-M 171373
			SL4-L24-G 171314	SL4-BL24-G 171338	SL4-FL24-G 171356	SL4-FL24-G-M 171374
			SL4-L24-R 171315	SL4-BL24-R 171339	SL4-FL24-R 171357	SL4-FL24-R-M 171375
			SL4-L24-W 171316	SL4-BL24-W 171340	SL4-FL24-W 171358	SL4-FL24-W-M 171376
			SL4-L24-Y 171317	SL4-BL24-Y 171341	SL4-FL24-Y 171359	SL4-FL24-Y-M 171377
			SL4-L24-A 171318	SL4-BL24-A 171342	SL4-FL24-A 171360	SL4-FL24-A-M 171378
	230/240 V AC		SL4-L230-B 171325	SL4-BL230-B 171349	SL4-FL230-B 171367	-
			SL4-L230-G 171326	SL4-BL230-G 171350	SL4-FL230-G 171368	-
			SL4-L230-R 171327	SL4-BL230-R 171351	SL4-FL230-R 171369	-
			SL4-L230-W 171328	SL4-BL230-W 171352	SL4-FL230-W 171370	-
			SL4-L230-Y 171329	SL4-BL230-Y 171353	SL4-FL230-Y 171371	-
			SL4-L230-A 171330	SL4-BL230-A 171354	SL4-FL230-A 171372	-

Notes

¹⁾ 110/120 V AC → Online Catalog

	Rated operational voltage U _e V	Colour	Continuous light Filament lamp max. 7 W	Continuous light Filament lamp max. 4 W
			Part no. Article no.	Part no. Article no.
Card for filament lamp, IP66				
Without light elements, Filament bulbs → Accessories				
	< 250 V AC/DC		SL7-L-B 171433	SL4-L-B 171331
			SL7-L-G 171434	SL4-L-G 171332
			SL7-L-R 171435	SL4-L-R 171333
			SL7-L-W 171436	SL4-L-W 171334
			SL7-L-Y 171437	SL4-L-Y 171335
			SL7-L-A 171438	SL4-L-A 171336

Description		Rated operational voltage ¹⁾ U _e V	Rated operational current I _e mA	Colour	Sound type	Part no. Article no.
Acoustic modules, IP66						
Place only at the highest position on a pole						
	Continuous tone or pulsed tone, adjustable with internal dip switches. Sound pressure 100 db, adjustable with internal potentiometer. f = 2800 Hz	24 V AC/DC	max. 92			SL7-AP24 171281
		230/240 V AC	max. 43			SL7-AP230 171283
	Continuous tone or pulsed tone, external actuation. Assigned two inputs (2 modules). Sound pressure 100 db, adjustable with internal potentiometer. f = 2800 Hz	24 V AC/DC	max. 92			SL7-AP24-E 171284
		230/240 V AC	max. 43			SL7-AP230-E 171286
	Multi-tone; 8 tones, adjustable with internal dip switch. Sound pressure 100 db, adjustable with internal potentiometer. f = 500 - 2700 Hz	24 V AC/DC	max. 115			SL7-AP24-M 171287
		230/240 V AC	max. 43			SL7-AP230-M 171289
	Continuous tone or pulsed tone, adjustable with internal dip switches. Sound pressure 80 dB. f = 4000 Hz	24 V AC/DC	max. 39			SL4-AP24 171379
		230/240 V AC	max. 21			SL4-AP230 171381
Notes		¹⁾ 110/120 V AC → Online Catalog				

Description		Tube length	For use with	Part no. Article no.	For use with	Part no. Article no.
Basic modules						
For horizontal mounting Including cover Max. 5 modules						
	Base with aluminium tube and plastic foot	100 mm	SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-...	SL7-CB-100 171443	SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-...	SL4-PIB-100 171297
		250 mm		SL7-CB-250 171444		SL4-PIB-250 171298
		400 mm		SL7-CB-400 171445		SL4-PIB-400 171299
		800 mm		SL7-CB-800 177312		SL4-PIB-800 177313
	Base with aluminum tube and banjo bolt	100 mm		SL7-CB-T-100 171452		SL4-PIB-T-100 171305
		250 mm		SL7-CB-T-250 171453		SL4-PIB-T-250 171306
		400 mm		SL7-CB-T-400 171454		SL4-PIB-T-400 171307
		800 mm		SL7-CB-T-800 178460		SL4-PIB-T-800 178461

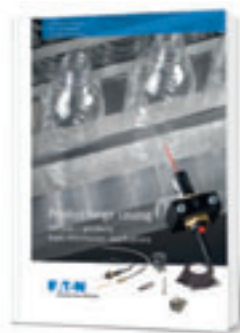
Description	Tube length	For use with	Part no. Article no.	For use with	Part no. Article no.
Basic modules					
For horizontal mounting Including cover Max. 5 modules			Spring-loaded terminals		Push in terminals
	Base with internal (on the inside) fixing holes	-	SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-...	SL7-CB-IMH 171447	SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-...
	Base with built-in (pre-assembled) fixing screws	-		SL7-CB-IMS 171448	SL4-PIB-IMH 171300
	Base with external fixing holes	-		SL7-CB-EMH 171449	SL4-PIB-IMS 171301
	Base: Can hold tubes with a diameter of 25 mm (±0.5)	-		SL7-CB-TM 179987	SL4-PIB-EMH 171302
	Base with base adapter for slipping onto place (rapid mounting and wiring system)	100 mm		Screw terminals	Screw terminals
		250 mm		SL7-FMS-100 171456	SL4-FMS-100 171308
		400 mm		SL7-FMS-250 171457	SL4-FMS-250 171309
		800 mm		SL7-FMS-400 171458	SL4-FMS-400 171310
				SL7-FMS-800 178462	SL4-FMS-800 178463
	Base with base adapter for slipping onto place (rapid mounting and wiring system) Max. 0.3 A per module External power supply connectable (24 V DC) Configurable with SWD-Assist (planning and ordering help)	100 mm		Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2
				SL7-SWD 171459	SL4-SWD 171311
					
For vertical mounting Including cover			Spring-loaded terminals		Push in terminals
	One-sided base with bracket Max. 5 modules	SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-...	SL7-CB-FW 171450	SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-...	SL4-PIB-FW 171303
For vertical mounting on both sides Including cover			Spring-loaded terminals		Push in terminals
	Base with external fixing holes Max. 2 x 5 modules	SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-...	SL7-CB-D 171451	SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-...	SL4-PIB-D 171304
For vertical mounting on one sides Including cover			M12 plug, 4 pole		
	Base with external fixing holes Max. 3 modules	SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-...	SL7-CB-D-M12A4 177351		

	Lifespan h	Rated operational voltage U _e V	Power	For use with	Part no. Article no.
Magnetic base including M20 cable gland					
For vertical mounting, Metal and plastic	-	-	-	SL4-PIB-100(250)(400) SL7-CB-100(250)(400)	SL7/4-MMS 172954
					
Mounting brackets					
For vertical mounting, Plastic	-	-	-	SL4-PIB-100(250)(400) SL4-FMS...	SL7/4-FW 171446
					
Including mounting bracket M20 cable gland					
For vertical mounting, Metal	-	-	-	SL4-PIB-T... SL7-CB-T...	SL7/4-FW-T 171455
					
Tool for replacing filament lamp					
	-	-	-	-	SL7/4-BET 171294
					
Filament bulbs					
Mounting: Ba15d					
	> 3000	12 V	5 W	SL7-L-...	SL7-L12 171290
		24 V	6.5 W		SL7-L24 171291
		120 V	7 W		SL7-L120 171292
		230 V	6.5 W		SL7-L230 171293
	> 3000	12 V	4 W	SL4-L-...	SL4-L12 171382
		24 V			SL4-L24 171383
		120 V			SL4-L120 171384
		230 V			SL4-L230 171385

Build it in.



Movements safely under control detect positions mechanically, optically and inductively



Catalog download:
www.eaton.eu/catalog

Wherever exact positioning is required, safety/position switches from Eaton with positively opening contacts are used. They are equipped with Cage Clamp or screw terminals and are available with metal and insulated enclosures. Their large connection area ensures that they can be wired quickly. Easy to fit and flexible operating heads are a further feature. Safety-door switches and safety position switches protect persons and processes. They are used to ensure that protective doors are safely locked and ensure a safe shutdown.

A variety of sensors makes it possible to use inductive, capacitive, or photoelectric object detection as necessary. These sensors are available in AC and DC versions, as well as in various cubic and tubular designs that make it easy to adapt to any type of location. One of the main highlights of this range consists of the programmable iProx series, which can be easily configured for any application at hand. In fact, E59 iProx can be used to replace a wide variety of standard sensors, e.g., when a replacement is necessary due to servicing.



www.eaton.eu/positionswitches
www.eaton.eu/sensors



More than a mechanical switch LSE-Titan

- Variable, adjustable switching point
- Precisely defined and reproducible
- Quick and bounce-free PNP-switching outputs facilitate high operating frequency
- Analog voltage output for precise position control
- Certified by the TÜV Rheinland
- With variable switching point or analog output



Reliable machine protection with non-contacting safety switches

The non-contacting safety switches of the RS-Titan model series from Eaton were specially developed for monitoring of protective coverings.

- Non-contacting: long lifespan, easy installation, high tolerance for doors and hinged flaps that do not close precisely, low maintenance
- High IP67, IP69K degree of protection: easy to clean, rugged, and reliable
- Symmetrical enclosure: easy mounting, low inventory levels
- 2 or 3 switching contacts: suitable for many applications
- Potential-free contacts: easy connection
- SILCL3, PLe: safe and reliable
- M12 plug or cable: quick and easy connection



Eaton sensors: versatile and reliable

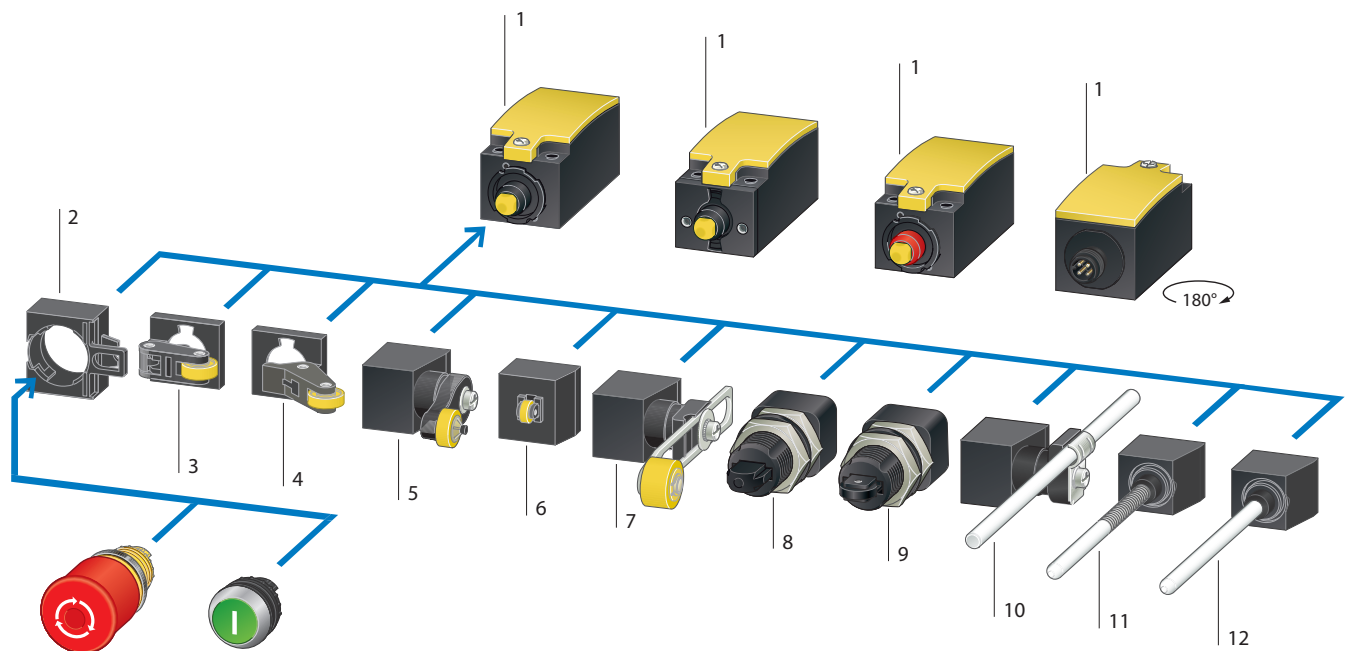
Eaton inductive and photoelectric sensors are available in a variety of designs and versions and are characterized by their unmatched reliability.

- Rugged design
- Nine different inductive sensor series
- E59 AccuProx with analog output
- E56 Pancake with a nominal range of 100 mm
- Opposed mode, refracted-light and diffused mode light barriers and more
- Perfect Prox technology for unparalleled background suppression
- A large signal reserve prevents failures and downtimes and extends maintenance intervals

Position switches

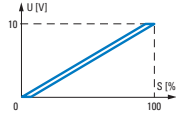
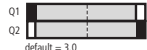
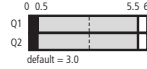
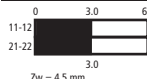
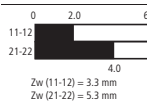
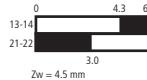
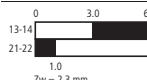
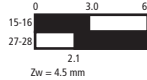
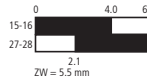
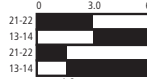
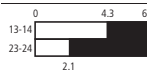
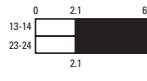
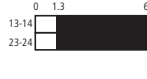
Safety position switches LS-Titan

Moeller® series



- 1 Basic device LS, LSM
- 2 Mounting clamp
- 3 Roller lever
- 4 Angled roller lever
- 5 Rotary lever
- 6 Roller plunger

- 7 Adjustable roller lever
- 8 Rounded plunger, centre fixing
- 9 Roller plunger, centre fixing
- 10 Actuating rod
- 11 Spring-rod actuator
- 12 Actuating rod

			Contacts	Contact travel	Housing	Cage Clamp ¹⁾ Part no. Article no.	Screw terminal Part no. Article no.
			⊕ Positive opening safety function according to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed	■ = Contact closed □ = Contact open Contact sequence			
Basic device, expandable							
Operating heads → Page 129							
IP66, IP67 analog electronic position switches							
Visual status indication Q1 = analog output Q2 = diagnostics output							
 							
					Insulated material	LSE-AU 274096	
IP66, IP67 operating point electronically adjustable							
Visual status indication, comparable with positive opening function Partly short-circuit proof, Restart after reset							
 							
	1 N/O	1 NC			Insulated material	LSE-11 266121	
	-	2 NC			Insulated material	LSE-02 266122	
Rounded plunger, IP66, IP67							
							
	-	2 NC ⊕			Insulated material	LS-02 266107	LS-S02 106729
	-	2 NC ⊕			Metal	LSM-02 266142	
	-	2 NC ⊕			Insulated material	LS-02A 116702	LS-S02A 116703
	1 N/O	1 NC ⊕			Insulated material	LS-11 266109	LS-S11 106783
	1 N/O	1 NC ⊕			Metal	LSM-11 266144	
	1 N/O	1 NC ⊕			Insulated material	LS-11A 116704	LS-S11A 116705
	1 N/O	1 NC ⊕			Insulated material	LS-11D 266114	LS-S11D 106791
	1 N/O	1 NC ⊕			Metal	LSM-11D 266149	
	1 N/O	1 NC ⊕			Insulated material	LS-11DA 292361	LS-S11DA 106795
	1 N/O	1 NC ⊕			Metal	LSM-11DA 292363	
	1 N/O	1 NC ⊕			Insulated material	LS-11S 266105	LS-S11S 106798
	1 N/O	1 NC ⊕			Metal	LSM-11S 266140	
	2 N/O	-			Insulated material	LS-20 266120	LS-S20 106808
	2 N/O	-			Metal	LSM-20 266155	
	2 N/O	-			Insulated material	LS-20A 292362	LS-S20A 106810
	2 N/O	-			Metal	LSM-20A 100051	
	2 N/O	-			Insulated material	LS-20B 116706	

Notes

¹⁾ Cage-Clamp is a registered trademark of Wago Kontakttechnik, 32432 Minden, Germany.
Accessories for the Cage-Clamp terminals from Wago: power comb, gray, Wago Article No. 264-402

Position switches

Safety position switches LS-Titan

Moeller® series

Contacts			Housing	Snap-action contact	Connection type ¹⁾		Screw terminal	
⊖ Positive opening safety function according to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed					Part no.	Article no.	Part no.	Article no.
Complete devices								
Roller plungers, IP66, IP67								
	1 N/O	1 NC ⊖	Insulated material	-	LS-11/P	266112	LS-S11/P	106788
	1 N/O	1 NC ⊖	Metal	-	LSM-11/P	266147		
	1 N/O	1 NC ⊖	Insulated material	Yes	LS-11S/P	266118	LS-S11S/P	106801
	1 N/O	1 NC ⊖	Metal	Yes	LSM-11S/P	266153		
Spring-rod actuator IP66, IP67								
Not to be used as a safety position switch								
	1 N/O	1 NC	Insulated material	Yes	LS-11S/S	266104	LS-S11S/S	106805
	1 N/O	1 NC	Metal	Yes	LSM-11S/S	266139		
Roller lever IP66, IP67								
Long								
	-	2 NC ⊖	Insulated material	-	LS-02/L	266108	LS-S02/L	106781
	-	2 NC ⊖	Metal	-	LSM-02/L	266143		
	1 N/O	1 NC ⊖	Insulated material	-	LS-11/L	266110	LS-S11/L	106785
	1 N/O	1 NC ⊖	Metal	-	LSM-11/L	266145		
	1 N/O	1 NC ⊖	Insulated material	Yes	LS-11S/L	266116	LS-S11S/L	106800
	1 N/O	1 NC ⊖	Metal	Yes	LSM-11S/L	266151		
Short								
	1 N/O	1 NC ⊖	Insulated material	-	LS-11/LS	290173	LS-S11/LS	106787
	1 N/O	1 NC ⊖	Insulated material	-	LS-11D/LS	290174	LS-S11D/LS	106794
Large								
	1 N/O	1 NC ⊖	Insulated material	-	LS-11/LB	290175	LS-S11/LB	106786
Rotary lever, IP66, IP67								
	1 N/O	1 NC ⊖	Insulated material	-	LS-11/RL	266111	LS-S11/RL	106789
	1 N/O	1 NC ⊖	Metal	-	LSM-11/RL	266146		
	1 N/O	1 NC ⊖	Insulated material	Yes	LS-11S/RL	266117	LS-S11S/RL	106802
	1 N/O	1 NC ⊖	Metal	Yes	LSM-11S/RL	266152		
Adjustable roller levers, IP66, IP67								
	1 N/O	1 NC ⊖	Insulated material	-	LS-11/RLA	266113	LS-S11/RLA	106790
	1 N/O	1 NC ⊖	Metal	-	LSM-11/RLA	266148		
	1 N/O	1 NC ⊖	Insulated material	Yes	LS-11S/RLA	266119	LS-S11S/RLA	106803
	1 N/O	1 NC ⊖	Metal	Yes	LSM-11S/RLA	266154		
IP66, IP67 actuating rod								
	1 N/O	1 NC ⊖	Insulated material	Yes	LS-11S/RR	266106	LS-S11S/RR	106804
	1 N/O	1 NC ⊖	Metal	Yes	LSM-11S/RR	266141		

Notes

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Accessories for the Cage-Clamp terminals from Wago: power comb, gray, Wago Article No. 264-402

		Contacts ☉ = safety function, by positive opening to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed	Snap-action contact	Contact travel ■ = Contact closed □ = Contact open Contact diagram	Cage Clamp ¹⁾ Part no. Article no.	Screwed terminal Part no. Article no.
Basic device, expandable						
-40 - +70, IP65, Insulated material						
	Rounded plunger	-	2 NC ☉	-	LS-02-CC 176880	LS-S02-CC 176890
		-	2 NC ☉	-	LS-02A-CC 176886	LS-S02A-CC 176895
		1 N/O	1 NC ☉	-	LS-11-CC 176879	LS-S11-CC 176889
		1 N/O	1 NC ☉	-	LS-11A-CC 176887	LS-S11A-CC 176896
		1 N/O	1 NC ☉	-	LS-11D-CC 176882	LS-S11D-CC 176891
		1 N/O	1 NC ☉	-	LS-11DA-CC 176884	LS-S11DA-CC 176893
		1 N/O	1 NC ☉	-	LS-11S-CC 176881	LS-S11S-CC 144118
		2 N/O	-	-	LS-20-CC 176883	LS-S20-CC 176892
		2 N/O	-	-	LS-20A-CC 176885	LS-S20A-CC 176894
		2 N/O	-	-	LS-20B-CC 176888	LS-S20B-CC 176897
Basic device, expandable						
With M12 connector, IP66						
	Rounded plunger	-	2 NC ☉	-	LS-02-M12A 178128	
		1 N/O	1 NC ☉	-	LS-11-M12A 178129	
		1 N/O	1 NC ☉	-	LS-11D-M12A 178130	
		1 N/O	1 NC ☉	-	LS-11DA-M12A 178131	
		1 N/O	1 NC ☉	-	LS-11S-M12A 178132	
		2 N/O	-	-	LS-20-M12A 178133	
		2 N/O	-	-	LS-20A-M12A 178134	
		2 N/O	-	-	LS-20B-M12A 178135	

Notes

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Accessories for the Cage-Clamp terminals from Wago: power comb, gray, Wago Article No. 264-402

Position switches

Safety position switches LS-Titan

Moeller® series

	Contacts ⊕ = safety function, by positive opening to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed	Snap-action contact	Contact travel ■ = Contact closed □ = Contact open Contact diagram	Cage Clamp ¹⁾ Part no.	Article no.
Complete device					
With M12 connector, IP66					
Roller plunger	1 N/O	1 NC ⊕	-	LS-11/P-M12A	178137
	1 N/O	1 NC ⊕	Yes	LS-11S/P-M12A	178141
Spring-rod actuator Not to be used as a safety position switch	1 N/O	1 NC	Yes	LS-11S/S-M12A	178145
	1 N/O	1 NC ⊕	-	LS-11/L-M12A	178136
Roller lever	1 N/O	1 NC ⊕	Yes	LS-11S/L-M12A	178140
	1 N/O	1 NC ⊕	-	LS-11/RL-M12A	178138
Rotary lever	1 N/O	1 NC ⊕	Yes	LS-11S/RL-M12A	178142
	1 N/O	1 NC ⊕	-	LS-11/RLA-M12A	178139
Adjustable roller lever	1 N/O	1 NC ⊕	Yes	LS-11S/RLA-M12A	178143
	1 N/O	1 NC ⊕	Yes	LS-11S/RR-M12A	178144
Actuating rod	1 N/O	1 NC ⊕	Yes		
					

Notes

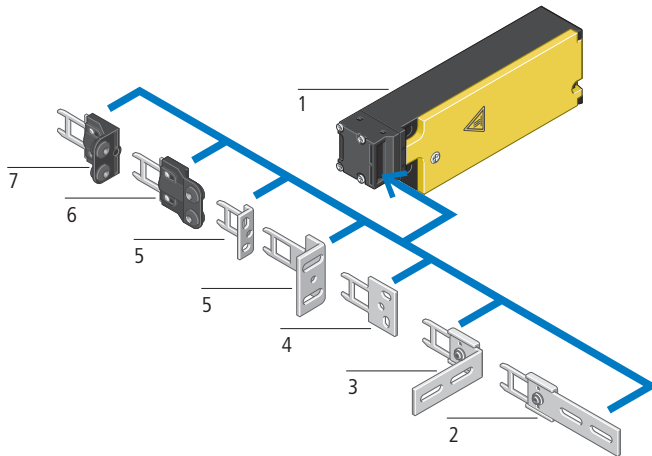
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Accessories for the Cage-Clamp terminals from Wago: power comb, gray, Wago Article No. 264-402

		Insulated material Part no. Article no.	Metal Part no. Article no.	Notes	
Roundet plunger, centre fixing					
	For mounting in enclosure wall or mounting plate drilling M18 x 1	LS-XZS 114024		The operating head can be rotated at 90° intervals to adapt to the specified approach direction.	
Roller plunger, centre fixing					
	For mounting in enclosure wall or mounting plate drilling M18 x 1	LS-XZRS 114025			
Roller plungers					
	-	LS-XP 266125	LSM-XP 266158		
Roller lever					
	Large	LS-XLB 290178			
	Short	LS-XLS 290177			
	Long	LS-XL 266123	LSM-XL 266156		
Angled roller lever					
	-	LS-XLA 266124	LSM-XLA 266157		
Rotary lever					
	-	LS-XRL 266126	LSM-XRL 266159		
Adjustable roller levers					
	Ø 18 mm	LS-XRLA 266127	LSM-XRLA 266160		
	Ø 30 mm	LS-XRLA30 266128			
	Ø 40 mm Roller: Rubber	LS-XRLA40R 266130			
	Ø 40 mm	LS-XRLA40 266129			
Actuating rods					
	Bar: Insulated material	LS-XRR 266131	LSM-XRR 266161		
	Bar: Metal	LS-XRRM 266132	LSM-XRRM 266162		
Spring-rod					
	Not to be used as a safety position switch Only permissible with snap-action contact	LS-XS 266133	LSM-XS 266163		
Actuating rod					
	-	LS-XOR 290190			

Position switches

Safety position switch LS-ZBZ

Moeller® series



- 1 Basic device
- 2 Flat flexible actuator
- 3 Angled flexible actuator
- 4 Flat actuator
- 5 Angled actuator
- 6 Flat compensating actuator
- 7 Angled compensating actuator

Order actuators separately → online catalog

Contacts			Rated control voltage for magnetic drive U _s	Part no. Article no.	Notes
⊖ Positive opening safety function according to IEC/EN 60947-5-1					
N/O = Normally open	N/C = Normally closed	V			
Basic units with spring-powered interlock (closed-circuit principle) IP65					
	1 N/O	1 NC ⊖	24 V DC	LS-S11-24DFT-ZBZ/X 106829	Switch must never be used as a mechanical stop! The operating head can be rotated manually in 90° steps without tools to suit the specified level of actuation. With the actuator inserted, the N/O contact is open and the N/C contact is closed. For degree of protection IP65, use V-M20 (206910) cable glands with connecting thread of max. 9 mm length. In the event of power failure (e.g., during commissioning), the device can be released with a screwdriver. The auxiliary release mechanism must be sealed! → Instructional leaflet IL 05208005Z
	-	2 NC ⊖	24 V DC	LS-S02-24DFT-ZBZ/X 106823	
	1 N/O	1 NC ⊖	120 V 50/60 Hz	LS-S11-120AFT-ZBZ/X 106825	
	-	2 NC ⊖	120 V 50/60 Hz	LS-S02-120AFT-ZBZ/X 106778	
	1 N/O	1 NC ⊖	230 V 50/60 Hz	LS-S11-230AFT-ZBZ/X 106827	
	-	2 NC ⊖	230 V 50/60 Hz	LS-S02-230AFT-ZBZ/X 106821	
					
					
Basic devices with magnet-powered interlock (open-circuit principle) IP65					
	1 N/O	1 NC ⊖	24 V DC	LS-S11-24DMT-ZBZ/X 106830	Switch must never be used as a mechanical stop! The operating head can be rotated manually in 90° steps without tools to suit the specified level of actuation. With the actuator inserted, the N/O contact is open and the N/C contact is closed. For degree of protection IP65, use V-M20 (206910) cable glands with connecting thread of max. 9 mm length.
	-	2 NC ⊖	24 V DC	LS-S02-24DMT-ZBZ/X 106824	
	1 N/O	1 NC ⊖	120 V 50/60 Hz	LS-S11-120AMT-ZBZ/X 106826	
	-	2 NC ⊖	120 V 50/60 Hz	LS-S02-120AMT-ZBZ/X 106820	
	1 N/O	1 NC ⊖	230 V 50/60 Hz	LS-S11-230AMT-ZBZ/X 106828	
	-	2 NC ⊖	230 V 50/60 Hz	LS-S02-230AMT-ZBZ/X 106822	
					
					

	Contacts	Approval	Connection type	Part no. Article no.	Notes	
	⇒ Positive opening safety function according to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed					
Safety door flap switch LSR-.../TKG, IP65						
	-	2 NC ⇒		Screw terminal	LSR-S02-1-I/TKG 106848 LSR-S11-1-I/TKG 106847	
	1 N/O	1 NC ⇒				
Hinge-operated safety switch LSR-.../TS, IP65						
	-	2 NC ⇒		Screw terminal	LSR-S02-1-I/TS 106852 LSR-S11-1-I/TS 106851	
	1 N/O	1 NC ⇒				
Safety position switches LS...-ZB, IP65						
	-	2 NC ⇒		Cage Clamp	LS-02-ZB 106817 LS-S02-ZB 106874 LS-11-ZB 106819 LS-S11-ZB 106876 LS-11S-ZB 106870 LS-S11S-ZB 106877	Switch must never be used as a mechanical stop! Actuator can be repositioned for horizontal or vertical mounting. The operating heads can be turned manually in 90° steps to suit the specified level of actuation. With the actuator inserted, the N/O contact is open and the N/C contact is closed. For degree of protection IP65, use V-M20 (206910) cable glands with connecting thread of max. 9 mm length.
	-	2 NC ⇒		Screw terminal		
	1 N/O	1 NC ⇒		Cage Clamp		
	1 N/O	1 NC ⇒		Screw terminal		
	1 N/O	1 NC ⇒		Cage Clamp		
	1 N/O	1 NC ⇒		Screw terminal		
Safety/ position switch LS4.../ZB, IP65						
	1 N/O	1 NC ⇒	 	Screw terminal	LS4/S11-1/I/ZB 106857 LS4/S11-1/IA/ZB 106858 LS4/S12-7/IB/ZB 106859	
	1 N/O	1 NC ⇒				
	1 N/O	2 NC ⇒				

	Contacts N/O = Normally open N/C = Normally closed	Part no.	Article no.	Part no.	Article no.
Non-contacting safety switch					
IP67, IP69K Reed contacts					
	-	2 NC	3 m connection cable		
	1 N/O	1 NC	RS2-02-C3	177286	Plug-in connection M12 x 1
	1 N/O	2 NC	RS2-11-C3	177287	RS2-02-Q4 177289
	-	2 NC	RS2-12-C3	177288	RS2-11-Q4 177290
	1 N/O	1 NC			RS2-12-Q6 177291
	1 N/O	2 NC			
	-	2 NC	10 m connection cable		
	1 N/O	1 NC	RS2R-02-C3	177292	RS2R-02-Q4 177295
	1 N/O	2 NC	RS2R-11-C3	177293	RS2R-11-Q4 177296
	-	2 NC	RS2R-12-C3	177294	RS2R-12-Q6 177297
	1 N/O	1 NC			
	1 N/O	2 NC			
	1 N/O	2 NC			

	Design (outer dimensions)	Rated switching distance S _n	Type of mounting	Contacts		Degree of Protection	Part no.	Article no.
	mm	mm		N/C = Normally closed	N/O = Normally open			
E52 Cube Series								
2 LEDs for current and output status Housing adapter, 4-wire, Plug-in connection M12 x 1, Rated operational voltage U _e 10 – 48 V DC Switching type: NPN, PNP Zinc/Insulated material								
	40 x 40 x 40	15	Flush	1 NC	1 N/O	IP67	E52Q-DL15SAD01	135804
		15	Non-flush				E52Q-DL15UAD01	135805
		20	Flush				E52Q-DL20SAD01	135806
		20	Non-flush				E52Q-DL20UAD01	135807
		25					E52Q-DL25UAD01	135808
		30					E52Q-DL30UAD01	135809
		35					E52Q-DL35UAD01	135810
		40					E52Q-DL40UAD01	135811
E56 Pancake Series								
2 LEDs for current and output status 4-wire, Plug-in connection M12 x 1, Rated operational voltage U _e 10 – 48 V DC Switching type: NPN, PNP Insulated material								
	79 x 79 x 39	40	Flush	1 NC	1 N/O	IP67	E56ADL40SAD01	136234
	79 x 79 x 39	40	Non-flush				E56ADL40UAD01	136235
	109 x 110 x 41	70	Non-flush				E56BDL70UAD01	136236
	171.5 x 171.5 x 67.4	100	Non-flush				E56CDL100UAD01	136237
E57 Global Series								
LED for output status 3-wire, Plug-in connection M12 x 1, Rated operational voltage U _e 10 - 30 V DC Switching type: PNP Metal								
	M8 x 1	1	Flush	-	1 N/O	IP67, IP69K	E57-08GS01-GDB	135862
		2	Non-flush	-			E57-08GU02-GDB	135866
		3	Flush	-			E57-08GE03-GDB	135854
		6	Non-flush	-			E57-08GE06-GDB	135858
	M12 x 1	2	Flush	-			E57-12GS02-GDB	135886
		4	Non-flush	-			E57-12GU04-GDB	135895
		5	Flush	-			E57-12GE05-GDB	135870
		10	Non-flush	-			E57-12GE10-GDB	135878
	M18 x 1	5	Flush	-			E57-18GS05-GDB	135932
		8	Flush	-			E57-18GE08-GDB	135915
		8	Non-flush	-			E57-18GU08-GDB	135940
		18	Non-flush	-			E57-18GE18-GDB	135924
	M30 x 1.5	10	Flush	-			E57-30GS10-GDB	135978
		15	Flush	-			E57-30GE15-GDB	135960
		15	Non-flush	-			E57-30GU15-GDB	135986
		29	Non-flush	-			E57-30GE29-GDB	135968

	Design (outer dimensions)	Rated switch- ing distance S _n	Type of mounting	Contacts		Degree of Protection	Part no.	Article no.
	mm	mm		N/C = Normally closed	N/O = Normally open			
E57 miniature series (inductive)								
3-wire, 2 m connection cable, Rated operational voltage U _e 10 - 30 V DC Switching type: PNP Stainless steel								
	M5 x 1	0.8	Flush	-	1 N/O	IP67	E57EAL5T111SP	136241
	Ø 4	0.8	Flush	-			E57EAL4T111SP	136239
	Ø 6,5	1	Flush	-			E57EAL6T111SP	136245
	Ø 6,5	2	Non-flush	-	E57EAL6T111EP	136244		
iProx Series (inductive)								
3-wire, Plug-in connection M12 x 1, Rated operational voltage U _e 6 - 48 V DC Switching type: NPN, PNP Stainless steel								
	M12 x 1	4	Flush	-	1 N/O	IP67, IP69K	E59-M12A105D01-D1	136207
	M18 x 1	8	Flush	-			E59-M18A108D01-D1	136215
	M18 x 1	18	Non-flush	-			E59-M18C116D01-D1	136219
	M30 x 1.5	15	Flush	-			E59-M30A115D01-D1	136223
Programming cable								
For use with iProx								
	-	-	-	-	-	-	E59RP1	136229
Programming software								
For use with iProx								
	-	-	-	-	-	-	E59SW1	136230
E53 Serie (capacitive)								
4-wire Plug-in connection M12 x 1 Rated operational voltage: U _e 10 – 48 V DC Switching type: NPN, PNP Zinc/Insulated material								
	M18 x 1	8	Flush	1 NC	-	IP65	E53KBL18T111SD	134802
		8	Flush	-	1 N/O		E53KAL18T111SD	134768
		15	Non-flush	1 NC	-		E53KBL18T111ED	134801
		15	Non-flush	-	1 N/O		E53KAL18T111ED	134767
	M30 x 1.5	20	Flush	1 NC	-		E53KBL30T111SD	134814
		20	Flush	-	1 N/O		E53KAL30T111SD	134780
		25	Non-flush	1 NC	-		E53KBL30T111ED	134813
		25	Non-flush	-	1 N/O		E53KAL30T111ED	134779
	34 Ø	25	Flush	1 NC	-		E53KBL34T111SD	134824
		25	Flush	-	1 N/O		E53KAL34T111SD	134790
		35	Non-flush	1 NC	-		E53KBL34T111ED	134823
		35	Non-flush	-	1 N/O		E53KAL34T111ED	134789

Function	Description	Rated switching distance S _n mm	Type of light	Switching principle	Part no.	Article no.	
Comet Series							
4-wire, Rated operational voltage U _e 10 - 30 V DC Switching type: NPN, PNP Insulated material Plug-in connection M12 x 1 Degree of Protection IP67							
	Reflected-light beam	Beam: straight With background suppression (Perfect Prox)	50	Visible red	Adjustable bright/dark switching	13104AQD07	135605
		Beam: straight Can be expanded with fiber optic cable→Accessories	200	Infra-red		13106AQD07	135621
		Beam: straight With background suppression (Perfect Prox)	225			13103AQD07	135597
		Beam: straight Can be expanded with fiber optic cable→Accessories	610			13100AQD07	135581
	Reflex photoelectric sensor	For combination with reflector Non-polarized Beam: straight	7600	Visible red		14102AQD07	135657
	Thru-beam photoelectric sensor	Detector (for combination with source) Beam: straight	24000			12102AQD07	135577
		Source (for combination with detector) Beam: straight	24000		-	11102AQD07	135565
E58 Harsh Duty Series							
4-wire, Rated operational voltage U _e 10 - 30 V DC Switching type: NPN, PNP Stainless steel Plug-in connection M12 x 1 Degree of Protection IP69K							
	Reflected-light beam	With background suppression (Perfect Prox)	50	Visible red	Light switching	E58-18DP50-HLP	135673
			50		Dark switching	E58-18DP50-HDP	135671
			100		Light switching	E58-18DP100-HLP	135667
			100		Dark switching	E58-18DP100-HDP	135665
			280		Dark switching	E58-30DPS280-HDP	135681
			280		Light switching	E58-30DPS280-HLP	135683
	Reflex photoelectric sensor	For combination with reflector	18000		Dark switching	E58-30RS18-HDP	135689
			18000		Light switching	E58-30RS18-HLP	135691
	Thru-beam photoelectric sensor	Source (for combination with detector)	250000	Visible red	-	E58-30TS250-HAP	135697
		Detector (for combination with source)	250000	-	Dark switching	E58-30TD250-HDP	135693
			250000	-	Light switching	E58-30TD250-HLP	135695
E67 Long Range Series							
4-wire, Rated operational voltage U _e 18 – 30 V DC Switching type: NPN Plug-in connection M12 x 1, PNP Degree of Protection IP67							
	Reflected-light beam	with background suppression (Perfect Prox)	1000	Infra-red	Light switching	E67-LRDP100-HLD	100548
		with background suppression (Perfect Prox)	1000		Dark switching	E67-LRDP100-HDD	100547

Function	Description	Rated switching distance S _n mm	Type of light	Switching principle	Part no.	Article no.	
E65 SM Series							
4-wire, Rated operational voltage U _e 10 - 30 V DC Switching type: NPN, PNP Insulated material Plug-in connection M12 x 1 Degree of Protection IP68, IP69K							
	Reflected-light beam	With background suppression (Perfect Prox)	100	-	Light switching	E65-SMPP100-HLD	135713
		With background suppression (Perfect Prox)	100	-	Dark switching	E65-SMPP100-HDD	135711
	Thru-beam photoelectric sensor	Source (for combination with detector)	15000	-	Light switching	E65-SMTD15-HLD	135733
		Detector (for combination with source)	15000	-	Dark switching	E65-SMTD15-HDD	135731
		Source (for combination with detector)	15000	-	-	E65-SMTS15-HAD	135735
E71 NanoView Series							
4-wire, Rated operational voltage U _e 10 - 30 V DC Switching type: PNP Insulated material Rectangular (20 x 12 x 32) Degree of Protection IP66/IP67							
	Reflected-light beam	Beam: focused, forward viewing	100	Visible red	Adjustable bright/dark switching	E71-FFDP-M8	100518
		Beam: straight	350	Infra-red		E71-SDP-M8	100530
	Reflex photo-electric sensor	For combination with reflector	800	Visible red		E71-COP-M8	100428
		Detection of transparent objects					
	Thru-beam photoelectric sensor	Source (for combination with detector)	1500	Infra-red		E71-NTBS-CA	100521
	Reflex photo-electric sensor	Polarized light	2500	Visible red		E71-PRP-M8	100526
		Thru-beam photoelectric sensor	Detector (for combination with source)	6000	Infra-red		E71-TBRP-M8
E76 IntelliView Series							
8 conductor, Rated operational voltage U _e 10 - 30 V DC Switching type: PNP Plug-in connection M12 x 1 Degree of Protection IP67							
	Reflected-light beam	Color sensing 3 NO PNP outputs	450	Infra-red	-	E76-CLRMKP-M12	166927
Style output side Style input side Length mm For use with					Part no.	Article no.	
Connecting cables							
	Cable end, open	Coupling, straight	2000	DC sensors, 4 pole, 2, 3 or 4-wire connection, M12	CSDS4A4CY2202	136292	
			5000		CSDS4A4CY2205	136294	
			10000		CSDS4A4CY2210	136296	
		Coupling, angled	2000		CSDR4A4CY2202	136279	
			5000		CSDR4A4CY2205	136282	
			10000		CSDR4A4CY2210	136284	
	Plug, straight	Coupling, straight	1500		CSDS4A4CY2201.5-D	136316	
			3000		CSDS4A4CY2203-D	136293	
			5000		CSDS4A4CY2205-D	136295	
	Plug, angled		1500		CSDR4A4CY2201.5-D	136313	
			3000		CSDR4A4CY2203-D	136315	
			5000		CSDR4A4CY2205-D	136283	

Build it in.



Safe and reliable: Timing relay, measuring relay and monitoring relay



The range of electronic timing relay incorporates two different construction designs, which are adapted for differing application fields. All timing relays are mounted on DIN top-hat rails. The measuring and monitoring relay EMR range is approved for worldwide use. Most of the relays feature multi-voltage coils.

They cover a wide range of applications:

- Current monitors for universal use
- Phase monitors for monitoring damage protection for individual system sections
- Phase sequence relays monitoring the rotating field
- Unbalance relays for reliable phase loss detection
- Multifunctional three-phase monitors for space-saving monitoring of a rotating field
- Level monitoring relays for monitoring fill levels
- Earth leakage monitors for enhanced operational safety.



www.eaton.eu/Relays

Timing Relay ETR – Precision and Economic Switching



- Large choice of setting ranges
- Many timing functions for every requirement
- Remote setting via potentiometer
- Flexible connection using wide voltage range power supply
- Additional signal input even for different control voltage levels



Multi-functional three-phase monitor – compact rotary field monitoring



- Monitoring of phase sequence, phase loss, phase unbalance, overvoltage and undervoltage to protect the motor
- With optional neutral conductor monitoring
- Thresholds for overvoltage and undervoltage can be adjusted or fixed
- 2 changeover contacts for higher flexibility



Earth-leakage monitor and level relay EMR – the right solution for every application



- Enhanced safety by monitoring for earth-leakage using an earth-leakage monitor
- Fault correction without long standstill times
- Test button facilitates simple function testing
- Simple level monitoring and/or dry running protection
- Enhanced safety via open circuit principle



Single-phase current monitor EMR – for universal use



- Precision current monitoring in AC and DC networks
- Adjustable triggering delay for bridging transitory current peaks.
 - Status display via colored LEDs
 - Expansion of the measurement range possible via external current transformers



Function											Time range	Number of change-over contacts	Width mm	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	400 V AC, 50/60 Hz		
On-delayed	Multi-functional	Off-delayed	Fleeting contact on energization	Fleeting contact on de-energization	Flashing, pulse initiating	On- and Off-delayed	Pulse forming	Pulse generating	Star-delta switching	Flashing, pause initiating				Part no. Article no.	Part no. Article no.		
ETR4 timing relays																	
	Changeover contact with a changeover time of 50 ms	-	-	-	-	-	-	-	-	✓	-	3 - 60 s	1	22.5	ETR4-51-A 031884	ETR4-51-W 031885	
	Fixed timing function	✓	-	-	-	-	-	-	-	-	-	0.05 s - 100 h			ETR4-11-A 031882	ETR4-11-W 031883	
	Adjustable timing functions	✓	✓	✓	✓	✓	✓	✓	✓	✓	-				-	ETR4-69-A 031891	ETR4-69-W 031887
	With connection for potentiometer Changeover contact can be converted to 2 timed contacts or 1 non-delayed contact and 1 timed contact	✓	✓	✓	✓	✓	✓	✓	✓	✓	-	-	2		ETR4-70-A 031888	-	
																12 - 240 V AC, 50/60 Hz 12 – 240 V DC	24 - 240 V AC, 50/60 Hz 24 - 48 V DC
ETR2 timing relays																	
	Fixed timing function	✓	-	-	-	-	-	-	-	-	-	0.05 s - 100 h	1	17.5	-	ETR2-11 262684	
		✓	-	-	-	-	-	-	-	-	-		2		-	ETR2-11-D 119426	
		-	-	✓	-	-	-	-	-	-	-	-	1		-	ETR2-12 262686	
		-	-	✓	-	-	-	-	-	-	-	-	2		-	ETR2-12-D 119427	
		-	-	-	✓	-	-	-	-	-	-	-	1		-	ETR2-21 262687	
		-	-	-	-	✓	-	-	-	-	-	-			-	ETR2-42 262688	
	Pulse and pause times independently adjustable	-	-	-	-	-	✓	-	-	-	-	✓			-	ETR2-44 262730	
	Adjustable timing functions	✓	✓	✓	✓	✓	✓	-	✓	-	-	✓			-	ETR2-69 262689	
		✓	✓	✓	✓	✓	✓	-	✓	-	-	✓		2		ETR2-69-D 119428	-

		Monitoring of						Monitoring voltage per phase	Adjustable threshold values			Threshold value	Supply voltage	Part no. Article no.
		Phase sequence	Phase failure	Imbalance	Overvoltage	Undervoltage	Neutral cable break	U _N V AC	Imbalance	Overvoltage	Undervoltage			
Phase sequence relays														
	Monitoring of three-phase networks Phase failure detection at < 0.6 x U ₀ Power supply from the measuring circuit	✓	✓	-	-	-	-	200 - 500 V AC, 50/60 Hz	-	-	-	-	200 - 500 V AC, 50/60 Hz	EMR4-F500-2 221784
Phase imbalance monitoring relays														
	Power supply from the measuring circuit	✓	✓	✓	-	-	-	160 - 300 V AC, 50/60 Hz	✓	-	-	-	160 - 300 V AC, 50/60 Hz	EMR5-A300-1-C 134230
	On delay: None = 0 or adjustable from 0.1 to 30 s Imbalance threshold values adjustable 2 - 25 % of mean value of phase voltages	✓	✓	✓	-	-	-	300 - 500 V AC, 50/60 Hz	✓	-	-	-	300 - 500 V AC, 50/60 Hz	EMR5-A400-1 134222
Phase monitoring relays														
Multi-functional Power supply from the measuring circuit On-delay/off-delay: none = 0 or adjustable between 0.1 - 30 s Imbalance threshold values adjustable 2 - 25 % of mean value of phase voltages														
	22.5 mm	✓	✓	✓	✓	✓	✓	90 - 170 V AC, 50/60 Hz	✓	✓	✓	U _{max} 120 - 170 V AC U _{min} 90 - 130 V AC	90 - 170 V AC, 50/60 Hz	EMR5-AWN170-1-E 134225
		✓	✓	✓	✓	✓	-	160 - 300 V AC, 50/60 Hz	✓	✓	✓	U _{max} 220 - 300 V AC U _{min} 160 - 230 V AC	160 - 300 V AC, 50/60 Hz	EMR5-AW300-1-C 134223
		✓	✓	✓	✓	✓	✓	180 - 280 V AC, 50/60 Hz	✓	✓	✓	U _{max} 240 - 280 V AC U _{min} 180 - 220 V AC	180 - 280 V AC, 50/60 Hz	EMR5-AWN280-1-E 134226
		✓	✓	✓	✓	✓	✓	180 - 280 V AC, 50/60/400 Hz	✓	✓	✓	U _{max} 240 - 280 V AC U _{min} 180 - 220 V AC	180 - 280 V AC, 50/60/400 Hz	EMR5-AWN280-1 134233
		✓	✓	✓	✓	✓	-	300 - 500 V AC, 50/60 Hz	✓	✓	✓	U _{max} 420 - 500 V AC U _{min} 300 - 380 V AC	300 - 500 V AC, 50/60 Hz	EMR5-AW500-1-D 134224
	45 mm	✓	✓	✓	✓	✓	-	300 - 500 V AC, 50/60/400 Hz	✓	✓	✓	U _{max} 420 - 500 V AC U _{min} 300 - 380 V AC	300 - 500 V AC, 50/60/400 Hz	EMR5-AWN500-1 134234
		✓	✓	✓	✓	✓	-	350 - 580 V AC, 50/60 Hz	✓	✓	✓	U _{max} 480 - 580 V AC U _{min} 350 - 460 V AC	350 - 580 V AC, 50/60 Hz	EMR5-AWM580-2 134235
		✓	✓	✓	✓	✓	-	450 - 720 V AC, 50/60 Hz	✓	✓	✓	U _{max} 600 - 720 V AC U _{min} 450 - 570 V AC	450 - 720 V AC, 50/60 Hz	EMR5-AWM720-2 134236
		✓	✓	✓	✓	✓	-	530 - 820 V AC, 50/60 Hz	✓	✓	✓	U _{max} 690 - 820 V AC U _{min} 530 - 660 V AC	530 - 820 V AC, 50/60 Hz	EMR5-AWM820-2 134237
On- and Off-delayed														
	Power supply from the measuring circuit	✓	✓	-	✓	✓	-	160 - 300 V AC, 50/60 Hz	-	✓	✓	U _{max} 220 - 300 V AC U _{min} 160 - 230 V AC	160 - 300 V AC, 50/60 Hz	EMR5-W300-1-C 134227
	On-delay/off-delay: none = 0 or adjustable between 0.1 - 30 s	✓	✓	-	✓	✓	-	300 - 500 V AC, 50/60 Hz	-	✓	✓	U _{max} 420 - 500 V AC U _{min} 300 - 380 V AC	300 - 500 V AC, 50/60 Hz	EMR5-W500-1-D 134221
		✓	✓	-	✓	✓	-	380 V AC, 50/60 Hz	-	-	-	U _{max} 418 V AC, fixed U _{min} 342 V AC, fixed	380 V AC, 50/60 Hz	EMR5-W380-1 134228
		✓	✓	-	✓	✓	-	400 V AC, 50/60 Hz	-	-	-	U _{max} 440 V AC, fixed U _{min} 360 V AC, fixed	400 V AC, 50/60 Hz	EMR5-W400-1 134229

Electronic relays

EMR Measuring and monitoring relays

		Monitoring of	Adjustable pick-up time	Supply voltage	Width mm	Part no. Article no.
Level monitoring relays						
	Selectable: protection against running dry or overflowing	Fill level of conductive liquids	5 - 100 kΩ	220 - 240 V AC, 50/60 Hz	22.5	EMR4-N100-1-B 221789
	On-delay/off-delay: adjustable between 0.1 - 10 s	Fill level of conductive liquids Mixture ratio of conductive liquids	250 Ω - 500 kΩ 250 Ω - 500 kΩ	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	45	EMR4-N500-2-A 221791
	-		250 Ω - 500 kΩ	220 - 240 V AC, 50/60 Hz	45	EMR4-N500-2-B 221790
	-		5 - 100 kΩ	220 - 240 V AC, 50/60 Hz	22.5	EMR5-N80-1-B 134232
Insulation monitoring relays						
	Status indication via LEDs Open-circuit principle Test or reset with button on device or with control input Configurable fault memory/memory function Configurable non-volatile fault memory	Insulation resistance in non-earthed AC supply systems (two-phase, three-phase, four-phase systems) Insulation resistance in non-earthed DC supply systems (two-phase, three-phase systems)	1 - 110 kΩ	24 - 240 V AC, 13,5 - 400 Hz 24 - 240 V DC	22.5	EMR5-R250-1-A 153442
	Status indication via LEDs Open-circuit principle Test or reset with button on device or with control input Configurable fault memory/memory function Configurable non-volatile fault memory	Insulation resistance in non-earthed AC supply systems (two-phase, three-phase, four-phase systems)	1 - 110 kΩ	24 - 240 V AC, 13,5 - 400 Hz 24 - 240 V DC	22.5	EMR5-R400-1-A 153443
	Status indication via LEDs Open-circuit principle Test or reset with button on device or with control input Configurable fault memory/memory function Configurable non-volatile fault memory Wire break detection	Insulation resistance in non-earthed AC supply systems (three-phase, four-phase systems) insulation resistance in non-earthed DC supply systems (three-phase systems)	1 - 110 kΩ 2 - 200 kΩ Activation by dip switch	24 - 240 V AC, 13,5 - 400 Hz 24 - 240 V DC	45	EMR5-R400-2-A 153444
	Coupling module Expands the rated voltage range for the EMR5-400-2-A to 690 V AC or 1000 V DC no supply voltage required	-	-	-	45	EMR5-RC690 153445
Current monitoring relays						
			Current measuring range I~/I= A	Supply voltage	Width mm	Part no. Article no.
	Monitoring of single-phase DC and AC networks Switching hysteresis adjustable from 3 - 30 % On delay: None = 0 or adjustable from 0.1 to 30 s Extension of the measurement range possible with current transformers		3 - 30 mA 10 - 100 mA 0.1 - 1 A	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	22.5	EMR4-I11-1-A 106942
			0.3 - 1.5 A 1 - 5 A 3 - 15 A	24 - 240 V AC, 50/60 Hz 24 - 240 V DC	22.5	EMR4-I15-1-A 106943
			0.3 - 1.5 A 1 - 5 A 3 - 15 A	220 - 240 V AC, 50/60 Hz	22.5	EMR4-I15-1-B 106944

Motors switching and protecting



DIL M Contactors and overload relays Z

Operational motor switching

- Overload protection
- Trip indication auxiliary contact

Page 146 ff.



Motor starter MSC-D

Operational motor switching

- Overload protection
- Short-circuit protective device
- Disconnecter

Page 174 ff., 186 ff.



Motor starter MSC-DE

Operational motor switching

- Electronic wide-range overload protection
- Short-circuit protective device
- Disconnecter
- Current range can be changed with interchangeable trip blocks

Page 174 ff., 186 ff.



EMS Electronic motor starter

- DOL and reversing starter functionality
- Integrated emergency stop contactor for PLe / SIL 3 applications
- Wide-range overload protection
- Toolless push-in connection

Page 188 ff.

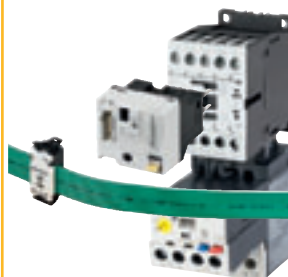


Circuit breaker NZM and contactor DIL M

- Overload protection
- Short-circuit protective device

Page 230 ff.

Networked motors switching and protection



DIL M Contactor with SmartWire-DT and electronic overload relay

- Remote actuation of the contactor
- Switching state read back

Page 14 ff., 146 ff.



Motor starter MSC with SmartWire-DT

- Remote actuation of the contactor
- Read back of the contactor switch state and PKZ

Page 14 ff., 174 ff., 186 ff.



Motor starter MSC-DEA with SmartWire-DT

- Remote actuation of the contactor
- Read back
 - Contactor switch state and PKE
 - Motor current
 - Settings
 - Motor thermal image
 - Trip indication, overload/short circuit/phase failure

Page 14 ff., 174 ff., 186 ff.



EMS Electronic motor starters with SmartWire-DT

- Integrated control circuit supply
- Clockwise/counterclockwise actuation
- Feedback motor direction
- Toolless push-in connection

Page 14 ff., 188 ff.



Circuit breaker NZM with SmartWire-DT and contactor DIL M

- Contactor PLC actuation
- Read back
 - Circuit breaker switching state
 - Motor current
 - Load warnings
 - Settings
 - Trip reason

Page 14 ff., 230 ff.

Soft motor start and drives



Motor-protective circuit breakers PKZ and soft starter DS 7

- Overload protection
- Short-circuit protective device
- Soft start

Page 174 ff., 198 ff.



PowerXL DE1 Variable speed starter to 7.5 kW

- Out-of-the-box commissioning without parameterization
- No special drives engineering skills or knowledge required
- Parameters can be set with a screwdriver when using the DXE-EXT-SET optional module
- Maximum machine availability thanks to trip-free design

Page 204 ff.



PowerXL DC1 Variable frequency drives up to 22 kW

- V/Hz control with voltage boost
- Speed control for three-phase motors and AC motors
- Degree of protection to IP20 and IP66

Page 204 ff.



PowerXL DA1 Variable frequency drives up to 250 kW

- V/f, SLV, CLV motor control
- 200 % torque @ 0 rpm
- EMC filter and braking transistor integrated
- Master/Slave communication
- Degree of protection IP20, IP55 or IP66

Page 204 ff.



PowerXL DG1 Variable frequency drives to 160 kW

- For constant and variable torque applications
- Multi-pump and fan control
- Integrated DC link choke
- Two freely usable slots for expansion cards

Page 204 ff.

Networking motors soft motor start and drives



Motor starter MSC-DE with SmartWire-DT and soft starter DS 7

- Electronic wide-range overload protection
- Short-circuit protective device
- Soft start
- Read back status information

Page 14 ff., 174 ff., 198 ff.



PowerXL DE1 Variable speed starter to 7.5 kW

Communication:

- CANopen (variant DE11)
- Integrated Modbus RTU
- Full integration into SmartWire-DT (optional)

Page 14 ff., 204 ff.



PowerXL DC1 Variable frequency drives up to 22 kW

Communication:

- Integrated CANopen, Modbus RTU
- Full integration into SmartWire-DT (optional)

Page 14 ff., 204 ff.



PowerXL DA1 Variable frequency drives up to 250 kW

Communication:

- Integrated CANopen, Modbus RTU
- Fieldbus modules optional
- Full integration into SmartWire-DT (optional)

Page 14 ff., 204 ff.



PowerXL DG1 Variable frequency drives to 160 kW

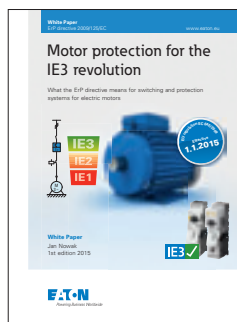
Communication

- Integrated Ethernet/IP
- Integrated Modbus RTU/TCP
- Fieldbus modules (PROFIBUS, PROFINET, etc.) optional
- Full integration into SmartWire-DT (optional)

Page 204 ff.

Switch, protect, and drive your motors: Today and tomorrow

Using Eaton devices is the best way to make sure you are ready for the new ErP Directive. Our existing range of products for safely switching, protecting and driving motors has not only been re-engineered in order to meet the Directive's requirements, but has also been expanded with ingenious new solutions, including the new PowerXL™ DE1 variable speed starter.



Successfully Implement the ErP Directive

The third stage of the ErP directive will come into effect on 01/01/2017. After this date, the directive will not only govern the use of IE2, IE3, and IE4 motors, but will also place new requirements on motor starters and drives for the entire output range of 0 to 375 kW. For detailed information, please consult the white paper found at the following address: www.eaton.eu/moem-ee



IE3 motors – a new challenge for switchgear

IE3 premium efficiency motors are characterized not only by significantly improved efficiency, but also by lower internal resistance. As a result, their inrush currents can reach magnitudes of 14 x I_N. This means that the contact mechanism in contactors may wear out very quickly and that nuisance tripping may become a problem with protective devices when used with these motors. To consult our white paper on the subject, please visit: www.eaton.eu/moem-ee

On the safe side with Eaton motor starters

Eaton motor starters rated up to 375 kW have been specifically tested for operation with IE3 motors. The results show that the higher inrush currents produced by these motors pose no problem for our motor starters, meaning that there is absolutely no risk of having to deal with faster wear or increased maintenance. For detailed information, please visit our IE3 page: www.eaton.eu/IE3

Ingeniously connected with SmartWire-DT

The SmartWire-DT intelligent connection system is designed to lower wiring costs by up to 85 %. Moreover, it helps eliminate installation faults and reduces the amount of planning work required, not to mention it provides greater flexibility when it comes to selecting a PLC. In addition, connected devices can send analog and digital data concerning states, motor currents, and/or energy consumption, helping improve machine and system availability and optimize the use of power.

Build it in.

BreakerVisu – monitoring & analysis



NZM – circuit breaker



Module NZM – for SmartWire-DT



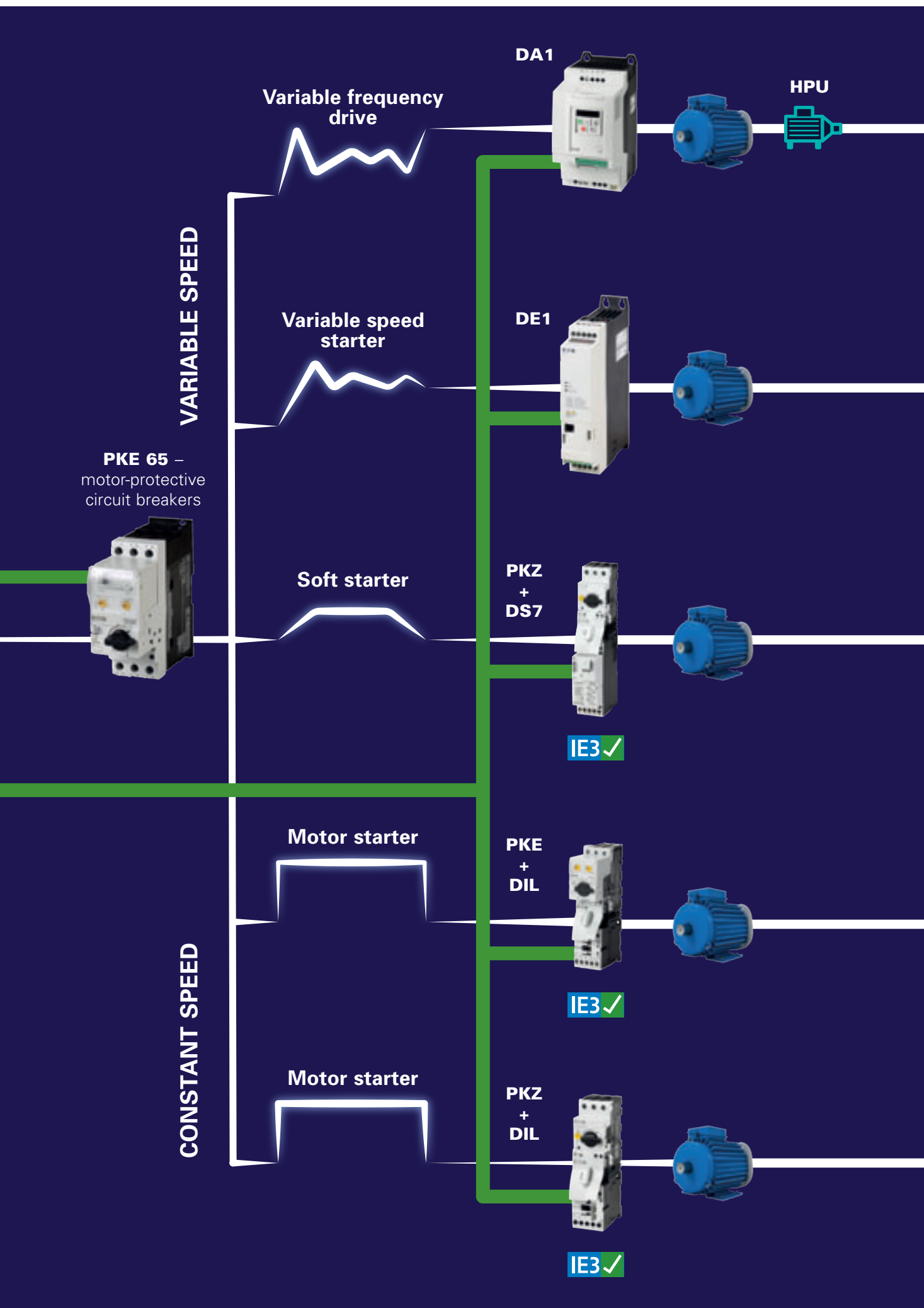
XV300 – HMI/PLC with multi-touch technology

KEY

SmartWire-DT

Data

Power



Build it in.



Contactors DIL up to a high-performance 2600 A, efficiently and flexibly combinable

 www.eaton.eu/moem-ee



The contactor series covers the entire performance range from mini-contactor relay with 7 A up to a vacuum contactor at 2600 A. The combination with electronic overload relays or bimetal relays provides motor starters for the most varied of applications. All circuit breakers fulfil the demands for world-wide use and are compliant to UL/CSA, CCC and shipping classifications. The motor protection systems are also ATEX certified. The contactors are becoming more efficient, particularly due to the new Eco types for 15.5, 38, 72, 170 und 570 A, as well as through the many innovations with the motor starters, for example, such as SmartWire-DT.

An even higher level of operational safety is now guaranteed, for example, by the auxiliary contacts for electronic signals, which can reliably switch even the smallest signals such as feedback to the PLC.

 www.eaton.eu/dil



Contactor DILM up to 170 A

The contactor series up to 170 A stands out with its compact dimensions. Contactors with DC and AC operation now have identical geometries.

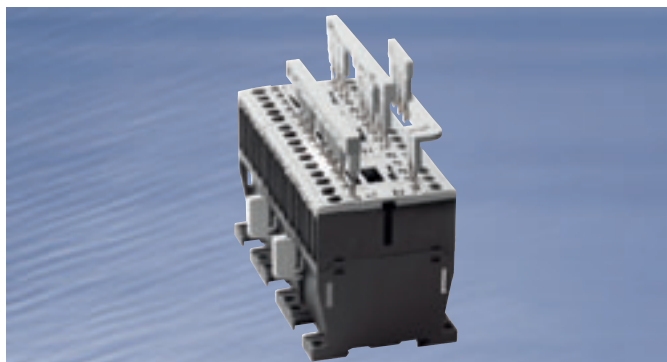
- An identical range of accessories available for AC and DC operated devices simplifies engineering requirements
- All contactor with DC actuation from DILM17 or higher feature an electronically controlled drive unit.
- Significantly less heat dissipation due to reduced sealing consumption
- Smaller control transformers because of lower pick-up consumption
- Direct actuation from the PLC without coupling contactors up to 38 A.



New electronic overload relay ZEB

The new electronic overload relay can be fitted directly to the contactors DILM. They cover a current range up to 175 A.

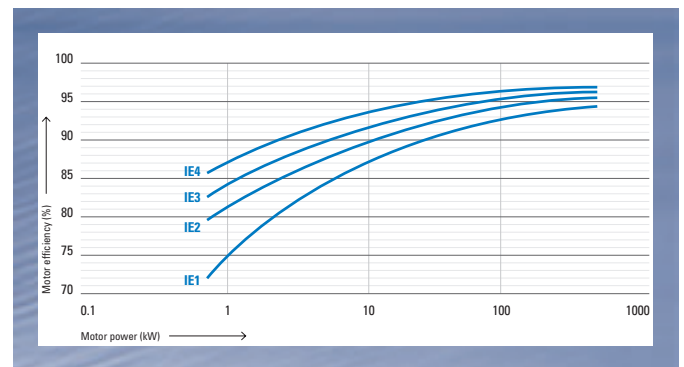
- Adjustable Class setting for protection at heavy duty start
- Manual or automatic reset can be selected to enable universal application
- GF devices provide enhanced protection with earth faults.



Speedier wiring using spring-loaded terminals

Eaton provides proven quality with spring-loaded terminals. The main current paths on PKZM0 and motor contactors up to 15.5 A all use spring-loaded terminals.

- Speedy wiring
- Highly reliable even with machines that vibrate excessively.



IE3-ready with Eaton switchgear

Eaton contactors have been optimized for use with IE3 motors. The contactors' increased contact pressure force is designed to achieve an ideal balance between switchgear safety and energy efficiency, ensuring that the high-efficiency motors' higher inrush currents can be safely and reliably.

Simple, fast and reliable wiring

- The universally used standard components are combined for tool-less plug connection technology. On contactors up to 15.5 A, the DILM12-XSL or DILM12-XRL are fitted into the connectors rapidly and with optimum space savings without the need for tools.
- Front coil connections enable quick and reliable wiring operations.
- Double box terminals on all contactors DILM up to 170 A guarantee reliable wiring even with different conductor cross-sections.

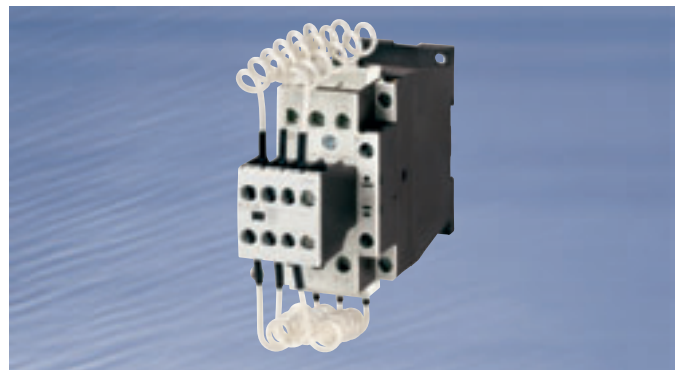


4-pole contactors

The new 4-pole contactors from Eaton are optimized for AC-1 switched loads.

They are the specialists for applications, where the mains power is switched off or over, heating systems are switched and 4-pole loads are switched.

- Four compact contactors cover the performance range up to 200 A
- Identical accessories for 3 and 4-pole contactors guarantee efficient engineering.



Contactors for reactive current compensation systems

The contactors for capacitor DILK have been developed on the basis of the DILM contactors. The installation and connection as well as the handling are identical with the standard contactors. These contactors feature series resistors in addition to special, weld-free contact material. The capacitors are pre-charged via a special early-make auxiliary switch, and only then do the main contacts close and conduct continuous current.



Mini Contactor Relays DILE Contactor relays DILA

The range of mini contactor relays has been extended by three performance ranges. The new DILEM12 allows motors up to 5.5 kW to be controlled reliably.

- Compact dimensions for small installation spaces
- Extension of the small contactor relay range up to 5.5 kW

The auxiliary contactor DILA perfectly complements the motor contactors DILM.

- Auxiliary contacts specially designed for the contactor relays ensure safe identification.



Safety technology

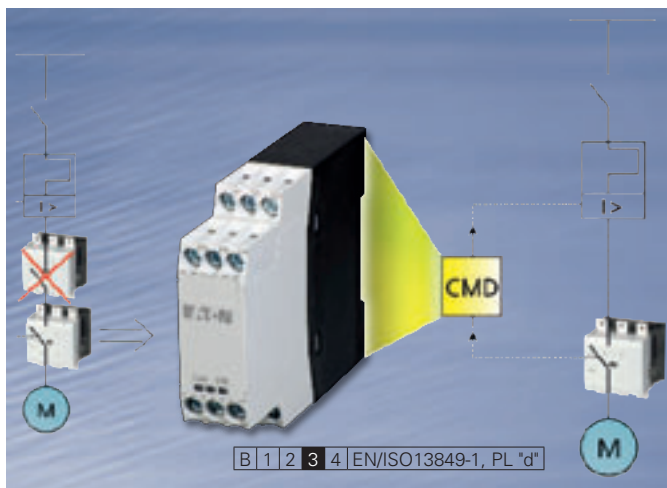
Safety technology is constantly increasing in significance. Contactors for a safe standstill are used here.

- Reliable feedback of the switching state of the contactor using mirror contacts.
- Long enabling circuits with low magnitude signals are switched reliably by the new electronic-enabled auxiliary switches. The integrated microswitches safely switch through the lowest signals.



Thermistor overload relay EMT6

Remarkable functional versatility in the smallest possible space. The EMT 6 thermistor overload relay protects machines against overtemperatures during severe starting duty, braking duty, undervoltage and overvoltage and high switching frequency. The temperature is monitored by means of a thermistor, directly on the motor winding. Another field of application for the EMT 6 is the monitoring of temperatures in bearings, gearboxes, oils and coolants. Three types with differing functions are available: EMT6, EMT6-DB, EMT6-DBK. The EMT 6-DBK is the most versatile with functions such as automatic or manual operation, recognition of short circuits in the sensor circuit and zero-voltage safety.



Contactor monitoring device CMD

The CMD (Contactor Monitoring Device) monitors the main contacts of a contactor for welding. For this purpose, it compares the contactor control voltage with the state of the main contacts, which are indicated reliably by a mirror contact (IEC EN 60947-4-1 Ann. F). If the contactor coil is de-energized and the contactor does not drop out, the CMD trips the backup circuit breaker, motor-protective circuit breaker or switch-disconnector via an undervoltage release.



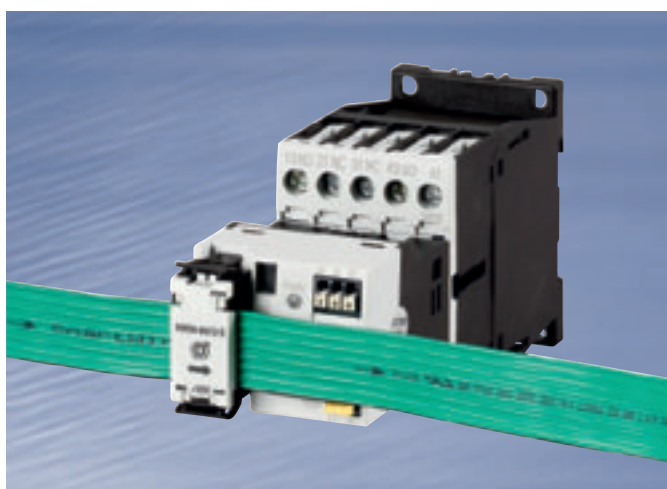
Large contactors up to 2600 A

All contactors DILM and DILH from 185 A to 2200 A are available with electronically-controlled drives. This provides outstanding benefits for your application:

- Flexible actuation
- Considerably lower control panel temperatures due to reduced sealing power
- Considerably greater control voltage tolerance than required by the standard, ensuring greater reliability with voltage deviations
- Integrated suppressor
- Auxiliary contact contacts: 2 NO, 2 NC
- In the premium version, four wide-range devices cover the entire voltage range.

Contactors DILM from 580 A and DILH from 1400 A are vacuum contactors with significant benefits in comparison to air contactors:

- The electrical service life is significantly longer than on air contactors.
- A higher packing density and cleaner distribution compartment are possible, since there are no open arcs and therefore no escaping gases.



Intelligent networking

The conventional wiring used in control circuits for motor starters and contactors requires considerable time and effort: each motor starter or contactor needs to be wired individually and then separately connected to the PLC's input/output modules. This not only takes a lot of time, but also makes wiring and operating faults much more likely. When used together with SmartWire-DT, our xStart contactors eliminate the need for this control wiring, as well as for the PLC's input/output modules, minimizing the time required for wiring and commissioning.

Overview of motor protection up to 1000 A

Electronic and electrical overload relays, thermistor protective relays

Moeller® series

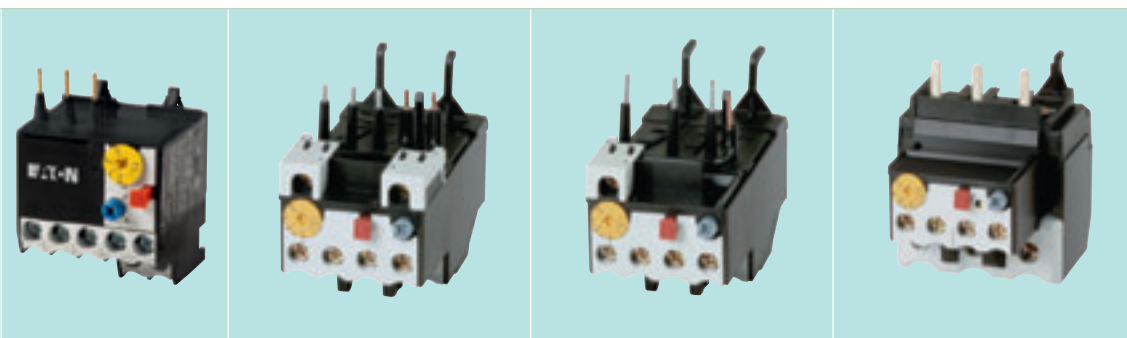
Contactor



TYPE	DIL	EEM	EM	EM12*	M7	M9	M12	M15*	M17	M25	M32	M38*	M40	M50	M65	M72*
Rated operational power AC-3	400V	3	4	5.5	3	4	5.5	7.5	7.5	11	15	18.5	18.5	22	30	37
Rated operational current AC-3	400V	6.6	9	12	7	9	12	15.5	18	25	32	38	40	50	65	72
Rated operational power AC-1	40°C	22	22	22	22	22	22	22	40	45	45	45	60	80	98	98

*For motors up to IE2!

Bimetal relays



TYPE	ZE	ZB12	ZB32	ZB65
Overload release setting range	0.1 - 12 A	0.1 - 16 A	0.1 - 38 A	6 - 75 A

Electronic overload relays



TYPE	ZEB12	ZEB32	ZEB65
Overload release setting range	0.33 - 20 A	0.33 - 45 A	9 - 100 A

Thermistor overload relay



TYPE	EMT6, EMT6-K, EMT6-DB, ...
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M80	M95	M115	M150	M170*	M185A	M225A	M250	M300A	M400	M500	M580	M650	M750	M820	M1000
37	45	55	75	90	90	110	132	160	200	250	315	355	400	450	560
80	95	115	150	170	185	225	250	300	400	500	580	650	750	820	1000
110	130	160	190	225	337	356	400	430	612	857	980	1041	1102	1225	1225

*For motors up to IE2!

			
ZB150	Z5-../FF225A	Z5-../FF250	ZW7
35 - 175 A	50 - 250 A	50 - 300 A	42 - 630 A

	
ZEB150	ZEB225A
20 - 175 A	35 - 175 A



... EMT6KDB, EMT6-DBK

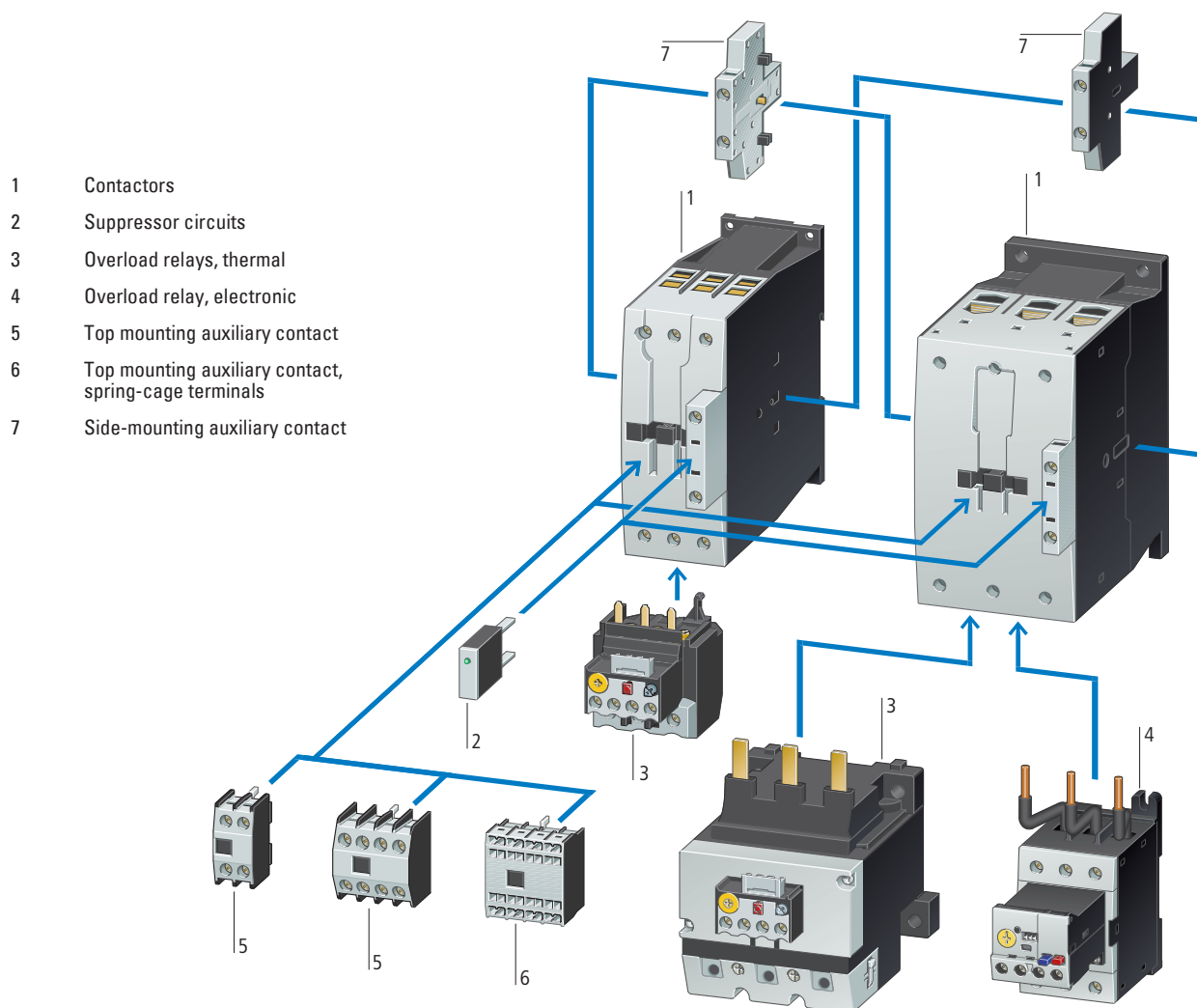
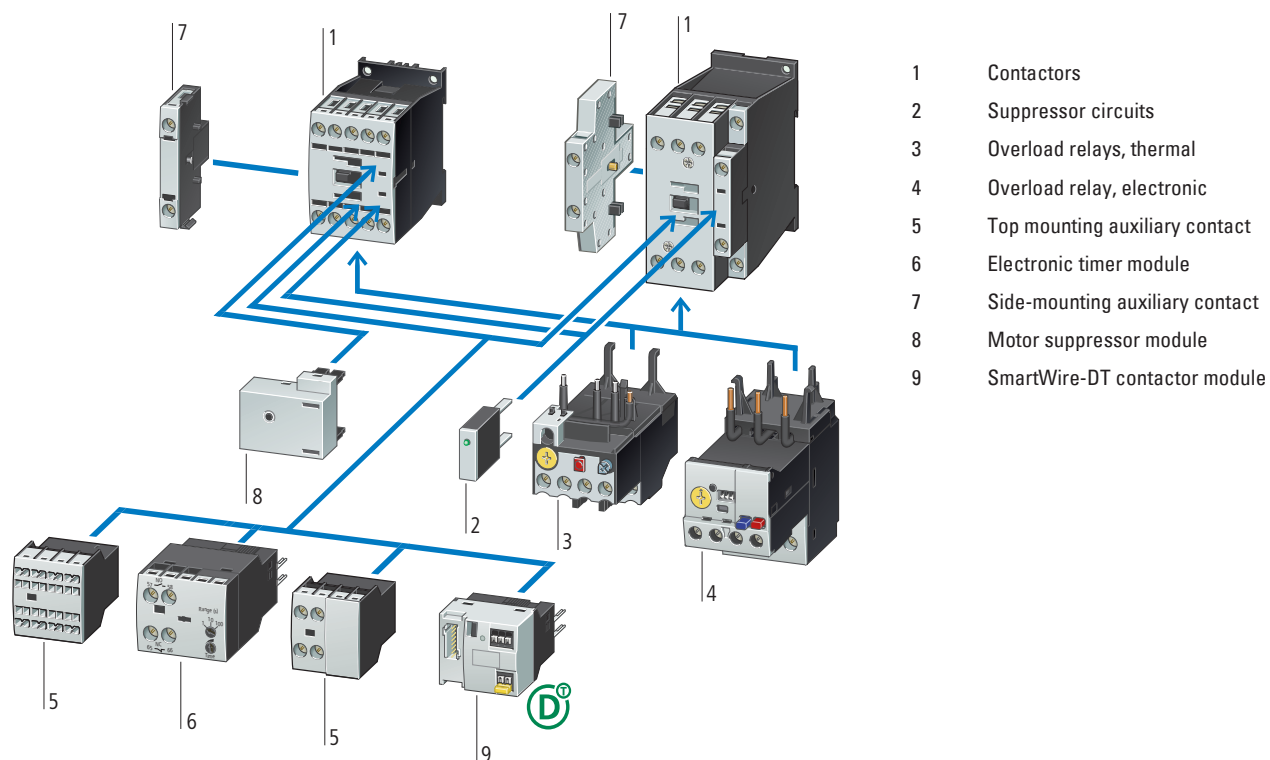
Mini contactor relays, contactor relays

Contactors, miniature contactors, Contactor relays

Moeller® series

	Max. rating for three-phase motors, 50 - 60 Hz		Rated operational current	Contacts	AC operation 230 V 50 Hz, 240 V 60 Hz	AC operation 110 V 50 Hz, 120 V 60 Hz	DC operation 24 V DC
	AC-3		AC-1	N/O = Normally open N/C = Normally closed	Part no. Article no.	Part no. Article no.	Part no. Article no.
	380 V 400 V	660 V 690 V	Conventional free air thermal current, 3 pole, 50 - 60 Hz				
	P kW	P kW	Open at 40 °C I _{th} = I _e A				
DILEM contactors							
Screw terminals							
	3	3	22	1 N/O -	DILEEM-10(230V50HZ,240V60HZ) 051608	DILEEM-10(110V50HZ,120V60HZ) 051611	DILEEM-10-G(24VDC) 051643
	3	3	22	- 1 NC	DILEEM-01(230V50HZ,240V60HZ) 051633	DILEEM-01(110V50HZ,120V60HZ) 051636	DILEEM-01-G(24VDC) 051650
	4	4	22	1 N/O -	DILEM-10(230V50HZ,240V60HZ) 051786	DILEM-10(110V50HZ,120V60HZ) 051783	DILEM-10-G(24VDC) 010213
	4	4	22	- 1 NC	DILEM-01(230V50HZ,240V60HZ) 051795	DILEM-01(110V50HZ,120V60HZ) 051792	DILEM-01-G(24VDC) 010343
	5.5	4	22	1 N/O -	DILEM12-10(230V50HZ,240V60HZ) 127075	DILEM12-10(110V50HZ,120V60HZ) 127072	DILEM12-10-G(24VDC) 127132
	5.5	4	22	- 1 NC	DILEM12-01(230V50HZ,240V60HZ) 127091	DILEM12-01(110V50HZ,120V60HZ) 127088	DILEM12-01-G(24VDC) 127137
Spring-loaded terminals							
	3	3	22	1 N/O -	DILEEM-10-C(230V50HZ,240V60HZ) 230042	-	DILEEM-10-G-C(24VDC) 230052
	3	3	22	- 1 NC	DILEEM-01-C(230V50HZ,240V60HZ) 230135	-	DILEEM-01-G-C(24VDC) 230155
	4	4	22	1 N/O -	DILEM-10-C(230V50HZ,240V60HZ) 230164	DILEM-10-C(110V50HZ,120V60HZ) 231658	DILEM-10-G-C(24VDC) 230165
	4	4	22	- 1 NC	DILEM-01-C(230V50HZ,240V60HZ) 230166	DILEM-01-C(110V50HZ,120V60HZ) 231681	DILEM-01-G-C(24VDC) 230167
DILER Mini-contactors							
Screw terminals							
	-	-	10	4 N/O -	DILER-40(230V50HZ,240V60HZ) 051759	DILER-40(110V50HZ,120V60HZ) 051756	DILER-40-G(24VDC) 010223
	-	-	10	3 N/O 1 NC	DILER-31(230V50HZ,240V60HZ) 051768	DILER-31(110V50HZ,120V60HZ) 051765	DILER-31-G(24VDC) 010157
	-	-	10	2 N/O 2 NC	DILER-22(230V50HZ,240V60HZ) 051777	DILER-22(110V50HZ,120V60HZ) 051774	DILER-22-G(24VDC) 010042
Spring-loaded terminals							
	-	-	10	4 N/O -	DILER-40-C(230V50HZ,240V60HZ) 230239	DILER-40-C(110V50HZ,120V60HZ) 231841	DILER-40-G-C(24VDC) 230241
	-	-	10	3 N/O 1 NC	DILER-31-C(230V50HZ,240V60HZ) 230178	DILER-31-C(110V50HZ,120V60HZ) 231818	DILER-31-G-C(24VDC) 230179
	-	-	10	2 N/O 2 NC	DILER-22-C(230V50HZ,240V60HZ) 230176	DILER-22-C(110V50HZ,120V60HZ) 231793	DILER-22-G-C(24VDC) 230177
DILA relays							
Screw terminals							
	-	-	16	4 N/O -	DILA-40(230V50HZ,240V60HZ) 276329	DILA-40(110V50HZ,120V60HZ) 276326	DILA-40(24VDC) 276344
	-	-	16	3 N/O 1 NC	DILA-31(230V50HZ,240V60HZ) 276364	DILA-31(110V50HZ,120V60HZ) 276361	DILA-31(24VDC) 276379
	-	-	16	2 N/O 2 NC	DILA-22(230V50HZ,240V60HZ) 276399	DILA-22(110V50HZ,120V60HZ) 276396	DILA-22(24VDC) 276414
Spring-loaded terminals							
	-	-	16	4 N/O -	DILAC-40(230V50HZ,240V60HZ) 276441	DILAC-40(110V50HZ,120V60HZ) 276438	DILAC-40(24VDC) 276456
	-	-	16	3 N/O 1 NC	DILAC-31(230V50HZ,240V60HZ) 276473	DILAC-31(110V50HZ,120V60HZ) 276470	DILAC-31(24VDC) 276488
	-	-	16	2 N/O 2 NC	DILAC-22(230V50HZ,240V60HZ) 276505	DILAC-22(110V50HZ,120V60HZ) 276502	DILAC-22(24VDC) 276520

For use with		Contacts				Part no.	Article no.
		N/O = Normally open	N/O _E : NO early-make	N/C = Normally closed	NC _L =NC late-break		
Auxiliary contact modules							
Screw terminals							
	DILEM-10(-G)(...)	-	-	2 NC	-	02DILEM	010064
	DILEM-4(-G)(...)	1 N/O	-	1 NC	-	11DILEM	010080
	DILEEM-10(-G)(...)	2 N/O	-	2 NC	-	22DILEM	010112
	DILEM12-10(-G)(...)						
	DILEM-10(-G)(...)	-	-	2 NC	-	02DILE	010240
	DILEM-01(-G)(...)	1 N/O	-	1 NC	-	11DILE	010224
	DILEM-4(-G)(...)	2 N/O	-	-	-	20DILE	010208
	DILER40(-G)	-	1 N/O _E	-	1 NC _L	11DDILE	049824
	DILER31(-G)	-	-	-	-		
	DILER22	-	-	4 NC	-	04DILE	010256
	DILEEM-10(-G)(...)	1 N/O	-	3 NC	-	13DILE	002397
	DILEEM-01(-G)(...)	2 N/O	-	2 NC	-	22DILE	010288
	DILEM12-10(-G)(...)	3 N/O	-	1 NC	-	31DILE	048912
	DILEM12-01(-G)(...)	4 N/O	-	-	-	40DILE	010304
		1 N/O	1 N/O _E	1 NC	1 NC _L	22DDILE	049823
Spring-loaded terminals							
	DILE(E)M-10-C(-G)(...)	1 N/O	-	1 NC	-	11DILE-C	230257
	DILE(E)M-01-C(-G)(...)	-	-	4 NC	-	04DILE-C	230258
	DILER40(-G)-C	1 N/O	-	3 NC	-	13DILE-C	230259
	DILER31(-G)-C	2 N/O	-	2 NC	-	22DILE-C	230260
	DILER22-C	3 N/O	-	1 NC	-	31DILE-C	230262
		4 N/O	-	-	-	40DILE-C	230263
		1 N/O	1 N/O _E	1 NC	1 NC _L	22DDILE-C	230264
Suppressor circuit							
Varistor suppressor							
	DILE...	-	-	-	-	VGDILE250	010336
RC suppressor							
	DILE...	-	-	-	-	RCDILE250	046320
Mechanical interlock							
For contactors with the same or different magnet system. 0 mm distance between relays. Mechanical lifespan 2.5 x 10 ⁶ Operations. Additional auxiliary contact modules possible.							
		-	-	-	-	MVDILE	010113
Paralleling link							
Consisting of two 4 pole paralleling links							
	DILEEM DILEM12 DILEM	-	-	-	-	P1DILEM	019095



				AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no.	AC operation 110 V 50 Hz, 120 V 60 Hz Part no. Article no.	DC operation 24 V DC Part no. Article no.
Max. rating for three-phase motors, 50 - 60 Hz						
AC-3		AC-1				
380 V	660 V	Conventional free	Open			
400 V	690 V	airthermal current,	at 40 °C			
		3 pole, 50 - 60 Hz				
P	P	$I_{th} = I_e$				
kW	kW	A				
Basic device						
Screw terminals						
	3	3.5	22	DILM7-10(230V50HZ,240V60HZ) 276550	DILM7-10(110V50HZ,120V60HZ) 276547	DILM7-10(24VDC) 276565
	3	3.5	22	DILM7-01(230V50HZ,240V60HZ) 276585	DILM7-01(110V50HZ,120V60HZ) 276582	DILM7-01(24VDC) 276600
	4	4.5	22	DILM9-10(230V50HZ,240V60HZ) 276690	DILM9-10(110V50HZ,120V60HZ) 276687	DILM9-10(24VDC) 276705
	4	4.5	22	DILM9-01(230V50HZ,240V60HZ) 276725	DILM9-01(110V50HZ,120V60HZ) 276722	DILM9-01(24VDC) 276740
	5.5	6.5	22	DILM12-10(230V50HZ,240V60HZ) 276830	DILM12-10(110V50HZ,120V60HZ) 276827	DILM12-10(24VDC) 276845
	5.5	6.5	22	DILM12-01(230V50HZ,240V60HZ) 276865	DILM12-01(110V50HZ,120V60HZ) 276862	DILM12-01(24VDC) 276880
	7.5	7	22	DILM15-10(230V50HZ,240V60HZ) 290058	DILM15-10(110V50HZ,120V60HZ) 290055	DILM15-10(24VDC) 290073
	7.5	7	22	DILM15-01(230V50HZ,240V60HZ) 290093	DILM15-01(110V50HZ,120V60HZ) 290090	DILM15-01(24VDC) 290108
	7.5	11	40	DILM17-10(230V50HZ,240V60HZ) 277004	DILM17-10(110V50HZ,120V60HZ) 277001	DILM17-10(RDC24) 277018
	7.5	11	40	DILM17-01(230V50HZ,240V60HZ) 277036	DILM17-01(110V50HZ,120V60HZ) 277033	DILM17-01(RDC24) 277050
	11	14	45	DILM25-10(230V50HZ,240V60HZ) 277132	DILM25-10(110V50HZ,120V60HZ) 277129	DILM25-10(RDC24) 277146
	11	14	45	DILM25-01(230V50HZ,240V60HZ) 277164	DILM25-01(110V50HZ,120V60HZ) 277161	DILM25-01(RDC24) 277178
	15	17	45	DILM32-10(230V50HZ,240V60HZ) 277260	DILM32-10(110V50HZ,120V60HZ) 277257	DILM32-10(RDC24) 277274
	15	17	45	DILM32-01(230V50HZ,240V60HZ) 277292	DILM32-01(110V50HZ,120V60HZ) 277289	DILM32-01(RDC24) 277306
	18.5	21	45	DILM38-10(230V50HZ,240V60HZ) 112428	DILM38-10(110V50HZ,120V60HZ) 112425	DILM38-10(RDC24) 112442
	18.5	21	45	DILM38-01(230V50HZ,240V60HZ) 112456	DILM38-01(110V50HZ,120V60HZ) 112453	DILM38-01(RDC24) 112470
	18.5	23	60	DILM40(230V50HZ,240V60HZ) 277766	DILM40(110V50HZ,120V60HZ) 277763	DILM40(RDC24) 277780
	22	30	80	DILM50(230V50HZ,240V60HZ) 277830	DILM50(110V50HZ,120V60HZ) 277827	DILM50(RDC24) 277844
	30	35	98	DILM65(230V50HZ,240V60HZ) 277894	DILM65(110V50HZ,120V60HZ) 277891	DILM65(RDC24) 277908
	37	35	98	DILM72(230V50HZ,240V60HZ) 107670	DILM72(110V50HZ,120V60HZ) 109191	DILM72(RDC24) 107671
	37	63	110	DILM80(230V50HZ,240V60HZ) 239402	DILM80(110V50HZ,120V60HZ) 239399	DILM80(RDC24) 239416
	45	75	130	DILM95(230V50HZ,240V60HZ) 239480	DILM95(110V50HZ,120V60HZ) 239477	DILM95(RDC24) 239510
	55	90	160	DILM115(RAC240) 239548	DILM115(RAC120) 239547	DILM115(RDC24) 239555
	75	96	190	DILM150(RAC240) 239588	DILM150(RAC120) 239587	DILM150(RDC24) 239591
	90	96	225	DILM170(RAC240) 107013	DILM170(RAC120) 107012	DILM170(RDC24) 107016

				AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no.	AC operation 110 V 50 Hz, 120 V 60 Hz Part no. Article no.	DC operation 24 V DC Part no. Article no.
Max. rating for three-phase motors, 50 - 60 Hz AC-3 380 V 660 V 400 V 690 V Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 40 °C $I_{th} = I_e$ P P kW kW A						
Basic device						
Spring-loaded terminals						
	3	3.5	22	DILMC7-10(230V50HZ,240V60HZ) 277389	DILMC7-10(110V50HZ,120V60HZ) 277386	DILMC7-10(24VDC) 277404
	3	3.5	22	DILMC7-01(230V50HZ,240V60HZ) 277421	DILMC7-01(110V50HZ,120V60HZ) 277418	DILMC7-01(24VDC) 277436
	4	4.5	22	DILMC9-10(230V50HZ,240V60HZ) 277453	DILMC9-10(110V50HZ,120V60HZ) 277450	DILMC9-10(24VDC) 277468
	4	4.5	22	DILMC9-01(230V50HZ,240V60HZ) 277485	DILMC9-01(110V50HZ,120V60HZ) 277482	DILMC9-01(24VDC) 277500
	5.5	6.5	22	DILMC12-10(230V50HZ,240V60HZ) 277517	DILMC12-10(110V50HZ,120V60HZ) 277514	DILMC12-10(24VDC) 277532
	5.5	6.5	22	DILMC12-01(230V50HZ,240V60HZ) 277549	DILMC12-01(110V50HZ,120V60HZ) 277546	DILMC12-01(24VDC) 277564
	7.5	7	22	DILMC15-10(230V50HZ,240V60HZ) 293911	DILMC15-10(110V50HZ,120V60HZ) 293908	DILMC15-10(24VDC) 293926
	7.5	7	22	DILMC15-01(230V50HZ,240V60HZ) 293946	DILMC15-01(110V50HZ,120V60HZ) 293943	DILMC15-01(24VDC) 293961
Spring-cage terminals on auxiliary and control circuit terminals						
	7.5	11	40	DILMC17-10(230V50HZ,240V60HZ) 277581	DILMC17-10(110V50HZ,120V60HZ) 277578	DILMC17-10(RDC24) 277595
	7.5	11	40	DILMC17-01(230V50HZ,240V60HZ) 277611	DILMC17-01(110V50HZ,120V60HZ) 277608	DILMC17-01(RDC24) 277625
	11	14	45	DILMC25-10(230V50HZ,240V60HZ) 277641	DILMC25-10(110V50HZ,120V60HZ) 277638	DILMC25-10(RDC24) 277655
	11	14	45	DILMC25-01(230V50HZ,240V60HZ) 277671	DILMC25-01(110V50HZ,120V60HZ) 277668	DILMC25-01(RDC24) 277685
	15	17	45	DILMC32-10(230V50HZ,240V60HZ) 277701	DILMC32-10(110V50HZ,120V60HZ) 277698	DILMC32-10(RDC24) 277715
	15	17	45	DILMC32-01(230V50HZ,240V60HZ) 277731	DILMC32-01(110V50HZ,120V60HZ) 277728	DILMC32-01(RDC24) 277745
	18.5	23	60	DILMC40(230V50HZ,240V60HZ) 277965	DILMC40(110V50HZ,120V60HZ) 277962	DILMC40(RDC24) 277979
	22	30	80	DILMC50(230V50HZ,240V60HZ) 277995	DILMC50(110V50HZ,120V60HZ) 277992	DILMC50(RDC24) 278009
	30	35	98	DILMC65(230V50HZ,240V60HZ) 278025	DILMC65(110V50HZ,120V60HZ) 278022	DILMC65(RDC24) 278039
	37	63	110	DILMC80(230V50HZ,240V60HZ) 239618	-	DILMC80(RDC24) 239652
	45	75	130	DILMC95(230V50HZ,240V60HZ) 239685	-	DILMC95(RDC24) 239715
	55	90	160	DILMC115(RAC240) 239736	-	DILMC115(RDC24) 239741
	75	96	190	DILMC150(RAC240) 239751	-	DILMC150(RDC24) 239765

				AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no.	DC operation 24 V DC Part no. Article no.
Max. rating for three-phase motors, 50 - 60 Hz					
AC-3		Rated operational current AC-1			
380 V 400 V	660 V 690 V	Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 40 °C $I_{th} = I_e$ A			
P kW	P kW				
DILM complete units					
Screw terminals					
	3	3.5	22	DILM7-32(230V50HZ,240V60HZ) 276655	DILM7-32(24VDC) 276670
	4	4.5	22	DILM9-32(230V50HZ,240V60HZ) 276795	DILM9-32(24VDC) 276810
	5.5	6.5	22	DILM12-32(230V50HZ,240V60HZ) 276935	DILM12-32(24VDC) 276950
	7.5	11	40	DILM17-32(230V50HZ,240V60HZ) 277100	DILM17-32(RDC24) 277114
	11	14	45	DILM25-32(230V50HZ,240V60HZ) 277228	DILM25-32(RDC24) 277242
	15	17	45	DILM32-32(230V50HZ,240V60HZ) 277356	DILM32-32(RDC24) 277370
	18.5	23	60	DILM40-22(230V50HZ,240V60HZ) 277798	DILM40-22(RDC24) 277812
	22	30	80	DILM50-22(230V50HZ,240V60HZ) 277862	DILM50-22(RDC24) 277876
	30	35	98	DILM65-22(230V50HZ,240V60HZ) 277926	DILM65-22(RDC24) 277940
	37	63	110	DILM80-22(230V50HZ,240V60HZ) 239449	DILM80-22(RDC24) 239463
	45	75	130	DILM95-22(230V50HZ,240V60HZ) 239527	DILM95-22(RDC24) 239541
	55	90	160	DILM115-22(RAC240) 239578	DILM115-22(RDC24) 239581
	75	96	190	DILM150-22(RAC240) 239598	DILM150-22(RDC24) 239601

Contactors and contactor relays

Basic devices with screw terminals

Moeller® series

AC3 380 V 400 V P kW	AC3 660 V 690 V P kW	AC1 $I_{th}=I_e$ A [†]	Part no. Article No.	Part no. Article No.	Part no. Article No.	Part no. Article No.
-	-	10	DILER-40(230V50/60HZ) 52725	DILER-40(110V50/60HZ) 21961	DILER-40(42V50HZ,48V60HZ) 51755	DILER-40(24V50/60H) 21924
-	-	10	DILER-31(230V50/60HZ) 52509	DILER-31(110V50/60HZ) 21624	DILER-31(42V50HZ,48V60HZ) 51764	DILER-31(24V50/60HZ) 21594
-	-	10	DILER-22(230V50/60HZ) 52508	DILER-22(110V50/60HZ) 21871	DILER-22(42V50HZ,48V60HZ) 51773	DILER-22(24V50/60HZ) 21704
-	-	16	DILA-40(230V50/60HZ) 276337	DILA-40(110V50/60HZ) 276335	DILA-40(42V50HZ,48V60HZ) 276325	DILA-40(24V50/60HZ) 276333
-	-	16	DILA-31(230V50/60HZ) 276372	DILA-31(110V50/60HZ) 276370	DILA-31(42V50HZ,48V60HZ) 276360	DILA-31(24V50/60HZ) 276368
-	-	16	DILA-22(230V50/60HZ) 276407	DILA-22(110V50/60HZ) 276405	DILA-22(42V50HZ,48V60HZ) 276395	DILA-22(24V50/60HZ) 276403
3	3	22	DILEEM-10(230V50/60HZ) 56674	DILEEM-10(110V50/60HZ) 51592	DILEEM-10(42V50HZ,48V60HZ) 51612	DILEEM-10(24V50/60HZ) 51596
3	3	22	DILEEM-01(230V50/60HZ) 58771	DILEEM-01(110V50/60HZ) 51618	DILEEM-01(42V50HZ,48V60HZ) 51637	DILEEM-01(24V50/60HZ) 51621
4	4	22	DILEM-10(230V50/60HZ) 52302	DILEM-10(110V50/60HZ) 21455	DILEM-10(42V50HZ,48V60HZ) 51782	DILEM-10(24V50/60HZ) 21417
4	4	22	DILEM-01(230V50/60HZ) 51114	DILEM-01(110V50/60HZ) 20436	DILEM-01(42V50HZ,48V60HZ) 51791	DILEM-01(24V50/60HZ) 20402
3	3.5	22	DILM7-10(230V50/60HZ) 276558	DILM7-10(110V50/60HZ) 276556	DILM7-10(42V50HZ,48V60HZ) 276546	DILM7-10(24V50/60HZ) 276554
3	3.5	22	DILM7-01(230V50/60HZ) 276593	DILM7-01(110V50/60HZ) 276591	DILM7-01(42V50HZ,48V60HZ) 276581	DILM7-01(24V50/60HZ) 276589
4	4.5	22	DILM9-10(230V50/60HZ) 276698	DILM9-10(110V50/60HZ) 276696	DILM9-10(42V50HZ,48V60HZ) 276686	DILM9-10(24V50/60HZ) 276694
4	4.5	22	DILM9-01(230V50/60HZ) 276733	DILM9-01(110V50/60HZ) 276731	DILM9-01(42V50HZ,48V60HZ) 276721	DILM9-01(24V50/60HZ) 276729
5.5	6.5	22	DILM12-10(230V50/60HZ) 276838	DILM12-10(110V50/60HZ) 276836	DILM12-10(42V50HZ,48V60HZ) 276826	DILM12-10(24V50/60HZ) 276834
5.5	6.5	22	DILM12-01(230V50/60HZ) 276873	DILM12-01(110V50/60HZ) 276871	DILM12-01(42V50HZ,48V60HZ) 276861	DILM12-01(24V50/60HZ) 276869
7.5	11	40	DILM17-10(230V50/60HZ) 277012	DILM17-10(110V50/60HZ) 277010	DILM17-10(42V50HZ,48V60HZ) 277000	DILM17-10(24V50/60HZ) 277008
7.5	11	40	DILM17-01(230V50/60HZ) 277044	DILM17-01(110V50/60HZ) 277042	DILM17-01(42V50HZ,48V60HZ) 277032	DILM17-01(24V50/60HZ) 277040
11	14	45	DILM25-10(230V50/60HZ) 277140	DILM25-10(110V50/60HZ) 277138	DILM25-10(42V50HZ,48V60HZ) 277128	DILM25-10(24V50/60HZ) 277136
11	14	45	DILM25-01(230V50/60HZ) 277172	DILM25-01(110V50/60HZ) 277170	DILM25-01(42V50HZ,48V60HZ) 277160	DILM25-01(24V50/60HZ) 277168
15	17	45	DILM32-10(230V50/60HZ) 277268	DILM32-10(110V50/60HZ) 277266	DILM32-10(42V50HZ,48V60HZ) 277256	DILM32-10(24V50/60HZ) 277264
15	17	45	DILM32-01(230V50/60HZ) 277300	DILM32-01(110V50/60HZ) 277298	DILM32-01(42V50HZ,48V60HZ) 277288	DILM32-01(24V50/60HZ) 277296
18.5	23	60	DILM40(230V50/60HZ) 277806	DILM40(110V50/60HZ) 277772	DILM40(42V50HZ,48V60HZ) 277762	DILM40(24V50/60HZ) 277770
22	30	80	DILM50(230V50/60HZ) 277870	DILM50(110V50/60HZ) 277836	DILM50(42V50HZ,48V60HZ) 277826	DILM50(24V50/60HZ) 277834
30	35	98	DILM65(230V50/60HZ) 277902	DILM65(110V50/60HZ) 277900	DILM65(42V50HZ,48V60HZ) 277890	DILM65(24V50/60HZ) 277898
37	63	110	DILM80(230V50/60HZ) 239410	DILM80(110V50/60HZ) 239408	DILM80(42V50HZ,48V60HZ) 239394	DILM80(24V50/60HZ) 239406
45	75	130	DILM95(230V50/60HZ) 239488	DILM95(110V50/60HZ) 239486	DILM95(42V50HZ,48V60HZ) 239476	DILM95(24V50/60HZ) 239484
55	90	160	DILM115(RAC240) 239548	DILM115(RAC120) 239547	DILM115(RAC48) 239546	DILM115(RAC24) 239545
75	96	190	DILM150(RAC240) 239588	DILM150(RAC120) 239587	DILM150(RAC48) 239586	DILM150(RAC24) 239585

[†] Conventional thermal current, 3 pole, 50-60 Hz, open at 40 °C
RAC240△190-240V 50/60Hz; RAC△100-120V 50/60Hz; RAC△42-48V 50/60Hz; RAC24△24V 50/60Hz
For more contactors and coil voltages please look in our [Online catalog: www.eaton.eu/ecat](http://www.eaton.eu/ecat)

AC3 380 V 400 V P kW	AC3 660 V 690 V P kW	AC1 $I_{th}=I_e$ A ^{*1}	Part no. Article No.	Part no. Article No.	Part no. Article No.
		10	DILER-40-C(230V50/60HZ) 231850	DILER-40-C(48V50HZ) 231835	DILER-40-C(24V50/60HZ) 231847
-	-	10	DILER-31-C(230V50/60HZ) 231827	DILER-31-C(48V50HZ) 231812	DILER-31-C(24V50/60HZ) 231824
-	-	10	DILER-22-C(230V50/60HZ) 231802	DILER-22-C(48V50HZ) 231787	DILER-22-C(24V50/60HZ) 231799
-	-	16	DILAC-40(230V50/60HZ) 276449	DILAC-40(48V50HZ) 276432	DILAC-40(24V50/60HZ) 276445
-	-	16	DILAC-31(230V50/60HZ) 276481	DILAC-31(48V50HZ) 276464	DILAC-31(24V50/60HZ) 276477
-	-	16	DILAC-22(230V50/60HZ) 276513	DILAC-22(48V50HZ) 276496	DILAC-22(24V50/60HZ) 276509
3	3	22	DILEEM-10-C(230V50/60HZ) 230049	-	-
4	4	22	DILEM-10-C(230V50/60HZ) 231667	DILEM-10-C(48V50HZ) 231652	DILEM-10-C(24V50/60HZ) 231664
4	4	22	DILEM-01-C(230V50/60HZ) 231690	DILEM-01-C(48V50HZ) 231675	DILEM-01-C(24V50/60HZ) 231687
3	3.5	22	DILMC7-10(230V50/60HZ) 277397	DILMC7-10(48V50HZ) 277380	DILMC7-10(24V50/60HZ) 277393
3	3.5	22	DILMC7-01(230V50/60HZ) 277429	DILMC7-01(48V50HZ) 277412	DILMC7-01(24V50/60HZ) 277425
4	4.5	22	DILMC9-10(230V50/60HZ) 277461	DILMC9-10(48V50HZ) 277444	DILMC9-10(24V50/60HZ) 277457
4	4.5	22	DILMC9-01(230V50/60HZ) 277493	DILMC9-01(48V50HZ) 277476	DILMC9-01(24V50/60HZ) 277489
5.5	6.5	22	DILMC12-10(230V50/60HZ) 277525	DILMC12-10(48V50HZ) 277508	DILMC12-10(24V50/60HZ) 277521
5.5	6.5	22	DILMC12-01(230V50/60HZ) 277557	DILMC12-01(48V50HZ) 277540	DILMC12-01(24V50/60HZ) 277553
Spring-cage terminals on auxiliary and control circuit terminals					
7.5	11	40	DILMC17-10(230V50/60HZ) 277589	DILMC17-10(48V50HZ) 277571	DILMC17-10(24V50/60HZ) 277585
7.5	11	40	DILMC17-01(230V50/60HZ) 277619	DILMC17-01(48V50HZ) 277601	DILMC17-01(24V50/60HZ) 277615
11	14	45	DILMC25-10(230V50/60HZ) 277649	DILMC25-10(48V50HZ) 277631	DILMC25-10(24V50/60HZ) 277645
11	14	45	DILMC25-01(230V50/60HZ) 277679	DILMC25-01(48V50HZ) 277661	DILMC25-01(24V50/60HZ) 277675
15	17	45	DILMC32-10(230V50/60HZ) 277709	DILMC32-10(48V50HZ) 277691	DILMC32-10(24V50/60HZ) 277705
15	17	45	DILMC32-01(230V50/60HZ) 277739	DILMC32-01(48V50HZ) 277721	DILMC32-01(24V50/60HZ) 277735
18.5	23	60	DILMC40(230V50/60HZ) 277973	DILMC40(48V50HZ) 277955	DILMC40(24V50/60HZ) 277969
22	30	80	DILMC50(230V50/60HZ) 278003	DILMC50(48V50HZ) 277985	-
30	35	98	DILMC65(230V50/60HZ) 278033	DILMC65(48V50HZ) 278015	-
37	63	110	-	DILMC80(48V50HZ) 239606	-
45	75	130	-	DILMC95(48V50HZ) 239657	-

*1 Conventional thermal current, 3 pole, 50-60 Hz, open at 40 °C

For more contactors and coil voltages please look in our [Online catalog: www.eaton.eu/ecat](http://www.eaton.eu/ecat)

				AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no.	AC operation 110 V 50 Hz, 120 V 60 Hz Part no. Article no.	DC operation 24 V DC Part no. Article no.
Max. rating for three-phase motors, 50 - 60 Hz AC-3 380 V 660 V 400 V 690 V P P kW kW Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz Open at 40 °C $I_{th} = I_e$ A						
Comfort devices DILM						
Screw connection						
	90	140	337	DILM185A/22(RAC240) 139537	DILM185A/22(RAC120) 139536	DILM185A/22(RDC24) 139540
	110	150	386	DILM225A/22(RAC240) 139547	DILM225A/22(RAC120) 139546	DILM225A/22(RDC24) 139550
	132	240	430	DILM250/22(RA250) 208201	DILM250/22(RA110) 208200	DILM250/22(RDC48) 208199
	160	240	490	DILM300A/22(RA250) 139556	DILM300A/22(RA110) 139555	DILM300A/22(RDC48) 139554
	200	344	612	DILM400/22(RA250) 208209	DILM400/22(RA110) 208208	DILM400/22(RDC48) 208207
	250	344	800	DILM500/22(RA250) 208213	DILM500/22(RA110) 208212	DILM500/22(RDC48) 208211
	315	560	980	DILM580/22(RA250) 208216	DILM580/22(RA110) 208215	-
	355	630	1041	DILM650/22(RA250) 208219	DILM650/22(RA110) 208218	-
	400	720	1102	DILM750/22(RA250) 208222	DILM750/22(RA110) 208221	-
	450	750	1225	DILM820/22(RA250) 208225	DILM820/22(RA110) 208224	-
	560	1000	1225	DILM1000/22(RA250) 267214	-	-
Screw connection						
	132	240	430	DILM250-S/22(220-240V50/60HZ) 274190	DILM250-S/22(110-120V50/60HZ) 274189	-
	160	240	490	DILM300A-S/22(220-240V50/60HZ) 139559	DILM300A-S/22(110-120V50/60HZ) 139558	-
	200	344	612	DILM400-S/22(220-240V50/60HZ) 274196	DILM400-S/22(110-120V50/60HZ) 274195	-
	250	344	800	DILM500-S/22(220-240V50/60HZ) 274199	DILM500-S/22(110-120V50/60HZ) 274198	-

	Rated operational current AC-1 Conventional free air thermal current, 3 pole, 50 - 60 Hz Open		AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no.	AC operation 110 V 50 Hz, 120 V 60 Hz Part no. Article no.	DC operation 24 V DC Part no. Article no.
	at 40 °C $I_{th}=I_e$ A	at 60 °C $I_{th}=I_e$ A			
Basic devices DILMP					
Screw terminals					
	22	20	DILMP20(230V50HZ,240V60HZ) 276970	DILMP20(110V50HZ,120V60HZ) 276967	DILMP20(24VDC) 276985
	32	28	DILMP32-01(230V50HZ,240V60HZ) 118911	DILMP32-01(110V50HZ,120V60HZ) 118912	DILMP32-01(RDC24) 118913
	32	28	DILMP32-10(230V50HZ,240V60HZ) 109797	DILMP32-10(110V50HZ,120V60HZ) 109790	DILMP32-10(RDC24) 109811
	45	39	DILMP45-01(230V50HZ,240V60HZ) 118914	DILMP45-01(110V50HZ,120V60HZ) 118915	DILMP45-01(RDC24) 118916
	45	39	DILMP45-10(230V50HZ,240V60HZ) 109826	DILMP45-10(110V50HZ,120V60HZ) 109819	DILMP45-10(RDC24) 109840
	63	54	DILMP63(230V50HZ,240V60HZ) 109855	DILMP63(110V50HZ,120V60HZ) 109848	DILMP63(RDC24) 109869
	63	54	DILMP63(RAC240) 167512	-	-
	80	69	DILMP80(230V50HZ,240V60HZ) 109884	DILMP80(110V50HZ,120V60HZ) 109877	DILMP80(RDC24) 109898
	80	69	DILMP80(RAC240) 167513	-	-
	125	108	DILMP125(RAC240) 109905	DILMP125(RAC120) 109903	DILMP125(RDC24) 109910
	160	138	DILMP160(RAC240) 109915	DILMP160(RAC120) 109913	DILMP160(RDC24) 109920
	200	172	DILMP200(RAC240) 109925	DILMP200(RAC120) 109923	DILMP200(RDC24) 109930

Rated power of three-phase capacitors 50 - 60 Hz					Contact sequence	Part no. Article no.
Open						
230 V	400 V	525 V	690 V			
kVAr	kVAr	kVAr	kVAr			

DILK contactors for capacitors						
With series resistors Basic Units	7.5	12.5	16.7	20		DILK12-11(230V50HZ,240V60HZ) 293988
	11	20	25	33.3		DILK20-11(230V50HZ,240V60HZ) 294010
	15	25	33.3	40		DILK25-11(230V50HZ,240V60HZ) 294032
	20	33.3	40	55		DILK33-10(230V50HZ,240V60HZ) 294054
	25	50	65	85		DILK50-10(230V50HZ,240V60HZ) 294076



	Rated operational current				Conventional free air thermal current, 3 pole, 50 - 60 Hz AC-1 at 60 °C	Part no. Article no.
	AC-5a		AC-5b		Open $I_{th} = I_e$ A	
	220 V 230 V	380 V 400 V	220 V 230 V	380 V 400 V		
	I_e	I_e	I_e	I_e		
	A	A	A	A		
Lighting contactors DILL						
	12	12	14	14	24	DILL12(230V50HZ,240V60HZ) 104402
	18	18	21	21	35	DILL18(230V50HZ,240V60HZ) 104405
	20	20	27	27	40	DILL20(230V50HZ,240V60HZ) 104408

Switchgear for lighting systems

	DIL	L12	L18	L20	M7	M9	M12	M17	M25	M32	M40	M50
Permissible compensation capacitance	C_{max} [mF]	470	470	470	47	80	100	220	330	470	470	500
Filament lamp	I_e [A]	14	21	27	6	7.5	10	14	21	27	33	42
Mercury blended lamps	I_e [A]	12	16	23	5	6.5	8.5	12	16	23	30	38
Fluorescent lamps, conventional -reactor – starter – connection	I_e [A]	20	26	35	9	10	15	20	26	35	41	45
Fluorescent lamps, duo circuit (series compensated)	I_e [A]	20	26	35	5.5	8	13	15	22.5	29	36	47
Electronic upstream devices	I_e [A]	12	18	20	5	6.5	8.5	12	17.5	22.5	28	35
High-pressure mercury-arc lamps	I_e [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
Metal-halide lamps	I_e [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
High-pressure sodium lamps	I_e [A]	12	18	20	3.5	6	10	12	17.5	20	25	30
Low-pressure sodium lamps	I_e [A]	7.5	10	12	3	4	6	7.5	10	12	15	22

	DIL	M65	M80	M95	M115	M150	M185A	M225A	M250	M300A	M400	M500
Permissible compensation capacitance	C_{max} [mF]	500	550	620	830	970	2055	2300	2600	3000	3250	3500
Filament lamp	I_e [A]	55	67	79	95	125	153	187	208	249	332	415
Mercury blended lamps	I_e [A]	45	65	67	80	110	123	150	167	200	266	332
Fluorescent lamps, conventional -reactor – starter – connection	I_e [A]	55	95	100	125	145	207	237	263	300	375	525
Fluorescent lamps, duo circuit (series compensated)	I_e [A]	59	71	95	100	138	186	213	236	270	338	473
Electronic upstream devices	I_e [A]	45.5	56	66.5	80.5	105	130	158	175	210	280	350
High-pressure mercury vapor lamps	I_e [A]	36	55	60	80	95	138	158	175	200	250	350
Metal-halide lamps	I_e [A]	36	55	60	80	95	138	158	175	200	250	350
High-pressure sodium lamps	I_e [A]	36	55	60	80	95	138	158	175	200	250	350
Low-pressure sodium lamps	I_e [A]	25	35	40	50	70	100	111	123	140	175	245

In compensated lamps, the sum of the capacitances must not exceed the contactors' max. permissible capacitor load (C_{max})!
The values in the table are for each contact in the contactors.

	Rated operational current	Max. rating for three-phase motors, 50 - 60 Hz					Max. changeover time	Part no. Article no.
	AC-3	AC-3						
	380 V 400 V I _e A	220 V 230 V P kW	380 V 400 V P kW	500 V P kW	660 V 690 V P kW	s		
Star-delta combinations SDAINL								
Operating frequency: maximum 30 starts per hour								
	12	3	5.5	5.5	5.5	< 20	SDAINLM12(230V50HZ,240V60HZ) 278286	
	16	4	7.5	7.5	7.5	< 20	SDAINLM16(230V50HZ,240V60HZ) 278311	
	22	5.5	11	11	11	< 20	SDAINLM22(230V50HZ,240V60HZ) 278336	
	30	7.5	15	18.5	18.5	< 20	SDAINLM30(230V50HZ,240V60HZ) 278361	
	45	11	22	30	22	< 20	SDAINLM45(230V50HZ,240V60HZ) 278386	
	55	15	30	37	30	< 20	SDAINLM55(230V50HZ,240V60HZ) 278411	
	70	18.5	37	45	37	< 20	SDAINLM70(230V50HZ,240V60HZ) 239895	
	90	22	45	55	45	< 20	SDAINLM90(230V50HZ,240V60HZ) 239937	
	115	30	55	75	55	< 20	SDAINLM115(230V50HZ,240V60HZ) 239963	
	140	37	75	90	90	< 20	SDAINLM140(230V50HZ,240V60HZ) 240009	
	165	45	90	110	132	< 20	SDAINLM165(230V50HZ,240V60HZ) 240035	
	200	55	110	132	160	< 20	SDAINLM200(230V50HZ,240V60HZ) 101010	
260	75	132	160	160	< 20	SDAINLM260(230V50HZ,240V60HZ) 101031		

Components for self-assembly of star-delta combinationsMax. motor rating
for three-phase motors 50 – 60 Hz

AC-3

230 V	400 V	500 V	690 V	1000 V
kW	kW	kW	kW	kW
90	160	200	250	132
110	200	250	315	160
132	250	315	400	200
160	300	355	450	200
200	355	450	560	220
250	450	560	600	220
300	560	710	900	355
350	630	750	950	355
400	710	900	1200	1400
450	800	950	1300	1400
560	1000	1200	1700	1700

Changeover time¹⁾

up to 12 s	up to 20 s	up to 30 s
●	●	●
●	●	—
●	●	●
●	●	●
●	●	—
●	●	●
●	●	●
●	●	●
●	●	●
●	●	●
●	●	—

Individual components of the combinationCoil in accordance with 50005
Contacts EN 50005 and EN 50012

Mains contactor Q11	Delta contactor Q15	Star contactor Q13	Timing relay K1
Part no. DIL	Part no. DIL	Part no. DIL	Part no.
M185A/22	M185A/22	M115/22	ETR4-51
M225A/22	M225A/22	M150/22	ETR4-51
M250/22	M250/22	M185A/22	ETR4-51
M300A/22	M300A/22	M185A/22	ETR4-51
M400/22	M400/22	M250/22	ETR4-51
M500/22	M500/22	M300A/22	ETR4-51
M580/22	M580/22	M400/22	ETR4-51
M650/22	M650/22	M400/22	ETR4-51
M750/22	M750/22	M580/22	ETR4-51
M820/22	M820/22	M580/22	ETR4-51
M1000/22	M1000/22	M650/22	ETR4-51

Spare auxiliary contacts

Q11	Q15	Q13
		
		
		
		
		
		
		
		
		

Notes¹⁾ Longer changeover times please enquire

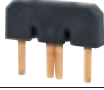
	Rated operational current	Max. rating for three-phase motors, 50 - 60 Hz						Part no. Article no.
	AC-3	AC-3			AC-4			
	380 V 400 V	220 V 230 V	380 V 400 V	660 V 690 V	220 V 230 V	380 V 400 V	660 V 690 V	
	I _e A	P kW	P kW	P kW	P kW	P kW	P kW	
DIUL reversing combinations								
AC operation								
	9	2.2	4	4	1.5	3	3	DIULEM/21(MV)(230V50HZ,240V60HZ) 051849
	9	2.2	4	4	1.5	3	3	DIULEM/21(MV-G)(24VDC) 214655
	7	2.2	3	3.5	1	2.2	2.9	DIULM7/21(230V50HZ,240V60HZ) 278061
	7	2.2	3	3.5	1	2.2	2.9	DIULM7/21(24VDC) ²⁾ 107021
	9	2.5	4	4.5	1.5	2.5	3.6	DIULM9/21(230V50HZ,240V60HZ) 278086
	9	2.5	4	4.5	1.5	2.5	3.6	DIULM9/21(24VDC) 107022
	12	3.5	5.5	6.5	2	3	4.4	DIULM12/21(230V50HZ,240V60HZ) 278111
	12	3.5	5.5	6.5	2	3	4.4	DIULM12/21(24VDC) 107023
	18	5	7.5	11	2.5	4.5	6.5	DIULM17/21(230V50HZ,240V60HZ) 278136
	18	5	7.5	11	2.5	4.5	6.5	DIULM17/21(RDC24) 107024
	25	7.5	11	14	3.5	6	8.5	DIULM25/21(230V50HZ,240V60HZ) 278161
	25	7.5	11	14	3.5	6	8.5	DIULM25/21(RDC24) 107025
	32	10	15	17	4	7	10	DIULM32/21(230V50HZ,240V60HZ) 278186
	32	10	15	17	4	7	10	DIULM32/21(RDC24) 107026
	40	12.5	18.5	23	5	9	12	DIULM40/11(230V50HZ,240V60HZ) 278211
	50	15.5	22	30	6	10	14	DIULM50/11(230V50HZ,240V60HZ) 278236
	65	20	30	35	7	12	17	DIULM65/11(230V50HZ,240V60HZ) 278261

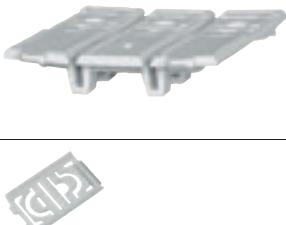
Contacts			For use with	Part no.	Article no.
N/O = Normally open N/O _E : NO early-make N/C = Normally closed NC _L =NC late-break					
SmartWire-DT protective modules					
For connecting the contactors to SmartWire-DT Per contactor 1 module necessary.					
 	Messages Switch status Contactor, status of the digital inputs 1 and 2 Commands Contactor actuation		DILM(C)7... - DILM(C)32 DILM38 DILA MSC-D(E)-...(24VDC)	DIL-SWD-32-001	118560
	Messages Contactor switching position, status of the digital inputs 1 and 2, 1-0-A switch position Commands Contactor actuation			DIL-SWD-32-002	118561
Auxiliary contact modules					
With interlocked opposing contacts, except for ...XHI(C)V					
Top mounting auxiliary contacts					
	1 N/O	1 NC	DILM(C)7-10... DILM(C)9-10... DILM(C)12-10... DILM(C)15-10... DILM(C)17-10... DILM(C)25-10... DILM(C)32-10... DILM38-10... DILMP20... DILMP32-10... DILMP45-10...	DILM32-XHI11	277376
	-	2 NC		DILM32-XHI02	277375
	2 N/O	2 NC		DILM32-XHI22	277377
	3 N/O	1 NC		DILM32-XHI31	106112
	1 N/O	1 NC		DILM32-XHIC11	277751
	-	2 NC		DILM32-XHIC02	277750
	2 N/O	2 NC		DILM32-XHIC22	277752
	2 N/O	-		DILA-XHI20	276422
	1 N/O	1 NC		DILA-XHI11	276421
	-	2 NC		DILA-XHI02	276420
	1 N/O _E	1 NC _L		DILA-XHIV11	276423
	4 N/O	-		DILA-XHI40	276428
	3 N/O	1 NC		DILA-XHI31	276427
	2 N/O	2 NC	DILA-XHI22	276426	
	1 N/O	3 NC	DILA-XHI13	276425	
	-	4 NC	DILA-XHI04	276424	
	1 N/O	1 NC	DILA-XHIV22	276429	
	1 N/O _E	1 NC _L			

		Contacts N/O = Normally open N/O _E : NO early-make N/C = Normally closed NC _L =NC late-break	For use with	Part no.	Article no.
Auxiliary contact modules					
With interlocked opposing contacts, except for ...XHI(C)V					
Top mounting auxiliary contacts					
Screw terminals 	1 N/O (for electronic applications)	1 NC (for electronic applications)	DILA... DILM(C)7... DILM(C)9... DILM(C)12... DILM(C)15... DILM(C)17... DILM(C)25... DILM(C)32... DILM38... DILMP20... DILMP32... DILMP45...	DILA-XHIR11	110140
	2 N/O (1 N/O above microswitch for electronic applications)	2 NC (1 NC above microswitch for electronic applications)		DILA-XHIR22	139580
Spring-loaded terminals 	2 N/O	-	DILA... DILM(C)7... DILM(C)9... DILM(C)12... DILM(C)15... DILM(C)17... DILM(C)25... DILM(C)32... DILM38... DILMP20... DILMP32... DILMP45...	DILA-XHIC20	276528
	1 N/O	1 NC		DILA-XHIC11	276527
	-	2 NC		DILA-XHIC02	276526
	1 N/O _E	1 NC _L		DILA-XHICV11	276529
	4 N/O	-	DILA... DILM(C)7... DILM(C)9... DILM(C)12... DILM(C)15... DILM(C)17... DILM(C)25... DILM(C)32... DILM38... DILMP20... DILMP32... DILMP45...	DILA-XHIC40	276534
	3 N/O	1 NC		DILA-XHIC31	276533
	2 N/O	2 NC		DILA-XHIC22	276532
	1 N/O	3 NC		DILA-XHIC13	276531
	-	4 NC		DILA-XHIC04	276530
	1 N/O	1 NC		DILA-XHICV22	276535
	1 N/O _E	1 NC _L			
Screw terminals 	2 N/O	-	DILM40... DILM50... DILM65... DILM72... DILM80... DILM95... DILM115... DILM150... DILM170... DILMP63... DILMP80... DILMP125... DILMP160... DILMP200...	DILM150-XHI20	277945
	1 N/O	1 NC		DILM150-XHI11	277946
	1 N/O	1 NC		DILM150-XHIA11	283463
	-	2 NC		DILM150-XHI02	277947
	4 N/O	-		DILM150-XHI40	277948
	3 N/O	1 NC		DILM150-XHI31	277949
	2 N/O	2 NC		DILM150-XHI22	277950
	2 N/O	2 NC		DILM150-XHIA22	283464
	1 N/O	3 NC		DILM150-XHI13	277951
	-	4 NC		DILM150-XHI04	277952
	1 N/O	1 NC		DILM150-XHIV22	277953
	1 N/O _E	1 NC _L			

Contacts			For use with	Part no.	Article no.
N/O = Normally open N/O _E : NO early-make N/C = Normally closed NC _L =NC late-break					
Auxiliary contact modules					
With interlocked opposing contacts, except for ...XHI(C)V					
Side-mounting auxiliary contact					
	Screw terminals	1 N/O	-	DILM7... DILM9... DILM12... DILM15... DILMP20... DILA...	DILA-XHI10-S 115948
		-	1 NC		DILA-XHI01-S 115949
		1 N/O	1 NC	DILM17... DILM25... DILM32... DILM38...	DILM32-XHI11-S 101371
		1 N/O	1 NC	DILM250 - DILH2600	DILM820-XHI11-SI 208281
		1 N/O	1 NC		DILM820-XHI11-SA 208282
		1 N/O _E	1 NC _L		DILM820-XHI11V-SI 208283
		1 N/O	1 NC	DILM40 - DILM225A DILMP63 - DILMP200	DILM1000-XHI11-SI 278425
		1 N/O _E	1 NC _L		DILM1000-XHIV11-SI 278426
		1 N/O	1 NC		DILM1000-XHI11-SA 278427
	Spring-loaded terminals	1 N/O	-	DILMC7... DILMC9... DILMC12... DILMC15... DILAC...	DILA-XHIC10-S 115950
			1 NC		DILA-XHIC01-S 115951

For use with		AC operation 230 V 50 Hz, 240 V 60 Hz Part no. Article no.	AC operation 110 V 50 Hz, 120 V 60 Hz Part no. Article no.	DC operation 24 V DC Part no. Article no.
Suppressors				
RC suppressors				
	DILM7 - DILM15 DILMP20 DILA	DILM12-XSPR240 281200	DILM12-XSPR240 281200	-
	DILM17 - DILM32 DILMP32 - DILMP45	DILM32-XSPR240 281203	DILM32-XSPR240 281203	-
	DILM40 - DILM95 DILMP63 - DILMP200	DILM95-XSPR240 281206	DILM95-XSPR240 281206	-
Varistor suppressors				
	DILM7 - DILM15 DILMP20 DILA	DILM12-XSPV240 281210	DILM12-XSPV130 281209	-
	DILM17 - DILM32 DILMP32 - DILMP45	DILM32-XSPV240 281214	DILM32-XSPV130 281213	-
	DILM40 - DILM95 DILMP63 - DILMP200	DILM95-XSPV240 281218	DILM95-XSPV130 281217	-
Varistor suppressors with integrated LED				
	DILM7 - DILM12 DILMP20 DILA	DILM12-XSPVL240 281221	DILM12-XSPVL240 281221	-
	DILM17 - DILM32 DILMP32 - DILMP45	DILM32-XSPVL240 281223	DILM32-XSPVL240 281223	-
	DILM40 - DILM95 DILMP63 - DILMP200	DILM95-XSPVL240 281225	DILM95-XSPVL240 281225	-
Free-wheel diode suppressor				
	DILM7 - DILM15 DILMP20 DILA	-	-	DILM12-XSPD 101672

	For use with	Part no. Article no.
Mechanical interlock		
	DILM7 - DILM15 DILMP20 DILA	DILM12-XMV 281196
	DILM17 - DILM38 DILMP32 - DILMP45	DILM32-XMV 281197
	DILM40 - DILM72 DILMP63 - DILMP80	DILM65-XMV 281198
	DILM80 - DILM170 DILMP125 - DILMP200	DILM150-XMV 240081
	DILM185A, DILM225A, DILM250, DILM300A, DILM400, DILM500,	DILM500-XMV 208289
	DILM580, DILM650 DILM750, DILM820 DILM1000	DILM820-XMV 208288
Paralleling links for main contacts		
Consisting of 2 paralleling links		
	DILM7 - DILM15	DILM12-XP1 281193
	DILM17 - DILM32	DILM32-XP1 281194
	DILM40 - DILM72	DILM65-XP1 281195
	DILM80 - DILM170	DILM150-XP1 284769
	DILM185A	DILM185-XP1 208292
Star-point bridges		
	DILM7 - DILM15	DILM12-XS1 281190
	DILM17 - DILM32	DILM32-XS1 281191
	DILM40 - DILM72	DILM65-XS1 281192
	DILM80 - DILM170	DILM150-XS1 284768
	DILM185A - DILM400	DILM400-XS1 208291
	DILM500	DILM500-XS1 208290

	For use with	Part no. Article no.
Star-delta wiring kit Including star-point bridge		
Main current wiring for star-delta combination		
	DILM7/9/12/15 mains contactor DILM7/9/12/15 delta contactor DILM7/9/12/15 star contactor	DILM12-XSL 283130
	DILM17/25/32 mains contactor DILM17/25/32 delta contactor DILM17/25/32 star contactor	DILM32-XSL 283131
	DILM40/50/65 mains contactor DILM40/50/65 delta contactor DILM40/50/65 star contactor	DILM65-XSL 101058
Reversing wiring kits		
Main current wiring for reversing combinations		
	DILM7 DILM9 DILM12	DILM12-XRL 283108
	DILM17 DILM25 DILM32	DILM32-XRL 283109
	DILM40 DILM50 DILM65	DILM65-XRL 101057
IP2X cover		
	DILM17 DILM25 DILM32 DILM38 DILMP32 DILMP45	DILM32-XIP2X 118855
	DILM40 DILM50 DILM65 DILM72 DILMP63 DILMP80	DILM65-XIP2X 106491
	DILM80 DILM95 DILM115 DILM150 DILM170 DILMP125 DILMP160 DILMP200 ZB150	DILM150-XIP2X 106492
Covers		
	DILM185A DILM225A Z5-... FF225A	DILM225A-XHB 139560
	DILM250 DILM300A DILM400	DILM400-XHB 208287
	DILM500 DILM570	DILM500-XHB 208286
	DILM580 DILM650	DILM650-XHB 208285
	DILM750 DILM820, DILM1000	DILM820-XHB 208284
Cable terminal block		
With control cable connection consisting of 3 box terminals Connection options: round conductors, flexible and stranded, ribbon cables.		
	DILM185A DILM225A	DILM225A-XKU-S 139561
	DILM250 DILM300A DILM400	DILM400-XKU-S 208293



Setting range
Overload releases

I_r

A



For use with

DILEM

Part no.

Article no.

DILM7 - DILM15

Part no.

Article no.

DILM17 - DILM38

Part no.

Article no.

DILM40 - DILM72

Part no.

Article no.

DILM80 - DILM170

Part no.

Article no.

Overload relay ZE, ZB

0.1 - 0.16	ZE-0,16	014263	ZB12-0,16	278431	ZB32-0,16	278442	-	-	-	-
0.16 - 0.24	ZE-0,24	014285	ZB12-0,24	278432	ZB32-0,24	278443	-	-	-	-
0.24 - 0.4	ZE-0,4	014300	ZB12-0,4	278433	ZB32-0,4	278444	-	-	-	-
0.4 - 0.6	ZE-0,6	014333	ZB12-0,6	278434	ZB32-0,6	278445	-	-	-	-
0.6 - 1	ZE-1,0	014376	ZB12-1	278435	ZB32-1	278446	-	-	-	-
1 - 1.6	ZE-1,6	014432	ZB12-1,6	278436	ZB32-1,6	278447	-	-	-	-
1.6 - 2.4	ZE-2,4	014479	ZB12-2,4	278437	ZB32-2,4	278448	-	-	-	-
2.4 - 4	ZE-4	014518	ZB12-4	278438	ZB32-4	278449	-	-	-	-
4 - 6	ZE-6	014565	ZB12-6	278439	ZB32-6	278450	-	-	-	-
6 - 9	ZE-9	014708	-	-	-	-	-	-	-	-
6 - 10	-	-	ZB12-10	278440	ZB32-10	278451	ZB65-10	278455	-	-
9 - 12	ZE-12	014752	ZB12-12	278441	-	-	-	-	-	-
10 - 16	-	-	-	-	-	-	ZB65-16	278456	-	-
12 - 16	-	-	ZB12-16	290168	-	-	-	-	-	-
16 - 24	-	-	-	-	ZB32-24	278453	ZB65-24	278457	-	-
24 - 32	-	-	-	-	ZB32-32	278454	-	-	-	-
24 - 40	-	-	-	-	-	-	ZB65-40	278458	-	-
32 - 38	-	-	-	-	ZB32-38	112474	-	-	-	-
35 - 50	-	-	-	-	-	-	-	-	ZB150-50	278462
40 - 57	-	-	-	-	-	-	ZB65-57	278459	-	-
50 - 65	-	-	-	-	-	-	ZB65-65	278460	-	-
50 - 70	-	-	-	-	-	-	-	-	ZB150-70	278463
65 - 75	-	-	-	-	-	-	ZB65-75	108792	-	-
70 - 100	-	-	-	-	-	-	-	-	ZB150-100	278464
95 - 125	-	-	-	-	-	-	-	-	ZB150-125	278465
120 - 150	-	-	-	-	-	-	-	-	ZB150-150	278466
145 - 175	-	-	-	-	-	-	-	-	ZB150-175	107316

Overload relays

Overload relay, thermistor overload relay for machine protection

Moeller® Series

	Setting range Overload releases I_r A	For use with	Part no.	Article no.
				

Overload relay Z5

	50 - 70	DILM185A DILM225A	Z5-70/FF225A	139572
	70 - 100		Z5-100/FF225A	139573
	95 - 125		Z5-125/FF225A	139574
	120 - 160		Z5-160/FF225A	139575
	160 - 220		Z5-220/FF225A	139576
	200 - 250		Z5-250/FF225A	139577
	50 - 70	DILM250	Z5-70/FF250	210070
	70 - 100		Z5-100/FF250	210071
	95 - 125		Z5-125/FF250	210072
	120 - 160		Z5-160/FF250	210073
	160 - 220	DILM250 DILM300A	Z5-220/FF250	210074
	200 - 250		Z5-250/FF250	210075
	200 - 300	DILM300A	Z5-300/FF250	139578

	Function	Part no.	Article no.
EMT6 thermistor overload relay for machine protection			
	Without manual reset Mains and fault LED display	EMT6	066166
		EMT6(230V)	066400
	Without manual reset Mains and fault LED display With 2 sensor circuits	EMT62	171889
	Without manual reset Mains and fault LED display Trip with short-circuit in the sensor cable	EMT6-K	269470
	Selector switch with/without manual reset For manual or remote resetting Test button Mains and fault LED display	EMT6-DB	066167
		EMT6-DB(230V)	066401
	Selector switch with/without manual reset For manual or remote resetting Test button Mains and fault LED display With 2 sensor circuits	EMT62-DB	171890
	Selector switch with/without manual reset For manual or remote resetting Test button Mains and fault LED display Trip with short-circuit in the sensor cable	EMT6-KDB	269471
	Multifunction device Selector switch with/without manual reset Trip with short-circuit in the sensor cable Zero-voltage safe For manual or remote resetting Test button Short-circuit recognition and zero-voltage safety can be deactivated Mains and fault LED display	EMT6-DBK	066168



		For use with				
		DILM7 - DILM15	DILM17 - DILM38	DILM40 - DILM72	DILM80 - DILM150	DILM185A - DILM225A
Earth-fault protection	Setting range	Part no.	Part no.	Part no.	Part no.	Part no.
	Overload releases	Article no.	Article no.	Article no.	Article no.	Article no.
	I_r					
	A					
Electronic overload relays ZEB						
Direct mounting						
None	0.33 - 1.65	ZEB12-1,65 136480	ZEB32-1,65 136486	-	-	-
	1 - 5	ZEB12-5 136481	ZEB32-5 136487	-	-	-
	4 - 20	ZEB12-20 136482	ZEB32-20 136488	-	-	-
	9 - 45	-	ZEB32-45 136489	ZEB65-45 136502	-	-
	20 - 100	-	-	ZEB65-100 136504	ZEB150-100 136506	-
	35 - 175	-	-	-	ZEB150-175 164303	ZEB225-175 164307
With	0.33 - 1.65	ZEB12-1,65-GF 136483	ZEB32-1,65-GF 136490	-	-	-
	1 - 5	ZEB12-5-GF 136484	ZEB32-5-GF 136491	-	-	-
	4 - 20	ZEB12-20-GF 136485	ZEB32-20-GF 136492	-	-	-
	9 - 45	-	ZEB32-45-GF 136493	ZEB65-45-GF 136503	-	-
	20 - 100	-	-	ZEB65-100-GF 136505	ZEB150-100-GF 136507	-
	35 - 175	-	-	-	ZEB150-175-GF 164304	ZEB225-175-GF 164308
Separate mounting						
None	0.33 - 1.65	-	ZEB32-1,65/KK 136494	-	-	-
	1 - 5	-	ZEB32-5/KK 136495	-	-	-
	4 - 20	-	ZEB32-20/KK 136496	-	-	-
	9 - 45	-	ZEB32-45/KK 136497	-	-	-
	20 - 100	-	-	-	ZEB150-100/KK 136508	-
	35 - 175	-	-	-	ZEB150-175/KK 164305	-
With	0.33 - 1.65	-	ZEB32-1,65-GF/KK 136498	-	-	-
	1 - 5	-	ZEB32-5-GF/KK 136499	-	-	-
	4 - 20	-	ZEB32-20-GF/KK 136500	-	-	-
	9 - 45	-	ZEB32-45-GF/KK 136501	-	-	-
	20 - 100	-	-	-	ZEB150-100-GF/KK 136509	-
	35 - 175	-	-	-	ZEB150-175-GF/KK 164306	-

Build it in.



Motor-protective circuit breakers PKZ and PKE: Simple, intelligent, pluggable, versatile



Motor-protective circuit breakers PKZ have been manufactured by Eaton since 1932. Our ideas and developments have decisively influenced the trends in the protection of motors since then. The results are progressive concepts and marketable product innovations that again and again assume the role of international trendsetting, pioneering products, e.g. such as the motor-protective circuit breaker PKE. Standstill times of machines and installation should be as short as possible. The fuseless motor-protective circuit breakers PKZ combine short-circuit protection and overload protection in a single device. This enables a short recovery time. PKZM0, PKZM01, PKZM4 and PKE feature the same range of accessories. They can be easily combined with contactors DILM and soft starters DS7. Switching technology can be this easy.



Perfect for actuation by pressing or hitting

The motor-protective circuit breaker PKZM01 for motors up to 25 A is ideal for small machines and other applications, which primarily prefer the use of push or impact operation. In addition to the auxiliary contacts from the PKZM0 range, there are also special enclosures in IP65 and IP40 degree of protection, also with an EMERGENCY STOP button. The short-circuit breaking capacity is 50 kA.



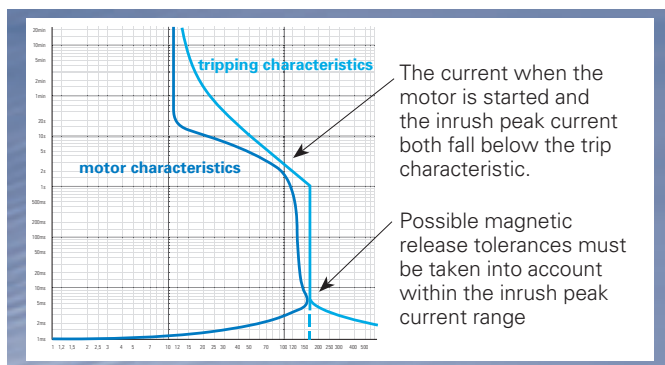
Common accessories – tool-less installation

Only two motor-protective circuit breakers are required to cover the range from 0.1 to 63 A. And this with only 20 different types. The motor-protective circuit breakers are matched to the contactor series DIL and can be easily combined to motor starters.



Modular design. Highest level of flexibility. Highest level of performance

Motor- and system-protective circuit breaker PKE with electronic overload protection offers here an interesting alternative to the bimetal solution and complements the intelligent PKZ series. The motor-protective circuit breaker PKE provides the highest level of flexibility featuring a compact and modular design with plug-in control unit for motor currents up to 65 A.



IE3-ready with Eaton switchgear

Eaton's PKZM0, PKZM4, and PKE motor-protective circuit breakers are IE3-ready, and will safely and reliably switch and protect motors in the event of overloads and short-circuits. The pick-up values for the short-circuit releases have been adjusted in line with the higher starting currents of IE3 motors. This not only effectively prevents nuisance tripping, but also ensures safe operation.



Information at your fingertips thanks to SmartWire-DT

Motor starter combinations with PKZ and PKE enable integration into the automation environment via SmartWire-DT. The actual flow of current in the PKE can also be detected via the modular COM circuits. The data can be transferred directly into the control and is available across the system.

3 basic units + 8 trip blocks = current range up to 65 A

12 A (45 mm)
PKE 12



Motor protection
0.3 A → 12 A
0.09 - 5.5 kW (400 V)

32 A (45 mm)
PKE 32



1 A → 32 A
0.37 - 15 kW (400 V)

65 A (55 mm)
PKE 65



8 A → 65 A
4 - 30 kW (400 V)

System protection

15 A → 36 A

15 A → 65 A

8 plug-in trip blocks up to 65 A in 2 versions

0.3 A → 1.2 A

1 A → 4 A

3 A → 12 A

8 A → 32 A

16 A → 65 A

15 A → 36 A

16 A → 65 A

Modular with a wide setting range

The functional safety and the service life of a motor depends mainly on the motor protection. Motor-protective circuit breaker PKE with electronic overload protection offers here an interesting alternative to the bimetal solution and complements the intelligent PKZ series from Eaton. The motor-protective circuit breaker PKE provides the highest level of flexibility featuring a compact and modular design with plug-in control unit for motor currents up to 65 A. The large current setting ranges decisively reduce the number of variants and minimise the engineering work and costs accordingly.

PKZ and PKE in system xStart

The motor-protective circuit breakers PKZ and PKE feature versatile, approved accessories available from the xStart range for safe and rational control panel construction. With most applications, an auxiliary switch is required with varying contact assignment for interlock or for signalling purposes. The motor starter design with two separate contact systems including visible isolating gaps enables a unique assignment of the protective devices PKZ or PKE and switching device DIL, whereby switchgear devices can be exchanged individually. A universal accessory series from the system xStart facilitates economy in logistical terms and reduces engineering costs.

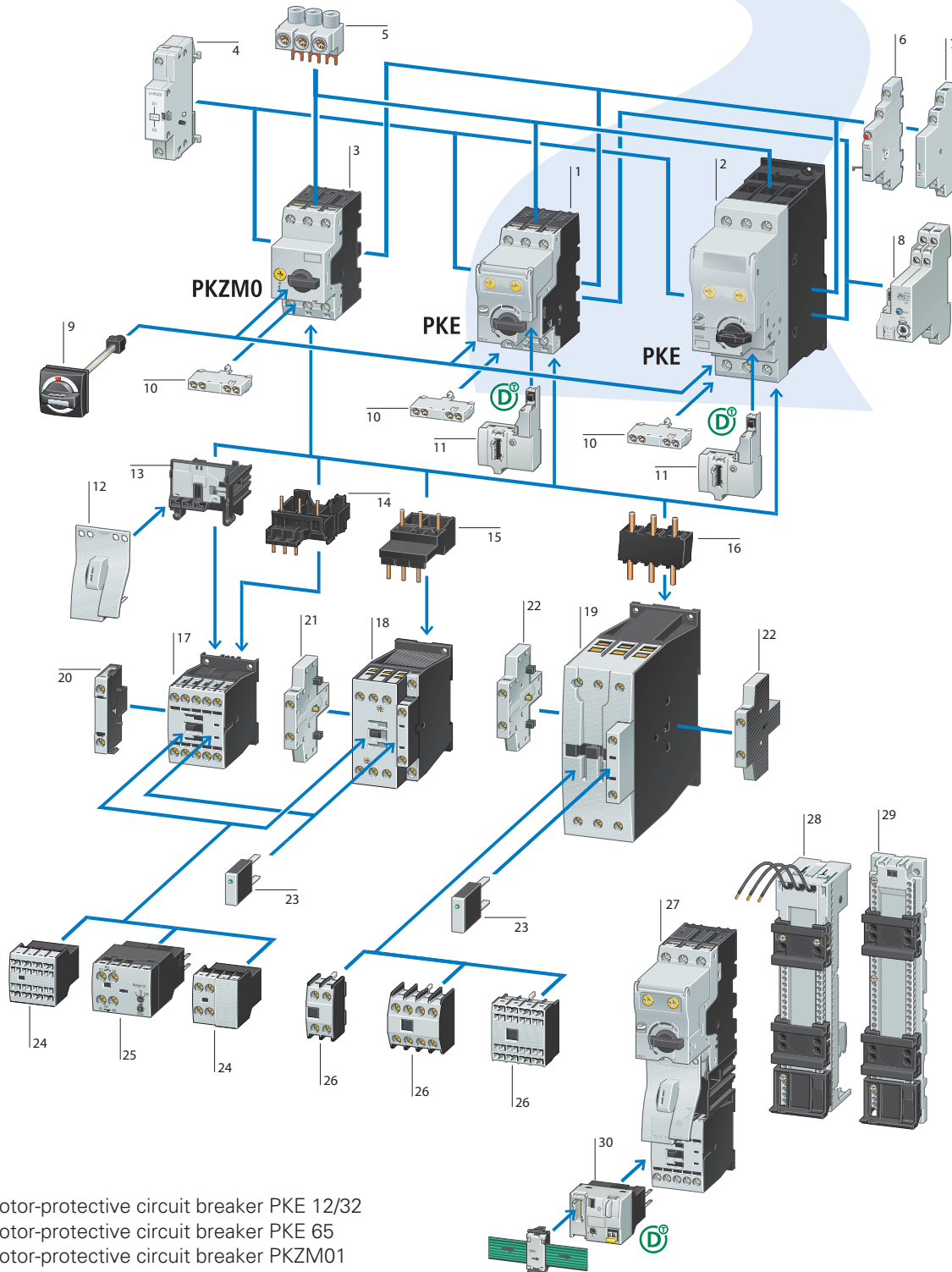
Information at your fingertips thanks to SmartWire-DT

Motor starter combinations with PKZ and PKE enable integration into the automation environment via SmartWire-DT. The most varying array of signalling functions can be transferred with the PKZ using the modular COM circuits. The motor-protective circuit breaker PKE also utilizes diagnostics, status and overload messages and detects the current flow. The data can be transferred directly into the control and is available across the system. The data transparency created enhances the efficiency and the operational reliability of the drives in the operation environment of the motor-protective circuit breaker.

Always well informed

- Current values
- Diagnostics data
- Status messages
- Overload relay function





- 1 Motor-protective circuit breaker PKE 12/32
- 2 Motor-protective circuit breaker PKE 65
- 3 Motor-protective circuit breaker PKZM01
- 4 Undervoltage release/shunt release
- 5 Feeder terminal block
- 6 Trip-indicating auxiliary contact
- 7 Side mounted auxiliary contact
- 8 PKE-XZMR electronic overload relay module
- 9 Door-coupling rotary handle and shaft extension
- 10 Front mounted auxiliary contact
- 11 SmartWire-DT communication interface for PKE
- 12 Combination plug-in connector
- 13 Mechanical plug-in connector
- 14 Motor starter link
- 15 Electrical plug-in connector
- 16 Electrical plug-in connector
- 17 Contactor up to 15 A
- 18 Contactor up to 38 A

- 19 Contactor up to 65 A
- 20 Side mounted auxiliary contact
- 21 Side mounted auxiliary contact
- 22 Side mounted auxiliary contact
- 23 Suppressor
- 24 Surface mounted auxiliary contact
- 25 Electronic timer
- 26 Surface mounted auxiliary contact
- 27 DOL starter MSC-DEA up to 5.5 kW with PKE
- 28 Busbar adapter
- 29 DIN rail adapter plate
- 30 SmartWire-DT PKE module

Motor-protective circuit-breakers

Basic devices

Moeller® series

Setting range Overload releases		Screw terminals		Incoming side screw terminals outgoer side springloaded terminals		Spring-loaded terminals	
		Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
PKZM01 motor-protective circuit-breaker, Type "1" and "2" coordination							
	0.1 - 0.16	PKZM01-0,16	278475	-	-	-	-
	0.16 - 0.25	PKZM01-0,25	278476	-	-	-	-
	0.25 - 0.4	PKZM01-0,4	278477	-	-	-	-
	0.4 - 0.63	PKZM01-0,63	278478	-	-	-	-
	0.63 - 1	PKZM01-1	278479	-	-	-	-
	1 - 1.6	PKZM01-1,6	278480	-	-	-	-
	1.6 - 2.5	PKZM01-2,5	278481	-	-	-	-
	2.5 - 4	PKZM01-4	278482	-	-	-	-
	4 - 6.3	PKZM01-6,3	278483	-	-	-	-
	6.3 - 10	PKZM01-10	278484	-	-	-	-
	8 - 12	PKZM01-12	278485	-	-	-	-
	10 - 16	PKZM01-16	283390	-	-	-	-
	16 - 20	PKZM01-20	283383	-	-	-	-
	20 - 25	PKZM01-25	288893	-	-	-	-
PKZM0 motor-protective circuit-breaker, Type "1" and "2" coordination							
	0.1 - 0.16	PKZM0-0,16	072730	PKZM0-0,16-SC	229828	PKZM0-0,16-C	229669
	0.16 - 0.25	PKZM0-0,25	072731	PKZM0-0,25-SC	229829	PKZM0-0,25-C	229670
	0.25 - 0.4	PKZM0-0,4	072732	PKZM0-0,4-SC	229830	PKZM0-0,4-C	229671
	0.4 - 0.63	PKZM0-0,63	072733	PKZM0-0,63-SC	229831	PKZM0-0,63-C	229672
	0.63 - 1	PKZM0-1	072734	PKZM0-1-SC	229832	PKZM0-1-C	229673
	1 - 1.6	PKZM0-1,6	072735	PKZM0-1,6-SC	229833	PKZM0-1,6-C	229674
	1.6 - 2.5	PKZM0-2,5	072736	PKZM0-2,5-SC	229834	PKZM0-2,5-C	229675
	2.5 - 4	PKZM0-4	072737	PKZM0-4-SC	229835	PKZM0-4-C	229676
	4 - 6.3	PKZM0-6,3	072738	PKZM0-6,3-SC	229836	PKZM0-6,3-C	229677
	6.3 - 10	PKZM0-10	072739	PKZM0-10-SC	229837	PKZM0-10-C	229678
	8 - 12	PKZM0-12	278486	PKZM0-12-SC	278487	PKZM0-12-C	278488
	10 - 16	PKZM0-16	046938	PKZM0-16-SC	229838	PKZM0-16-C	229679
	16 - 20	PKZM0-20	046988	-	-	-	-
	20 - 25	PKZM0-25	046989	-	-	-	-
	25 - 32	PKZM0-32	278489	-	-	-	-
PKZM4 motor-protective circuit-breaker, Type "1" and "2" coordination							
	10 - 16	PKZM4-16	222350	-	-	-	-
	16 - 25	PKZM4-25	222352	-	-	-	-
	24 - 32	PKZM4-32	222353	-	-	-	-
	32 - 40	PKZM4-40	222354	-	-	-	-
	40 - 50	PKZM4-50	222355	-	-	-	-
	50 - 58	PKZM4-58	222394	-	-	-	-
	55 - 65	PKZM4-63	222413	-	-	-	-
UL circuit-breaker in accordance with NFPA 79							
	10 - 16	PKZM4-16-CB	132591	-	-	-	-
	16 - 25	PKZM4-25-CB	132592	-	-	-	-
	24 - 32	PKZM4-32-CB	132593	-	-	-	-
Transformer-protective circuit-breaker							
	0.1 - 0.16	PKZM0-0,16-T	088907	-	-	-	-
	0.16 - 0.25	PKZM0-0,25-T	088908	-	-	-	-
	0.25 - 0.4	PKZM0-0,4-T	088909	-	-	-	-
	0.4 - 0.63	PKZM0-0,63-T	088910	-	-	-	-
	0.63 - 1	PKZM0-1-T	088911	-	-	-	-
	1 - 1.6	PKZM0-1,6-T	088912	-	-	-	-
	1.6 - 2.5	PKZM0-2,5-T	088913	-	-	-	-
	2.5 - 4	PKZM0-4-T	088914	-	-	-	-
	4 - 6.3	PKZM0-6,3-T	088915	-	-	-	-
	6.3 - 10	PKZM0-10-T	088916	-	-	-	-
	8 - 12	PKZM0-12-T	278492	-	-	-	-
	10 - 16	PKZM0-16-T	088917	-	-	-	-
	16 - 20	PKZM0-20-T	088918	-	-	-	-
	20 - 25	PKZM0-25-T	278493	-	-	-	-



Setting range of
overload
releases



Basic device with standard knob

Part no.

Article no.

**Trip block motor protection
Standard**

Part no.

Article no.

**Trip block motor protection
Advanced**

Connection to SmartWire-DT
with PKE-SWD-32 or PKE-SWD-SP

Part no.

Article no.

Complete device with standard knob

Part no.

Article no.

Motor-protective circuit-breakers PKE, type "1" and "2" coordination

0.3 - 1.2	PKE12	121721	PKE-XTU-1,2	121723	PKE-XTUA-1,2	121727	PKE12/XTU-1,2	121731
1 - 4	PKE12	121721	PKE-XTU-4	121724	PKE-XTUA-4	121728	PKE12/XTU-4	121732
3 - 12	PKE12	121721	PKE-XTU-12	121725	PKE-XTUA-12	121729	PKE12/XTU-12	121733
8 - 32	PKE12	121721	PKE-XTU-32	121726	PKE-XTUA-32	121730	PKE32/XTU-32	121734

Setting range of
overload
releases



Basic device with standard knob

Part no.

Article no.

**Trip block system protection
Standard**

Part no.

Article no.

**Trip block system protection
Advanced**

Connection to SmartWire-DT
with PKE-SWD-CP

Part no.

Article no.

Complete device with standard knob

Part no.

Article no.

PKE system protective circuit-breaker, short-circuit release 5-8 x I_r

15 - 36	PKE32	121722	PKE-XTUCP-36	153164	PKE-XTUACP-36	168795	PKE32/XTUCP-36	168972
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Setting range of
overload
releases



Basic device with standard knob

Part no.

Article no.

**Trip block motor protection
Standard**

Part no.

Article no.

**Trip block motor protection
Advanced**

Connection to SmartWire-DT
with PKE-SWD-SP

Part no.

Article no.

**Complete device
with standard knob**

Part no.

Article no.

Motor-protective circuit-breakers PKE, type "1" and "2" coordination

8 - 32	PKE65	138258	PKE-XTUW-32	138261	PKE-XTUWA-32	138262	PKE65/XTUW-32	138517
16 - 65	PKE65	138258	PKE-XTU-65	138259	PKE-XTUA-65	138260	PKE65/XTU-65	138516

Setting range of
overload
releases



Basic device with standard knob

Part no.

Article no.

**Trip block system protection
Standard**

Part no.

Article no.

**Trip block system protection
Advanced**

Connection to SmartWire-DT
with PKE-SWD-CP

Part no.

Article no.

Complete device with standard knob

Part no.

Article no.

PKE system protective circuit-breaker, short-circuit release 5-8 x I_r

15 - 36	PKE65	138258	PKE-XTUWCP-36	168796	PKE-XTUWACP-36	168797	PKE65/XTUWCP-36	168973
30 - 65	PKE65	138258	PKE-XTUCP-65	168798	PKE-XTUACP-65	168799	PKE65/XTUCP-65	168974

Motor-protective circuit-breakers

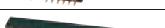
SmartWire-DT® PKE modules, busbar adapter

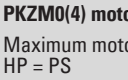
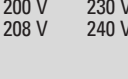
Moeller® series

	Part no.	Article no.
SmartWire-DT PKE (motor-protective circuit-breaker)		
For connecting the motor-protective circuit-breaker with PKE-XTU(W)A-... trip blocks(motor protection) to SmartWire-DT		
 Fitted on PKE motor-protective circuit-breaker DT Messages Contactor state PKE Motor current in % Thermal motor image in % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set time lag (CLASS) Part no. of trip block Commands Remote disconnection of motor-protective circuit-breaker	PKE-SWD-SP	150614
SmartWire-DT PKE module (circuit-breakers)		
For connecting the PKE circuit-breaker with PKE-XTU(W)ACP-... trip blocks(motor protection) to SmartWire-DT		
 For attachment to PKE circuit-breakers DT Messages Contactor state PKE All phase currents in % Thermal load as a % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set short-circuit release value Part no. of trip block Commands Remote circuit-breaker de-energization	PKE-SWD-CP	172735

	Rated operational current I_e A	For use with	Part no.	Article no.
Busbar adapters for PKZ and PKE				
	25	PKZM0, PKE + DILM7 PKZM0, PKE + DILM9 PKZM0, PKE + DILM12 PKZM0, PKE + DILM15 MSC-D-0.25-M7... - MSC-D-16-M15...	BBA0-25	101451
	25	PKZM0, PKE + 2 x DILM7-01 PKZM0, PKE + 2 x DILM9-01 PKZM0, PKE + 2 x DILM12-01 MSC-R-0,25-M7... - MSC-R-12-M12...	BBA0R-25	101453
	32	PKZM0, PKE + DILM(C)17 PKZM0, PKE + DILM(C)25 PKZM0, PKE + DILM(C)32	BBA0-32	101452
	32	PKZM0, PKE + 2 x DILM(C)17-01 PKZM0, PKE + 2 x DILM(C)25-01 PKZM0, PKE + 2 x DILM(C)32-01	BBA0R-32	101454
	63	PKZM4, PKE65 + DILM(C)17 PKZM4, PKE65 + DILM(C)25 PKZM4, PKE65 + DILM(C)32 PKZM4, PKE65 + DILM(C)40 PKZM4, PKE65 + DILM(C)50 PKZM4, PKE65 + DILM(C)65	BBA4L-63	101459

Contacts			For use with	Part no.	Article no.
N/O = Normally open	N/C = Normally closed				
Standard auxiliary contact					
	1 N/O	1 NC	PKZM01 PKZM0 PKZM4 PKZM0-T PKM0 PKE	NHI11-PKZ0	072896
	1 N/O	1 NC		NHI11-PKZ0-C	229680
	1 N/O	2 NC		NHI12-PKZ0	072895
	2 N/O	1 NC		NHI21-PKZ0	072894
	1 N/O	1 NC		NHI-E-11-PKZ0	082882
	1 N/O	-		NHI-E-10-PKZ0	082884
	1 N/O	-		NHI-E-10-PKZ0-C	229681
	-	1 NC		NHI-E-01-PKZ0-C	229682
Trip-indicating auxiliary contacts					
	2 x 1 N/O	-	PKZM0 PKZM4 PKZM0-T PKM0 PKZM01 PKE	AGM2-10-PKZ0	072898
	-	2 x 1 NC		AGM2-01-PKZ0	072899
Auxiliary contacts, early-make					
	2 N/O	-	PKZM0 PKZM0-T PKM0 PKZM4	VHI20-PKZ0	203595
	2 N/O	-	PKZM01	VHI20-PKZ01	278495
Shunt release					
	-	-	PKZM0 PKZM4 PKZM0-T PKM0 PKZM01 PKE	A-PKZ0(230V50HZ)	073187
	-	-		A-PKZ0(24VDC)	073200
Undervoltage release					
	-	-	PKZM0 PKZM4 PKZM0-T PKM0 PKZM01 PKE	U-PKZ0(230V50HZ)	073135
	-	-		U-PKZ0(24VDC)	157862
Overload relay function module					
	1 N/O	1 NC	PKE12 PKE32 PKE65 with XTUA trip block with release 04 and higher	PKE-XZMR(24VDC)	173425
	1 N/O	1 NC		PKE-XZMR(230V50HZ)	173416
Rotary handle, lockable					
	For locking motor-protective circuit-breakers PKZM0, PKZM4 and PKE as a main switch in compliance with EN 60204 Can be padlocked in the “0” position with a padlock Hasp thickness: 3 – 6.35 mm			AK-PKZ0	030851

	For use with	Part no.	Article no.
Three-phase commoning link, incoming unit via terminals 1, 3, 5			
For PKZM0-... or PKE without side mounted auxiliary contacts or shunt releases			
	-	B3.0/2-PKZ0	063961
	-	B3.0/3-PKZ0	232289
	-	B3.0/4-PKZ0	063960
	-	B3.0/5-PKZ0	232290
Attached on the right, for motor-protective circuit-breakers, with an auxiliary contact or trip-indicating auxiliary contact			
	-	B3.1/2-PKZ0	044945
	-	B3.1/3-PKZ0	044946
	-	B3.1/4-PKZ0	044947
	-	B3.1/5-PKZ0	044948
For PKZM0-... or PKE: attached with an auxiliary contact and a trip-indicating auxiliary contact on the right or attached on the left with a shunt release			
	-	B3.2/2-PKZ0	063963
	-	B3.2/4-PKZ0	063959
Incoming terminal			
	PKZM0 PKE	BK25/3-PKZ0	032720
	PKZM0	BK25/3-PKZ0-E	262518
Shroud for unused terminals			
	Protection against direct contact. For covering unused terminals on three-phase commoning link B3...-PKZ0	H-B3-PKZ0	032721
Wiring set			
For DOL Starter			
Plug-in 	PKZM0, PKE + DILM7 PKZM0, PKE + DILM9 PKZM0, PKE + DILM12 PKZM0, PKE + DILM15	PKZM0-XDM12	283149
Screwable 	PKZM0, PKE + DILM7 PKZM0, PKE + DILM9 PKZM0, PKE + DILM12 PKZM0, PKE + DILM15	PKZM0-XDM15ME	179646
	PKZM0, PKE + DILM17 PKZM0, PKE + DILM25 PKZM0, PKE + DILM32	PKZM0-XDM32	283153
	PKZM0, PKE + DILM7 PKZM0, PKE + DILM9 PKZM0, PKE + DILM12 PKZM0, PKE + DILM15	PKZM4-XDM65	101053
For reversing starters			
	PKZM0, PKE + DILM7-01 PKZM0, PKE + DILM9-01 PKZM0, PKE + DILM12-01	PKZM0-XRM12	283185
	PKZM0, PKE + DILM17 PKZM0, PKE + DILM25 PKZM0, PKE + DILM32	PKZM0-XRM32	283189

Description	For use with	Part no.	Article no.
Wiring set			
Electric contact module			
	PKZM0, PKE + DILM17 PKZM0, PKE + DILM25 PKZM0, PKE + DILM32 DS7-34...SX016... DS7-34...SX024... DS7-34...SX032...	PKZM0-XM32DE	239349
	PKZM4, PKE65 + DILM40 PKZM4, PKE65 + DILM50 PKZM4, PKE65 + DILM65	PKZM4-XM65DE	101056
Door coupling handles			
	For use as main switch to IEC/EN 60204	PKZM0 PKZM4	PKZ0-XH 106132
	For use as a main switch to EN 60204 in MCC power distribution systems and with PKZM0 installed when rotated by 90°	PKZM0 PKZM4	PKZ0-XH-MCC 106136
	For use as main switch to IEC/EN 60204	PKE	PKE-XH 142416
	For use as a main switch to EN 60204 in MCC power distribution systems and with PKE installed when rotated by 90°	PKE	PKE-XH-MCC 142418
	For use as a main switch with Emergency-Stop function, to EN 60204	PKZM0 PKZM4	PKZ0-XRH 106133
	For use as a main switch with Emergency-Stop function to EN 60204 in MCC power distribution systems and with PKZM0 installed when rotated by 90°	PKZM0 PKZM4	PKZ0-XRH-MCC 106137
	For use as a main switch with Emergency-Stop function, to EN 60204	PKE	PKE-XRH 142417
	For use as a main switch with Emergency-Stop function to EN 60204 in MCC power distribution systems and with PKE installed when rotated by 90°	PKE	PKE-XRH-MCC 142419

Manual Self-Protected Combination Controller UL 60947-4-1, Type E

PKZM0(4) motor-protective circuit-breakers, used as "Manual self-protected Motor Starters" – UL 508 Type E										
Maximum motor output HP = PS				Setting ranges		Interrupting Capacity = Short Circuit Current Rating SCCR			Components	Accessories
200 V	230 V	460 V	575 V	Overload releases	Short-circuit releases	240 V	480Y/ 277 V ²⁾	600Y/ 347 V ²⁾	Motor Protector	
208 V	240 V	480 V	600 V							
[HP]	[HP]	[HP]	[HP]	[A]	[A]	[kA]	[kA]	[kA]	Type	Type
1)				0.1 – 0.16	2.5	65	65	50	PKZM0-0.16	BK25/3-PKZ0-E
				0.16 – 0.25	3.9	65	65	50	PKZM0-0.25	BK25/3-PKZ0-E
				0.25 – 0.4	6.2	65	65	50	PKZM0-0.4	BK25/3-PKZ0-E
				0.4 – 0.63	9.8	65	65	50	PKZM0-0.63	BK25/3-PKZ0-E
				0.63 – 1	16	65	65	50	PKZM0-1	BK25/3-PKZ0-E
				1 – 1.6	25	65	65	50	PKZM0-1.6	BK25/3-PKZ0-E
½	½	1	1½	1.6 – 2.5	39	65	65	50	PKZM0-2.5	BK25/3-PKZ0-E
¾	¾	2	3	2.5 – 4	62	65	65	50	PKZM0-4	BK25/3-PKZ0-E
½	1½	3	5	4 – 6.3	98	65	65	50	PKZM0-6.3	BK25/3-PKZ0-E
2	3	5	7½	6.3 – 10	155	65	65	50	PKZM0-10	BK25/3-PKZ0-E
3	3	7½	10	8 – 12	186	65	65	–	PKZM0-12	BK25/3-PKZ0-E
3	5	10	10	10 – 16	248	42	42	–	PKZM0-16	BK25/3-PKZ0-E
5	–	–	15	16 – 20	310	18	18	–	PKZM0-20	BK25/3-PKZ0-E
–	7½	15	20	20 – 25	388	18	18	–	PKZM0-25	BK25/3-PKZ0-E
7½	10	20	25	25 – 32	496	18	18	–	PKZM0-32	BK25/3-PKZ0-E
3	5	10	10	10 – 16	248	65	65	25	PKZM4-16	BK50/3-PKZ4-E
5	7½	15	20	16 – 25	388	65	65	25	PKZM4-25	BK50/3-PKZ4-E
7½	10	20	30	25 – 32	496	65	65	25	PKZM4-32	BK50/3-PKZ4-E
10	–	30	30	32 – 40	620	65	65	25	PKZM4-40	BK50/3-PKZ4-E
–	15	30	40	40 – 50	775	65	65	–	PKZM4-50	BK50/3-PKZ4-E
–	–	40	50	50 – 58	899	65	65	–	PKZM4-58	BK50/3-PKZ4-E
–	–	40	50	55 – 65	977	65	65	–	PKZM4-63	BK50/3-PKZ4-E

Notes

¹⁾ Calculate instance motor power in this range according to the rated operational current. Stated values to NEC Table 430 -150

²⁾ Suitable for networks with earthed star-point

Motor-protective circuit-breakers

PKZM0 switching capacity

Moeller® series

Circuit-breaker switching capacity from serial no. 04

Rated uninterrupted current I_u

Rated conditional short-circuit current I_q IEC/EN 60947-4-1

Rated ultimate short-circuit breaking capacity I_{cu} IEC/EN 60947-2

Rated service short-circuit breaking capacity I_{cs} IEC/EN 60947-2

	230 V				400 V				440 V				500 V				690 V			
I_u	I_q	I_{cu}	I_{cs}	A ¹⁾	I_q	I_{cu}	I_{cs}	A ¹⁾	I_q	I_{cu}	I_{cs}	A ¹⁾	I_q	I_{cu}	I_{cs}	A ¹⁾	I_q	I_{cu}	I_{cs}	A ¹⁾
A	kA	kA	kA		kA	kA	kA		kA	kA	kA		kA	kA	kA		kA	kA	kA	
PKZM0, PKZM0...-T, PKM0 with type 1 and 2 coordination																				
0.16 – 1	150	150	150	N	150	150	150	N				N				N				N
1.6	150	150	150	N	150	150	150	N				N				N				N
2.5	150	150	150	N	150	150	150	N				N				N				N
4	150	150	150	N	150	150	150	N				N				N	50	50	50	50
6.3	150	150	150	N	150	150	150	N				N				N	3	3	3	50
10	150	150	150	N	150	150	150	N	50	50	50	50	42	42	11	50	3	3	2	50
12	50	50	38	50	50	50	38	50	50	15	12	50	15	15	4	50	3	3	2	50
16	50	50	38	50	50	50	38	50	50	15	12	50	15	15	4	50	3	3	2	50
20	50	50	38	50	50	50	38	50	50	10	3	50	10	3	3	50	3	3	1	50
25	50	50	38	50	50	50	38	50	50	10	3	50	10	3	3	50	3	3	1	50
32	50	40	10	50	50	40	10	50	50	10	3	50	10	3	3	50	3	3	1	50

PKZM0 (PKZM0...-T, PKM0) + CL-PKZ0

0.16 – 1		N		N				N			20	N		
1.6		N		N				N						
2.5		N		N				N			20	20	20	N
4		N		N				N			20	20	20	N
6.3		N		N		N		50	N	20	20	20	N	
10		N		N		N		20	N	20	20	20	N	
12		N		N		N		20	N	5	5	2.5	N	
16		N		N		N		20	N	5	5	2.5	N	
20		N		N		N		10	10	10	N	5	5	2.5
25		N		N		N	10	10	10	N	5	5	2.5	N
32	N	N	N	10	10	10	N	5	5	2.5	N			

PKZM0 (PKZM0...-T, PKM0) + 2 CL-PKZ0

0.16 – 1		N		N		N		N			20	N				
1.6		N		N		N				20	N					
2.5		N		N		N				40	40	20	N			
4		N		N		N				40	40	20	N			
6.3		N		N		N		50		N	20	20	20	N		
10		N		N		N		40		N	20	20	20	N		
12		N		N		N		40		N	10	10	2.5	N		
16		N		N		N		40		N	10	10	2.5	N		
20		N		N		N		20		20	20	N	10	10	2.5	N
25		N		N		N		20		20	20	N	10	10	2.5	N
32	N	N	N	20	20	20	N	10	10	2.5	N					

Notes

■ No upstream protective device required, as it is the auto-protected range (100/150 kA)

N Not Required

¹⁾ Necessary back-up fuse when the short-circuit current exceeds the rated conditional short-circuit current of the device ($I_{cc} \cdot I_q$).

Circuit-breaker switching capacity

Rated uninterrupted current I_u

Rated conditional short-circuit current I_q IEC/EN 60947-4-1

Rated ultimate short-circuit breaking capacity I_{cu} IEC/EN 60947-2

Rated service short-circuit breaking capacity I_{cs} IEC/EN 60947-2

I_u A	230 V				400 V				440 V ²⁾				500 V ²⁾				690 V ²⁾			
	I_q kA	I_{cu} kA	I_{cs} kA	A ¹⁾	I_q kA	I_{cu} kA	I_{cs} kA	A ¹⁾	I_q kA	I_{cu} kA	I_{cs} kA	A ¹⁾	I_q kA	I_{cu} kA	I_{cs} kA	A ¹⁾	I_q kA	I_{cu} kA	I_{cs} kA	A ¹⁾
PKZM01 with type 1 and 2 coordination																				
0.16 – 1	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50				
1.6	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50				
2.5	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50				
4	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50				
6.3	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50	50				
10	50	50	50	50	50	50	50	50	42	42	10	50								
12	50	50	10	50	50	50	10	50	15	15	10	50								
16	50	50	10	50	50	50	10	50	15	15	10	50								
20, 25	50	50	10	50	50	50	10	50	10	10	3	50								
PKZM4 with type 1 and 2 coordination																				
16	150	150	25	N	150	150	25	N	45	45	25	100	15	15	100	8	8	2.5	100	
25	150	150	25	N	150	150	25	N	45	45	25	100	15	15	100	8	8	2.5	100	
32	50	50	25	100	50	50	25	100	45	45	25	100	15	15	100	5	5	2.5	100	
40	50	50	25	100	50	50	25	100	45	45	25	100	15	15	100	5	5	2.5	100	
50	50	50	25	100	50	50	25	100	45	45	25	100	15	15	100	5	5	2.5	100	
58	50	50	25	160	50	50	25	160	45	45	25	160	15	15	160	5	5	2.5	160	
63	50	50	25	160	50	50	25	160	45	45	25	160	15	15	160	5	5	2.5	160	

Notes

No upstream protective device required, as it is the auto-protected range (150 kA)

N Not Required

1) Fuse (A gG/gL) for enhancing the switching capacity of the motor-protective circuit-breaker to 100 kA

2) Please enquire for additional information regarding voltages > 400 V and device combinations with CL-PKZ0.

I_u A	230/400 V			415 V			440 V			500 V			525 V			690 V		
	I_q kA	I_{cu} kA	I_{cs} kA	I_q kA	I_{cu} kA	I_{cs} kA	I_q kA	I_{cu} kA	I_{cs} kA	I_q kA	I_{cu} kA	I_{cs} kA	I_q kA	I_{cu} kA	I_{cs} kA	I_q kA	I_{cu} kA	I_{cs} kA
PKE12/XTU(A)-... with type 1 and 2 coordination																		
1.2	100			50			15			10			10			3		
4	100			50			50			10			10			3		
12	100			50			20			20			10			3		
PKE32/XTU(A)-... with type 1 and 2 coordination																		
32	100			50			25			6			3			3		
PKE32/XTUCP(A)-... with type 1 and 2 coordination																		
36	-	50	12.5	-			-			-			-			-		
PKE65/XTU(W)(A) with type 1 and 2 coordination																		
32 - 65	80			80			45			15			10			5		
Motor-starter combinations MSC-DE(A)-...-M7(12)... with type 1 coordination																		
1.2	100			50			15			10			-			-		
4	100			50			50			50			-			-		
12	100			50			50			20			-			-		
Motor-starter combinations MSC-DE(A)-...-M17(32)... with type 1 coordination																		
12	100			65			65			50			50			3		
32	100			100			65			50			5			5		
Motor-starter combinations MSC-DE(A)-...-M17(32)... with type 2 coordination																		
1.2	100			65			65			10			3			-		
4	100			65			65			50			3			-		
12	100			65			65			50			50			-		
32	100			100			65			50			20			5		
PKE12/XTU-...+DILM17+CL-PKZ0 with type 2 coordination																		
1.2 - 12	100			100			100			100			-			-		
PKE32/XTU-32+DILM32+CL-PKZ0 with type 2 coordination																		
32	100			100			100			100			-			-		
PKE65/XTU(A)-65+DILM(40, 50)65 with type 2 coordination																		
65	80			50			50			50			10			10		

Build it in.



Motor starter system xStart

Fast and flexible assembly and connection

 www.eaton.eu/moem-ee



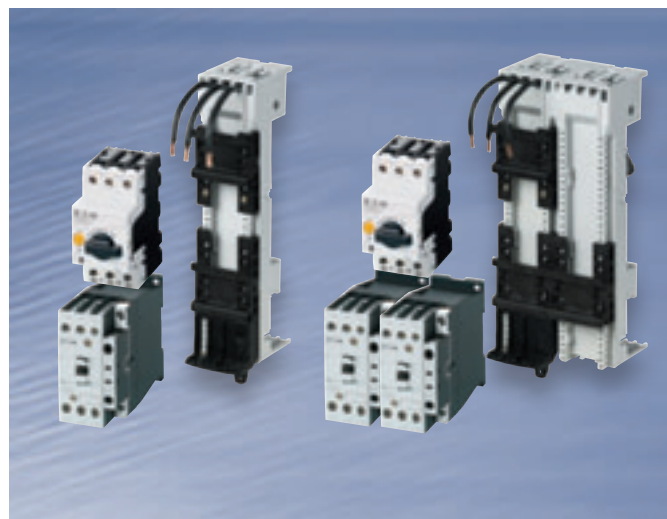
Eaton offers a comprehensive offer for starting the motor with the motor start system xStart: From protective to soft starting devices and motor protection using bimetal relays, to motor-protective circuit breakers with electronic wide-range overload protection. All of these standard components can be easily combined using simple mechanical and electronic connectors. Three-phase commoning links offer comfortable assistance for motor current wiring. SmartWire-DT also replaces the control current wiring and integrates comprehensive communication options into the system.

 www.eaton.eu/xstart



Just a short step to a starter combination

On xStart switchgear up to 15.5 A, plug-in main and auxiliary current connections replace the classical wiring. With the standard individual components PKZM0 / PKE and the wiring set for direct-on-line starters or reversing starters for contactors or soft start devices with screw terminals, DOL starters, soft starters or reversing starters can be created in seconds. The wiring kits include the complete main current wiring between the motor-protective circuit breaker and contactor DIL up 15.5 A or the soft starter DS7. The electrical interlock and the reversing links are included in addition to the main current connection with the reversing starter set PKZM0-XRM12.



Flexible energy distribution

Whether it's a motor starter, soft starter or just motor-protective circuit breakers, with the product-specific BBA busbar adapters from Eaton, a flexible energy supply/distribution can be quickly and easily established. The users have the specific adapters for the motor-protective circuit breakers, such as the PKZM0, PKE and PKZM4 with rated currents of 0.1 to 63 A, as well as other universal adapters up to 80 A. Their standard-compliant dimensions fit on all 60 mm busbar systems from leading manufacturers. They are approved for both the European and North American markets with their UL/ CSA approvals. The new busbar adapters support installation of starter combinations, which have been assembled using tool-less plug connection technology from the motor starter range. They are available as individual units or complete motor starters.

→ Complete solutions save time and money



The wiring classic

Eaton offers the optimum wiring links for every motor-protective circuit breaker type such as the PKZM0, PKZM4 or PKE. Optionally, several motor-protective circuit breakers are available on cut-to-fit three-phase commoning links for parallel power feed. Matched to the corresponding application, whether it is a side-mounted auxiliary contact or undervoltage or shunt release.



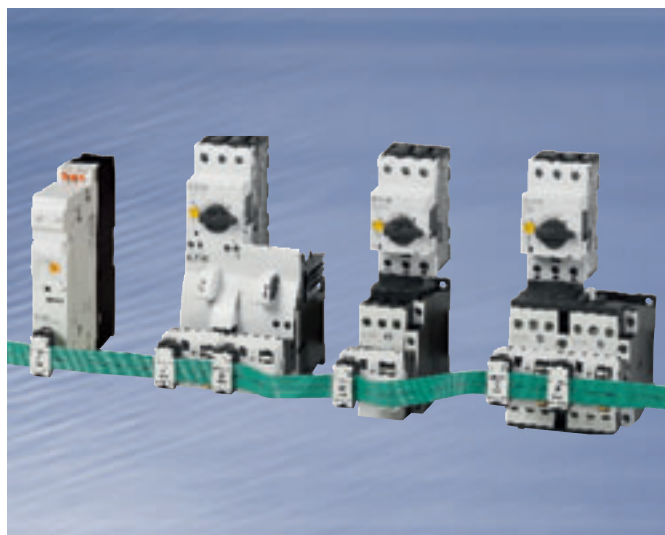
Important for machine export to North America! New National Electrical Code (NEC 2011) for the USA.

The UL 508 Type E – Manual Self-Protected Combination Motor Controllers – used in great numbers in the USA, and for even longer in Canada, must be equipped with a padlockable knob. The levers can be exchanged with padlockable types on the motor-protective circuit breakers from Eaton.



Motor-starter combinations with PKE, all information accessible

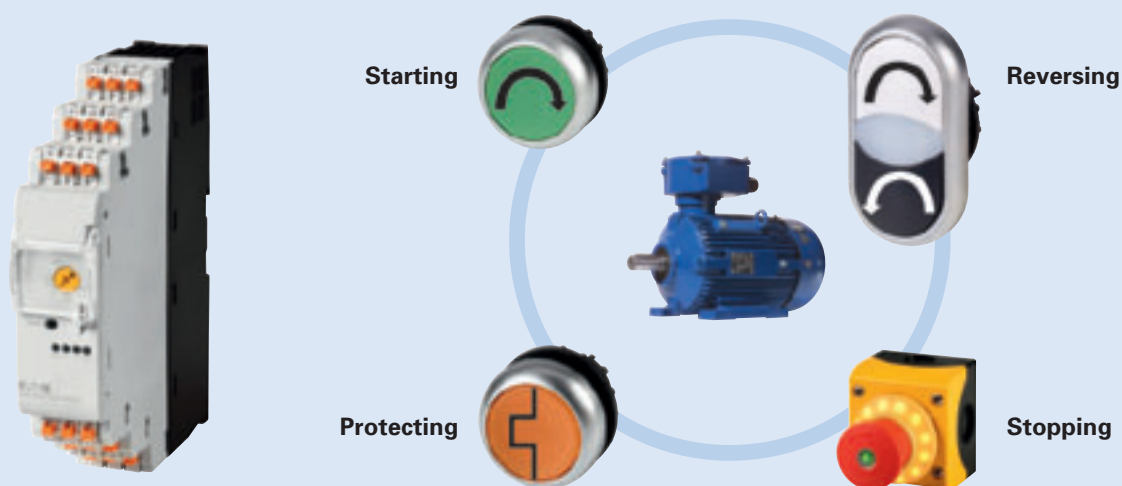
The motor-protective circuit breaker PKE with electronic wide-range overload protection can be integrated in just a few simple steps via SmartWire-DT into the communication structure of the automation system. This facilitates a more in-depth view of the motor output circuit load and provides additional optimization potential for system availability. The respective SmartWire-DT modules facilitate the communication connection for compact PKE motor starter combinations up to 32 A motor current and the direct connection to the motor-protective circuit breaker PKE up to 65 A motor current.



Connection technology in the control panel

Manufacturers of machines and systems strive to achieve a balance between the maximum level of functionality and cost optimization. SmartWire-DT is a communication system for industrial switchgear based on the concept of continued development in the control panel and peripherals: from control through to protection and switching, and extending to driving, operation and monitoring.

Electronic motor starter EMS – longer life at only 30 mm

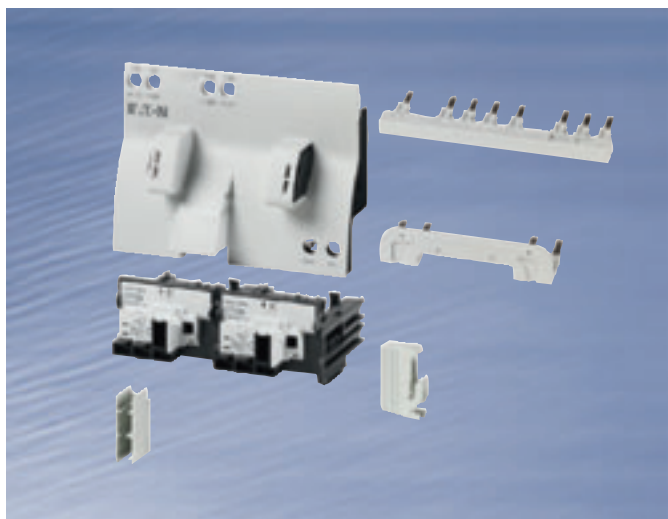


A key requirement in machinery construction is the availability of compact, multifunctional switchgear that saves space in today's ever smaller control panels as well as cutting engineering and installation times.

With electronic motor starter EMS Eaton offers a multifunctional device complete with built-in motor protection in a device that measures only 30 mm in width. The electronic motor starter offers up to four motor starter functions in a single device, which saves space in the control panel as well as time in installation and commissioning.

The standardized push-in technology for main and control current terminals further minimizes the time needed to install the electronic motor starter.

The electronic motor starter is used for reliably controlling and protecting motors in the performance range of 0.06 kW/400 V to 3 kW/400 V.



The multifunctional interface

Unbeatable time-saving applications such as reversing starters or star-delta combinations can be implemented with the integrated tool-less plug connection interface of the contactors DILM(C) up to 15.5 A. The plug-on accessories or the wiring sets for the tool-less plug connections also offer the opportunity for motor interference suppression, the adaptation of customized contactor controls using solder pin adapters or the external motor cables with the PE connection of the contactor.



Lean solutions: Direct-on-line starters/Reversing starters made of standard components

Direct-on-line starters made of standard components are available in four narrow sizes. Contactors and circuit breakers feature the same compact width. No precious millimeter of control panel space is wasted. The convenient MSC motor starters using tool-less plug connection technology are available up to 15 A and require only a top-hat rail for mounting. The mechanical connector ensures a secure hold, and the electrical connector provides optimum reliability and safety. Complete mounting connectors are offered for DOL and reversing starters from 16 up to 32 A. This prevents fitting errors and cuts down on wiring time.

- Up to a rating of 170 A, the circuit breaker and the contactor will have the same width. This ensures that the motor starter will take up as little space as possible when installed in an enclosure.
- Compact motor starters with a rating of up to 65 A can be implemented by using the PKE motor-protective circuit breaker with electronic wide-range overload protection.

Tested motor-starter combinations: quick selection – easy ordering

Enter motor data



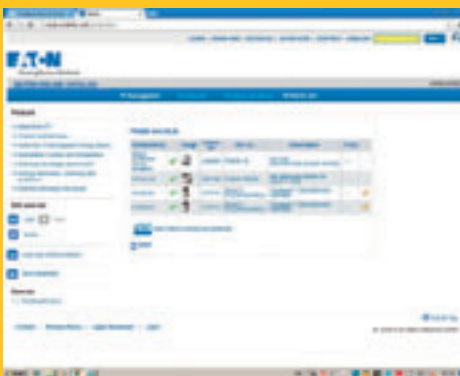
Select a motor starter



Select a contactor



Generate order list



Whether you want to configure your motor starter as a DOL, reversing, or wye-delta starter. Whether you prefer a fused or fuseless configuration. Whether you want an electromechanical motor starter or an electronic motor starter: Eaton's motor starter configurator will take you through the process step by step in just a few clicks. You can have only IE3-ready switchgear and combinations be shown. Moreover, the configurator is linked to our online catalog, ensuring that you will enjoy convenient access to our entire range of products, including wiring sets. Once finished, you can then send the finished list to your sales partner – it's as simple as that.



www.eaton.eu/selectiontools

Motor-starter combinations

Standard

Moeller® series



Motor data

AC-3
380V
400V
415V
P

Rated opera-
tional current
400V
 I_e

Rated short-
circuit current
380-415V
 I_q

kW

A

kA

Motor-pro- tective circuit breaker

Contactor
coordination
type "1"

Contactor
coordination
type "2"

PKZM0 ...+DIL M7 to DIL M15		0.06	0.21	150/50*	PKZM0-0,25	DILM7-...	DILM7-...
		0.09	0.31	150/50*	PKZM0-0,4	DILM7-...	DILM7-...
		0.12	0.41	150/50*	PKZM0-0,63	DILM7-...	DILM7-...
		0.18	0.6	150/50*	PKZM0-0,63	DILM7-...	DILM7-...
		0.25	0.8	150/50*	PKZM0-1	DILM7-...	DILM7-...
		0.37	1.1	150/50*	PKZM0-1,6	DILM7-...	DILM7-...
PKZM0 ...+DIL M17 to DIL M32		0.55	1.5	150/50*	PKZM0-1,6	DILM7-...	DILM7-...
		0.75	1.9	150/50*	PKZM0-2,5	DILM7-...	DILM7-...
		1.1	2.6	150/50*	PKZM0-4	DILM7-...	DILM7-...
		1.5	3.6	150/50*	PKZM0-4	DILM7-...	DILM7-...
		2.2	5	150/50*	PKZM0-6,3	DILM7-...	DILM7-...
		3	6.6	150/50*	PKZM0-10	DILM7-...	DILM17-...
PKZM4 ...+DIL M17 to DIL M65		4	8.5	150	PKZM0-10	DILM9-...	DILM17-...
		5.5	11.3	50	PKZM0-12	DILM12-...	DILM17-...
		7.5	15.2	50	PKZM0-16	DILM17-...	DILM17-...
		11	21.7	50	PKZM0-25	DILM25-...	DILM25-...
		15	29.3	50	PKZM0-32	DILM32-...	DILM32-...
		18.5	36	50	PKZM4-40	DILM40	DILM40
NZM...+DIL M72 to DIL M500		22	41	50	PKZM4-50	DILM50	DILM50
		30	55	50	PKZM4-58	DILM65	DILM65
		34	63	50	PKZM4-63	DILM65	DILM65
		37	68	50	NZMN1-M80	DILM80	DILM80
		45	81	50	NZMN1-M100	DILM95	DILM95
		55	99	50	NZMN1-M100	DILM115	DILM115
		75	134	50	NZMN2-M160	DILM150	DILM150
		90	161	50	NZMN2-M200	DILM185A	DILM185A
		110	196	50	NZMN2-M200	DILM225A	DILM225A
		132	231	50	NZMN3-ME350	DILM250	DILM250
		160	279	50	NZMN3-ME350	DILM300A	DILM300A
		200	349	50	NZMN3-ME350	DILM400	DILM400
		250	437	50	NZMN3-ME450	DILM500	DILM500

* Coordination type 2



Motor data

AC-3
380V
400V
415V
P

Rated opera-
tional current
400V
 I_e

Rated short-
circuit current
380-415V
 I_q

Motor-pro- tective circuit breaker

Contactors
coordination
type "1"

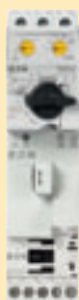
Contactors
coordination
type "2"

kW

A

kA

PKE ...+DIL M7 to DIL M12



0.06

0.21

100

PKE12/XTU-1,2

DILM7-...

DILM17-...

0.09

0.31

100

PKE12/XTU-1,2

DILM7-...

DILM17-...

0.12

0.41

100

PKE12/XTU-1,2

DILM7-...

DILM17-...

0.18

0.6

100

PKE12/XTU-1,2

DILM7-...

DILM17-...

0.25

0.8

100

PKE12/XTU-1,2

DILM7-...

DILM17-...

0.37

1.1

100

PKE12/XTU-1,2

DILM7-...

DILM17-...

0.55

1.5

100

PKE12/XTU-4

DILM7-...

DILM17-...

PKE ...+DIL M17 to DIL M32



0.75

1.9

100

PKE12/XTU-4

DILM7-...

DILM17-...

1.1

2.6

100

PKE12/XTU-4

DILM7-...

DILM17-...

1.5

3.6

100

PKE12/XTU-4

DILM7-...

DILM17-...

2.2

5

100

PKE12/XTU-12

DILM7-...

DILM17-...

3

6.6

100

PKE12/XTU-12

DILM7-...

DILM17-...

4

8.5

100

PKE12/XTU-12

DILM9-...

DILM17-...

5.5

11.3

100

PKE12/XTU-12

DILM12-...

DILM17-...

PKE 65 ...+DIL M40 to DIL M65



7.5

15.2

100

PKE32/XTU-32

DILM17-...

DILM17-...

11

21.7

100

PKE32/XTU-32

DILM25-...

DILM25-...

15

29.3

100

PKE32/XTU-32

DILM32-...

DILM32-...

18.5

36

80

PKE65/XTUW-65

DILM40

DILM40

22

41

80

PKE65/XTUW-65

DILM50

DILM50

30

55

80

PKE65/XTUW-65

DILM65

DILM65

34

63

80

PKE65/XTUW-65

DILM65

DILM65

NZM...ME...+DIL M80 to DIL M500



37

68

100

NZMH2-ME90

DILM80

DILM80

45

81

100

NZMH2-ME90

DILM95

DILM95

55

99

100

NZMH2-ME140

DILM115

DILM115

75

134

100

NZMH2-ME140

DILM150

DILM150

90

161

100

NZMH2-ME220

DILM185A

DILM185A

110

196

100

NZMH2-ME220

DILM225A

DILM225A

132

231

100

NZMH3-ME350

DILM250

DILM250

160

279

100

NZMH3-ME350

DILM300A

DILM300A

200

349

100

NZMH3-ME350

DILM400

DILM400

250

437

100

NZMH3-ME450

DILM500

DILM500

Motor-starter combinations

DOL starters, reversing starters

Moeller® series

	Motor ratings		Setting range of overload releases 	AC operation 230 V 50 Hz		DC operation 24 V DC		
	Rated short-circuit current 380 - 415 V			Part no.	Article no.	Part no.	Article no.	
	Type of coordination "1"	Type of coordination "2"						
	I_q kA	I_q kA						
Complete units MSC-D								
	150	50	0.16 - 0.25	MSC-D-0,25-M7(230V50HZ)	281925	MSC-D-0,25-M7(24VDC)	283154	
	150	50	0.25 - 0.4	MSC-D-0,4-M7(230V50HZ)	281926	MSC-D-0,4-M7(24VDC)	283155	
	150	50	0.4 - 0.63	MSC-D-0,63-M7(230V50HZ)	281927	MSC-D-0,63-M7(24VDC)	283156	
	150	50	0.63 - 1	MSC-D-1-M7(230V50HZ)	281929	MSC-D-1-M7(24VDC)	283158	
	150	50	1 - 1.6	MSC-D-1,6-M7(230V50HZ)	283140	MSC-D-1,6-M7(24VDC)	283159	
	150	50	1.6 - 2.5	MSC-D-2,5-M7(230V50HZ)	283142	MSC-D-2,5-M7(24VDC)	283161	
	150	50	2.5 - 4	MSC-D-4-M7(230V50HZ)	283143	MSC-D-4-M7(24VDC)	283162	
	150	50	4 - 6.3	MSC-D-6,3-M7(230V50HZ)	283145	MSC-D-6,3-M7(24VDC)	283164	
	150	-	6.3 - 10	MSC-D-10-M7(230V50HZ)	283146	MSC-D-10-M7(24VDC)	283165	
	150	-	6.3 - 10	MSC-D-10-M9(230V50HZ)	283147	MSC-D-10-M9(24VDC)	283166	
	50	-	8 - 12	MSC-D-12-M12(230V50HZ)	283148	MSC-D-12-M12(24VDC)	283167	
	50	-	10 - 16	MSC-D-16-M15(230V50HZ)	100414	MSC-D-16-M15(24VDC)	100415	
	50	50	6.3 - 10	MSC-D-10-M17(230V50HZ)	101045	MSC-D-10-M17(24VDC)	101047	
	50	50	8 - 12	MSC-D-12-M17(230V50HZ)	101046	MSC-D-12-M17(24VDC)	101048	
	50	50	10 - 16	MSC-D-16-M17(230V50HZ)	283150	MSC-D-16-M17(24VDC)	283168	
	50	50	20 - 25	MSC-D-25-M25(230V50HZ)	283151	MSC-D-25-M25(24VDC)	283169	
	50	50	25 - 32	MSC-D-32-M32(230V50HZ)	283152	MSC-D-32-M32(24VDC)	283170	
	Complete devices MSC-R							
		150	50	0.16 - 0.25	MSC-R-0,25-M7(230V50HZ)	283171	MSC-R-0,25-M7(24VDC)	283190
		150	50	0.25 - 0.4	MSC-R-0,4-M7(230V50HZ)	283172	MSC-R-0,4-M7(24VDC)	283191
150		50	0.4 - 0.63	MSC-R-0,63-M7(230V50HZ)	283173	MSC-R-0,63-M7(24VDC)	283192	
150		50	0.63 - 1	MSC-R-1-M7(230V50HZ)	283175	MSC-R-1-M7(24VDC)	283194	
150		50	1 - 1.6	MSC-R-1,6-M7(230V50HZ)	283176	MSC-R-1,6-M7(24VDC)	283195	
150		50	1.6 - 2.5	MSC-R-2,5-M7(230V50HZ)	283178	MSC-R-2,5-M7(24VDC)	283197	
150		50	2.5 - 4	MSC-R-4-M7(230V50HZ)	283179	MSC-R-4-M7(24VDC)	283198	
150		50	4 - 6.3	MSC-R-6,3-M7(230V50HZ)	283181	MSC-R-6,3-M7(24VDC)	283200	
150		-	6.3 - 10	MSC-R-10-M7(230V50HZ)	283182	MSC-R-10-M7(24VDC)	283201	
150		-	6.3 - 10	MSC-R-10-M9(230V50HZ)	283183	MSC-R-10-M9(24VDC)	283202	
50		-	8 - 12	MSC-R-12-M12(230V50HZ)	283184	MSC-R-12-M12(24VDC)	283203	
		50	50	6.3 - 10	MSC-R-10-M17(230V50HZ)	101049	MSC-R-10-M17(24VDC)	101051
	50	50	8 - 12	MSC-R-12-M17(230V50HZ)	101050	MSC-R-12-M17(24VDC)	101052	
	50	50	10 - 16	MSC-R-16-M17(230V50HZ)	283186	MSC-R-16-M17(24VDC)	283204	
	50	50	20 - 25	MSC-R-25-M25(230V50HZ)	283187	MSC-R-25-M25(24VDC)	283205	
	50	50	25 - 32	MSC-R-32-M32(230V50HZ)	283188	MSC-R-32-M32(24VDC)	283206	

	Motor ratings		Setting range of overload releases I_r A 	AC operation		Article no.	DC operation		Article no.
	Rated short-circuit current 380 - 400 V			230 V 50 Hz			24 V DC		
	Type of coordination "1"	Type of coordination "2"		Part no.			Part no.		
	I_q	I_q							
	kA	kA							
MSC-DE complete devices with PKE									
	100	-	0.3 - 1.2	MSC-DE-1,2-M7(230V50HZ)	121735		MSC-DE-1,2-M7(24VDC)	121736	
	100	-	1 - 4	MSC-DE-4-M7(230V50HZ)	121737		MSC-DE-4-M7(24VDC)	121738	
	100	-	3 - 12	MSC-DE-12-M7(230V50HZ)	121739		MSC-DE-12-M7(24VDC)	121740	
	100	-	3 - 12	MSC-DE-12-M9(230V50HZ)	121741		MSC-DE-12-M9(24VDC)	121742	
	100	-	3 - 12	MSC-DE-12-M12(230V50HZ)	121743		MSC-DE-12-M12(24VDC)	121744	
	100	100	3 - 12	MSC-DE-12-M17(230V50HZ)	121745		MSC-DE-12-M17(24VDC)	121746	
	100	100	8 - 32	MSC-DE-32-M17(230V50HZ)	121747		MSC-DE-32-M17(24VDC)	121748	
	100	100	8 - 32	MSC-DE-32-M25(230V50HZ)	121749		MSC-DE-32-M25(24VDC)	121750	
	100	100	8 - 32	MSC-DE-32-M32(230V50HZ)	121751		MSC-DE-32-M32(24VDC)	121752	

Combination Motor Starter UL 60947-4-1, Type F

Maximum motor rating				Setting range		Rated short-circuit breaking capacity I_{cn}			Extension terminal	Motor protective circuit breakers	Contactor
Alternating current HP = PS				Overload trip	Short-circuit releases	240 V	480 Y 277 V	600 Y 347 V			
200 V 208 V	230 V 240 V	460 V 480 V	575 V 600 V		Non-delayed				Type	Type	Type
HP	HP	HP	HP	I_r A 	I_{rm} A 	kA	kA	kA			

PKZM0, DIL, BK modules

1)				0.1 - 0.16	2.2	50	50	50	BK25/3-PKZ0	PKZM0-0,16	DILEM...(...)
				0.1 - 0.16	2.2	50	50	18	BK25/3-PKZ0	PKZM0-0,16	DILM7...(...)
				0.16 - 0.25	3.4	50	50	50	BK25/3-PKZ0	PKZM0-0,25	DILEM...(...)
				0.16 - 0.25	3.4	50	50	18	BK25/3-PKZ0	PKZM0-0,25	DILM7...(...)
				0.25 - 0.4	5.6	50	50	50	BK25/3-PKZ0	PKZM0-0,4	DILEM...(...)
				0.25 - 0.4	5.6	50	50	18	BK25/3-PKZ0	PKZM0-0,4	DILM7...(...)
				0.4 - 0.63	8.8	50	50	50	BK25/3-PKZ0	PKZM0-0,63	DILEM...(...)
				0.4 - 0.63	8.8	50	50	18	BK25/3-PKZ0	PKZM0-0,63	DILM7...(...)
	½	½	½	0.63 - 1	14	50	50	50	BK25/3-PKZ0	PKZM0-1	DILEM...(...)
	½	½	½	0.63 - 1	14	50	50	18	BK25/3-PKZ0	PKZM0-1	DILM7...(...)
	¾	1	1	1 - 1.6	22	50	50	50	BK25/3-PKZ0	PKZM0-1,6	DILEM...(...)
	¾	1	1	1 - 1.6	22	50	50	18	BK25/3-PKZ0	PKZM0-1,6	DILM7...(...)
	½	½	1	1.6 - 2.5	35	50	50	50	BK25/3-PKZ0	PKZM0-2,5	DILEM...(...)
	½	½	1	1.6 - 2.5	35	50	50	18	BK25/3-PKZ0	PKZM0-2,5	DILM7...(...)
	1	1	2	2.5 - 4	56	50	50	50	BK25/3-PKZ0	PKZM0-4	DILEM...(...)
	1	1	2	2.5 - 4	56	50	50	18	BK25/3-PKZ0	PKZM0-4	DILM7...(...)
	1½	1½	3	4 - 6.3	88	50	50	50	BK25/3-PKZ0	PKZM0-6,3	DILEM...(...)
	1½	1½	3	4 - 6.3	88	65	65	18	BK25/3-PKZ0	PKZM0-6,3	DILM7...(...)
	3	3	7½	6.3 - 11	140	65	65	18	BK25/3-PKZ0	PKZM0-10	DILM9...(...)
	3	3	7½	9 - 12	168	65	65	18	BK25/3-PKZ0	PKZM0-12	DILM12...(...)
	3	5	10	10 - 16	224	18	18	-	BK25/3-PKZ0	PKZM0-16	DILM17...(...)
	5	5	10	16 - 20	280	18	18	-	BK25/3-PKZ0	PKZM0-20	DILM25...(...)
	5	7½	15	20 - 25	350	18	18	-	BK25/3-PKZ0	PKZM0-25	DILM25...(...)
	7½	10	20	25 - 32	448	18	18	-	BK25/3-PKZ0	PKZM0-32	DILM32...(...)

PKZM4, DIL, BK modules

3	5	10	15	10 - 16	224	65	65	30	BK50/3-PKZ4-E	PKZM4-16	DILM17...(...)
5	7½	15	20	16 - 27	350	65	65	30	BK50/3-PKZ4-E	PKZM4-25	DILM25...(...)
7½	10	25	30	24 - 34	448	65	65	50	BK50/3-PKZ4-E	PKZM4-32	DILM32...(...)
10	15	30	30	32 - 40	560	65	65	50	BK50/3-PKZ4-E	PKZM4-40	DILM40(...)
10	15	30	-	40 - 52	700	65	65	-	BK50/3-PKZ4-E	PKZM4-50	DILM50(...)
15	15	40	-	50 - 56	812	65	65	-	BK50/3-PKZ4-E	PKZM4-58	DILM65(...)
15	15	40	-	52 - 58	882	65	65	-	BK50/3-PKZ4-E	PKZM4-63	DILM65(...)

Notes

1) Calculate motor power in this range according to the rated operational current. Stated values to NEC Table 430 - 150.

Motor-starter combinations

DOL starters, connection to SmartWire-DT

Moeller® series

Motor ratings				AC operation		DC operation	
Rated short-circuit current 380 - 400 V				230 V 50 Hz		24 V DC	
Type of coordination "1"	Type of coordination "2"	Setting range of overload releases		Part no.	Article no.	Part no.	Article no.
I_q	I_q	I_r					
kA	kA	A					
MSC-DEA complete devices with PKE, prepared for SmartWire-DT connection							
	100	-	0.3 - 1.2	-	-	MSC-DEA-1,2-M7(24VDC)	121753
	100	-	1 - 4	-	-	MSC-DEA-4-M7(24VDC)	121754
	100	-	3 - 12	-	-	MSC-DEA-12-M7(24VDC)	121755
	100	-	3 - 12	-	-	MSC-DEA-12-M9(24VDC)	121756
	100	-	3 - 12	-	-	MSC-DEA-12-M12(24VDC)	121757
	100	100	3 - 12	-	-	MSC-DEA-12-M17(24VDC)	121758
	100	100	8 - 32	-	-	MSC-DEA-32-M17(24VDC)	121759
	100	100	8 - 32	-	-	MSC-DEA-32-M25(24VDC)	121760
	100	100	8 - 32	-	-	MSC-DEA-32-M32(24VDC)	121761

			Part no.	Article no.
SmartWire-DT PKE module (motor-starter combinations)				
For connecting PKE motor-starter combination MSC-DEA... with PKE-XTUA-... trip blocks with a rated motor output of 15 kW/400 V to SmartWire-DT				
		Mounting on DILM contactor with 24 V DC control voltage. One module per contactor and PKE necessary Additional SWD contactor module required for actuation of reversing starter. 1 electrical interlock for the surface mounting of reversing starters. 1-0-A switch for manual or automatic operation. Selectable overload relay function (ZMR) for switching off the contactor on overload. Wiring sets DILM 12-XRL and PKZM0-XRM12 cannot be used. For current consumption of the contactor coils > 3 A (UL/CSA > 2 A) use additional power feeder module. A2 connections must not be bridged.	PKE-SWD-32	126895
		Messages Switch position contactor/PKE/1-0-A switch Motor current in % Thermal motor image in % Trip indications (Overload, Short-circuit,...) Set value of overload releases Set time lag (CLASS) Part no. of trip block Commands Contactor actuation Activation Overload relay function (ZMR)		

	Motor ratings		Setting range of overload releases	AC operation		DC operation	
	Rated short-circuit current 380 - 415 V			230 V 50 Hz		24 V DC	
	Type of coordination "1"	Type of coordination "2"		Part no.	Article no.	Part no.	Article no.
	I_q	I_q		I_r			
	kA	kA	A				
PKZ and DILM complete devices on BBA for DOL starters							
	100	50	0.16 - 0.25	MSC-D-0,25-M7(230V50HZ)/BBA	102737	MSC-D-0,25-M7(24VDC)/BBA	102964
	100	50	0.25 - 0.4	MSC-D-0,4-M7(230V50HZ)/BBA	102738	MSC-D-0,4-M7(24VDC)/BBA	102965
	100	50	0.4 - 0.63	MSC-D-0,63-M7(230V50HZ)/BBA	102739	MSC-D-0,63-M7(24VDC)/BBA	102966
	100	50	0.63 - 1	MSC-D-1-M7(230V50HZ)/BBA	102950	MSC-D-1-M7(24VDC)/BBA	102967
	100	50	1 - 1.6	MSC-D-1,6-M7(230V50HZ)/BBA	102951	MSC-D-1,6-M7(24VDC)/BBA	102968
	100	50	1.6 - 2.5	MSC-D-2,5-M7(230V50HZ)/BBA	102952	MSC-D-2,5-M7(24VDC)/BBA	102969
	100	50	2.5 - 4	MSC-D-4-M7(230V50HZ)/BBA	102953	MSC-D-4-M7(24VDC)/BBA	102970
	100	50	4 - 6.3	MSC-D-6,3-M7(230V50HZ)/BBA	102954	MSC-D-6,3-M7(24VDC)/BBA	102971
	100	-	6.3 - 10	MSC-D-10-M7(230V50HZ)/BBA	102955	MSC-D-10-M7(24VDC)/BBA	102972
	100	-	6.3 - 10	MSC-D-10-M9(230V50HZ)/BBA	102956	MSC-D-10-M9(24VDC)/BBA	102973
	100	-	8 - 12	MSC-D-12-M12(230V50HZ)/BBA	102957	MSC-D-12-M12(24VDC)/BBA	102974
	50	-	10 - 16	MSC-D-16-M15(230V50HZ)/BBA	102958	MSC-D-16-M15(24VDC)/BBA	102975
	100	50	6.3 - 10	MSC-D-10-M17(230V50HZ)/BBA	102959	MSC-D-10-M17(24VDC)/BBA	102976
	100	50	8 - 12	MSC-D-12-M17(230V50HZ)/BBA	102960	MSC-D-12-M17(24VDC)/BBA	102977
	50	50	10 - 16	MSC-D-16-M17(230V50HZ)/BBA	102961	MSC-D-16-M17(24VDC)/BBA	102978
	50	50	20 - 25	MSC-D-25-M25(230V50HZ)/BBA	102962	MSC-D-25-M25(24VDC)/BBA	102979
	50	50	25 - 32	MSC-D-32-M32(230V50HZ)/BBA	102963	MSC-D-32-M32(24VDC)/BBA	102980
PKZ and DILM complete devices on BBA for reversing starters							
	100	50	0.16 - 0.25	MSC-R-0,25-M7(230V50HZ)/BBA	102981	MSC-R-0,25-M7(24VDC)/BBA	102997
	100	50	0.25 - 0.4	MSC-R-0,4-M7(230V50HZ)/BBA	102982	MSC-R-0,4-M7(24VDC)/BBA	102998
	100	50	0.4 - 0.63	MSC-R-0,63-M7(230V50HZ)/BBA	102983	MSC-R-0,63-M7(24VDC)/BBA	102999
	100	50	0.63 - 1	MSC-R-1-M7(230V50HZ)/BBA	102984	MSC-R-1-M7(24VDC)/BBA	103000
	100	50	1 - 1.6	MSC-R-1,6-M7(230V50HZ)/BBA	102985	MSC-R-1,6-M7(24VDC)/BBA	103001
	100	50	1.6 - 2.5	MSC-R-2,5-M7(230V50HZ)/BBA	102986	MSC-R-2,5-M7(24VDC)/BBA	103002
	100	50	2.5 - 4	MSC-R-4-M7(230V50HZ)/BBA	102987	MSC-R-4-M7(24VDC)/BBA	103003
	100	50	4 - 6.3	MSC-R-6,3-M7(230V50HZ)/BBA	102988	MSC-R-6,3-M7(24VDC)/BBA	103004
	100	-	6.3 - 10	MSC-R-10-M7(230V50HZ)/BBA	102989	MSC-R-10-M7(24VDC)/BBA	103005
	100	-	6.3 - 10	MSC-R-10-M9(230V50HZ)/BBA	102990	MSC-R-10-M9(24VDC)/BBA	103006
	100	-	8 - 12	MSC-R-12-M12(230V50HZ)/BBA	102991	MSC-R-12-M12(24VDC)/BBA	103007
	100	50	6.3 - 10	MSC-R-10-M17(230V50HZ)/BBA	102992	MSC-R-10-M17(24VDC)/BBA	103008
	100	50	8 - 12	MSC-R-12-M17(230V50HZ)/BBA	102993	MSC-R-12-M17(24VDC)/BBA	103009
	50	50	10 - 16	MSC-R-16-M17(230V50HZ)/BBA	102994	MSC-R-16-M17(24VDC)/BBA	103010
	50	50	20 - 25	MSC-R-25-M25(230V50HZ)/BBA	102995	MSC-R-25-M25(24VDC)/BBA	103011
	50	50	25 - 32	MSC-R-32-M32(230V50HZ)/BBA	102996	MSC-R-32-M32(24VDC)/BBA	103012

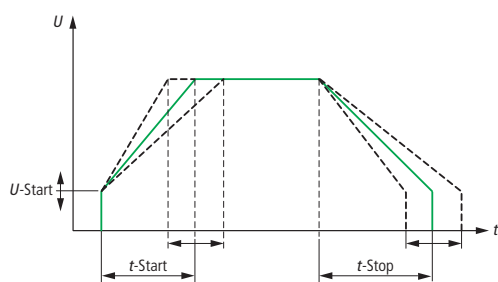
Description		Max. rating for three-phase motors, 50 - 60 Hz AC-53a 380 V 400 V 415 V P kW	Setting range of overload releases I_r A 	DC operation 24 V DC Part no.	Article no.
EMS complete devices					
	DOL starting, Motor protection	0.06 - 0.75	0,18 - 2,4	EMS-DO-T-2,4-24VDC	170099
	Circuit design: safety output stage with bypass, three-phase disconnect.	0.55 - 3	1,5 - 6,5 (AC-53a) 9 (AC-51)	EMS-DO-T-9-24VDC	170100
	DOL starting, Motor protection, Emergency-stop actuator	0.06 - 0.75	0,18 - 2,4	EMS-DOS-T-2,4-24VDC	170103
	Circuit design: safety output stage with bypass, three-phase disconnect.	0.55 - 3	1,5 - 6,5 (AC-53a) 9 (AC-51)	EMS-DOS-T-9-24VDC	170104
	DOL starting	0.06 - 0.75	0,18 - 2,4	EMS-DO-T-2,4-SWD	170106
	Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. For connecting to SmartWire-DT for expanded diagnostics.	0.55 - 3	1,5 - 7 (AC-53a) 9 (AC-51)	EMS-DO-T-9-SWD	170107
	DOL starting	0.06 - 0.75	0,18 - 2,4	EMS-DOS-T-2,4-SWD	170110
	Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. Controlled stop via additional enable signal terminal up to SIL3/Plc. For connecting to SmartWire-DT for expanded diagnostics.	0.55 - 3	1,5 - 7 (AC-53a) 9 (AC-51)	EMS-DOS-T-9-SWD	170111
	DOL starting, Reversing start, Motor protection	0.06 - 0.75	0,18 - 2,4	EMS-RO-T-2,4-24VDC	170101
	Circuit design: safety output stage with bypass, three-phase disconnect.	0.55 - 3	1,5 - 6,5 (AC-53a) 9 (AC-51)	EMS-RO-T-9-24VDC	170102
	DOL starting, Reversing start, Motor protection, Emergency-stop actuator	0.06 - 0.75	0,18 - 2,4	EMS-ROS-T-2,4-24VDC	170105
	Circuit design: safety output stage with bypass, three-phase disconnect.	0.55 - 3	1,5 - 6,5 (AC-53a) 9 (AC-51)	EMS-ROS-T-9-24VDC	169789
	DOL starting	0.06 - 0.75	0,18 - 2,4	EMS-RO-T-2,4-SWD	170108
	Reversing start Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. For connecting to SmartWire-DT for expanded diagnostics.	0.55 - 3	1,5 - 7 (AC-53a) 9 (AC-51)	EMS-RO-T-9-SWD	170109
	DOL starting	0.06 - 0.75	0,18 - 2,4	EMS-ROS-T-2,4-SWD	170112
	Reversing start Motor protection Circuit design: safety output stage with bypass, three-phase disconnect. Controlled stop via additional enable signal terminal up to SIL3/Plc. For connecting to SmartWire-DT for expanded diagnostics.	0.55 - 3	1,5 - 7 (AC-53a) 9 (AC-51)	EMS-ROS-T-9-SWD	169790

	Pole	Devices Number	For use with	Part no.	Article no.
Three-phase current connector with plug					
	3	2	EMS-D...	EMS-XBR3-2	177248
		3	EMS-D...-SWD-...	EMS-XBR3-3	177249
		4	EMS-R...	EMS-XBR3-4	177250
		5	EMS-R...-SWD-...	EMS-XBR3-5	177251
		Connection links			
	3	2	EMS-D...	EMS-XBR-2	171268
		3	EMS-D...-SWD-...	EMS-XBR-3	171269
		4	EMS-R...	EMS-XBR-4	171270
		5	EMS-R...-SWD-...	EMS-XBR-5	171271
		10		EMS-XBR-10	171272
	1	2	EMS-D...	EMS-XCW-2	172741
		3	EMS-DOS...-SWD-...	EMS-XCW-3	172742
		4	EMS-R...	EMS-XCW-4	172743
		5	EMS-ROS...-SWD-...	EMS-XCW-5	172744

Build it in.



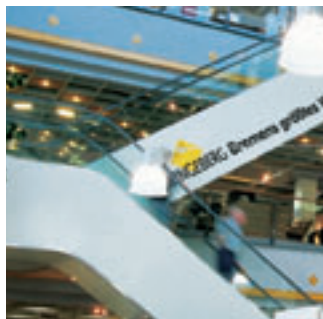
DS7, S801+ and S811+ soft starter a soft start for any task



Soft starters make it possible to perfectly adapt motors to any application, as well as to configure stop functions and a start voltage.

The soft starter has become increasingly established as an alternative to the star-delta starter. Electronic soft starter fulfil the customer demand for an impact free rise in torque and a determined reduction in current during the start phase. You control the power supply of the three-phase motor in the start phase so that the motor matches the load behaviour of the load machine. The mechanical equipment is accelerated with the minimum of stress as a result. The operating behaviour and the work processes are influenced positively which means that negative influences are avoided.

With its DS7 devices for currents of up to 200 A and S801+/S811+ devices for currents of up to 1,700 A, Eaton offers two different soft starter series with different strengths: DS7 units are ideal for standard applications, while S811+ models make a compelling case with their powerful range of functionalities.



DS7 soft starters – soft starting and powerful torque all in one

Soft starters have become increasingly popular as an alternative to the star-delta starter. DS7 units not only replace the mechanical contactor, but also add a “soft motor startup” function to it. A patented method ensures that motor run-ups will be exceptionally soft while providing a higher torque than other available solutions. Longer service intervals and reduced operating costs are welcome side effects of this. DS7 compact soft starters are designed for normal applications, such as those involving pumps, fans, and small conveyor belts.

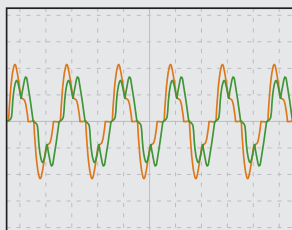
S801+/S811+ soft starters – a powerful presence in a small design

These three-phase-controlled soft starters, which feature an internal bypass and comprehensive monitoring and protection mechanisms, provide a soft start and ensure that three-phase motors can remain safely in continuous operation even in applications with large load torques. In addition, they can be used not only in a standard line (outside the delta) configuration, but also with inside-the-delta connection. S801+ soft starters have been specifically designed for standard applications and make a strong case with their ease of use, while S811+ devices feature a digital control and display unit that provides access to advanced functions for sophisticated applications. With only five sizes and rated operational currents of 37 A to 1,000 A for mains voltages of 200 V to 690 V, S801+ and S811+ units are some of the world’s smallest compact soft starters.

Application examples

- Three-phase inductive loads
- Noiseless and soft motor start in transport and conveying systems
- Soft starting of pumps reduces the load on the entire installation (water impact)
- Solid-state switching of pumps in the extreme environments of chemical plants and filling stations
- Smooth start that reduces wear on V-belts in fan drives.

Current characteristic in the uncontrolled phase



Conventional methods:

■ Symmetrical control with high level of DC components

New process from Eaton:

■ Asymmetric control without DC components

Asymmetric control: It does not get any softer

The special starting method (asymmetrical trigger control) for the soft starter function prevents DC components that normally occur with a two-phase controlled starter (Eaton patent). They suppress the formation of an elliptical rotating field, which leads to an irregular acceleration of the motor and unnecessarily extends acceleration times. The smooth starting behaviour of the DS7 is thus similar to that of a three-phase soft starter.

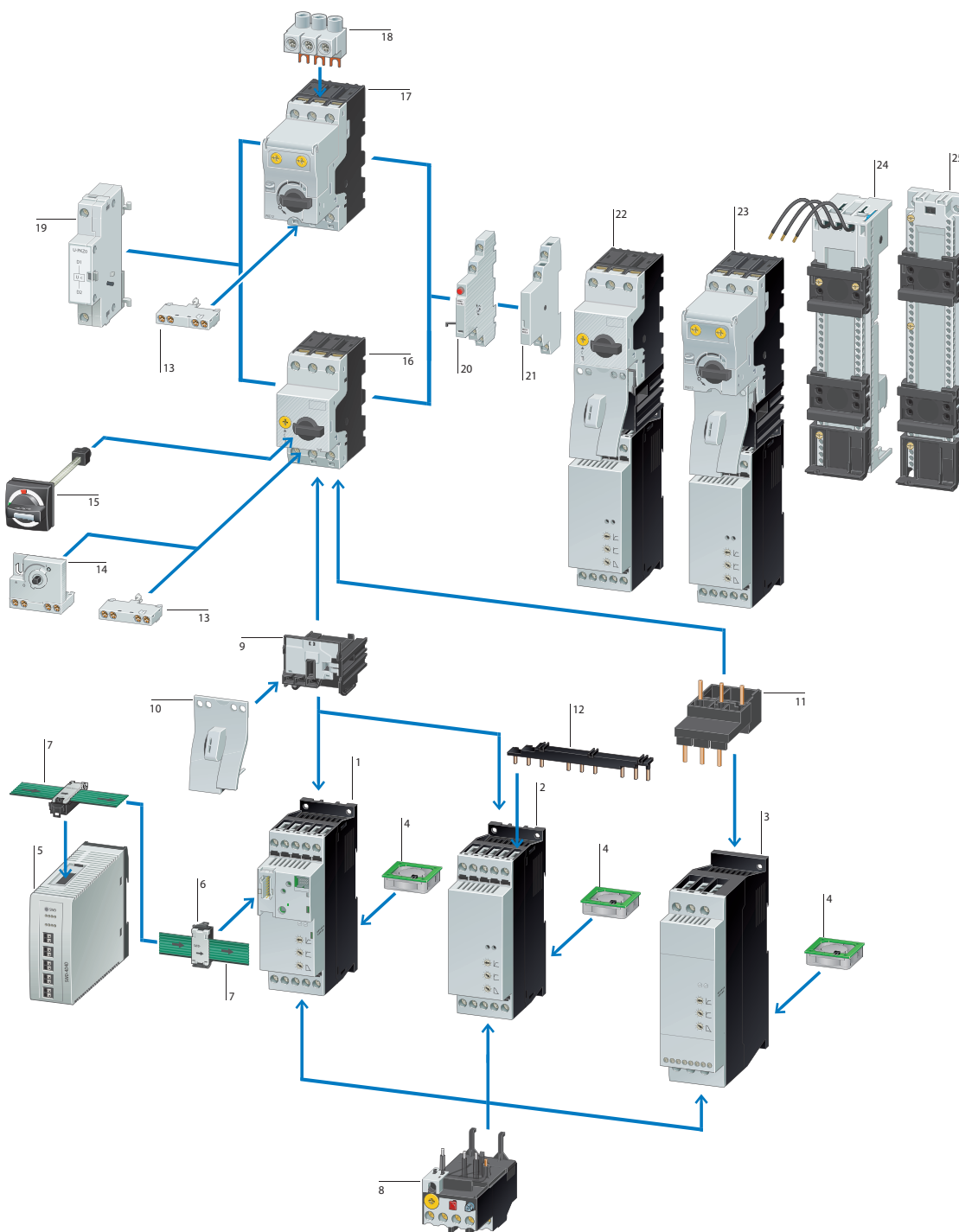
DS7 soft starters with SmartWire-DT® – Direct access to all parameters

Being able to use a controller to directly access all of a soft starter’s parameters via SmartWire-DT is the epitome of ease of operation. Users can read and overwrite potentiometer settings. Extended status, error, and diagnostic messages can be retrieved directly. The result: absolute data transparency. The plug-in units make installation fast and foolproof, and the resulting connection includes the soft starter’s control current supply.

Advantages:

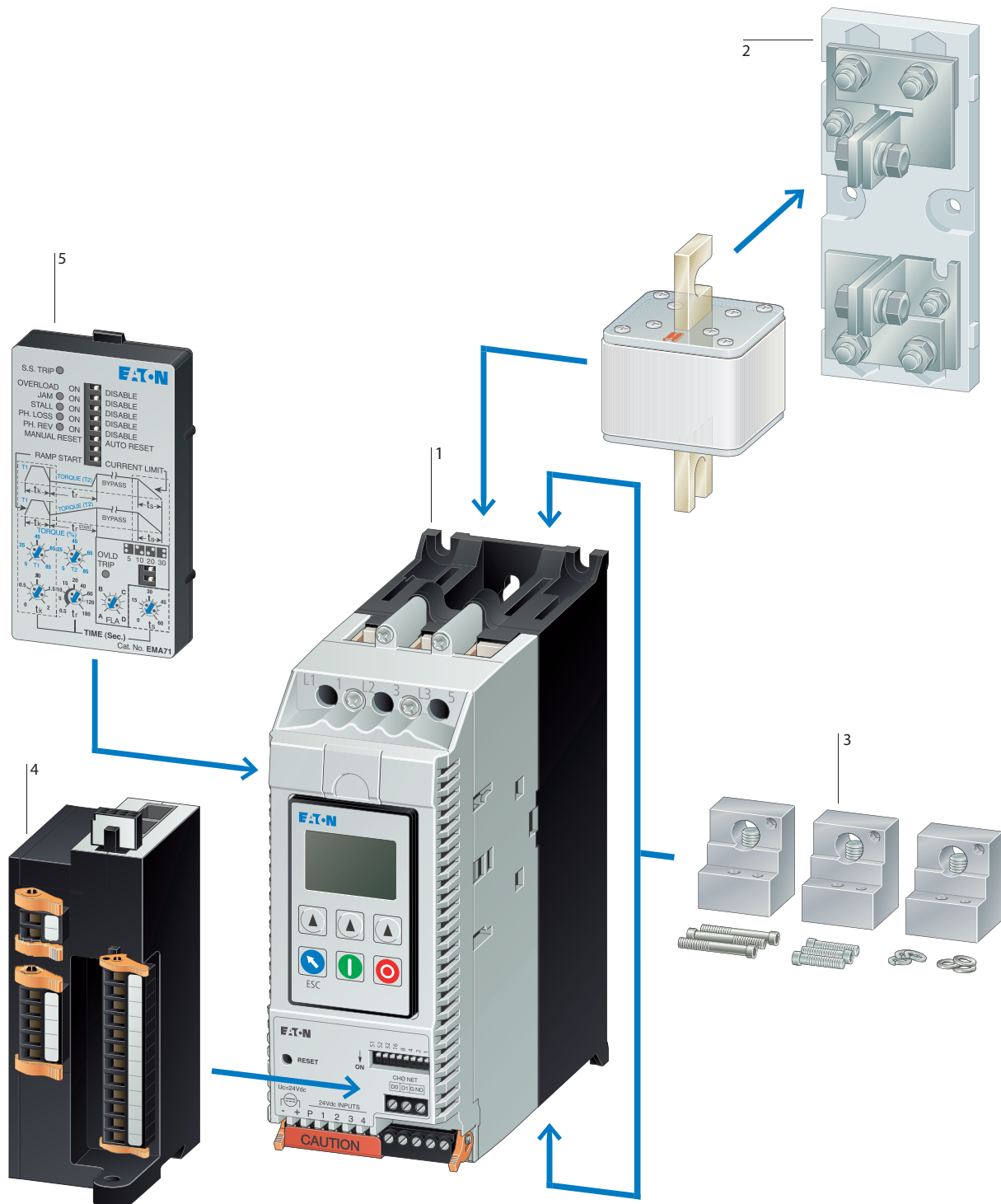
- Reduced I/O level
- Plug-in control wiring prevents wiring errors
- Integrated solution does not require any additional options





- 1 Soft starter DS7 with SmartWire-DT
- 2 DS7 soft starters in construction size 1 for assigned motor current up to 12 A
- 3 DS7 soft starters in construction size 2 for assigned motor current up to 32 A
- 4 Device fan (DS7-FAN-32)
- 5 SmartWire-DT gateway
- 6 SmartWire-DT external device plug
- 7 SmartWire-DT flat band conductor
- 8 Overload relay
- 9, 10 PKZM0-XDM wiring set in tool-less plug connection
- 11 PKZM0-XM wiring set
- 12 Three-phase commoning link
- 13 Standard auxiliary contacts

- 14 Early-make auxiliary contact
- 15 Door coupling handle
- 16 PKZM0 motor-protective circuit-breakers
- 17 PKE motor-protective circuit-breakers
- 18 Connection clamp
- 19 Voltage release
- 20 Trip indicator
- 21 Standard auxiliary contacts
- 22 Motor-starter combination with PKZ
- 23 Motor-starter combination with PKE
- 24 Busbar adapter
- 25 Top-hat rail adapter



- 1 Soft starter S811+
- 2 Fuse bases and fuses
- 3 Connection terminals
- 4 Fieldbus connection
- 5 Operating unit

Rated operational current device (AC-53)			Part no.	Article no.	Part no.	Article no.
Assigned motor rating at 400 V, 50 Hz						
at 460 V, 60 Hz						
I_e	P	P				
A	kW	HP	U _c 24 V AC/DC U _s 24 V AC/DC Standard temperature range		U _c 24 V AC/DC U _s 24 V AC/DC Expanded temperature range down to -40 °C	
Soft starters						
Soft starters for three-phase loads Mains supply voltage (50/60 Hz) U _{LN} 200 - 480 V AC						
4	1.5	2	DS7-340SX004N0-N	134847	DS7-340SX004N0-L	171740
7	3	5	DS7-340SX007N0-N	134849	DS7-340SX007N0-L	171741
9	4	5	DS7-340SX009N0-N	134910	DS7-340SX009N0-L	171742
12	5.5	10	DS7-340SX012N0-N	134911	DS7-340SX012N0-L	171743
16	7.5	10	DS7-340SX016N0-N	134912	DS7-340SX016N0-L	171744
24	11	15	DS7-340SX024N0-N	134913	DS7-340SX024N0-L	171745
32	15	25	DS7-340SX032N0-N	134914	DS7-340SX032N0-L	171746
41	22	30	DS7-340SX041N0-N	134916	DS7-340SX041N0-L	171747
55	30	40	DS7-340SX055N0-N	134917	DS7-340SX055N0-L	171748
70	37	50	DS7-340SX070N0-N	134918	DS7-340SX070N0-L	171749
81	45	60	DS7-340SX081N0-N	134919	DS7-340SX081N0-L	171750
100	55	75	DS7-340SX100N0-N	134920	DS7-340SX100N0-L	171751
135	75	100	DS7-340SX135N0-N	134921	DS7-340SX135N0-L	171752
160	90	125	DS7-340SX160N0-N	134922	DS7-340SX160N0-L	171753
200	110	150	DS7-340SX200N0-N	134923	DS7-340SX200N0-L	171754
			U _c 110 - 230 V AC U _s 110 - 230 V AC		U _c 24 V DC U _s 24 V DC	
						
4	1.5	2	DS7-342SX004N0-N	134925	DS7-34DSX004N0-D	134943
7	3	5	DS7-342SX007N0-N	134927	DS7-34DSX007N0-D	134945
9	4	5	DS7-342SX009N0-N	134928	DS7-34DSX009N0-D	134946
12	5.5	10	DS7-342SX012N0-N	134929	DS7-34DSX012N0-D	134947
16	7.5	10	DS7-342SX016N0-N	134930	DS7-34DSX016N0-D	134948
24	11	15	DS7-342SX024N0-N	134931	DS7-34DSX024N0-D	134949
32	15	25	DS7-342SX032N0-N	134932	DS7-34DSX032N0-D	134950
41	22	30	DS7-342SX041N0-N	134934	DS7-34DSX041N0-D	134952
55	30	40	DS7-342SX055N0-N	134935	DS7-34DSX055N0-D	134953
70	37	50	DS7-342SX070N0-N	134936	DS7-34DSX070N0-D	134954
81	45	60	DS7-342SX081N0-N	134937	DS7-34DSX081N0-D	134955
100	55	75	DS7-342SX100N0-N	134938	DS7-34DSX100N0-D	134956
135	75	100	DS7-342SX135N0-N	134939	DS7-34DSX135N0-D	134957
160	90	125	DS7-342SX160N0-N	134940	DS7-34DSX160N0-D	134958
200	110	150	DS7-342SX200N0-N	134941	DS7-34DSX200N0-D	134959

Notes



For use with		Part no.	Article no.
Device fans			
Device fan for increasing the load cycle (more starts per hour higher or longer-lasting starting current)			
Flush-mounted fan 	DS7-34...SX004... DS7-34...SX007... DS7-34...SX009... DS7-34...SX012... DS7-34...SX016... DS7-34...SX024... DS7-34...SX032...	DS7-FAN-032	135553
Bottom fans 	DS7-34...SX041... DS7-34...SX055... DS7-34...SX070... DS7-34...SX081... DS7-34...SX100...	DS7-FAN-100	169021
	DS7-34...SX135... DS7-34...SX160... DS7-34...SX200...	DS7-FAN-200	169022

Frame size	Rated operational current AC-53 I_e A	Assigned motor rating				Part no.	Article no.
		at 230 V, 50 Hz kW	at 230 V, 60 Hz HP	at 400 V, 50 Hz kW	at 460 V, 60 Hz HP		

Soft starters S811+

Soft starter for three-phase loads, with control unit
Mains supply voltage (50/60 Hz) U_{LN} : 200 - 600 V AC
In-line configuration/In-delta configuration
Supply voltage U_s : 24 V DC
Control voltage U_C : 24 V DC
With internal bypass contacts
Terminal blocks for the terminals are required for frame sizes T, U, and V -> Accessories

N	37	7.5	10	18.5	25	S811+N37N3S	168976
	66	18.5	20	30	50	S811+N66N3S	168978
R	105	30	40	55	75	S811+R10N3S	168980
	135	37	50	75	100	S811+R13N3S	168982
T	180	55	60	90	150	S811+T18N3S	168984
	240	75	75	132	200	S811+T24N3S	168987
	304	90	100	160	250	S811+T30N3S	168990
U	361	110	125	200	300	S811+U36N3S	169869
	420	132	150	200	350	S811+U42N3S	169870
V	361	110	125	200	300	S811+V36N3S	168993
	420	132	150	200	350	S811+V42N3S	168996
	500	160	200	250	400	S811+V50N3S	168999
	650	200	250	315	500	S811+V65N3S	169002
	720	250	-	400	600	S811+V72N3S	169005
	850	-	-	450	600	S811+V85N3S	169008
	1000	-	-	560	750	S811+V10N3S	169011

Notes

Sizes S811+



Build it in.



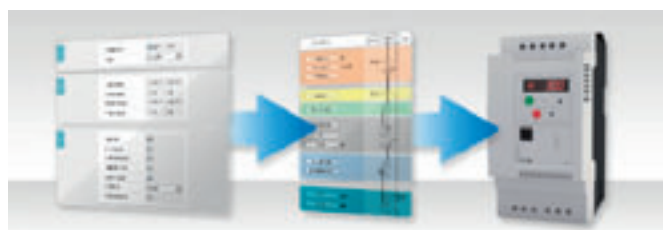
PowerXL™: The right drive for each application



Catalog download:
www.eaton.eu/catalog

Our customers have a wide range of requirements that is only matched by the wide range of devices and functionalities in Eaton's range of high-efficiency drives engineering products – from starting motors in simple machines to speed control for complex applications and heavy loads.

In fact, the PowerXL™ and 9000X* device families cover every single application from variable speed starters to liquid-cooled variable frequency drives. Especially now that the PowerXL family has been expanded with two impressive new additions: the extremely efficient DE1 variable speed starter and the general-purpose DG1 variable frequency drive.



*For more detailed information on 9000X variable frequency drives, please refer to our product range catalog.

PowerXL™ selection aid **Simple planning and engineering**

An electronic selection aid provides simple planning, helping you quickly select the drive required for your application and the associated switchgear, protective elements, chokes, and filters complete with the corresponding article number.
www.eaton.eu/selectiontools



www.eaton.eu/powerxl

PowerXL™ DE1/DE11 variable speed starters



PowerXL™ DE1/DE11 variable speed starters combine ease of use and maximum reliability with variable motor speeds and improved machine energy efficiency. With them, Eaton offers a device class that closes the gap between conventional motor starters and variable frequency drives while combining all the advantages of both in a single unit. The DE11 is the latest addition to this product range, and adds CANopen, plug-in control signal terminals, and a configurable output relay to the list of features already found in its predecessor.

Performance range:

- 0.25 ... 2.2 kW (Ue: 1~ 230 V, U2: 3~ 230 V)
- 0.37 ... 7.5 kW (Ue: 3~ 400 V, U2: 3~ 400 V)

Features:

- Compact: 45-mm width
- Out-of-the-box commissioning without parameterization
- No special drives engineering skills or knowledge required

- Screwdriver parameterization can be set with DXE-EXT-SET optional configuration module
- Trip-free-design ensures maximum machine availability
- Suitable for use in ambient temperatures of up to 60°C
- International standards (CE, UL, cUL, cTick, RoHS)
- DE11: CANopen, plug-in control signal terminals, configurable output relay

Commissioning

As easy to use as a motor starter

No special knowledge of drives is required for the new DE1 Variable Speed Starter – either for installation or commissioning. The compact Variable Speed Starter is as easy and convenient to use as a conventional motor starter.

The device is unpacked and simply wired like a motor starter – that's it. The DE1 Variable Speed Starter is ready to go. It couldn't be easier! In addition, the "out-of-the-box commissioning" reduces the chances of installation faults to a minimum and at the same time it makes installation faster and more cost-efficient!



1 Snap the variable speed starter on the DIN-Rail.



2 Connect mains and motor cables.



3 Wire control terminals.



4 Switch on and the motor runs with its speed controlled.

Parameterization by screwdriver

DXE-EXT-SET (plug-in configuration module)

Beyond the out-of-the-box commissioning that eliminates the need for parameterization, the user also has the option of using the plug-in DXE-EXT-SET configuration module to adjust the default settings of key parameters such as ramp time, motor protection and control terminal function to fit the current application. All that is needed is a screwdriver.



PowerXL™ DC1 variable frequency drives – Compact machinery drive



The compact PowerXL™ variable frequency drive is particularly well-suited for use with simple pump, fan, and conveyor belt systems. It can be quickly and easily configured and commissioned, resulting in tangible savings.

Performance range:

- 0.37 ... 0.55 kW (Ue: 1~ 115 V, U2: 1~ 115 V)
- 0.37 ... 1.1 kW (Ue: 1~ 115 V, U2: 3~ 230 V)
- 0.37 ... 1.1 kW (Ue: 1~ 230 V, U2: 1~ 230 V)
- 0.37 ... 4 kW (Ue: 1~ 230 V, U2: 3~ 230 V)
- 0.37 ... 11 kW (Ue: 3~ 230 V, U2: 3~ 230 V)
- 0.75 ... 22 kW (Ue: 3~ 400 V, U2: 3~ 400 V)

Features:

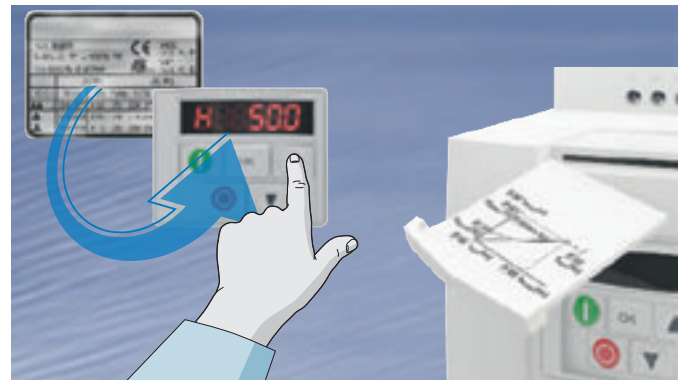
- Fast commissioning with 14 basic parameters
- Large overload capability: 150% for 60 seconds, 175% for 2 seconds

- Ambient air temperature up to 50 °C without derating
- Integrated CANopen and Modbus RTU
- Degrees of protection IP20 and IP66
- Integrated EMC filter
- Integrated braking transistor
- Integrated PI controller
- V/F control
- Voltage boost
- DC braking
- Detachable control signal terminal strip
- International standards (CE, UL, cUL, c-Tick, RoHS, EAC, UkrSEPRO)



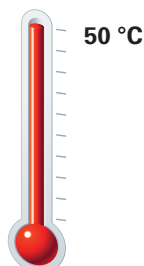
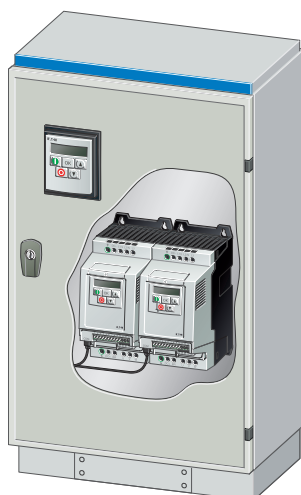
Simply use a COM stick to copy parameter configurations

Our communications stick makes it possible to quickly and easily transfer parameters from your laptop to PowerXL variable frequency drives using Bluetooth. The convenience of this feature is only matched by the stick's copy function, which can be used to transfer parameters from one variable frequency drive to another.



Communicate like never before

Our new variable frequency drives also come with the latest in communication features, including a CANopen and Modbus RTU interface as standard. In addition, DA1 drives can also be connected to Ethernet-based protocols (PROFINET, Ethernet/IP, EtherCAT, Modbus TCP, BACnet/IP), the widespread PROFIBUS, and, for American markets, DeviceNet.



No derating at 50 °C

All DE1, DC1, and DA1 IP20 devices are able to work at an ambient air temperature of 50 °C without derating, i.e., the units can be operated at their rated current even under these conditions. In addition, the option of installing the devices side by side ensures that the space inside your control panel will be used as efficiently as possible.

The advantages:

- Optimized control cabinet configuration
- Eliminates the costs of additional ventilation/cooling

PowerXL™ DA1 variable frequency drive – Advanced machinery drive



The PowerXL™ DA1 variable frequency drive, designed for the machine and system building industry, is characterized by its enormous flexibility in terms of communications protocols, a function block editor (PLC) that makes it possible to configure the drive as necessary for specific applications, and a powerful vector control mode for highly dynamic applications.

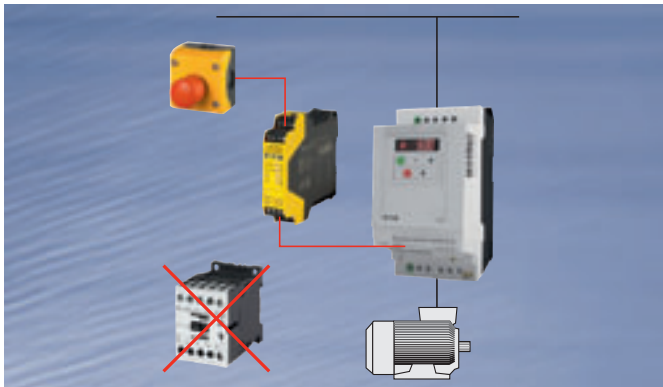
Performance range:

- 0.75 ... 2.2 kW (Ue: 1~ 230 V, U2: 3~ 230 V)
- 0.75 ... 75 kW (Ue: 3~ 230 V, U2: 3~ 230 V)
- 0.75 ... 250 kW (Ue: 3~ 400 V, U2: 3~ 400 V)
- 0.75 ... 110 kW (Ue: 3~ 575 V, U2: 3~ 575 V)

Features:

- Large overload capability: 150 % for 60 seconds, 200 % for 4 seconds.
- Integrated Modbus RTU and CANopen
- Ambient air temperature up to 50 °C without derating
- Integrated EMC filter

- Integrated braking transistor
- Various I/O expansions
- V/F control, vector SL and CL, PM motors, BLDC motors, SynRel motors
- Optional field bus connections
- Safe Torque Off (STO, SIL 2/PL d)
- Optional high-resolution OLED display
- International standards (CE, UL, cUL, c-Tick, RoHS, EAC, UkrSEPRO, DNV)



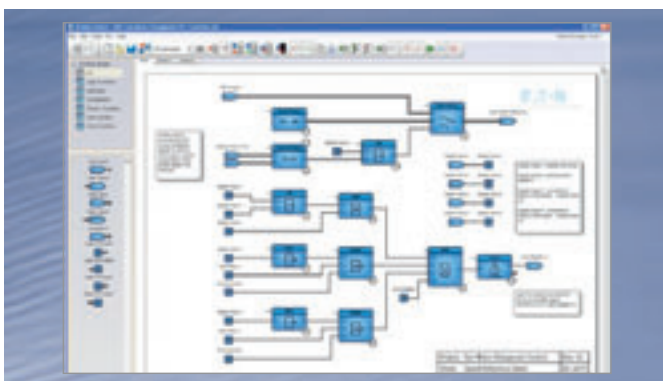
The built-in STO (Safe Torque Off) safety function

The Safe Torque-Off (STO) function is how the most fundamental drive-integrated safety function is implemented in the DA1, ensuring that torque will be fully removed from the motor and preventing accidental starts. This also eliminates the need for an additional mains contactor.



High communications flexibility

The new DE1 series comes with Modbus RTU as its integrated default communications protocol, while the DC1 and DA1 series come with the CANopen protocol already integrated at the factory. Moreover, all the variable frequency drives in these three series can be expanded with SmartWire-DT modules. SmartWire-DT can be used with cyclic and acyclic services in order to control, configure and diagnose these drives by using the corresponding PROFIdrive profile. In addition, the DA1 series specifically comes with an expansion slot that can be used to expand its communication capabilities with a PROFIBUS, PROFINET, Ethernet/IP, EtherCAT, DeviceNet, or Modbus/TCP plug-in module. Finally, there are function blocks available for connecting DE1, DC1, and DA1 devices to PLCs or HMIs.



Function block editor – Simple programming

The function block editor can be used to create separate logic operations for the DA1 – with time dependencies, for example - within the variable frequency drive in order to generate original applications. This makes it possible to configure the variable frequency drive for any application, cutting down on additional hardware costs in the process.

PowerXL™ DG1 variable frequency drive – General purpose drive



PowerXL™ DG1 multi-purpose drives are variable frequency drives belonging to Eaton's next-generation PowerXL™ series. They are specifically designed for modern, sophisticated applications: In fact, a patented energy-saving algorithm, high short-circuit specifications, and a heavy-duty design all enable them to provide maximum efficiency, safety, and reliability – all combined with a conformal coating designed to provide protection against aggressive environments.

Performance range::

- 0.75 ... 90/132 kW (Ue: 3~ 230 V, U2: 3~ 230 V)
- 0.75 ... 160 kW (Ue: 3~ 400 V, U2: 3~ 400 V)
- 1.5 ... 150 kW (Ue: 3~ 575 V, U2: 3~ 575 V)
- Dual Rating (150% and 110% overload)

Features:

- Can be used within a temperature range of -30 °C to +50 °C (60 °C with derating)
- STO
- Internal EMC filter (C2)
- Internal DC link choke (5%)
- On Board:
 - Extensive I/O: 8 DIs, 1 DO, 3 ROs, 2 AIs, 2 AOs
 - 2 expansion slots
 - Internal braking chopper (with the option of not having one for 61 A and higher)
 - Modbus RTU&TCP, Bacnet MSTP and Ethernet IP
- All sizes available in IP21 and IP54
- LCD graphic display
- Real-time clock (with battery backup)

Can be flexibly configured as required for your application:

- 4 applications with custom-tailored parameter sets
- Comprehensive monitor functions: 43 monitor values
- 2 PID
- Comprehensive multi-pump functionality (single master, multi-master, multi-follower, time control)

Expandable:

- Profibus
- In brief:
 - Profinet, SWD, CANopen, DeviceNet

IO expansions

- Digital IO (3DI, 3DO, 1 thermistor)
- Analog IO (1AI, 2AO)
- Digital IO 240V (6DI)
- Relay board (3RO)
- PT100 board (3PT100)

Flange mounting

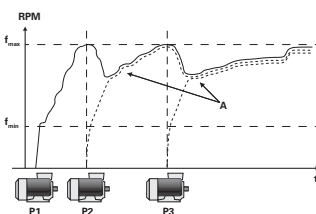
Global acceptance:

- CE, UL, cUL, C-Tick, EAC, UkrSepro, RoHS



The same ease of use as in all other PowerXL variable frequency drives

Startup Wizard with standard parameters just like in DC1 and DA1 units; efficient diagnostics; switching between local and remote operation; removable control panel with copy & paste functionality. Extensive I/O and on-board COM can be expanded further with two slots.



Control algorithms for complex pump systems already integrated

The internal multi-pump functionality makes it possible to use the DG1 to control virtually any pump system without the need for any expansions. When the unit is used this way, its real-time clock controls the uniform use of all available pumps.

Power Xpert inControl

The new PC software platform for all future communication-capable Eaton devices. It is designed to assist users with programming, control, and monitoring. The following functions are included: loading, saving, and printing parameter sets; setting setpoints; controlling the variable frequency drive. Monitoring is done in text or graphic format.

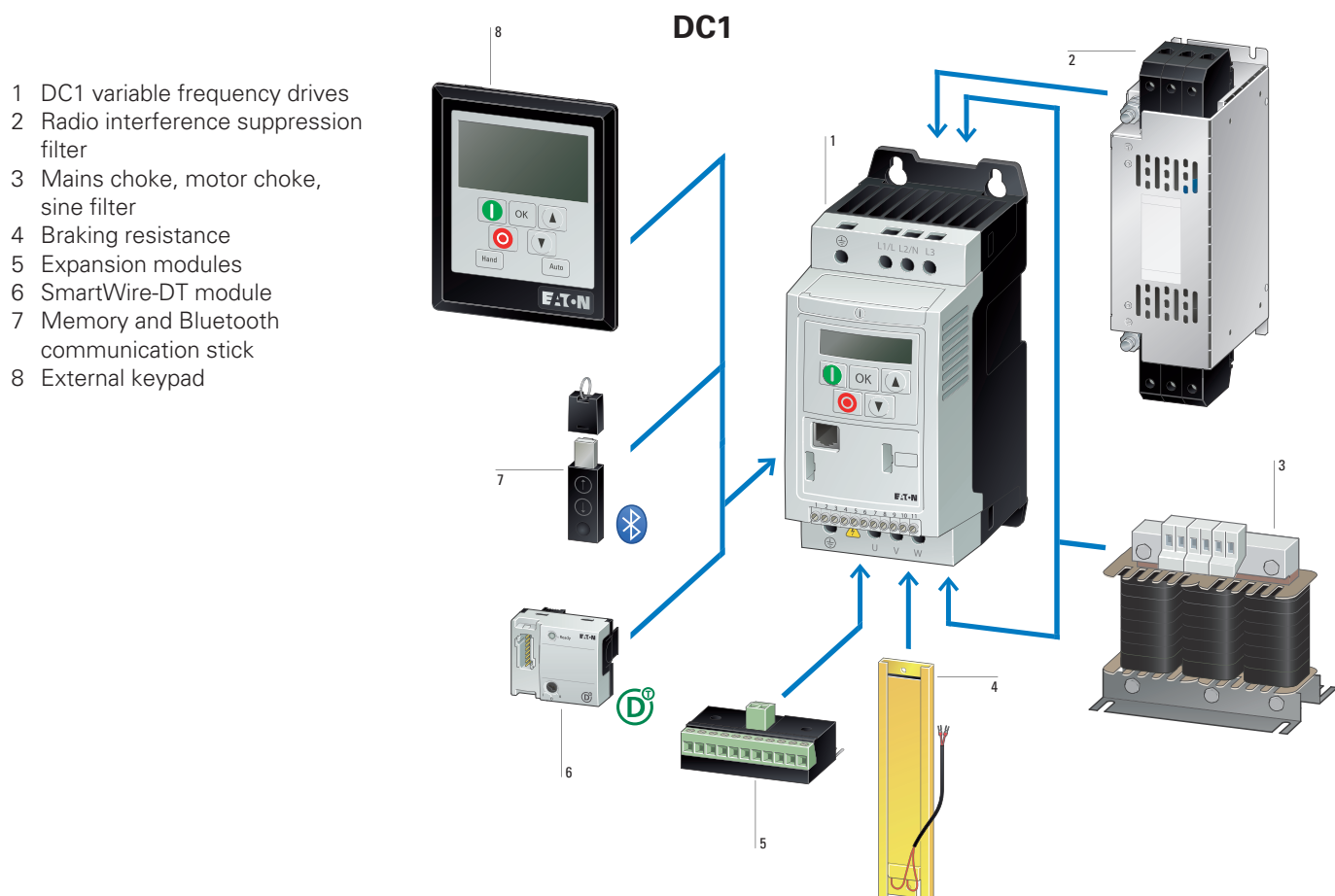
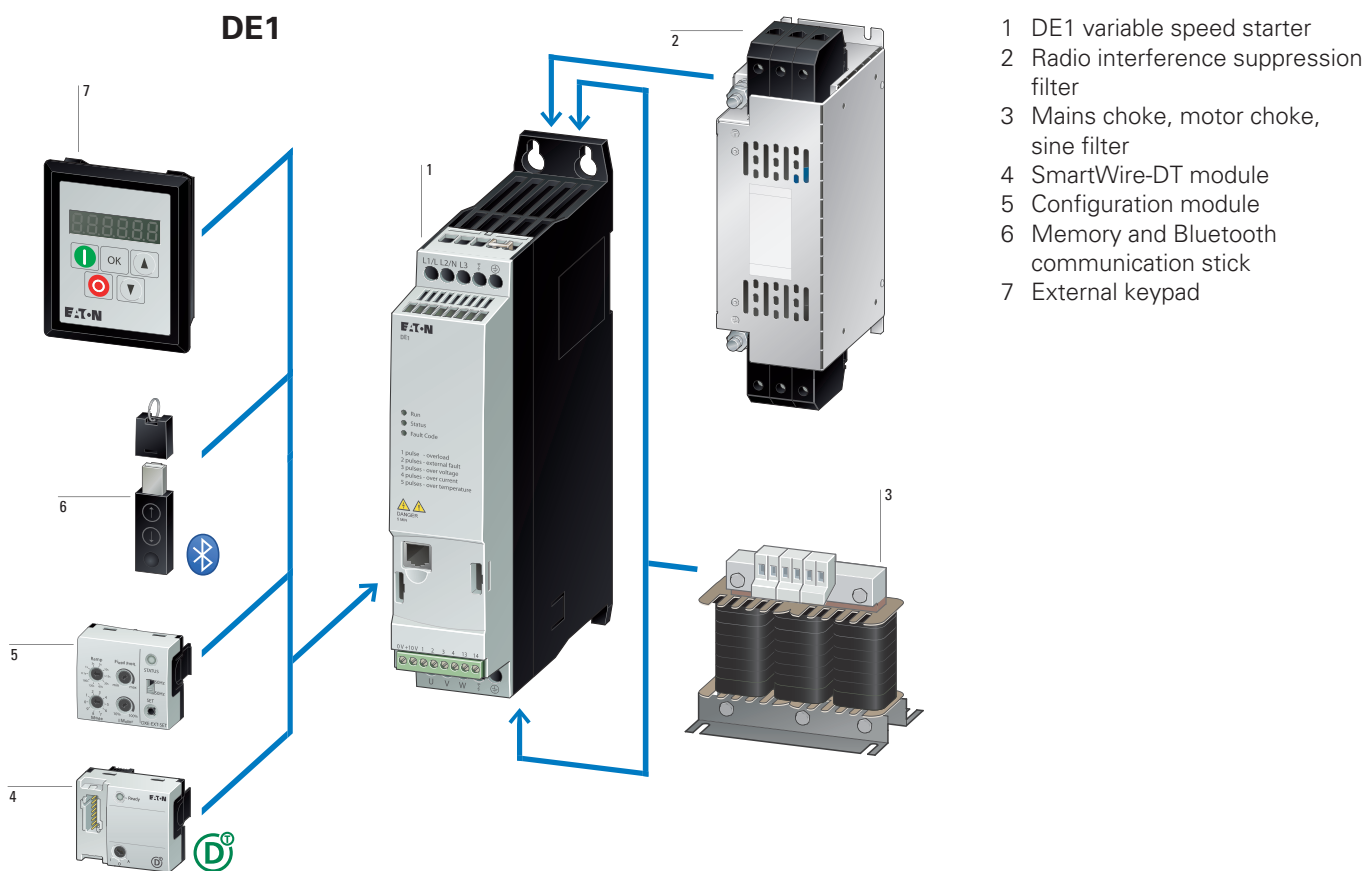
Supported products as of this writing:

- PowerXL DG1 drives
- C445 overload relays



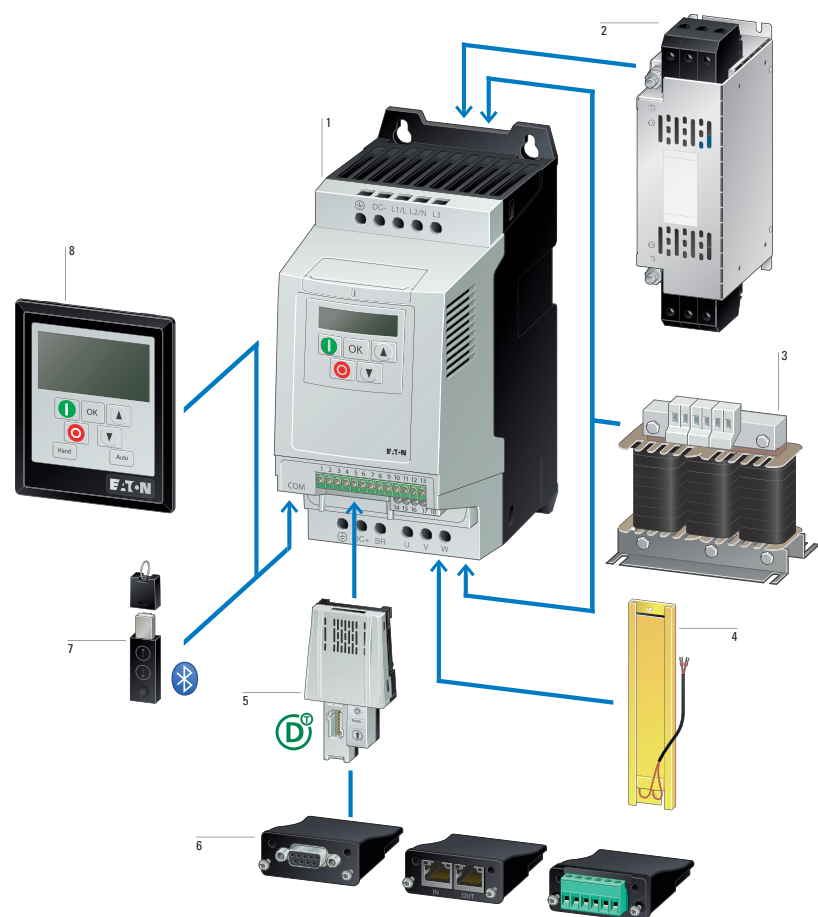
PowerXL™ variable speed starters DE1, variable frequency drives DC1

System overview



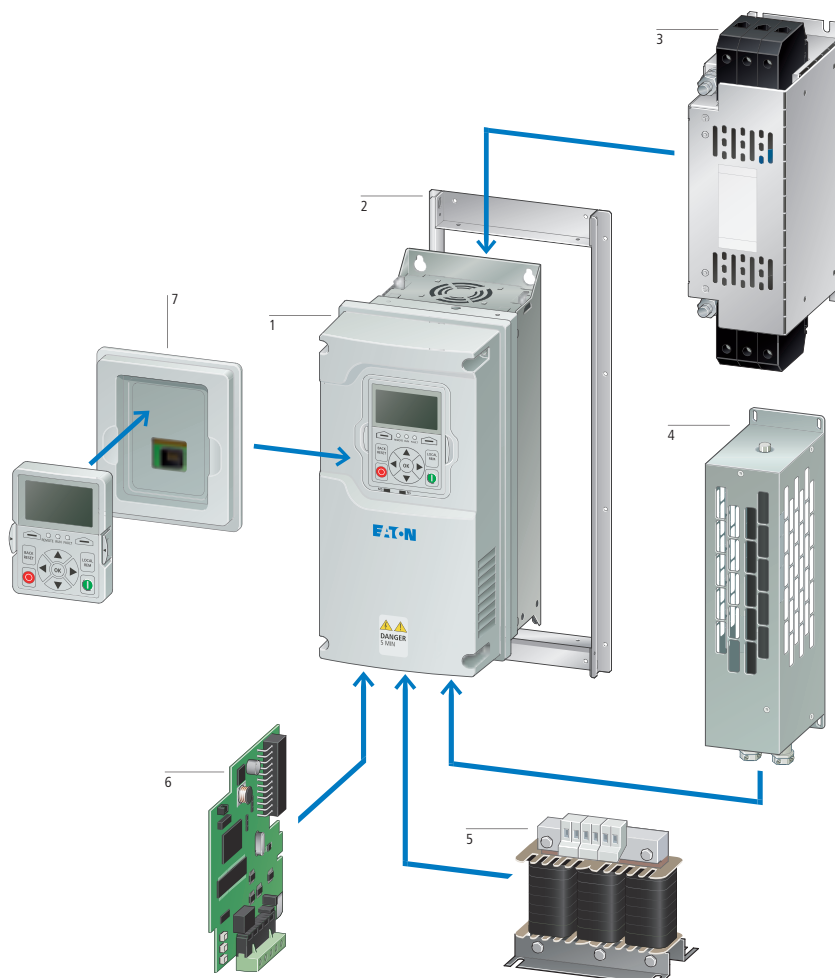
PowerXL™ DA1, DG1 variable frequency drives

System overview



- 1 DA1 variable frequency drive
- 2 Radio interference suppression filter
- 3 Mains choke, motor choke, sine filter
- 4 Brake Resistor
- 5 SmartWire-DT module
- 6 Communication modules, expansion modules
- 7 Memory and Bluetooth communication stick
- 8 External keypad

- 1 DG1 Variable frequency drive
- 2 Mounting frame for push-through mounting
- 3 Radio interference suppression filter
- 4 Brake Resistor
- 5 Mains choke, motor choke, sine filter
- 6 Communication modules, expansion modules
- 7 Mounting frame for operating unit



Rated operational current ¹⁾	Assigned motor rating ^{1), 2), 3)}		Radio interference suppression filter	Frame size	Degree of Protection	Part no.	Article no.
I _e A	P kW	P HP					
Mains voltage (50/60Hz) U _{LN} 200 (-10%) - 240 (+10%) V U _e = 1 phase / U ₂ = 3 phase							
1.4	0.25	0.33	✓	FS1	IP20/NEMA 0	DE1-121D4FN-N20N	174327
2.3	0.37	0.5	✓			DE1-122D3FN-N20N	174328
2.7	0.55	0.5	✓			DE1-122D7FN-N20N	174329
4.3	0.75	1	✓			DE1-124D3FN-N20N	174330
7	1.5	2	✓			DE1-127D0FN-N20N	174331
9.6	2.2	3	✓	FS2		DE1-129D6FN-N20N	174332
Mains voltage (50/60Hz) U _{LN} 380 (-10%) - 480 (+10%) V U _e = 3 phase / U ₂ = 3 phase							
1.3	0.37	0.5	✓	FS1	IP20/NEMA 0	DE1-341D3FN-N20N	174333
2.1	0.75	1	✓			DE1-342D1FN-N20N	174334
3.6	1.5	2	✓			DE1-343D6FN-N20N	174335
5	2.2	3	✓	FS2		DE1-345D0FN-N20N	174336
6.6	3	3	✓			DE1-346D6FN-N20N	174337
8.5	4	5	✓			DE1-348D5FN-N20N	174338
11.3	5.5	7.5	✓			DE1-34011FN-N20N	174339
16	7.5	10	✓			DE1-34016FN-N20N	174340
Mains voltage (50/60Hz) U _{LN} 200 (-10%) - 240 (+10%) V U _e = 1 phase / U ₂ = 3 phase							
1.4	0.25	0.33	✓	FS1	IP20/NEMA 0	DE11-121D4FN-N20N ⁴⁾	180650
2.3	0.37	0.5	✓			DE11-122D3FN-N20N ⁴⁾	180651
2.7	0.55	0.5	✓			DE11-122D7FN-N20N ⁴⁾	180652
4.3	0.75	1	✓			DE11-124D3FN-N20N ⁴⁾	180653
7	1.5	2	✓			DE11-127D0FN-N20N ⁴⁾	180654
9.6	2.2	3	✓	FS2		DE11-129D6FN-N20N ⁴⁾	180655
Mains voltage (50/60Hz) U _{LN} 380 (-10%) - 480 (+10%) V U _e = 3 phase / U ₂ = 3 phase							
1.3	0.37	0.5	✓	FS1	IP20/NEMA 0	DE11-341D3FN-N20N ⁴⁾	180662
2.1	0.75	1	✓			DE11-342D1FN-N20N ⁴⁾	180663
3.6	1.5	2	✓			DE11-343D6FN-N20N ⁴⁾	180664
5	2.2	3	✓	FS2		DE11-345D0FN-N20N ⁴⁾	180665
6.6	3	3	✓			DE11-346D6FN-N20N ⁴⁾	180666
8.5	4	5	✓			DE11-348D5FN-N20N ⁴⁾	180667
11.3	5.5	7.5	✓			DE11-34011FN-N20N ⁴⁾	180668
16	7.5	10	✓			DE11-34016FN-N20N ⁴⁾	180669

Notes

- 1) Overload cycle: 150 % for 60 s every 600 s
- 2) DE1/DE11-12...: at 230 V, 50 Hz/at 220 - 240 V, 60 Hz
DE1/DE11-34...: at 400 V, 50 Hz/at 440 - 480 V, 60 Hz
- 3) For normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm⁻¹ at 50 Hz or 1800 min⁻¹ at 60 Hz
- 4) DE11... with additional features in comparison to DE1...: CANopen, plug-in control signal terminals, configurable output relay



DE1/DE11, FS1



DE1/DE11, FS2

PowerXL™ variable frequency drives

DC1, for AC motors, 115 V/230 V, IP20

Moeller® series

Rated operational current ¹⁾	Assigned motor rating ^{1), 2), 3)}		Fitted with	Frame size	Degree of Protection	Part no.	Article no.
I _e A	P kW	P HP	Radio interference suppression filter Brake chopper 7-digital display assembly				
Mains voltage (50/60Hz) U _{LN} 110 (-10%) - 115 (+10%) V U _e = 1 phase / U ₂ = 1 phase							
7	0.37	0.5	- - ✓	FS1	IP20/NEMA 0	DC1-S17D0NN-A20N	169497
10.5	0.55	0.75	- ✓ ✓	FS2		DC1-S1011NB-A20N	169500
Mains voltage (50/60Hz) U _{LN} 200 (-10%) - 240 (+10%) V U _e = 1 phase / U ₂ = 1 phase							
4.3	0.37	0.5	- - ✓ ✓ - ✓	FS1	IP20/NEMA 0	DC1-S24D3NN-A20N	169512
						DC1-S24D3FN-A20N	169521
7	0.75	1	- - ✓ ✓ - ✓			DC1-S27D0NN-A20N	169515
						DC1-S27D0FN-A20N	169524
10.5	1.1	1.5	- ✓ ✓ ✓ ✓ ✓	FS2		DC1-S2011NB-A20N	169518
						DC1-S2011FB-A20N	169527

Notes

¹⁾ Overload cycle: 150 % for 60 s every 600 s

²⁾ DC1-S1...: at 115 V, 50 Hz/at 110 - 120 V, 60 Hz

DC1-S2...: at 230 V, 50 Hz/at 220 - 240 V, 60 Hz

³⁾ For AC motors with internal and external ventilation with 50/60 Hz without additional start capacitor



DC1, FS1



DC1, FS2



DC1, FS3



DC1, FS4

Rated operational current ¹⁾	Assigned motor rating ^{1), 2), 3)}		Fitted with	Frame size	Degree of Protection	Part no.	Article no.	
I _e A	P kW	P HP	Radio interference suppression filter Brake chopper 7-digital display assembly					
Mains voltage (50/60Hz) U_{LN} 110 (-10%) - 115 (+10%) V U _e = 1 phase / U ₂ = 3 phase The mains voltage of 115 V is raised to 230 V (output voltage) through an internal voltage double connection.								
2.3	0.37	0.5	- - ✓	FS1	IP20/NEMA 0	DC1-1D2D3NN-A20N	169503	
4.3	0.75	1	- - ✓			DC1-1D4D3NN-A20N	169506	
5.8	1.1	1.5	- ✓ ✓	FS2		DC1-1D5D8NB-A20N	169509	
Mains voltage (50/60Hz) U_{LN} 200 (-10%) - 240 (+10%) V U _e = 1 phase / U ₂ = 3 phase								
2.3	0.37	0.5	- - ✓ ✓ - ✓	FS1	IP20/NEMA 0	DC1-122D3NN-A20N	169222	
						DC1-122D3FN-A20N	169240	
4.3	0.75	1	- - ✓ ✓ - ✓			DC1-124D3NN-A20N	169225	
						DC1-124D3FN-A20N	169243	
7	1.5	2	- - ✓ ✓ - ✓ - ✓ ✓ ✓ ✓ ✓	FS2		DC1-127D0NN-A20N	169228	
						DC1-127D0FN-A20N	169246	
						DC1-127D0NB-A20N	169231	
						DC1-127D0FB-A20N	169249	
10.5	2.2	3	- ✓ ✓ ✓ ✓ ✓			DC1-12011NB-A20N	169234	
						DC1-12011FB-A20N	169252	
15	4	5	- ✓ ✓	FS3		DC1-12015NB-A20N	169237	
Mains voltage (50/60Hz) U_{LN} 380 (-10%) - 480 (+10%) V U _e = 3 phase / U ₂ = 3 phase								
2.2	0.75	1	- - ✓ ✓ - ✓	FS1		IP20/NEMA 0	DC1-342D2NN-A20N	169453
							DC1-342D2FN-A20N	169475
4.1	1.5	2	- - ✓ ✓ - ✓ - ✓ ✓ ✓ ✓ ✓	FS2			DC1-344D1NN-A20N	169456
					DC1-344D1FN-A20N		169478	
					DC1-344D1NB-A20N		169459	
					DC1-344D1FB-A20N		169481	
5.8	2.2	3	- ✓ ✓ ✓ ✓ ✓		DC1-345D8NB-A20N		169462	
					DC1-345D8FB-A20N		169484	
9.5	4	5	- ✓ ✓ ✓ ✓ ✓		DC1-349D5NB-A20N		169465	
					DC1-349D5FB-A20N		169487	
Mains voltage (50/60Hz) U_{LN} 380 (-10%) - 480 (+10%) V U _e = 3 phase / U ₂ = 3 phase								
14	5.5	10	- ✓ ✓ ✓ ✓ ✓	FS3	IP20/NEMA 0		DC1-34014NB-A20N	169468
							DC1-34014FB-A20N	169490
18	7.5		- ✓ ✓ ✓ ✓ ✓				DC1-34018NB-A20N	169471
							DC1-34018FB-A20N	169493
24	11	15	- ✓ ✓ ✓ ✓ ✓			DC1-34024NB-A20N	169474	
						DC1-34024FB-A20N	169496	
30	15	20	- ✓ ✓ ✓ ✓ ✓	FS4		DC1-34030NB-A20N	180464	
						DC1-34030FB-A20N	180461	
39	18.5	25	- ✓ ✓ ✓ ✓ ✓			DC1-34039NB-A20N	180465	
						DC1-34039FB-A20N	180462	
46	22	30	- ✓ ✓ ✓ ✓ ✓			DC1-34046NB-A20N	180466	
						DC1-34046FB-A20N	180463	

Notes¹⁾ Overload cycle: 150 % for 60 s every 600 s²⁾ DC1-1D..., DC1-12..., DC1-32...: at 230 V, 50 Hz/at 220 - 240 V, 60 Hz

DC1-34...: at 400 V, 50 Hz/at 440 - 480 V, 60 Hz

³⁾ For normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm⁻¹ at 50 Hz or 1800 min⁻¹ at 60 Hz

Rated operational current ¹⁾	Assigned motor rating ^{1), 2), 3)}		Fitted with							Frame size	Degree of Protection	Part no.	Article no.
I _e A	P kW	P HP	Radio interference suppression filter	Brake chopper	DC link choke	7-digital display assembly	OLED display	Additional PCB protection	Local controls				
Mains voltage (50/60Hz) U _{LN} 200 (-10%) - 240 (+10%) V													
U _e = 1 phase / U ₂ = 3 phase													
4.3	0.75	1	✓	✓	-	✓	-	✓	-	FS2	IP20/NEMA 0	DA1-124D3FB-A20C	169078
7	1.5	2	✓	✓	-	✓	-	✓	-			DA1-127D0FB-A20C	169081
10.5	2.2	3	✓	✓	-	✓	-	✓	-			DA1-12011FB-A20C	169084
Mains voltage (50/60Hz) U _{LN} 380 (-10%) - 480 (+10%) V													
U _e = 3 phase / U ₂ = 3 phase													
2.2	0.75	1	✓	✓	-	✓	-	✓	-	FS2	IP20/NEMA 0	DA1-342D2FB-A20C	169117
4.1	1.5	2	✓	✓	-	✓	-	✓	-			DA1-344D1FB-A20C	169120
5.8	2.2	3	✓	✓	-	✓	-	✓	-			DA1-345D8FB-A20C	169051
9.5	4	5	✓	✓	-	✓	-	✓	-	FS3	IP20/NEMA 0	DA1-349D5FB-A20C	169054
14	5.5	10	✓	✓	-	✓	-	✓	-			DA1-34014FB-A20C	169057
18	7.5	10	✓	✓	-	✓	-	✓	-			DA1-34018FB-A20C	169060
24	11	15	✓	✓	-	✓	-	✓	-	FS4	IP55/NEMA 12	DA1-34024FB-A20C	169063
			✓	✓	-	-	✓	✓	-			DA1-34024FB-B55C	169390
30	15	20	✓	✓	-	-	✓	✓	-	FS5	IP55/NEMA 12	DA1-34030FB-B55C	169391
39	18.5	25	✓	✓	-	-	✓	✓	-			DA1-34039FB-B55C	169392
46	22	30	✓	✓	-	-	✓	✓	-			DA1-34046FB-B55C	169393
61	30	40	✓	✓	✓	-	✓	✓	-	FS6	IP20/NEMA 0	DA1-34061FB-B55C	169394
72	37	50	✓	✓	✓	-	✓	✓	-			DA1-34072FB-B55C	169395
90	45	60	✓	✓	✓	-	✓	✓	-	FS7		DA1-34090FB-B55C	169397
110	55	75	✓	✓	✓	-	✓	✓	-		DA1-34110FB-B55C	169399	
150	75	100	✓	✓	✓	-	✓	✓	-		DA1-34150FB-B55C	169401	
180	90	150	✓	✓	✓	-	✓	✓	-	FS8	DA1-34180FB-B55C	169403	
202	110		✓	✓	✓	-	✓	✓	-		DA1-34202FB-B55C	169405	
240	132	200	✓	✓	✓	-	✓	✓	-		FS8	DA1-34240FB-B55C	169407
302	160	250	✓	✓	✓	-	✓	✓	-	DA1-34302FB-B55C		169217	
370	200	300	✓	✓	-	-	✓	✓	-	FS8	IP20/NEMA 0	DA1-34370FB-B20C	169219
450	250	350	✓	✓	-	-	✓	✓	-		DA1-34450FB-B20C	169221	

Notes

¹⁾ Overload cycle for 60 s every 600 s

²⁾ DA1-12...: at 230 V, 50 Hz/at 220 - 240 V, 60 Hz

DA1-34...: at 400 V, 50 Hz/at 440 - 480 V, 60 Hz

³⁾ For normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm⁻¹ at 50 Hz or 1800 min⁻¹ at 60 Hz



DA1, FS2



DA1, FS3



DA1, FS4



DA1, FS5



DA1, FS6



DA1, FS7



DA1, FS8

PowerXL™ variable frequency drives

DG1, for three-phase motors 400 V, IP21

Rated operational current ¹⁾	Assigned motor rating 1), 2), 3)		Rated operational current ¹⁾	Assigned motor rating 1), 2), 3)		Fitted with					Frame size	Degree of Protection	Part no.	Article no.
I _H = 150 % I _e A	I _H = 150 % P kW	I _H = 150 % P HP	I _L = 110 % I _e A	I _L = 110 % P kW	I _L = 110 % P HP	Radio interference suppression filter	Brake chopper	DC link choke	Multi-line graphic display	Additional PCB protection				
Mains voltage (50/60Hz) U _{LN} : 380 (-15%) - 500 (+10%) V														
U _e = 3 phase / U ₂ = 3 phase														
2.2	0.75	1	3.3	1.1	1.5	✓	✓	✓	✓	✓	FS1	IP21/ NEMA1	DG1-342D2FB-C21C	9702-1002-00P
3.3	1.1	1.5	4.3	1.5	2	✓	✓	✓	✓	✓			DG1-343D3FB-C21C	9702-1004-00P
4.3	1.5	2	5.6	2.2	3	✓	✓	✓	✓	✓			DG1-344D3FB-C21C	9702-1006-00P
5.6	2.2	3	7.6	3		✓	✓	✓	✓	✓			DG1-345D6FB-C21C	9702-1008-00P
7.6	3		9	4	5	✓	✓	✓	✓	✓			DG1-347D6FB-C21C	9702-1001-00P
9	4	5	12	5.5	7.5	✓	✓	✓	✓	✓	FS2		DG1-349D0FB-C21C	9702-1011-00P
12	5.5	7.5	16	7.5	10	✓	✓	✓	✓	✓			DG1-34012FB-C21C	9702-2002-00P
16	7.5	10	23	11	15	✓	✓	✓	✓	✓			DG1-34016FB-C21C	9702-2004-00P
23	11	15	31	15	20	✓	✓	✓	✓	✓			DG1-34023FB-C21C	9702-2001-00P
31	15	20	38	18.5	25	✓	✓	✓	✓	✓			FS3	DG1-34031FB-C21C
38	18.5	25	46	22	30	✓	✓	✓	✓	✓	DG1-34038FB-C21C			9702-3004-00P
46	22	30	61	30	40	✓	✓	✓	✓	✓	DG1-34046FB-C21C			9702-3001-00P
61	30	40	72	37	50	✓	✓	✓	✓	✓	FS4		DG1-34061FB-C21C	9702-4002-00P
72	37	50	87	45	60	✓	-	✓	✓	✓			DG1-34072FN-C21C	9702-4008-00P
						✓	✓	✓	✓	✓			DG1-34072FB-C21C	9702-4006-00P
87	45	60	105	55	75	✓	-	✓	✓	✓			DG1-34087FN-C21C	9702-4001-00P
						✓	✓	✓	✓	✓			DG1-34087FB-C21C	9702-4010-00P
105	55	75	140	75	100	✓	-	✓	✓	✓	FS5		DG1-34105FN-C21C	9702-5004-00P
						✓	✓	✓	✓	✓			DG1-34105FB-C21C	9702-5002-00P
140	75	100	170	90	125	✓	-	✓	✓	✓			DG1-34140FN-C21C	9702-5008-00P
						✓	✓	✓	✓	✓			DG1-34140FB-C21C	9702-5006-00P
170	90	125	205	110	150	✓	-	✓	✓	✓			DG1-34170FN-C21C	9702-5001-00P
						✓	✓	✓	✓	✓	DG1-34170FB-C21C		9702-5010-00P	

Notes

¹⁾ Overload cycle for 60 s every 600 s

²⁾ For normal internally and externally ventilated 4 pole, three-phase asynchronous motors with 1500 rpm⁻¹ at 50 Hz or 1800 min⁻¹ at 60 Hz

³⁾ DG1-34...at 400 V, 50 Hz/at 480 V, 60 Hz

PowerXL™ variable frequency drives

DG1, for three-phase motors 400 V/500 V, IP21



DG1, FS1



DG1, FS2



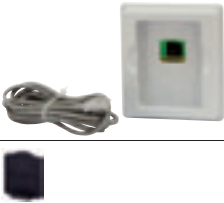
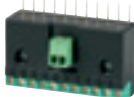
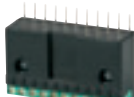
DG1, FS3

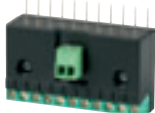


DG1, FS4



DG1, FS5

	Description	For use with	Part no.	Article no.
External keypad				
	With 7-digit display assembly Front IP54 With approx. 3 m-long, plug-in connection cable (RJ45, 8-pin)	DE1, DE11, DC1, DA1	DX-KEY-LED	169132
	With OLED display Front IP54 Multilingual With approx. 3 m-long, plug-in connection cable (RJ45, 8-pin)	DC1, DA1	DX-KEY-OLED	169133
	With LCD display Front IP54 Multilingual	DG1	DXG-KEY-LCD	730-32047-00P
	Mounting frame With approx. 0.5 m-long, plug-in connection cable	DXG-KEY-LCD	DXG-KEY-RMTKIT	730-32033-00P
	Mounting frame		DXG-KEY-HOLDER	730-32032-00P
	Cover for RJ45 interface		DXG-KEY-N12PLUG	730-32038-00P
Configuration module				
Plug-in module (front)				
	With selector switch for ramp time and operating mode With potentiometer for motor protection and fixed frequency	DE1, DE11	DXE-EXT-SET	174621
Expansion modules				
Output expansion				
	2 relay outputs (N/O, 250 V AC/220 V DC, max. 1 A) 1 analog output (0 - +10 V, max. 20 mA) For connecting to the control signal terminals on the DC1	DC1	DXC-EXT-2R01A0	169030
	2 relay outputs (N/O, 250 V AC/220 V DC, max. 1 A) For connecting to the control signal terminals on the DC1	DC1	DXC-EXT-2R0	169031
	Plug-in module with plug-in terminal block, 5 pole 3 relay outputs (N/O, 250 V AC, max. 6 A/ 30 V DC, max. 5 A)	DA1	DXA-EXT-3R0	169121
	3 relay outputs	DG1	DXG-EXT-3R0	744-A2614-00P
I/O expansion				
	Plug-in module with plug-in terminal blocks, 6 pole 3 digital inputs (+24 V) 1 relay output (N/O, 250 V AC, max. 6 A/ 30 V DC, max. 5 A)	DA1	DXA-EXT-3DI1R0	169036
	3 digital inputs 3 Digital outputs 1 Thermistor input	DG1	DXG-EXT-3DI3DO1T	744-A2612-00P
	1 Analog input 2 Analog outputs	DG1	DXG-EXT-1AI2A0	744-A2613-00P

	Description	For use with	Part no.	Article no.
Expansion modules				
Input expansion				
	Thermistor input	DG1	DXG-EXT-THER1	744-A2615-00P
	240-V-AC input (electrically isolated) for 6 digital inputs	DG1	DXG-EXT-6DI	744-A2616-00P
Encoder module				
	Plug-in module with plug-in terminal block, 5 pole 2-channel Max. 500 kHz 5 V TTL, A & B, /A & /B, 5 V DC, max. 200 mA 24 V HTL, A & B, /A & /B, 24 V DC, external power supply required, max. 30 V DC	DA1	DXA-EXT-ENCOD	169035
Coupling module				
	115-V-AC input (electrically isolated) For 4 digital inputs For connecting to the control signal terminals on the DC1	DC1	DXC-EXT-IO110	169032
	230-V-AC input (electrically isolated) For 4 digital inputs For connecting to the control signal terminals on the DC1	DC1	DXC-EXT-IO230	169033
Simulator				
Commissioning and testing simulator				
	3 digital inputs (+24 V) 1 relay output (max. 30 V DC) 3 microswitches 1 reference value potentiometer (0 - +10 V / = 0 - f _{max}) For connecting to the control signal terminals on the DC1	DC1	DXC-EXT-LOCSIM	169034
Fieldbus modules				
	PROFIBUS-DP SUB-D socket, 9-pole	DA1	DX-NET-PROFIBUS	169124
	PROFINET 2 x RJ45, 8 pole Plug-in module	DA1	DX-NET-PROFINET-2	169125
	Modbus TCP 2 x RJ45, 8 pole	DA1	DX-NET-MODBUSTCP-2	169126
	EtherNet-IP 2 x RJ45, 8 pole	DA1	DX-NET-ETHERNET-2	169122
	EtherCAT 2 x RJ45, 8 pole	DA1	DX-NET-ETHERCAT-2	169127
	DeviceNet	DA1	DX-NET-DEVICENET	169123
	PROFIBUS-DP SUB-D socket, 9-pole	DG1	DXG-NET-PROFIBUS	744-A2617-00P
	Interface converter from 9-pin SUB-D plug to 3-pin control signal terminal	DXG-NET-PROFIBUS	DXG-MNT-PROFIBUS	744-A2618-00P
SmartWire-DT Modules				
	Plug-in module with slot for SWD4-8SF2-5 external device plug	DA1 (IP20, IP55)	DX-NET-SWD1	169129

	Description	For use with	Part no.	Article no.	
	Plug-in module (front) with slot for SWD4-8SF2-5 external device plug	DE1, DE11, DC1 (IP20)	DX-NET-SWD3	169131	
PC communication					
Parameter storage unit and Bluetooth communication stick					
	For storage, copying parameters, and/or transferring parameters to a PC with the drivesConnect software via Bluetooth With 2 function keys for uploading and downloading parameters With configuration memory	DE1, DE11, DC1, DA1	DX-COM-STICK	169134	
Interface converter					
	Interface converter USB/RS485 with connection cable, RJ45, 8 pole Electrically isolated 1 × SUB-D plug, 9-pole Terminal strip, 5-terminal Status-LED	DE1, DE11, DC1, DA1	DX-COM-PCKIT	169135	
	Interface converter USB/RS485 with connection cable, RJ45, 8 pole electrically isolated	DE1, DE11, DC1, DA1	DX-CBL-PC-1M5	171018	
	RJ45/USB, with CD	DG1	DXG-CBL-PCCABLE	730-32037-00P	
License Keys To activate the function block editor in the DrivesConnect software					
	USB flash drive	DA1	DX-COM-SOFT	169136	
Connection cable					
	Patch cord with RJ45 plugs, 8 pole	Length 0.5 m	DE1, DE11, DC1, DA1	DX-CBL-RJ45-0M5	169137
		Length 1 m		DX-CBL-RJ45-1M0	169138
		Length 3 m		DX-CBL-RJ45-3M0	169139
	Patch cord with RJ45 plugs, 8 pole	Length 1 m	DG1	DXG-CBL-1M0	730-32034-00P
	Patch cord with RJ45 plugs, 8 pole	Length 3 m		DXG-CBL-3M0	730-32035-00P
Parameter software					
	-	DG1	DXG-ACC-SOFTWARE	730-32036-00P	
Bus terminating resistor					
	RJ45 8 pole Connection to CANopen® (pin 1/2, 124 Ω) or to Modbus RTU (pin 7/8, 120 Ω)	easyNet DX-SPL-RJ45-2SL-1PL	EASY-NT-R	256281	

	Description	For use with	Part no.	Article no.
PC communication				
Splitter				
	RJ45, 8-pin, 3 sockets For CANopen® and Modbus RTU	DX-CBL-RJ45...	DX-SPL-RJ45-3SL	169141
	RJ45, 8-pin, 2 sockets/1 plug With cable approx. 10 cm For CANopen® and Modbus RTU	DE1, DE11, DC1, DA1	DX-SPL-RJ45-2SL1PL	169142
	RJ45, 8-pin, 2 sockets/1 plug For CANopen® and Modbus RTU	DE1, DE11, DC1, DA1	DX-SPL-RJ45	179313
	RJ45, 8 pole, 1 socket/1 plug For CANopen® and Modbus RTU With 2 resistors, 120 Ω	DE1, DE11, DC1, DA1	DX-SPL-RJ45-TERM	179314
Battery				
	Battery for real-time clock	-	DXG-ACC-RTBATT	730-32039-00P
Mounting accessories				
Mounting frame For the power section's push-through installation outside the control panel				
	Frame parts and fixing screws	DG1 (frame size FS1)	DXG-ACC-FR1N12FK	730-32022-00P
		DG1 (frame size FS2)	DXG-ACC-FR2N12FK	730-32023-00P
		DG1 (frame size FS3)	DXG-ACC-FR3N12FK	730-32024-00P
		DG1 (frame size FS4)	DXG-ACC-FR4N12FK	730-32025-00P
		DG1 (frame size FS5)	DXG-ACC-FR5N12FK	730-32026-00P
Mounting set For increasing the degree of protection from IP21/NEMA 1 to IP54/NEMA 12				
	Enclosure cover with seals and extra fan	DG1-34... (frame size FS1, 400/480 V)	DXG-ACC-4FR1N12KIT	730-32029-00P
		DG1 (frame size FS2)	DXG-ACC-FR2N12KIT	730-32030-00P
		DG1 (frame size FS3)	DXG-ACC-FR3N12KIT	730-32031-00P
		DG1-32... (frame size FS1, 230 V)	DXG-ACC-2FR1N12KIT	744-A2815-00P

Build it in.



Hydraulic solutions for productive and economic machines



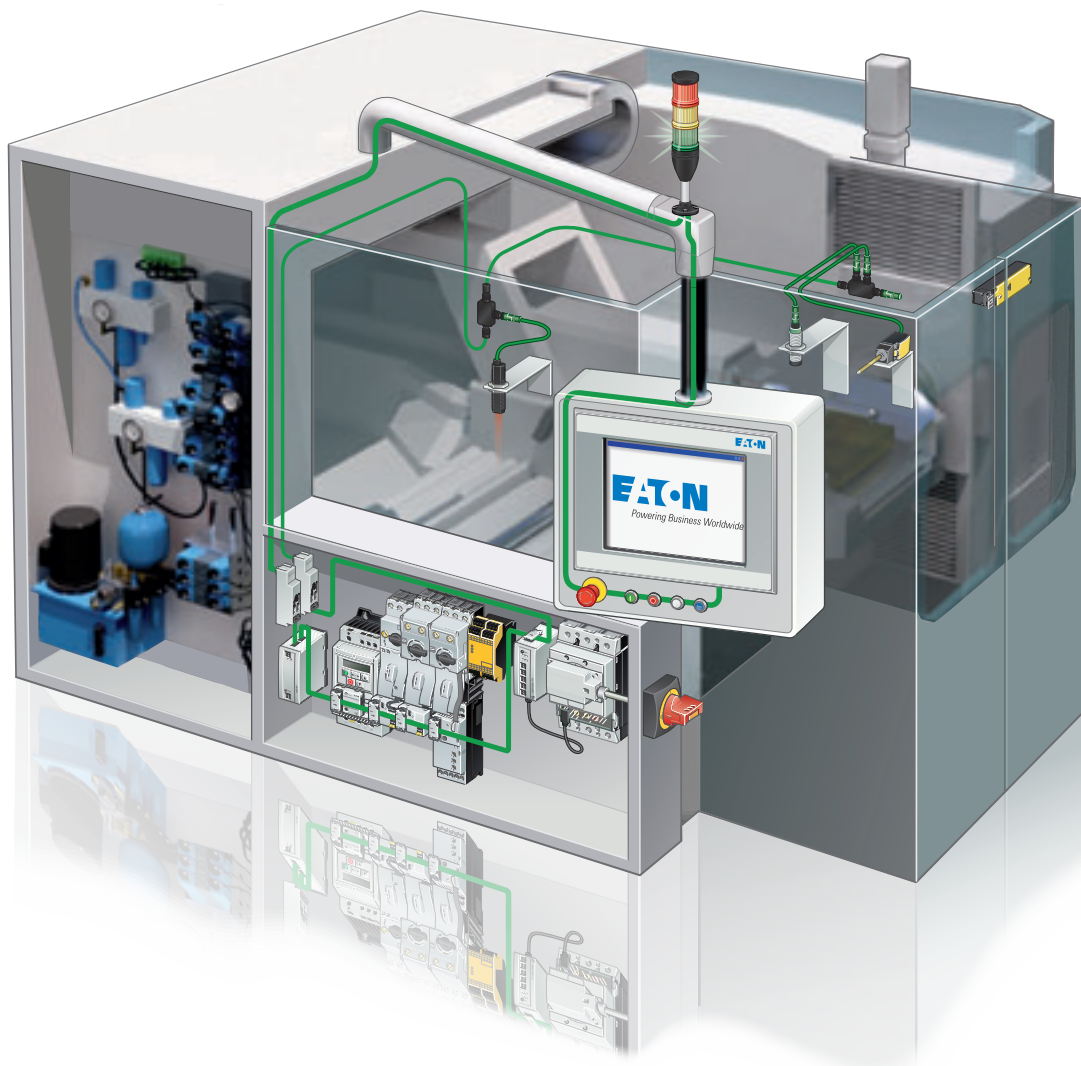
In a world of increasing pressure for “better, faster, cheaper,” manufacturers face more significant challenges than ever before. Whether making automobiles, clothing, computer chips, plastic bottles, or anything in between, you need every cell in your fine-tuned operation working at its optimal state. When Eaton is on the inside, you can experience the assurance of tireless production.

Produce at peak efficiency with the superior precision and repeatability of Eaton products. Eaton hydraulic components provide the precise control and consistent operation required for virtually every step in your manufacturing operation. With Eaton, we’ll help you redefine the meaning of productivity.

Whether your primary business is mass production or mass customisation, you can count on superior precision and repeatability for increased uptime, year after year.

Perfect interaction of electrical and hydraulic technology

Lean Solution ultimately brings together the world of hydraulics and the world of electrical engineering in automation. A fully integrated electro-hydraulic system is a complete solution for your machine. Automation components such as HMI/PLCs communicate perfectly via CANopen with intelligent Eaton hydraulic valves. The brain of the system is implemented by the HMI/PLC which combines control, visualization and data management tasks with state-of-the-art networking features in a single device. Via a CANopen fieldbus, the HMI/PLC communicates with drives, I/Os and now with the new AxisPro Proportional Hydraulic valves as well, thus providing full control of machine axis movement. The HMI/PLC can also communicate on SmartWire-DT with pushbutton actuators, indicator lights, and switchgear right up to the sensors, thus providing an efficient solution for connectivity. Eaton's fully integrated electro-hydraulic system enhances in every respect the machine productivity and performance and simultaneously reduces the wiring, test and commissioning requirement.





What are your requirements?

Irrespective of whether you supply original parts for machine components or are an end customer, Eaton is aware of the most critical energy management requirements in the machine-building sector. We are aware of your requirement to reduce the time to market due to the increasingly shorter time-spans between the market launch of new models. We also know that the operating costs must be reduced ensuring that you remain a valuable and preferred supplier. Just as we know that you place great emphasis on efficiency, reliability and sustainability. And this is why we can develop the best solutions together with you, employing products complying to global standards and thus assuring world-wide availability.



Open-Circuit Piston Pumps

Featuring robust bearing designs, Eaton medium-duty PVM pumps deliver longer life and reliable operation for CNC machining tools in metal-cutting applications. The pressure/flow-compensated pumps provide dependable component and system operation without costly breakdowns and maintenance. Special design techniques reduce both structure- and fluid-born noise and yield extended pump life.



Eaton AxisPro™ Proportional Valve

Eaton AxisPro proportional valves provide integrated programmable control capabilities in sophisticated electro-hydraulic axis control applications. These valves contain both programmable onboard electronics and integral spool Linear Voltage Differential Transformer (LVDT) sensors to provide precise, accurate, responsive axis control capabilities. Their modular design delivers four levels of control ranging from an entry level valve that is quick and easy to configure, right through to a valve that can be customized by uploading application code created by Eaton's Pro-FX Control software.



Hydraulic Hoses

Eaton offers a wide variety of hose constructions that are ideally suited to a vast array of applications. Our hoses are designed to meet the most demanding applications providing maximum durability and long-lasting performance.



Walterscheid® Fittings and Connectors

Eaton is known worldwide for the breadth, quality, and ease of use of its product line, Walterscheid® fittings and connectors. They are used in a broad range of mobile and industrial equipment including agricultural and construction vehicles and machine tools.



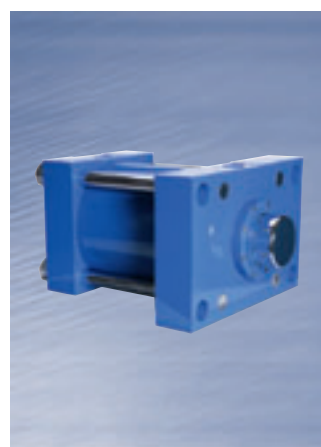
Proportional Directional Valves

Eaton's specially designed injection P/Q valves provide precise control of injection velocity, smooth transition from velocity to pressure control, and back pressure control that is highly repeatable to produce parts with tight dimensional accuracy and high quality. The valves are pre-wired with ruggedly constructed onboard electronics. Factory-set adjustments, including gain, spool dead-band compensation, and offset, ensure high valve-to-valve reproducibility.



LifeSense™ Hose

Eaton is an industry leader in developing new hydraulic hose solutions. Our hydraulic hose products are suitable for nearly any application, pressure level, and fluid type. With Eaton's new LifeSense™ condition-based hydraulic hose monitoring system, hydraulic hose failures will no longer be a major concern. LifeSense hose monitors the health of hydraulic hose assemblies, detects events that have been shown to be symptomatic of the hose beginning to fail, and notifies the user prior to failure with enough time to replace the hose before it fails.



Tie Rod Cylinders

Eaton's Vickers and Hydro-Line G, N, I, and L Series cylinders include a broad range of NFPA and ISO hydraulic, pneumatic, and electro-hydraulic styles focused on industrial markets. This comprehensive line features a proven design coupled with the Eaton SureSeal™ system for improved performance and better serviceability. Virtually unlimited options are available.

Safe switching and isolation.



Cam switch T flush mounting

- Main switch
- maintenance / manual override switch
- Control switch
- Powers up to 132 kW
- Non-standard switches possible

Page 288 ff.



Switch-disconnector P surface mounting

- IP65
- Main switch
- maintenance / manual override switch
- Safety switches
- Powers up to 110 kW

Page 288 ff.



Switch-disconnector P, N

- Four switches up to 1600 A
- 3 and 4-pole
- Diverse installation and actuation options

Page 230



INX switch-disconnector

- Disconnectors up to 6300 A



See online catalog

Recording energy consumption and communication



Circuit breakers NZM Energy measuring module XMC

- Simple installation
- Measured value display on location
- Data transfer via fieldbus

Page 230 ff.



Circuit breaker with SmartWire-DT

- Alarm messages
- Remote operator control
- Energy data acquisition
- Overload warnings
- BreakerHealth: contact wear indicator

Page 231



Visualization and logging software – BreakerVisu

- Data acquisition for up to 48 devices
- 7" or 3.5" touchscreen display
- Automatic configuration and logging
- Import of 3rd party devices possible
- Gateway function: can forward data to supervisory system

Page 232

Line and system protection



Miniature circuit breaker FAZ

- Only 80 mm in height
- Installation / extension without removal from the rail
- Switching capacity 15 kA

Page 248 ff.



Digital RCCB

- Preventative information
- Warning before trip
- Integrated auxiliary contact
- Display with error current trip

Page 249 ff.



Hydraulic-Magnetic Circuit Breaker

- 0.1 to 63 Amp
- 1 to 4 poles
- Up to 22xIn start-up current
- No derating with T° variation

Page 244 ff.



Circuit breakers NZM and IZM

- Four NZM switches up to 1600 A
- 3 and 4-pole
- Very versatile installation and actuation
- Motor, system and generator protection
- IZMX circuit breaker to 6300 A

Page 230 ff.
IZM see
Online catalog



Circuit breakers NZM + RCCB

- Up to 250 A
- Pulse current sensitive/ AC/DC sensitive
- Rated fault current $I_{\Delta n} = 0.003 \text{ A} \dots 3.0 \text{ A}$

See online catalog

Enclosures



Ci-K enclosure IP65

- Reliable protection for all types of distributed switching and automation devices
- Robust and high resistance to chemicals
- Glass-fibre reinforced polycarbonate
- Individual facility for inscription
- Total insulation
- Metric cable entry knockouts

Page 295



CS housing

- Degree of protection IP66/IK09
- High-quality sheet steel
- UL/CSA approval NEMA types 1, 4, 12
- Sizes of 250 x 200 x 150 mm to 1200 x 1200 x 250 mm.
- Standardized locking system

Page 296 ff.



Sasy 60i

- Busbars with flat or TT-shaped section
- Innovative device adapters and NH fuse switch-disconnectors
- Modular system covers
- Adapters establish an electrical contact without the need to drill holes up to a current of 630 A

Page 266 ff.



CI enclosure

- Protection on six fronts: dust, moisture, water, corrosive substances, mechanical damage, extreme short-circuits
- Cover lifting mechanism with overpressure compensation



See online catalog

Bussmann series fuses



D & DO Fuse links and fuse bases

- 400 and 500 VAC
- 2 to 100 Amps
- Sizes: DI to DIV, D01 to D03
- IEC 60269 and VDE 0636
- Full range of bases and accessories

Page 272 ff.



Cylindrical fuse links and fuse holders

- 400, 500 and 690 VAC
- 0.25 to 125 Amps
- Sizes: 10 x 38, 14 x 51 and 22 x 58 mm
- IEC 60269
- Full range of fuse holders

Page 272 ff.



UL Branch circuit and supplementary fuse links

- Up to 600 V a.c. / 600 V d.c.
- Up to 1200 A
- CE, UL Listed and CSA Certified
- Full range of fuse holders and fuse blocks

Page 272 ff.



High Speed – Square body fuse links

- 690 and 1250 VAC
- 10 to 7500 Amps
- Sizes: 000 to 5
- IEC 60269-4, DIN 43653 and 43620, UL Recognition and CSA Component

Page 272 ff.



High speed – British standard fuse links

- 240 and 690 VAC
- 6 to 710 Amps
- BS88 part 4 and IEC 60269-4



Assuring Power Quality



Single-phase UPS

- Power from 500 VA to 20 kVA
- Compact protection from mains power problems
- Diverse communication options
- Up to 3 kVA Plug & Play
- Batteries are hot swappable

Page 304 ff.



Three-phase UPS

- Power from 8 kVA to 4,400 kVA
- High efficiency
- Diverse communication options
- Paralleling capability using HotSync technology
- Battery life management with the Eaton ABM technology

Page 304 ff.



Software + Accessories

- Free-of-charge shutdown and management software
- Ordered shutdown – even for VMware systems
- Management of large numbers of UPS's
- Intelligent power distribution

Page 304 ff.

Circuit protection

Our comprehensive range of circuit protection to reliably protect people, machines and plant, in order to have a safe, productive production line.

Solutions to meet your circuit protection needs

Our expertise and our value-added, modular approach to circuit protection means that we have a reliable solution to meet every application need regardless of machine complexity. Helping you to speed the machine design and build process while significantly reducing complexity and cost.

Breadth and depth

Our comprehensive range of solutions enables you to overcome increasing complexity and risk to protect for short circuit, overload, overvoltage, arc fault or residual current and cover every aspect of circuit safety:

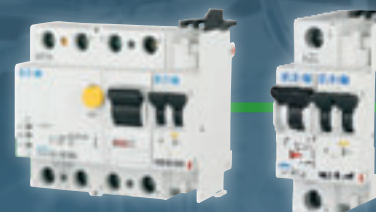
- Cable and system protection
- Operator protection
- Power conversion protection
- Long distance cable protection

Single supplier

To keep you ahead of complex, changing customer needs and meet global acceptable standards, it's useful to be able to consolidate your supply network and source components from a single supplier. With Eaton, you can do exactly this.



Cable and system protection



Residual current circuit breaker

Miniature circuit breaker

Long distance cable protection



Modular fuse holder and fuse link

Operator protection

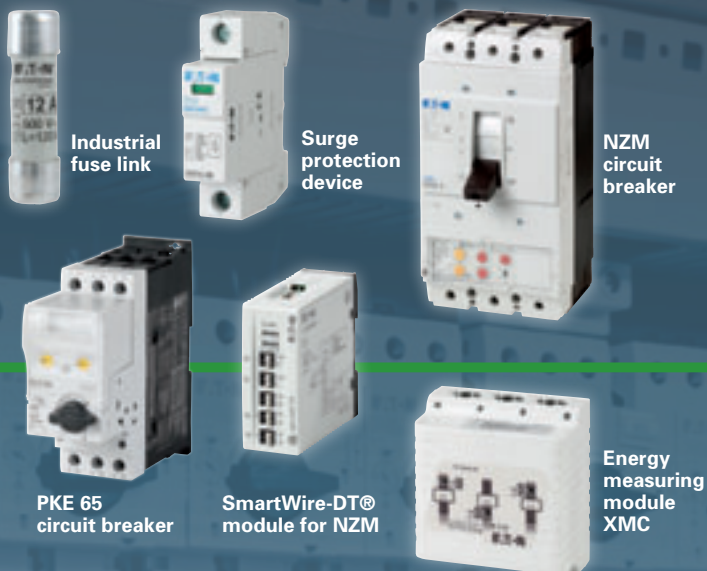
in standard applications



Residual current circuit breaker

Communication and visualization for more energy efficiency

BreakerVisu our logging and visualization system collect the data coming from single devices. This helps to control and optimize energy consumption. SmartWire-DT is only one solution to communicate in the system.



Communication and visualization



Heinemann hydraulic magnetic circuit breaker



Use the right technologies to minimize downtime

Power conversion protection



in variable frequency drive application



All protection technologies available for circuit protection:

- Electronic
- Thermomagnetic
- Hydraulic magnetic
- Fuses

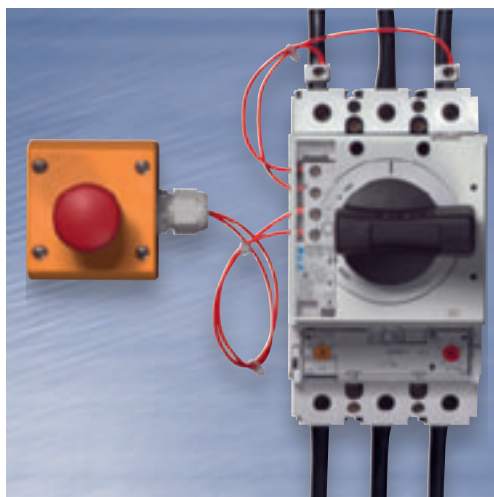
Build it in.



Provide, log, and visualize main switch energy data



Eaton NZM circuit breakers and P switch-disconnectors are used as main switches for a wide variety of machines. On top of this, NZM circuit breakers provide reliable short-circuit and overload protection. But they also offer much more: Their field bus interfaces make it possible to send advance warnings and transmit diagnostic data, as well as energy consumption values. Critical current warnings make it possible to take countermeasures and prevent overload tripping. Diagnostic data provides information regarding the cause behind faults and malfunctions and makes it possible to obtain trend analyses designed to identify load peaks. Moreover, NZM circuit breakers make it easy to tackle today's focus on energy consumption by measuring and communicating operational data. This data, in turn, can be easily integrated into the BreakerVisu visualization and logging system in a user-friendly manner.



Main switch application

The voltage is switched off on all current conducting circuits when the switch is switched off using the undervoltage release with two integrated early-make auxiliary contacts. This makes it possible to use Eaton's new products in order to easily and cost-effectively implement a main switch application with an emergency stop function for currents of up to 1,600 A that complies with standard IEC 60204-1, VDE 0113, Part 1.



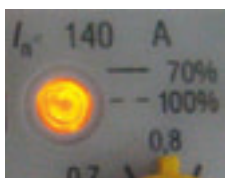
Rear operator

If a power disconnecting device with door coupling rotary handle is to be used in a confined space: up to 300 A rated operational current can be quickly mounted using the compact mechanical features and comfortably operated using the solid rotary handle. All switch variants from the NZM1 and NZM2 range – regardless of if they are circuit breakers or switch-disconnectors – can be combined with a rear operator.



Flange operator

Up to 1600 A, the flange operator enables the switch to be operated from the right or left hand side as desired. Optional fitting of our mounting bracket results in optimum use of space in the control panel. The mounting plate can thus be used for other machine control elements.



Load warnings



Remote switching

Preventive safety

By providing valuable real-time diagnostic information regarding connected devices, BreakerVisu works together with the reliable short-circuit and overload protection provided by NZM circuit breakers in order to help prevent expensive production downtimes. This setup not only includes standard alarm messages, but also ensures that the advance overload warning function in the PKE motor-protective circuit breaker will send a warning before tripping and make it possible to determine how close the circuit breaker is to tripping. If a trip does occur, the BreakerHealth function will indicate the condition of the NZM circuit breakers' main contacts, making it possible to schedule preventive maintenance appropriately.



Flexible measuring points

Measuring electrical parameters is the foundation of energy management in machine main switches. This is where NZM-XMC measuring and communication modules come in as an ideal alternative to integrated measuring systems. In fact, the new NZM-XMC-TC-MB measuring transducer is particularly well-suited to being retrofitted in existing systems thanks to the use of external current transformers. Moreover, its compact design and top hat DIN rail mounting system mean that it can be installed pretty much anywhere.



Smaller NZM-XMC designs

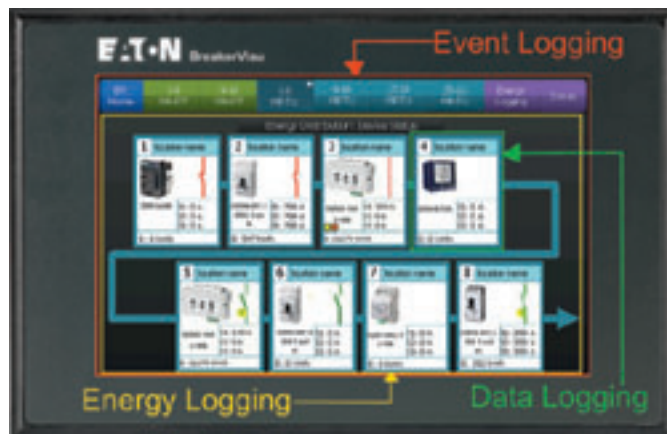
With its NZM-XMC-MB-250 unit, Eaton offers a compact frame size for currents of up to 250 A that is specifically customized for size 2 NZM devices. In fact, the unit's clearance between cables and busbars is perfectly configured for NZM2 models. This eliminates the need for cable and bar bends and cuts down on both costs and installation times.

BreakerVisu – Functionality overview

Operational data acquisition

With its BreakerVisu system, Eaton offers a cost-effective solution for state-of-the-art power management needs. The system features a multi-breaker display that shows all the operational data for connected circuit breakers and measuring devices in a centralized and clearly laid out manner. This ability to have all important operational data be displayed on a single 3.5" or 7" touch panel human-machine interface has multiple advantages, not the least of which is the fact that the availability of this data is automatically increased. Moreover, it significantly lowers costs in comparison to conventional switchgear with individual indicators and displays for each individual circuit breaker. And to top it all off, BreakerVisu is a turnkey solution that is immediately ready for operation out of the box.

The menu guidance is simple and clearly structured. The menu bar used to select the individual menu items is located in the upper area. A simple "touch" is all it takes to get to an overview screen for one of the field bus networks, e.g. Modbus.



Function overview

- Collects data from multiple devices (up to 32 Modbus RTU & 16 SmartWire-DT)
- Visualizes data locally or via remote Ethernet access
- Logs data (data, energy, and event logging)
- Can be connected to a control system via Modbus TCP, as well as to a CoDeSys OPC server
- Can accommodate non-Moeller devices through Modbus RTU
- New version with turnkey design (hardware and software)
- Plug & play
- Visit www.eaton.eu/breakervisu

Network overview

This screen lists all connected devices. A compact overview shows information on the circuit breaker types and states, as well as on the current currents and power meters. In addition to this, the screen also shows alarm messages and a custom name.

This view provides users with a quick and compact overview of their switchgear or machine, as well as the corresponding measuring points. More extensive operational data is displayed if a switch is selected. Moreover, the logging function can be enabled and diagnostic data can be displayed and exported.

Logging function

With BreakerVisu, logging operational data is as simple as never before. You can select which specific data you want to log, with three ready-to-use settings making things easier:

1. Event logging:
Automatically collects status and error messages from the entire system. Always active.
2. Energy logging:
Collects power consumption data from all connected devices with a single click.
3. Data logging:
Collects all measured data for a connected device. Can be enabled individually for each device.

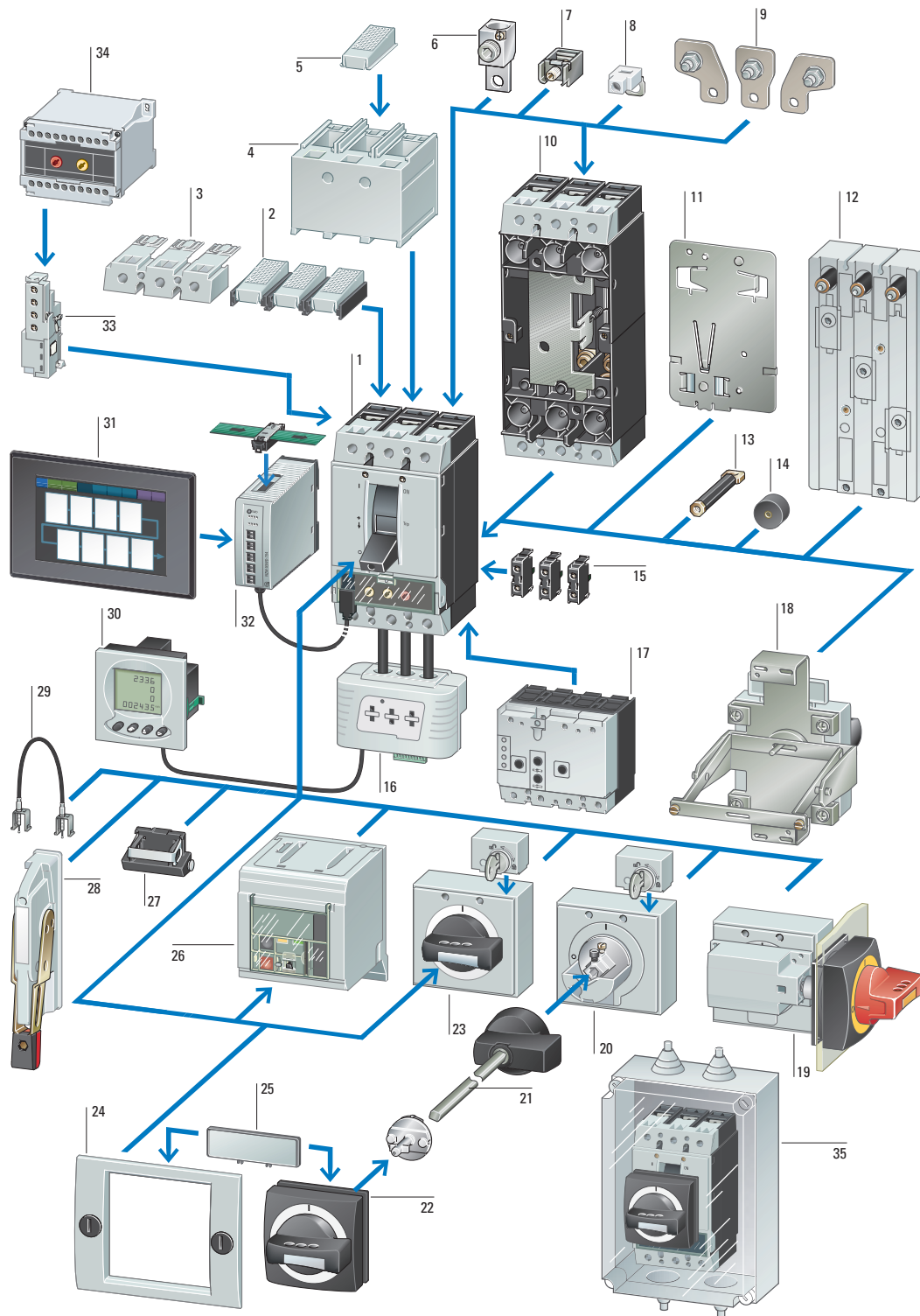


BreakerVisu speaks many languages

BreakerVisu's default language is English. It also comes with German and French out of the box. You can select a language the first time you start BreakerVisu or later on from the home screen. But BreakerVisu is not limited to just three languages: additional language packages, such as English – Russian – Polish, can be downloaded and installed. English is included in all language packages as the default language.

As of this writing, BreakerVisu has a total of 18 different languages available. Additional language packages can be created if necessary.

Language packages are available at www.eaton.eu/breakervisu.



- | | | | |
|---|--|--|---|
| 1 Switch-disconnector; circuit breaker; circuit breaker for North America; Molded case switches for North America | 8 Control circuit terminal | 17 Residual-current protection device | 27 Toggle lever interlock device |
| 2 IP2X protection against contact with a finger | 9 Connection width extension | 18 Rear operator | 28 Side operator handle |
| 3 Terminal cover, knockout | 10 Plug-in and withdrawable unit | 19 Main switch rotary handle for side panel mounting | 29 Mechanical interlock |
| 4 Terminal cover | 11 Adapter plate | 20, 22 Door coupling rotary handle | 30 Display |
| 5 IP2X protection against contact with a finger | 12 Busbar adapter | 21 Extension shaft | 31 BreakerVisu Display |
| 6 Tunnel terminals | 13 Connection on rear | 23 Rotary handle | 32 NZM communication module for SmartWire-DT |
| 7 Box terminals | 14 Spacer | 24 Insulating surround | 33 Voltage release/Early-make auxiliary contact |
| | 15 Standard auxiliary contacts, trip-indicating auxiliary switches | 25 External warning plate/marking plate | 34 Delay unit for undervoltage releases |
| | 16 Measuring and communication module | 26 Remote operator | 35 Insulated enclosure |

NZM circuit-breakers, switch-disconnectors

Circuit-breaker, 3 pole

Moeller® series

					Switching capacity 400/415 V 50/60 Hz		Switching capacity 400/415 V 50/60 Hz	
Rated current = rated uninterrupted current		Setting range			Part no.	Article no.	Part no.	Article no.
		Overload trip	Short-circuit releases					
			Non- delayed	Delayed				
$I_n = I_u$		I_{r17}	$I_i = I_n \times \dots$	$I_{sd} = I_r \times \dots$				
A		A						
System and cable protection: Thermomagnetic release								
Fixed, Box terminal					Basic switching capacity 25 kA		Normal switching capacity 50 kA	
	20	15 - 20	350 A fixed	-	NZMB1-A20	280987	NZMN1-A20	281231
	25	20 - 25	350 A fixed	-	NZMB1-A25	280988	NZMN1-A25	281232
	32	25 - 32	350 A fixed	-	NZMB1-A32	280989	NZMN1-A32	281233
	40	32 - 40	8 - 10	-	NZMB1-A40	259075	NZMN1-A40	259081
	50	40 - 50	6 - 10	-	NZMB1-A50	259076	NZMN1-A50	259082
	63	50 - 63	6 - 10	-	NZMB1-A63	259077	NZMN1-A63	259083
	80	63 - 80	6 - 10	-	NZMB1-A80	259078	NZMN1-A80	259084
	100	80 - 100	6 - 10	-	NZMB1-A100	259079	NZMN1-A100	259085
	125	100 - 125	6 - 10	-	NZMB1-A125	259080	NZMN1-A125	259086
	160	125 - 160	1280 A fixed	-	NZMB1-A160	281230	NZMN1-A160	281234
Fixed, Screw connection								
	160	125 - 160	6 - 10	-	NZMB2-A160	259088	NZMN2-A160	259092
	200	160 - 200	6 - 10	-	NZMB2-A200	259089	NZMN2-A200	259093
	250	200 - 250	6 - 10	-	NZMB2-A250	259090	NZMN2-A250	259094
	300	240 - 300	5 - 8.3	-	NZMB2-A300	107518	NZMN2-A300	107580
	320	250 - 320	6 - 10	-	-	-	NZMN3-A320	109669
	400	320 - 400	6 - 10	-	-	-	NZMN3-A400	109670
	500	400 - 500	6 - 10	-	-	-	NZMN3-A500	109671
Systems, cable, selectivity and generator protection: Electronic release								
Fixed, Screw connection					Normal switching capacity 50 kA		High switching capacity 150 kA	
	100	50 - 100	1200 A fixed	2 - 10	NZMN2-VE100	259122	NZMH2-VE100	259125
	160	80 - 160	1920 A fixed	2 - 10	NZMN2-VE160	259123	NZMH2-VE160	259126
	250	125 - 250	3000 A fixed	2 - 10	NZMN2-VE250	259124	NZMH2-VE250	259127
	250	125 - 250	2 - 11	2 - 10	NZMN3-VE250	259131	NZMH3-VE250	259134
	400	200 - 400	2 - 11	2 - 10	NZMN3-VE400	259132	NZMH3-VE400	259135
	630	315 - 630	2 - 8	1.5 - 7	NZMN3-VE630	259133	NZMH3-VE630	259136

	Rated current = rated uninterrupted current $I_n = I_u$ A	Setting range		Motor rating AC-3 50/60 Hz 380 V 400 V P kW	Rated operational current AC-3 50/60 Hz 400 V I_e A	Switching capacity 400/415 V 50/60 Hz		Switching capacity 400/415 V 50/60 Hz	
		Overload trip	Short-circuit releases Non-delayed			Part no.	Article no.	Part no.	Article no.
Motor protection: Thermomagnetic release									
Tripping class 10 A									
Fixed, Box terminal With phase-failure sensitivity						Basic switching capacity 25 kA		Normal switching capacity 50 kA	
	40	32 - 40	8 - 14	18.5	36	NZMB1-M40	265710	NZMN1-M40	265718
	50	40 - 50	8 - 14	22	41	NZMB1-M50	265711	NZMN1-M50	265719
	63	50 - 63	8 - 14	30	55	NZMB1-M63	265712	NZMN1-M63	265720
	80	63 - 80	8 - 14	37	68	NZMB1-M80	265713	NZMN1-M80	265721
	100	80 - 100	8 - 12.5	45	81	NZMB1-M100	265714	NZMN1-M100	265722
Fixed, Screw connection									
	125	100 - 125	8 - 14	55	99	NZMB2-M125	265715	NZMN2-M125	265723
	160	125 - 160	8 - 14	75	134	NZMB2-M160	265716	NZMN2-M160	265724
	200	160 - 200	8 - 14	110	196	NZMB2-M200	265717	NZMN2-M200	265725
Motor protection: Electronic release									
Fixed, Screw connection With phase-failure sensitivity, Adjustable release class						Normal switching capacity 50 kA		High switching capacity 150 kA	
	220	110 - 220	2 - 14	110	196	NZMN3-ME220	265781	NZMH3-ME220	265789
	350	175 - 350	2 - 14	200	349	NZMN3-ME350	265782	NZMH3-ME350	265790
	450	225 - 450	2 - 14	250	437	NZMN3-ME450	284468	NZMH3-ME450	284469

	Rated current = rated uninterrupted current $I_n = I_u$ A	Short-circuit protection max. fuse gL-characteristic A gL	Part no.	Article no.
Switch-disconnectors				
3 contactor states I, +, 0 Can be remotely operated with voltage release XU/XA, remote operator XR, Can be equipped with M22-K... trip-indicating auxiliary switch				
Fixed, Box terminal				
	63	125	N1-63	259143
	100	125	N1-100	259144
	125	125	N1-125	259145
	160	160	N1-160	281236
Fixed, Screw connection				
	160	250	N2-160	266008
	200	250	N2-200	266009
	250	250	N2-250	266010
	400	630	N3-400	266019
	630	630	N3-630	266020

NZM circuit-breakers, switch-disconnectors

UL/CSA, IEC circuit-breaker, Molded case switches for North America, 3 pole

Moeller® series

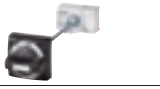
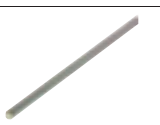
				Switching capacity 480 V 60 Hz		Switching capacity 480 V 60 Hz	
				Part no.	Article no.	Part no.	Article no.
Rated current = rated uninterrupted current							
Setting range							
Overload trip							
Short-circuit releases							
Non-delayed							
$I_n = I_u$							
A							
I_r							
A							
$I_i = I_n \times \dots$							
System and cable protection: Thermomagnetic release							
Adjustable overload releases I_r							
Fixed, Box terminal				Normal switching capacity 35 kA			
	20	15 - 20	350 A fixed	NZMN1-A20-NA	281570	-	
	25	20 - 25	350 A fixed	NZMN1-A25-NA	281571	-	
	32	25 - 32	350 A fixed	NZMN1-A32-NA	281572	-	
	40	32 - 40	8 - 10	NZMN1-A40-NA	274237	-	
	50	40 - 50	6 - 10	NZMN1-A50-NA	274239	-	
	63	50 - 63	6 - 10	NZMN1-A63-NA	274240	-	
	80	63 - 80	6 - 10	NZMN1-A80-NA	274241	-	
	100	80 - 100	6 - 10	NZMN1-A100-NA	274242	-	
	125	100 - 125	6 - 10	NZMN1-A125-NA	281573	-	
Fixed, Screw connection						High switching capacity 150 kA	
	20	15 - 20	350 A fixed	NZMN2-A20-NA	269217	NZMH2-A20-NA	269228
	25	20 - 25	350 A fixed	NZMN2-A25-NA	269218	NZMH2-A25-NA	269229
	32	25 - 32	350 A fixed	NZMN2-A32-NA	269219	NZMH2-A32-NA	269230
	40	32 - 40	8 - 10	NZMN2-A40-NA	269220	NZMH2-A40-NA	269231
	50	40 - 50	6 - 10	NZMN2-A50-NA	269221	NZMH2-A50-NA	269232
	63	50 - 63	6 - 10	NZMN2-A63-NA	269222	NZMH2-A63-NA	269233
	80	63 - 80	6 - 10	NZMN2-A80-NA	269223	NZMH2-A80-NA	269234
	100	80 - 100	6 - 10	NZMN2-A100-NA	269224	NZMH2-A100-NA	269235
	125	100 - 125	6 - 10	NZMN2-A125-NA	269225	NZMH2-A125-NA	269236
	160	125 - 160	6 - 10	NZMN2-A160-NA	269226	NZMH2-A160-NA	269237
	200	160 - 200	6 - 10	NZMN2-A200-NA	269227	NZMH2-A200-NA	269238
	250	200 - 250	6 - 10	NZMN2-A250-NA	271106	NZMH2-A250-NA	271107
System and cable protection: Electronic release							
Adjustable overload releases I_r							
R.m.s. value measurement and "thermal memory"							
Fixed, Screw connection				Normal switching capacity 42 kA		High switching capacity 100 kA	
	250	125 - 250	2 - 11	NZMN3-AE250-NA	269299	NZMH3-AE250-NA	269302
	400	200 - 400	2 - 11	NZMN3-AE400-NA	269300	NZMH3-AE400-NA	269303
	600	300 - 600	2 - 8	NZMN3-AE600-NA	269301	NZMH3-AE600-NA	269304
Molded case switches for North America							
Fixed short-circuit release (self-protection)							
3 contactor states I, +, 0							
Can be remotely operated with voltage release XU/XA, remote operator XR,							
Can be equipped with M22-K... trip-indicating auxiliary switch							
Fixed, Box terminal				High switching capacity 35 kA			
	63	-	1250 A fixed	NS1-63-NA	102681	-	
	100	-	1250 A fixed	NS1-100-NA	102682	-	
	125	-	1250 A fixed	NS1-125-NA	102683	-	
Fixed, Screw connection				High switching capacity 100 kA			
	160	-	2500 A fixed	NS2-160-NA	102684	-	
	200	-	2500 A fixed	NS2-200-NA	102685	-	
	250	-	2500 A fixed	NS2-250-NA	102686	-	
	400	-	6600 A fixed	NS3-400-NA	102687	-	
	600	-	6600 A fixed	NS3-600-NA	102688	-	

For use with		Terminal capacities		Part no. suffix	Article no. When ordering with basic device	Part no.	Article no. When ordered separately
		Connection	Terminal capacities mm ²				
Connection types NZM1							
Control circuit terminal 	NZM1, PN1, N(S)1	Box terminal	1 x 0.75 - 2.5 2 x 0.75 - 1.5	-	-	NZM-XSTK	266739
Multi tunnel terminal 	NZM1, N(S)1 ≤ 160 A	Cu cable	6 x 2.5 - 16	-	-	NZM1-XKAM	144112
Terminal cover, knockout, not UL/CSA approved For box terminal 	NZM1, N1	-	-	-	-	NZM1-XKSFA	100780
Shroud 	NZM1, N(S)1	-	-	-	-	NZM1-XKSA	260021
IP2X protection against contact with a finger For box terminal 	NZM1, N1	-	-	-	-	NZM1-XIPK	266744
For cover NZM1-XKSA or NZM1 or NZM1...(C)NA und N(S)1...NA 	NZM1, N(S)1	-	-	-	-	NZM1-XIPA	266748
Phase isolators 	NZM1, N(S)1	-	-	-	-	NZM1-XKP	119862
Connection types NZM2							
Box terminal 	NZM2, N(S)2 ≤ 160 A	Cu cable	1 x 10 - 185 2 x 4 - 70	+NZM2-160-XKCO	262218	NZM2-160-XKC	262240
				+NZM2-160-XKCU	262223	-	-
	NZM2, N(S)2 > 160 A			+NZM2-250-XKCO	262242	NZM2-250-XKC	262244
				+NZM2-250-XKCU	262243	-	-
Multi tunnel terminal 	NZM2, N(S)2 ≤ 250 A	Cu cable	6 x 2.5 - 35	-	-	NZM2-XKAM	144113
Control circuit terminal 	NZM2, PN2, N(S)2	Screw connection	1 x 0.75 - 2.5 2 x 0.75 - 1.5	-	-	NZM2-XSTS	260156
	NZM2, PN2, N(S)2	Box terminal	1 x 0.75 - 2.5 2 x 0.75 - 1.5	-	-	NZM-XSTK	266739
Cable lug-cover 	NZM2, N(S)2	Copper cable lugs Aluminium cable lug	1 x 10 - 185 2 x 4 - 70 1 x 10 - 50 2 x 10 - 50	-	-	NZM2-XKSAE	119868

For use with		Terminal capacities		Part no. suffix	Article no. When ordering with basic device	Part no.	Article no. When ordered separately
		Connection	Terminal capacities mm ²				
Phase isolators							
	NZM2, N(S)2	-	-	-	-	NZM2-XKP	119864
IP2X protection against contact with a finger							
For box terminal							
	NZM2, PN2, N2	-	-	-	-	NZM2-XIPK	266773
For cover NZM2-XKSA or NZM2 or NZM2...(C)NA und N(S)2...NA							
	NZM2, PN2, N(S)2	-	-	-	-	NZM2-XIPA	266777
CU-Cable lug Not UL/CSA approved. When using without cover NZM2 (-4)-XKSA, the cable lug must be insulated.							
	NZM2, N2	-	95	-	-	KS95-NZM7	059775
		-	120	-	-	KS120-NZM7	059776
		-	150	-	-	KS150-NZM7	059777
		-	185	-	-	NZM2-XKS185	260032
Connection types NZM3							
Box terminal							
	NZM3, N(S)3	Cu cable	1 x 35 ... 240 2 x 16 ... 120	+NZM3-XKCO +NZM3-XKCU	262246 262245	NZM3-XKC -	260042 -
Control circuit terminal							
	NZM3, PN3, N(S)3	Screw connection	1 x 0.75 ... 2.5 2 x 0.75 ... 1.5	-	-	NZM3/4-XSTS	266797
		Box terminal	1 x 0.75 - 2.5 2 x 0.75 - 1.5	-	-	NZM-XSTK	266739
Cable lug-cover							
	NZM3, N(S)3	Copper cable lugs Aluminium cable lug	1 x 16 - 240 2 x 16 - 240 1 x 10 - 120 2 x 10 - 120	-	-	NZM3-XKSAE	119869
Phase isolator							
	NZM3, N(S)3	-	-	-	-	NZM3-XKP	100512
IP2X protection against contact with a finger							
For box terminal							
	NZM3, N3	-	-	-	-	NZM3-XIPK	266804
For cover NZM3-XKSA or NZM3 or NZM3...(C)NA und N(S)3...NA							
	NZM3, N(S)3	-	-	-	-	NZM3-XIPA	266808
CU-Cable lug Not UL/CSA approved. When using without cover NZM3(-4)-XKSA, the cable lug must be insulated.							
	NZM3, N3	-	185	-	-	NZM3-XKS185	260040
		-	240	-	-	NZM3-XKS240	260041
		-	300	-	-	NZM3-XKS300	153186

			For use with	Contacts ⊖ = safety function, by positive opening to IEC/EN 60947-5-1 N/O = Normally open N/C = Normally closed		Part no.	Article no.
Auxiliary contact with screw connection/spring-cage terminal							
Standard auxiliary contact (HIN) Switching with the main contacts Used for indicating and interlocking tasks.							
	Single contact	NZM1, 2, 3 N(S)1, 2, 3	1 N/O -	- 1 NC ⊖	M22-K10 M22-K01	216376 216378	
Early-make auxiliary contact For interlocking and load shedding circuits, as well as for early make of the undervoltage release in main switch/Emergency-stop applications							
	with terminal block on the left-hand switch side	NZM1 N(S)1	2 N/O	-	NZM1-XHIV	259426	
	-	NZM2, 3 N(S)2, 3	2 N/O	-	NZM2/3-XHIV	259430	
Trip-indicating auxiliary switch (HIA) General trip indication '+', when tripped by shunt release, overload release, short-circuit release or by the residual-current release due to residual-current.							
	Single contact	NZM1, 2, 3 N(S)1, 2, 3	1 N/O -	- 1 NC ⊖	M22-K10 M22-K01	216376 216378	

			For use with	Rated control voltage U _s V	Part no.	Article no.
Undervoltage releases						
Without auxiliary contacts Non-delayed disconnection of NZM circuit-breaker or N switch-disconnector when the control voltage sinks below 35 – 70% U _s . For use with emergency switching off devices in conjunction with Emergency switching off button.						
	With terminal block on the left-hand switch side	NZM1 N(S)1	208 - 240 V 50/60 Hz 380 - 440 V 50/60 Hz 24 V DC	NZM1-XU208-240AC NZM1-XU380-440AC NZM1-XU24DC	259442 259444 259452	
	With bolt connection	NZM2, 3 N(S)2, 3	208 - 240 V 50/60 Hz 380 - 440 V 50/60 Hz 24 V DC	NZM2/3-XU208-240AC NZM2/3-XU380-440AC NZM2/3-XU24DC	259499 259501 259509	
Shunt releases						
Without auxiliary contacts Switches are tripped by a voltage pulse or by the application of uninterrupted voltage.						
	With terminal block on the left-hand switch side	NZM1 N(S)1	24 V AC/DC 208 - 250 V AC/DC	NZM1-XA24AC/DC NZM1-XA208-250AC/DC	259708 259726	
	With bolt connection	NZM2, 3 N(S)2, 3	24 V AC/DC 208 - 250 V AC/DC	NZM2/3-XA24AC/DC NZM2/3-XA208-250AC/DC	259754 259763	

		For use with	Part no.	Article no.	Notes		
Door coupling rotary handles							
Complete including rotary drive and coupling parts Extension shaft additionally required. Protection class IP66 UL/CSA Type 4X, Type 12							
Standard, black/grey							
	Lockable on the 0 position on the handle using up to 3 padlocks With door interlock	NZM1, N(S)1	NZM1-XTVD	260166	Door interlock • Not defeated in the locked OFF and ON positions • Can be modified in the unlocked ON position • Can be modified such that it can be defeated from the outside using a screwdriver • Door can be opened in OFF • External warning plate/designation label can be clipped on.		
		NZM2, N(S)2	NZM2-XTVD	260168			
		NZM3, N(S)3	NZM3-XTVD	260170			
	Lockable on the handle on the switch using up to 3 padlocks Modifiable on handle in I position as well With door interlock	NZM1, N(S)1	NZM1-XTVDV	260172			
		NZM2, N(S)2	NZM2-XTVDV	260174			
		NZM3, N(S)3	NZM3-XTVDV	260176			
Red-yellow for emergency switching off							
	Lockable on the handle on the switch using up to 3 padlocks With door interlock	NZM1, N(S)1	NZM1-XTVDVR	260178		Door interlock • Not defeated in the locked OFF position. • Can be modified in the unlocked ON position • Can be modified such that it can be defeated from the outside using a screwdriver • Door can be opened in OFF • External warning plate/designation label can be clipped on.	
		NZM2, N(S)2	NZM2-XTVDVR	260180			
		NZM3, N(S)3	NZM3-XTVDVR	260182			
Door coupling rotary handle for North America							
Complete including rotary drive and coupling parts Extension shaft additionally required. Protection class IP66 UL/CSA Type 4X, Type 12							
Standard, black/grey							
	Lockable on the 0 position on the handle using up to 3 padlocks With door interlock	NZM1, N1	NZM1-XTVD-NA	271445	Door interlock • Not defeated in the locked OFF position. • Door opens only with active rotation beyond the 0 position • Cannot be combined with mechanical interlock • External warning plate/designation label can be clipped on.		
		NZM2, N2	NZM2-XTVD-NA	271446			
		NZM3, N3	NZM3-XTVD-NA	271447			
	Lockable on the handle on the switch using up to 3 padlocks With door interlock	NZM1, N(S)1	NZM1-XTVDVR-NA	271449		Door interlock • Not defeated in the locked OFF position. • Door opens only with active rotation beyond the 0 position • Cannot be combined with mechanical interlock • External warning plate/designation label can be clipped on.	
		NZM2, N(S)2	NZM2-XTVDVR-NA	271450			
		NZM3, N(S)3	NZM3-XTVDVR-NA	271451			
Red-yellow for emergency switching off							
	Lockable on the handle on the switch using up to 3 padlocks With door interlock	NZM1, N(S)1	NZM1-XTVDVR-NA	271449			Door interlock • Not defeated in the locked OFF position. • Door opens only with active rotation beyond the 0 position • Cannot be combined with mechanical interlock • External warning plate/designation label can be clipped on.
		NZM2, N(S)2	NZM2-XTVDVR-NA	271450			
		NZM3, N(S)3	NZM3-XTVDVR-NA	271451			
Extension shaft							
	400 mm max. mounting depth	NZM1, N(S)1	NZM1/2-XV4	261232	Length 290 mm, can be cut to desired length		
		NZM2, N(S)2	NZM3/4-XV4	261234			
		NZM3, N(S)3	NZM3/4-XV4	261234			
	600 mm max. mounting depth	NZM1, N(S)1	NZM1/2-XV6	260191	Length 425 mm, can be cut to desired length		
		NZM2, N(S)2	NZM3/4-XV6	260193			
		NZM3, N(S)3	NZM3/4-XV6	260193			

		For use with	Rated control voltage U _s V	Part no. Article no.
Main switch assembly kit for IEC, UL/CSA				
Equipment supplied				
• Door coupling rotary handle with rotary drive • NZM...-XV4 extension shaft • External warning plate/marketing plate in German/English • Black and yellow lightning symbol				
Protection class IP66 UL/CSA Type 4X, Type 12				
With black door coupling rotary handle				
	Door interlock on OFF with max. 3 padlocks	NZM1, N(S)1	-	NZM1-XHB 266626
	Can also be modified in I position			
	After the door interlock is activated, must not be opened while on ON or TRIP. Must only be opened on OFF	NZM2, N(S)2	-	NZM2-XHB 266627
	Can be modified such that it can be defeated from the outside using a screwdriver	NZM3, N(S)3	-	NZM3-XHB 266628
	Not defeated in the locked OFF position.			
	Can only be switched ON when the door is closed			
With red door coupling rotary handle for use of switch as emergency switching off device to IEC/EN 60204-1, VDE 0113 part 1				
	Door interlock on OFF with max. 3 padlocks	NZM1, N(S)1	-	NZM1-XHBR 266632
	After the door interlock is activated, must not be opened while on ON or TRIP. Must only be opened on OFF	NZM2, N(S)2	-	NZM2-XHBR 266633
	Can be modified such that it can be defeated from the outside using a screwdriver	NZM3, N(S)3	-	NZM3-XHBR 266634
	Not defeated in the locked OFF position.			
	Can only be switched ON when the door is closed			
Main switch assembly kit with additional rotary handle for IEC, UL/CSA				
Equipment supplied				
• Door coupling rotary handle with rotary drive • Add-on rotary handle on switch with "Deliberate Action" operation as per NFPA79 and UL508A Part 2 • NZM1/2-XV4 shaft extension for mounting depth of 400 mm • External warning plate/marketing plate in German/English • Black and yellow lightning symbol				
Protection class IP66 UL/CSA Type 4X, Type 12				
With black door coupling rotary handle				
	Door interlock on OFF with max. 3 padlocks	NZM1, N(S)1	-	NZM1-XHB-DA-NA 125958
	With activated door interlock. Cannot be opened in ON, OFF, or TRIP. Can only be opened in RESET.	NZM2, N(S)2	-	NZM2-XHB-DA-NA 116897
	Can be modified such that it can be defeated from the outside using a screwdriver	NZM3, N(S)3	-	NZM3-XHB-DA-NA 119000
	Not defeated in the locked OFF position.			
With red door coupling rotary handle for use of switch as emergency switching off device				
	Door interlock on OFF with max. 3 padlocks	NZM1, N(S)1	-	NZM1-XHB-DAR-NA 125959
	With activated door interlock. Cannot be opened in ON, OFF, or TRIP. Can only be opened in RESET.	NZM2, N(S)2	-	NZM2-XHB-DAR-NA 116898
	Can be modified such that it can be defeated from the outside using a screwdriver	NZM3, N(S)3	-	NZM3-XHB-DAR-NA 119001
	Not defeated in the locked OFF position.			
Remote operator				
For remote switching of circuit-breakers and switch-disconnectors.				
ON and OFF switching and resetting by means of two-wire or three-wire control.				
Local switching by hand possible.				
Lockable in the 0 position of the remote operator with up to 3 padlocks (hasp thickness: 4 – 8 mm)				
Closing delay 110 - 170 ms, Break time 110 - 170 ms				
	Sliding switch for "Auto" or "Manual"	NZM2, N(S)2	208 - 240 V 50/60 Hz	NZM2-XRD208-240AC 115391
	Max. number auxiliary contacts: 2 standard auxiliary contacts, 1 trip-indicating auxiliary switches			
	-	NZM2, N(S)2	24 - 30 V DC	NZM2-XRD24-30DC 115393
Closing delay 60 - 100 ms, Break time 300 - 3000 ms				
Synchronized				
	-	NZM3, N(S)3	208 - 240 V 50/60 Hz	NZM3-XR208-240AC 259850
		NZM3, N(S)3	24 - 30 V DC	NZM3-XR24-30DC 259854

Description	Part no. Article no.	Notes
Diagnostics and configuration software for NZM and DMI (local)  PC software for direct connection to all NZM circuit-breakers with electronic releases (IEC and UL/CSA devices), including the connection cable required in order to connect to an NZM device.	NZM-XPC-KIT 265631	Only in combination with circuit-breakers with electronic trip blocks.
Touch display with integrated controller BreakerVisu (HMI-PLC) Visualize and log circuit-breaker and/or measuring device data Read diagnostic memories Create energy logs Connect NZM using NZM-XSWD-704 Connect all NZM...-XMC-MB... measuring modules and NZM-XMC-TC-MB Connection of IZMX16/40 using IZMX-MCAM Connect IZM26... using IZM-MMINT Connect PKE with XTUA or XTUWA using PKE-SWD-SP Connect PKE with XTUACP or XTUWACP using PKE-SWD-CP Connect RCCBs, MCBs, RCBOs using MCB-HK-SWD Ethernet connection for display on web browsers FTP connection for data transfers Gateway function for forwarding data Non-Eaton devices can be connected		
 Max. 8 devices via MODBUS RTU 3.5 Inch Color display, TFT	NZM-XMC-MDISP35-MOD 172764	
 Max. 8 devices via SmartWire-DT 3.5 Inch Color display, TFT	NZM-XMC-MDISP35-SWD 172765	
 Max. 32 devices via MODBUS RTU and/or max. 16 devices via SmartWire-DT 7 Inch Color display, TFT	NZM-XMC-MDISP70 172766	
SmartWire-DT interface for NZM circuit-breakers  The module implements the data connection between the NZM2/3/4 with electronic release and the SmartWire-DT. • Status data NZM: ON/OFF/TRIPPED • Load warnings • Reason for last trip • Actual current value in A • Switch type • Actual settings of the rotary coding switches	NZM-XSWD-704 135530	A connection cable (1.90 m) for the circuit-breaker and two NZM auxiliary contacts (1 x NO, 1 x NC) are included as standard. 
Measuring and communication module  For measuring current, voltage, power and energy. The module has three built-in current transformers and three voltage taps, which are contacted with self-tapping screws, which penetrate the cable insulation. Power supply 24 VDC Two SO pulse outputs Modbus interface (Slave) The total energy consumption value is permanently stored in the module. Display device NZM-XMC-DISP can be connected for local indication of the readings.	NZM2-XMC-MB-250 156641 NZM2-XMC-MB 129961 NZM3-XMC-MB 129962	The minimum clearances relative to the NZM circuit-breaker need to be maintained for installation. The module can be installed on the input or outgoing side and can be set up using the Eaton Modbus Configurator(www.eaton.eu).

Description	Part no. Article no.	Notes
Measuring and communication module for external current transformers		
 For measuring current, voltage, power, and energy. In addition, the module requires three current transformers and three voltage taps wired externally. X/5A standard current transformers rated for up to 6,300 A are suitable. 230 VAC power supply 2 configurable outputs (S0 pulse, alarm, etc.) RS-485 Modbus port (slave) The total energy consumption value will be stored in retentive memory on the module. BreakerVisu displays (NZM-XMC-MDISP...) can be used for visualization and logging purposes.	NZM-XMC-TC-MB 169832	The minimum clearances relative to the NZM circuit-breaker need to be maintained for installation. The module can be installed on the input or outgoer side, as well as on a top hat DIN rail. The Eaton Modbus Configurator (www.eaton.eu) can be used to set up the module. Cannot be combined with NZM-XMC-DISP display device.
Digital display device		
 For flush mounting on doors (connection to local display) For all measuring and communication modules with a Modbus interface Phase-specific indication of currents, voltages, power, and energy values Pre-configured screens available Cannot be combined with NZM-XMC-TC-MB Front dimensions 96 x 96 mm Front cutout 92 x 92 mm	NZM-XMC-DISP 129967	Connection to NZM...XMC-MB using four-wire data cable (not included as standard). Cannot be combined with NZM-XMC-TC-MB.

		Setting range		High switching capacity 150 kA Part no. Article no. Screw connection
Number of poles	Rated current = rated uninterrupted current $I_n = I_u$ A	Overload trip I_r A	Short-circuit releases I_i A	
				

Circuit-breakers with earth-fault release					
For equipment with power electronics, such as inverters and variable frequency drives Not UL/CSA approved Suitability for the application in three-phase systems Rated operating voltage 400 V 50 Hz (+/- 10 %) Rated fault current $I_{\Delta n} = 0.03$ A Internal power supply $U_e = 50 - 400$ V AC/DC sensitive according to core-balance principle in range of 0 – 100 kHz residual-current frequency. Prefabricated combination of current-limiting circuit-breaker and residual current device Adjusting buttons can be sealed.					
	3 pole	125	100 - 125	750 - 1250	NZMH2-A125-FIA30 129710
		160	125 - 160	960 - 1600	NZMH2-A160-FIA30 112627
		200	160 - 200	1200 - 2000	NZMH2-A200-FIA30 112628
		250	200 - 250	1500 - 2500	NZMH2-A250-FIA30 112629

Build it in.



Hydraulic magnetic circuit breakers to design a more reliable machine



Catalog download:
www.eaton.eu/HMCB

Hydraulic magnetic circuit breakers offer optimal protection for your equipment avoiding risks of unexpected tripping due to starting current peaks (motor) or caused by inductive circuits with long cables: it therefore also enables cable cross-section optimization.

It's difficult to get low DC voltage on long cables right. This can be because of T° variation modifying circuit resistivity, interferences caused by the long wiring acting like an antenna or just a peak generated by inductive circuits or motor start. Configuration like this can often lead to unexpected tripping of the circuit protection.

By design, this technology offers an accurate, robust and repeatable means of protecting your electrical equipment without creating a nuisance tripping. The benefits of Eaton Heinemann's hydraulic magnetic circuits breakers include the ability to manage current peaks generated by motor starts, a fixed tripping point insensitive to ambient T° variations, proven resistance to shocks and vibrations and no derating over time and usage.



Special tripping characteristics prevent the nuisance tripping

Triggering of the mechanism in hydraulic magnetic circuit breakers is based on the solenoid principle. The coil is wired around an hermetic tube containing a movable core, damped with silicon oil and held by a spring, and moves by the attraction of a magnetic field. The combined action of the spring and oil's viscosity gives a specific dynamic to the core's movement and allows special tripping characteristics that prevent the nuisance tripping while ensuring accurate and repeatable protection over time and usage.

What makes this technology different

In the event of overload or fault condition, the increase of the current in the coil makes the core moves toward a pole piece: the reluctance of the magnetic circuit that contains the armature is then reduced. Once the core reaches the pole piece, the armature is attracted and the mechanism of the breaker trips, causing the separation of contact. In the event of a short circuit, the magnetic field generated by the current in the coil immediately attracts the armature without any delay. This is what makes the technology different: two different actions using only one technology and the principles of magnetism.



ADS – DIN mounted Hydraulic magnetic circuit breaker

The ADS Supplementary Protector is a dual rated product for both AC and DC supplies, in accordance with UL 1077, CSA 22.2, VDE 0660 and IEC 60947-2 standards.

It is to be applied in conjunction with a branch protector (if branch protection is required) and can be a replacement for similarly applied fuses. Its advantages over fuses are that it is resettable and the device's status is easily and clearly identified by the position of the handle.

In addition to this, the user is able to select a device that precisely fits the application (of which here are many) due to the availability of a wide range of current ratings, three levels of inrush tolerance (8 x, 15 x, 22 x for 50 Hz) and flexible time characteristic curves (Short, Medium and Long Delay).

In addition to this, the ADS's protection performance is not adversely affected and is resistant to abnormal or changing ambient temperatures or even excessive environmental factors.

The design allows it to be utilized in environments that can expose it to fungus, shock or out of the ordinary vibration.

Accessories

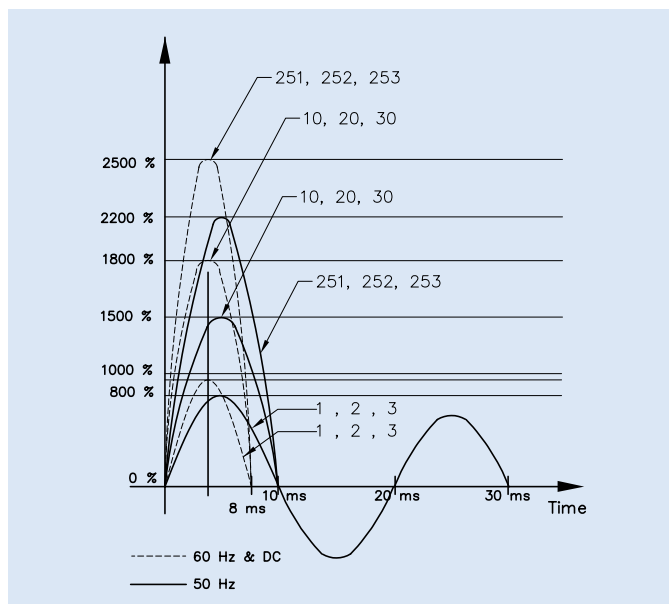
The large choice of internal circuits, handles, terminals, auxiliary contacts, mounting styles and range of protections makes those circuit breakers the ideal choice for demanding applications.





Features, Benefits and Functions

- Used to provide overcurrent protection where branch protection (for example UL 489 MCCB) is already provided or not required
- Installed as a component within or part of an appliance or a piece of electrical equipment
- Ideal replacement for uses that are applied as a supplementary protector i.e., in addition to branch protection (if required)
- Light Gray case with White handle, that is marked "O" for OFF and "I" for ON
- Environmental, Vibration and Shock Resistant: Mil-spec qualification for fungus resistance, humidity, salt spray resistance and shock vibration resistance
- **Heat Induced Nuisance Tripping Eliminated:**
The protector is designed to "hold in" at 100 % continuous rated current, regardless of ambient temperatures from -40 °C to +85 °C
- **Immediate Reset After Trip:**
The circuit breaker can be reset (closed) immediately after an overcurrent trip without a "cooling off" period
- **1/2 Cycle High Inrush Tolerance – 8 x (standard), 15 x and 22 x for 50 Hz (20 - 18 - 25 x for 60 Hz):**
The protector is available with different levels of tolerance to 1/2 cycle current pikes – standard tolerance is 8 x the continuous current rating; in addition 18 x and 25 x are also available
- **Overcurrent curves, Long, Medium or Short Delay:**
Time characteristic curves are available as Short, Medium and Long Delay
- **Integral Auxiliary Switch (optional selection):**
One auxiliary switch (NO or NC) can be factory installed per pole – a separate pole for auxiliary is NOT required.
- **Precise Overcurrent Calibration:**
The protector can be precisely calibrated to a wide variety of current ratings, from 0.1 to 63 continuous amperes
- **DIN Rail Mountable:**
The protector can be easily mounted, utilizing its quick release spring clip to attach it to a 35 mm DIN rail.
- **Standards and Certifications**
 - UL recognized under UL 1077
 - UL File No. E69553
 - CSA 22.2 No. 235
 - IEC 60947-2
 - CE marked
 - CCC marked



Inrush

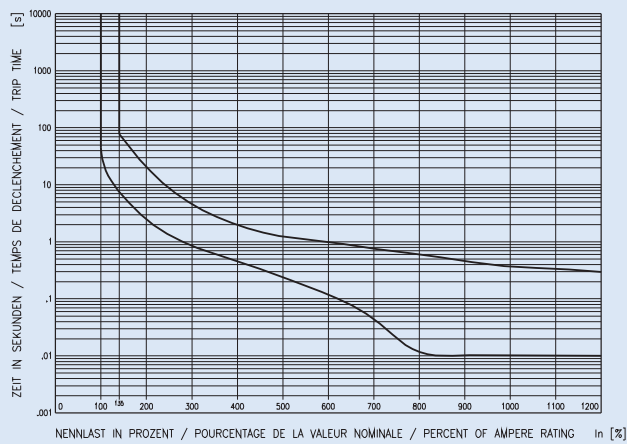
ADS circuit breakers are available with various levels of high-inrush currents avoiding nuisance trip during short starting periods at turn on.

In case of motor protections for example causing a steep wave front transient of very high current amplitude and short duration of overload, the breaker does not trip.

By using AS high-inrush types, unnecessary and dangerous overcalibrations involving use of thicker cables or wires can be avoided, thus saving energy and money.

The magnetic shunt used offers maximum possibilities on half wave which is 10 ms when frequency is 50 Hz.

At 60 Hz half wave periode is 8 ms based on value of 1800 % instead of 1500 % and 2500 % instead of 2200 % at 50 Hz.



Medium delay

Approvals

VDE 60947-2 : 80 VDC / 400 VAC

1-2 Poles

63 A maxi

Ic 1500 A

UL 1077 : 65 VDC / 250 – 277 VAC

1-4 Poles

50 A maxi

Ic 5000 A

In.%	135	200	300	400	500	600	700	800	900	1000	1100	1200
MAX	85.0	20.0	4.50	2.00	1.20	1.00	.750	.600	.450	.290	–	–
MIN	8.0	2.5	.85	.45	.25	.13	.045	.012	.010	.010	–	–

Ordering data

15x InRush (50 Hz) – Medium Delay Curve 20 (AC/DC)

	Amps	Part no.	Part no.	Part no.	Part no.
		1 Pole	2 Poles	3 Poles	4 Poles
	0.16	AD1S-Y50x-1	AD2S-Y50x-1	AD3S-Y50x-1	AD4S-Y50x-1
	0.25	AD1S-Y50x-2	AD2S-Y50x-2	AD3S-Y50x-2	AD4S-Y50x-2
	0.5	AD1S-Y50x-3	AD2S-Y50x-3	AD3S-Y50x-3	AD4S-Y50x-3
	0.75	AD1S-Y50x-4	AD2S-Y50x-4	AD3S-Y50x-4	AD4S-Y50x-4
	1	AD1S-Y50x-5	AD2S-Y50x-5	AD3S-Y50x-5	AD4S-Y50x-5
	1.5	AD1S-Y50x-6	AD2S-Y50x-6	AD3S-Y50x-6	AD4S-Y50x-6
	1.6	AD1S-Y50x-7	AD2S-Y50x-7	AD3S-Y50x-7	AD4S-Y50x-7
	2	AD1S-Y50x-8	AD2S-Y50x-8	AD3S-Y50x-8	AD4S-Y50x-8
	2.5	AD1S-Y50x-9	AD2S-Y50x-9	AD3S-Y50x-9	AD4S-Y50x-9
	3	AD1S-Y50x-10	AD2S-Y50x-10	AD3S-Y50x-10	AD4S-Y50x-10
	3.5	AD1S-Y50x-11	AD2S-Y50x-11	AD3S-Y50x-11	AD4S-Y50x-11
	4	AD1S-Y50x-12	AD2S-Y50x-12	AD3S-Y50x-12	AD4S-Y50x-12
	5	AD1S-Y50x-13	AD2S-Y50x-13	AD3S-Y50x-13	AD4S-Y50x-13
	6	AD1S-Y50x-14	AD2S-Y50x-14	AD3S-Y50x-14	AD4S-Y50x-14
	7	AD1S-Y50x-15	AD2S-Y50x-15	AD3S-Y50x-15	AD4S-Y50x-15
	8	AD1S-Y50x-16	AD2S-Y50x-16	AD3S-Y50x-16	AD4S-Y50x-16
	10	AD1S-Y50x-17	AD2S-Y50x-17	AD3S-Y50x-17	AD4S-Y50x-17
	12	AD1S-Y50x-18	AD2S-Y50x-18	AD3S-Y50x-18	AD4S-Y50x-18
	13	AD1S-Y50x-19	AD2S-Y50x-19	AD3S-Y50x-19	AD4S-Y50x-19
	15	AD1S-Y50x-20	AD2S-Y50x-20	AD3S-Y50x-20	AD4S-Y50x-20
	16	AD1S-Y50x-21	AD2S-Y50x-21	AD3S-Y50x-21	AD4S-Y50x-21
	20	AD1S-Y50x-22	AD2S-Y50x-22	AD3S-Y50x-22	AD4S-Y50x-22
	25	AD1S-Y50x-23	AD2S-Y50x-23	AD3S-Y50x-23	AD4S-Y50x-23
	30	AD1S-Y50x-24	AD2S-Y50x-24	AD3S-Y50x-24	AD4S-Y50x-24
	32	AD1S-Y50x-25	AD2S-Y50x-25	AD3S-Y50x-25	AD4S-Y50x-25
	35	AD1S-Y50x-26	AD2S-Y50x-26	AD3S-Y50x-26	AD4S-Y50x-26
	40	AD1S-Y50x-27	AD2S-Y50x-27	AD3S-Y50x-27	AD4S-Y50x-27
	50	AD1S-Y50x-28	AD2S-Y50x-28	AD3S-Y50x-28	AD4S-Y50x-28
	63	AD1S-Y50x-29	AD2S-Y50x-29	AD3S-Y50x-29	AD4S-Y50x-29



This is only given as example but large choice of internal circuits, tripping characteristics, Inrush are available.
Information on: www.eaton.eu/HMCB

0 : Without Aux Contact
X choice 1 : With Aux contact NO
2 : With Aux contact NC

“Aux contact on first pole per default, but other configuration are possible”.

Build it in.



up to 25 kA
to IEC/EN 60947-2

Protection for all applications: Safety up to 125 A



Industry, system builders and the trade sector worldwide place their trust in Eaton products and solutions. Tested quality, approvals and shipping register classifications vouch for the functional scope and reliability of xEffect industrial miniature circuit breakers being suitable for world markets. In conjunction with the versatile complete range of modular installation devices and accessories, the user is provided with more options for solving complex technical problems.

Eaton offers a comprehensive range of residual current devices for residual current protection of persons against electrical shock and to protect installations against fire.



When it comes to protection and switching, industry in many countries relies on Eaton products

Optimum product quality and tested reliability and safety stand for optimum protection of personnel, installations and plant. Approvals in many countries confirm that Eaton builds its products to comply with the latest national and international regulations. The high IEC/EN 60947-2 switching capacity of 15 kA with FAZ and 15 to 25 kA with AZ and FAZT, as well as effective current limitation and selectivity provide optimum system protection and maximum availability.



Powerful range for machine and system builders

The xEffect Industrial FAZ is available with B, C and D characteristic to IEC/EN 60898-1. An additional special characteristic has become necessary for effective protection, due to the growing proportion of sensitive electronics. The Z characteristic with a short-circuit response current of 2 to $3 \times I_n$ offers quick overload protection reaction for this purpose. The K characteristic with a high short-circuit response current of 8 to $12 \times I_n$ prevents nuisance tripping during connection of three-phase loads.

The S characteristic with a limited response current of 13 to $17 \times I_n$ has become established in system building.



Digital residual-current protection designed to keep your equipment running

Whether using three-pole or four-pole standards, Eaton's new digital residual current devices are powerful multifunctional "bodyguards" designed to ensure safety in distributed environments and work with a wide variety of machines and systems. They are as intelligent as they are vigilant, and will prevent even the smallest fault current from passing. Moreover, these digital guardians will immediately indicate any inconsistencies. This advance warning function is designed to enable operators to intervene and ensure that operations keep running smoothly. If there really is any danger, the digital residual current device will trip with utmost precision – much more accurately, in fact, than conventional analog circuit breakers. This high-precision tripping behavior keeps accidental tripping to a minimum and will improve the continuity of your operations.



Gradual fault warning

Digital circuit breakers use a potential-free switching contact to communicate with their surroundings. This means that it will not be necessary to run all the way to the distribution board to figure out what the system's status is, as an automatic advance warning can be issued when $I_{\Delta} > 0,3 \times I_{\Delta n}$, for example. From driving external lights and/or buzzers to establishing a connection to monitoring systems able to send SMS notifications to your cell phone: the sky's the limit when it comes to the ways you can use this option.

Continuous electrical system monitoring

An LED traffic light indicator on the device makes it possible to immediately determine the system's status locally.

Green = Normal range

Yellow = The leakage current or fault current is $30 - 50 \%$ of $I_{\Delta n}$

Red = The leakage current or fault current is $> 50 \%$ of $I_{\Delta n}$.

The device will trip very closely to the 100% value.



Combine convenience with efficiency and safety

The test button on the digital residual current circuit breaker only needs to be pressed once a year. In addition, an integrated overload functionality makes it possible to eliminate the need for a thermal back-up fuse for the residual current device, while an integrated short time delay (type G) ensures that it will not trip in response to short transient overvoltages (e.g., caused by a lightning strike). The upper and lower ring tongue/spring clamp double terminals provide added convenience, matched by the added safety provided by the accessories for the device. Both the integrated red/green position indicator and the white/blue tripped current indicator provide all the necessary information right on the unit. Finally, a wide range of accessories, such as the Z-HK, can be retrofitted, and the fact that the device can be sealed provides even greater levels of safety.



The key to effortless connections and smart communication

The SmartWire-DT auxiliary contact module makes it possible to easily connect a circuit breaker, fault current switch or combination protective switch to the SmartWire DT line using plug-in connection and to in this way easily and quickly integrate the protective switching devices. This eliminates the need for an I/O interface, with the required information being implemented in controllers and drives. SmartWire-DT auxiliary contacts can be used to relay the ON, OFF, and Tripped (by a fault) states.



Flexibility using modular installation devices

Eaton offers a broad range of modular installation devices for the control circuit and for switching, as well as for signaling and alarms. All these devices are suitable for DIN-rail mounting and offer tangible installation and wiring benefits for industrial applications.



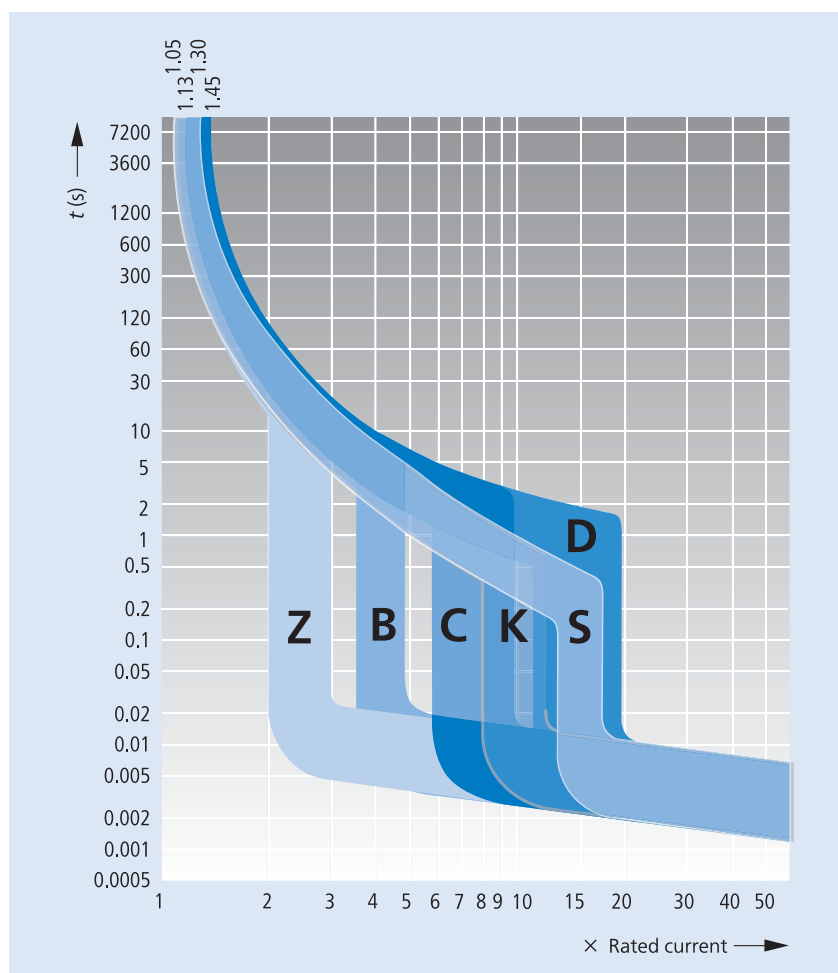
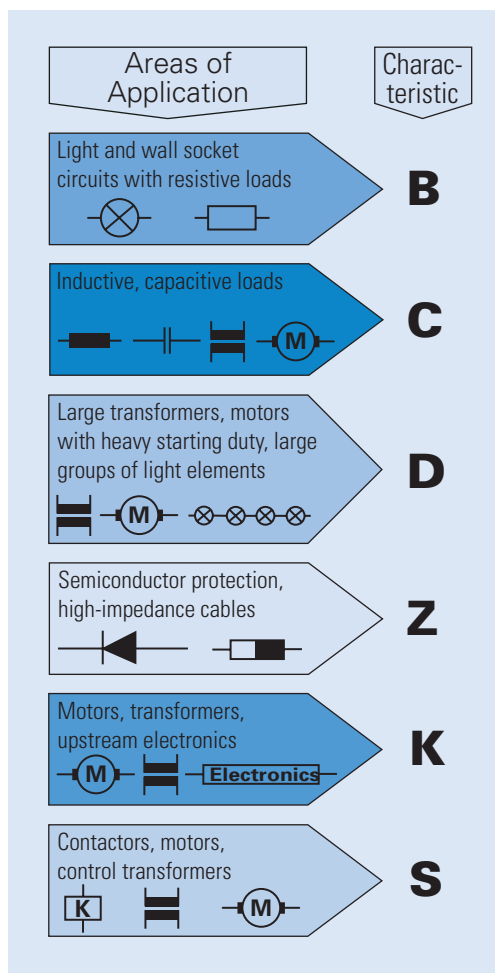
Lightning and surge protection

The lightning and surge protective device SPB-12/280 is a combined lightning and surge arrester (arrester class B+C) in just one space unit. The world's first complies with required lightning surge currents of protection classes III and IV of the IEC 62305 and thus achieves the required minimum lightning surge current of 12.5 kA per protected circuit specified in standard IEC 60364-5-53. The transient voltage surge suppression is achieved with a nominal impulse discharge current of 25 kA that greatly exceeds the minimum requirement of 5 kA per protected circuit.



Practical complete product range

The comprehensive range is complemented by equipment required in industrial installations, such as DIN-rail mounting Schuko sockets, ammeters and voltmeters, power consumption and operational hours meters, as well as analog and digital timers, staircase timers, light intensity switches, buzzers and bells. Eaton offers an extensive product range for the perfect installation, all from a single source.



Tripping characteristics of the xEffect Industrial FAZ miniature circuit breaker

The versatile, individual tripping characteristics offer cable protection, individual device protection and protection in the control circuit.

The high levels of rated switching capacity from 10 to 25 kA, as well as effective current limitation and selectivity ensure optimum system protection and availability.

The B characteristic is utilised in the protection of light and wall socket circuits.

The C characteristic is utilised wherever operational current peaks and other surges occur that must not lead to tripping.

For large transformers, motors with heavy starting duty or extensive groups of light elements, the D characteristic is the correct solution.

The characteristics are available on single- and multi-pole component versions in all the ratings up to 63 A.

Enhanced cable protection at high operational continuity

The K characteristic trips out at short circuits of 8 to 12 times rated current and is utilised wherever operational current peaks and other current surges can occur, but must not cause tripping.

Thus it lies in the upper reach of the C and in the lower reach of the D characteristic. This allows motors, capacitors, welding transformers and electronically controlled upstream devices to be connected in the optimum way. The K characteristic from Eaton offers enhanced cable protection due to its narrower bimetal tripping range for overload protection.

Safety for control circuits

The control circuit protective switch with S characteristic is designed for the protection of control circuits with high inrush currents. At 13 to $17 \times I_n$, the magnitude of the short-circuit current here lies in a limited band of the D characteristic above the starting peak of the typical control transformer. Thus, unintentional tripping is prevented by the S characteristic device, which is tested to IEC/EN 60947-2. Compliant with this Standard, the control circuit protective switch only permits an overload of between 5 and 30 %.

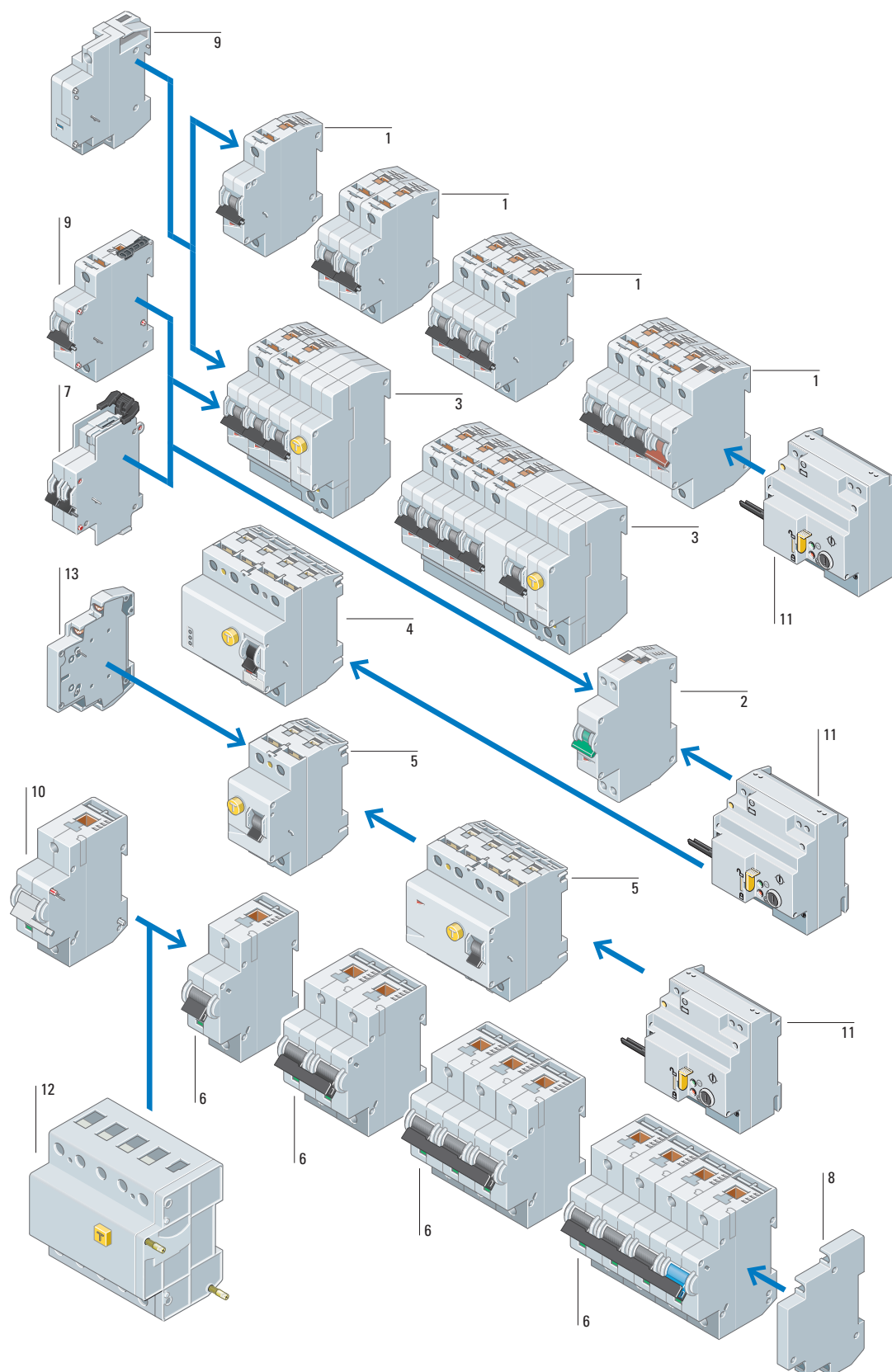
Rapid-response protection for electronics

Electronic components and devices can be destroyed by even small current surges. The protective switches xEffect Industrial FAZ with Z characteristic trip out instantly even at surges of 2 to 3 times rated current. This property also renders these protective circuit breakers suitable for the protection of high-impedance cables.

Miniature circuit-breaker, residual current circuit-breaker

System overview

Moeller® series



- | | | | |
|---|--|----|---|
| 1 | FAZ miniature circuit-breakers | 7 | FAZ auxiliary contact module or SmartWire-DT connection module |
| 1 | FAZT miniature circuit-breakers | 8 | AZ auxiliary contacts |
| 2 | FAZ-PN miniature circuit-breaker | 9 | FAZ voltage releases |
| 3 | FBSmV residual-current protective modules for fitting to FAZ | 10 | AZ voltage releases |
| 4 | FRBmM combination switch | 11 | Remote switching module |
| 5 | FRCmM residual current circuit breaker | 12 | FBHmV residual-current protective modules for fitting to AZ |
| 6 | AZ miniature circuit-breakers | 13 | Residual-current auxiliary contact module or SmartWire-DT connection module |



Rated current		Switching capacity (IEC/EN 60947-2)		1 pole		1 pole+N		2 pole		3 pole	
I_n				Part no.	Article no.	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
A		kA									
FAZ miniature circuit-breakers											
(please enquire for circuit-breakers with 3+N and 4 poles)											
Characteristic B											
Instantaneous release response current 3 - 5 x I_n											
1	15			FAZ-B1/1	278520	FAZ-B1/1N	278633	FAZ-B1/2	278719	FAZ-B1/3	278832
1.5	15			FAZ-B1,5/1	278521	FAZ-B1,5/1N	278634	FAZ-B1,5/2	278720	FAZ-B1,5/3	278833
1.6	15			FAZ-B1,6/1	278522	FAZ-B1,6/1N	278635	FAZ-B1,6/2	278721	FAZ-B1,6/3	278834
2	15			FAZ-B2/1	278523	FAZ-B2/1N	278636	FAZ-B2/2	278722	FAZ-B2/3	278835
2.5	15			FAZ-B2,5/1	278524	FAZ-B2,5/1N	278637	FAZ-B2,5/2	278723	FAZ-B2,5/3	278836
3	15			FAZ-B3/1	278525	FAZ-B3/1N	278638	FAZ-B3/2	278724	FAZ-B3/3	278837
3.5	15			FAZ-B3,5/1	278526	FAZ-B3,5/1N	278639	FAZ-B3,5/2	278725	FAZ-B3,5/3	278838
4	15			FAZ-B4/1	278527	FAZ-B4/1N	278640	FAZ-B4/2	278726	FAZ-B4/3	278839
5	15			FAZ-B5/1	278528	FAZ-B5/1N	278641	FAZ-B5/2	278727	FAZ-B5/3	278840
6	15			FAZ-B6/1	278529	FAZ-B6/1N	278642	FAZ-B6/2	278728	FAZ-B6/3	278841
8	15			FAZ-B8/1	278530	FAZ-B8/1N	278643	FAZ-B8/2	278729	FAZ-B8/3	278842
10	15			FAZ-B10/1	278531	FAZ-B10/1N	278644	FAZ-B10/2	278730	FAZ-B10/3	278843
12	15			FAZ-B12/1	278532	FAZ-B12/1N	278645	FAZ-B12/2	278731	FAZ-B12/3	278844
13	15			FAZ-B13/1	278533	FAZ-B13/1N	278646	FAZ-B13/2	278732	FAZ-B13/3	278845
15	15			FAZ-B15/1	278534	FAZ-B15/1N	278647	FAZ-B15/2	278733	FAZ-B15/3	278846
16	15			FAZ-B16/1	278535	FAZ-B16/1N	278648	FAZ-B16/2	278734	FAZ-B16/3	278847
20	15			FAZ-B20/1	278536	FAZ-B20/1N	278649	FAZ-B20/2	278735	FAZ-B20/3	278848
25	15			FAZ-B25/1	278537	FAZ-B25/1N	278650	FAZ-B25/2	278736	FAZ-B25/3	278849
32	15			FAZ-B32/1	278538	FAZ-B32/1N	278651	FAZ-B32/2	278737	FAZ-B32/3	278850
40	15			FAZ-B40/1	278539	FAZ-B40/1N	278652	FAZ-B40/2	278738	FAZ-B40/3	278851
50	15			FAZ-B50/1	278540	FAZ-B50/1N	278653	FAZ-B50/2	278739	FAZ-B50/3	278852
63	15			FAZ-B63/1	278541	FAZ-B63/1N	278654	FAZ-B63/2	278740	FAZ-B63/3	278853
Characteristic C											
Instantaneous release response current 5 - 10 x I_n											
0.16	15			FAZ-C0,16/1	278542	FAZ-C0,16/1N	278655	FAZ-C0,16/2	278741	FAZ-C0,16/3	278854
0.25	15			FAZ-C0,25/1	278543	FAZ-C0,25/1N	278656	FAZ-C0,25/2	278742	FAZ-C0,25/3	278855
0.5	15			FAZ-C0,5/1	278544	FAZ-C0,5/1N	278657	FAZ-C0,5/2	278743	FAZ-C0,5/3	278856
0.75	15			FAZ-C0,75/1	278545	FAZ-C0,75/1N	278658	FAZ-C0,75/2	278744	FAZ-C0,75/3	278857
1	15			FAZ-C1/1	278546	FAZ-C1/1N	278659	FAZ-C1/2	278745	FAZ-C1/3	278858
1.5	15			FAZ-C1,5/1	278547	FAZ-C1,5/1N	278660	FAZ-C1,5/2	278746	FAZ-C1,5/3	278859
1.6	15			FAZ-C1,6/1	278548	FAZ-C1,6/1N	278661	FAZ-C1,6/2	278747	FAZ-C1,6/3	278860
2	15			FAZ-C2/1	278549	FAZ-C2/1N	278662	FAZ-C2/2	278748	FAZ-C2/3	278861
2.5	15			FAZ-C2,5/1	278550	FAZ-C2,5/1N	278663	FAZ-C2,5/2	278749	FAZ-C2,5/3	278862
3	15			FAZ-C3/1	278551	FAZ-C3/1N	278664	FAZ-C3/2	278750	FAZ-C3/3	278863
3.5	15			FAZ-C3,5/1	278552	FAZ-C3,5/1N	278665	FAZ-C3,5/2	278751	FAZ-C3,5/3	278864
4	15			FAZ-C4/1	278553	FAZ-C4/1N	278666	FAZ-C4/2	278752	FAZ-C4/3	278865
5	15			FAZ-C5/1	278554	FAZ-C5/1N	278667	FAZ-C5/2	278753	FAZ-C5/3	278866
6	15			FAZ-C6/1	278555	FAZ-C6/1N	278668	FAZ-C6/2	278754	FAZ-C6/3	278867
8	15			FAZ-C8/1	278556	FAZ-C8/1N	278669	FAZ-C8/2	278755	FAZ-C8/3	278868
10	15			FAZ-C10/1	278557	FAZ-C10/1N	278670	FAZ-C10/2	278756	FAZ-C10/3	278869
12	15			FAZ-C12/1	278558	FAZ-C12/1N	278671	FAZ-C12/2	278757	FAZ-C12/3	278870
13	15			FAZ-C13/1	278559	FAZ-C13/1N	278672	FAZ-C13/2	278758	FAZ-C13/3	278871
15	15			FAZ-C15/1	278560	FAZ-C15/1N	278673	FAZ-C15/2	278759	FAZ-C15/3	278872
16	15			FAZ-C16/1	278561	FAZ-C16/1N	278674	FAZ-C16/2	278760	FAZ-C16/3	278873
20	15			FAZ-C20/1	278562	FAZ-C20/1N	278675	FAZ-C20/2	278761	FAZ-C20/3	278874
25	15			FAZ-C25/1	278563	FAZ-C25/1N	278676	FAZ-C25/2	278762	FAZ-C25/3	278875
32	15			FAZ-C32/1	278564	FAZ-C32/1N	278677	FAZ-C32/2	278763	FAZ-C32/3	278876
40	15			FAZ-C40/1	278565	FAZ-C40/1N	278678	FAZ-C40/2	278764	FAZ-C40/3	278877
50	15			FAZ-C50/1	278566	FAZ-C50/1N	278679	FAZ-C50/2	278765	FAZ-C50/3	278878
63	15			FAZ-C63/1	278567	FAZ-C63/1N	278680	FAZ-C63/2	278766	FAZ-C63/3	278879



Rated current	Switching capacity (IEC/EN 60947-2)	1 pole		1 pole+N		2 pole		3 pole	
I_n		Part no.	Article no.	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
A	kA								
FAZ miniature circuit-breakers									
(please enquire for circuit-breakers with 3+N and 4 poles)									
Characteristic D Instantaneous release response current 10 - 20 x I_n									
0.5	15	FAZ-D0,5/1	278568	FAZ-D0,5/1N	278681	FAZ-D0,5/2	278767	FAZ-D0,5/3	278880
1	15	FAZ-D1/1	278569	FAZ-D1/1N	278682	FAZ-D1/2	278768	FAZ-D1/3	278881
1.5	15	FAZ-D1,5/1	278570	FAZ-D1,5/1N	278683	FAZ-D1,5/2	278769	FAZ-D1,5/3	278882
1.6	15	FAZ-D1,6/1	278571	FAZ-D1,6/1N	278684	FAZ-D1,6/2	278770	FAZ-D1,6/3	278883
2	15	FAZ-D2/1	278572	FAZ-D2/1N	278685	FAZ-D2/2	278771	FAZ-D2/3	278884
2.5	15	FAZ-D2,5/1	278573	FAZ-D2,5/1N	278686	FAZ-D2,5/2	278772	FAZ-D2,5/3	278885
3	15	FAZ-D3/1	278574	FAZ-D3/1N	278687	FAZ-D3/2	278773	FAZ-D3/3	278886
3.5	15	FAZ-D3,5/1	278575	FAZ-D3,5/1N	278688	FAZ-D3,5/2	278774	FAZ-D3,5/3	278887
4	15	FAZ-D4/1	278576	FAZ-D4/1N	278689	FAZ-D4/2	278775	FAZ-D4/3	278888
5	15	FAZ-D5/1	278577	FAZ-D5/1N	278690	FAZ-D5/2	278776	FAZ-D5/3	278889
6	15	FAZ-D6/1	278578	FAZ-D6/1N	278691	FAZ-D6/2	278777	FAZ-D6/3	278890
8	15	FAZ-D8/1	278579	FAZ-D8/1N	278692	FAZ-D8/2	278778	FAZ-D8/3	278891
10	15	FAZ-D10/1	278580	FAZ-D10/1N	278693	FAZ-D10/2	278779	FAZ-D10/3	278892
12	15	FAZ-D12/1	278581	FAZ-D12/1N	278694	FAZ-D12/2	278780	FAZ-D12/3	278893
13	15	FAZ-D13/1	278582	FAZ-D13/1N	278695	FAZ-D13/2	278781	FAZ-D13/3	278894
15	15	FAZ-D15/1	278583	FAZ-D15/1N	278696	FAZ-D15/2	278782	FAZ-D15/3	278895
16	15	FAZ-D16/1	278584	FAZ-D16/1N	278697	FAZ-D16/2	278783	FAZ-D16/3	278896
20	15	FAZ-D20/1	278585	FAZ-D20/1N	278698	FAZ-D20/2	278784	FAZ-D20/3	278897
25	15	FAZ-D25/1	278586	FAZ-D25/1N	278699	FAZ-D25/2	278785	FAZ-D25/3	278898
32	15	FAZ-D32/1	278587	FAZ-D32/1N	278700	FAZ-D32/2	278786	FAZ-D32/3	278899
40	15	FAZ-D40/1	278588	FAZ-D40/1N	278701	FAZ-D40/2	278787	FAZ-D40/3	278900
50	10	FAZ-D50/1	115370	FAZ-D50/1N	115378	FAZ-D50/2	115372	FAZ-D50/3	115374
63	10	FAZ-D63/1	115371	FAZ-D63/1N	115379	FAZ-D63/2	115373	FAZ-D63/3	115375
Characteristic K Instantaneous release response current 8 - 12 x I_n									
0.5	15	FAZ-K0,5/1	278589	FAZ-K0,5/1N	278702	FAZ-K0,5/2	278788	FAZ-K0,5/3	278901
1	15	FAZ-K1/1	278590	FAZ-K1/1N	278703	FAZ-K1/2	278789	FAZ-K1/3	278902
1.6	15	FAZ-K1,6/1	278591	FAZ-K1,6/1N	278704	FAZ-K1,6/2	278790	FAZ-K1,6/3	278903
2	15	FAZ-K2/1	278592	FAZ-K2/1N	278705	FAZ-K2/2	278791	FAZ-K2/3	278904
3	15	FAZ-K3/1	278593	FAZ-K3/1N	278706	FAZ-K3/2	278792	FAZ-K3/3	278905
4	15	FAZ-K4/1	278594	FAZ-K4/1N	278707	FAZ-K4/2	278793	FAZ-K4/3	278906
6	15	FAZ-K6/1	278595	FAZ-K6/1N	278708	FAZ-K6/2	278794	FAZ-K6/3	278907
8	15	FAZ-K8/1	278596	FAZ-K8/1N	278709	FAZ-K8/2	278795	FAZ-K8/3	278908
10	15	FAZ-K10/1	278597	FAZ-K10/1N	278710	FAZ-K10/2	278796	FAZ-K10/3	278909
13	15	FAZ-K13/1	278598	FAZ-K13/1N	278711	FAZ-K13/2	278797	FAZ-K13/3	278910
16	15	FAZ-K16/1	278599	FAZ-K16/1N	278712	FAZ-K16/2	278798	FAZ-K16/3	278911
20	15	FAZ-K20/1	278600	FAZ-K20/1N	278713	FAZ-K20/2	278799	FAZ-K20/3	278912
25	15	FAZ-K25/1	278601	FAZ-K25/1N	278714	FAZ-K25/2	278800	FAZ-K25/3	278913
32	15	FAZ-K32/1	278602	FAZ-K32/1N	278715	FAZ-K32/2	278801	FAZ-K32/3	278914
40	15	FAZ-K40/1	278603	FAZ-K40/1N	278716	FAZ-K40/2	278802	FAZ-K40/3	278915
50	15	FAZ-K50/1	278604	FAZ-K50/1N	278717	FAZ-K50/2	278803	FAZ-K50/3	278916
63	15	FAZ-K63/1	278605	FAZ-K63/1N	278718	FAZ-K63/2	278804	FAZ-K63/3	278917



Rated current		Switching capacity (IEC/EN 60947-2)		1 pole		2 pole		3 pole	
I_n				Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
A		kA							
FAZ miniature circuit-breakers									
Characteristic S Instantaneous release response current 13 - 17 x I_n									
1	10			FAZ-S1/1	278606	FAZ-S1/2	278805	-	-
2	10			FAZ-S2/1	278607	FAZ-S2/2	278806	-	-
3	10			FAZ-S3/1	278608	FAZ-S3/2	278807	-	-
4	10			FAZ-S4/1	278609	FAZ-S4/2	278808	-	-
6	10			FAZ-S6/1	278610	FAZ-S6/2	278809	-	-
10	10			FAZ-S10/1	278611	FAZ-S10/2	278810	-	-
16	10			FAZ-S16/1	278612	FAZ-S16/2	278811	-	-
20	10			FAZ-S20/1	278613	FAZ-S20/2	278812	-	-
25	10			FAZ-S25/1	278614	FAZ-S25/2	278813	-	-
32	10			FAZ-S32/1	278615	FAZ-S32/2	278814	-	-
40	10			FAZ-S40/1	278616	FAZ-S40/2	278815	-	-
Characteristic Z Instantaneous release response current 2 - 3 x I_n									
0.5	15			FAZ-Z0,5/1	278617	FAZ-Z0,5/2	278816	FAZ-Z0,5/3	278918
1	15			FAZ-Z1/1	278618	FAZ-Z1/2	278817	FAZ-Z1/3	278919
1.6	15			FAZ-Z1,6/1	278619	FAZ-Z1,6/2	278818	FAZ-Z1,6/3	278920
2	15			FAZ-Z2/1	278620	FAZ-Z2/2	278819	FAZ-Z2/3	278921
3	15			FAZ-Z3/1	278621	FAZ-Z3/2	278820	FAZ-Z3/3	278922
4	15			FAZ-Z4/1	278622	FAZ-Z4/2	278821	FAZ-Z4/3	278923
6	15			FAZ-Z6/1	278623	FAZ-Z6/2	278822	FAZ-Z6/3	278924
8	15			FAZ-Z8/1	278624	FAZ-Z8/2	278823	FAZ-Z8/3	278925
10	15			FAZ-Z10/1	278625	FAZ-Z10/2	278824	FAZ-Z10/3	278926
16	15			FAZ-Z16/1	278626	FAZ-Z16/2	278825	FAZ-Z16/3	278927
20	15			FAZ-Z20/1	278627	FAZ-Z20/2	278826	FAZ-Z20/3	278928
25	15			FAZ-Z25/1	278628	FAZ-Z25/2	278827	FAZ-Z25/3	278929
32	15			FAZ-Z32/1	278629	FAZ-Z32/2	278828	FAZ-Z32/3	278930
40	15			FAZ-Z40/1	278630	FAZ-Z40/2	278829	FAZ-Z40/3	278931
50	15			FAZ-Z50/1	278631	FAZ-Z50/2	278830	FAZ-Z50/3	278932
63	15			FAZ-Z63/1	278632	FAZ-Z63/2	278831	FAZ-Z63/3	278933
FAZ miniature circuit-breakers for DC applications									
Characteristic C Instantaneous release response current 5 - 10 x I_n									
2	10			FAZ-C2/1-DC	279122	FAZ-C2/2-DC	279134	-	-
3	10			FAZ-C3/1-DC	279123	FAZ-C3/2-DC	279135	-	-
4	10			FAZ-C4/1-DC	279124	FAZ-C4/2-DC	279136	-	-
6	10			FAZ-C6/1-DC	279125	FAZ-C6/2-DC	279137	-	-
10	10			FAZ-C10/1-DC	279126	FAZ-C10/2-DC	279138	-	-
13	10			FAZ-C13/1-DC	279127	FAZ-C13/2-DC	279139	-	-
16	10			FAZ-C16/1-DC	279128	FAZ-C16/2-DC	279140	-	-
20	10			FAZ-C20/1-DC	279129	FAZ-C20/2-DC	279141	-	-
25	10			FAZ-C25/1-DC	279130	FAZ-C25/2-DC	279142	-	-
32	10			FAZ-C32/1-DC	279131	FAZ-C32/2-DC	279143	-	-
40	10			FAZ-C40/1-DC	279132	FAZ-C40/2-DC	279144	-	-
50	10			FAZ-C50/1-DC	279133	FAZ-C50/2-DC	279145	-	-



Rated current I_n A	Switching capacity (IEC/EN 60947-2) kA	1 pole		1 pole+N		2 pole		3 pole	
		Part no.	Article no.	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
FAZ-T miniature circuit-breaker									
(please enquire for circuit-breakers with 3+N and 4 poles)									
Characteristic B Response current of short-circuit release 3-5 x I_n									
1	25	FAZT-B1/1	240770	FAZT-B1/1N	240994	FAZT-B1/2	240820	FAZT-B1/3	240874
2	25	FAZT-B2/1	240771	FAZT-B2/1N	240995	FAZT-B2/2	240821	FAZT-B2/3	240875
3	25	FAZT-B3/1	240772	FAZT-B3/1N	240996	FAZT-B3/2	240822	FAZT-B3/3	240876
4	25	FAZT-B4/1	240777	FAZT-B4/1N	240997	FAZT-B4/2	240823	FAZT-B4/3	240877
6	25	FAZT-B6/1	240782	FAZT-B6/1N	240998	FAZT-B6/2	240824	FAZT-B6/3	240878
10	25	FAZT-B10/1	240787	FAZT-B10/1N	240999	FAZT-B10/2	240825	FAZT-B10/3	240879
12	25	FAZT-B12/1	240792	FAZT-B12/1N	241000	FAZT-B12/2	240826	FAZT-B12/3	240880
13	25	FAZT-B13/1	240793	FAZT-B13/1N	241001	FAZT-B13/2	240827	FAZT-B13/3	240881
15	25	FAZT-B15/1	240794	FAZT-B15/1N	241005	FAZT-B15/2	240828	FAZT-B15/3	240882
16	25	FAZT-B16/1	240795	FAZT-B16/1N	241009	FAZT-B16/2	240829	FAZT-B16/3	240883
20	25	FAZT-B20/1	240796	FAZT-B20/1N	241015	FAZT-B20/2	240830	FAZT-B20/3	240884
25	25	FAZT-B25/1	240797	FAZT-B25/1N	241019	FAZT-B25/2	240831	FAZT-B25/3	240885
32	20	FAZT-B32/1	141907	FAZT-B32/1N	142509	FAZT-B32/2	142485	FAZT-B32/3	142493
40	20	FAZT-B40/1	141908	FAZT-B40/1N	142510	FAZT-B40/2	142486	FAZT-B40/3	142494
Characteristic C Response current of short-circuit release 5-10 x I_n									
1	25	FAZT-C1/1	240798	FAZT-C1/1N	241022	FAZT-C1/2	240832	FAZT-C1/3	240886
2	25	FAZT-C2/1	240799	FAZT-C2/1N	241023	FAZT-C2/2	240833	FAZT-C2/3	240887
3	25	FAZT-C3/1	240800	FAZT-C3/1N	241024	FAZT-C3/2	240838	FAZT-C3/3	240888
4	25	FAZT-C4/1	240801	FAZT-C4/1N	241025	FAZT-C4/2	240843	FAZT-C4/3	240889
6	25	FAZT-C6/1	240802	FAZT-C6/1N	241026	FAZT-C6/2	240850	FAZT-C6/3	240890
10	25	FAZT-C10/1	240803	FAZT-C10/1N	241027	FAZT-C10/2	240855	FAZT-C10/3	240891
12	25	FAZT-C12/1	240804	FAZT-C12/1N	241028	FAZT-C12/2	240858	FAZT-C12/3	240892
13	25	FAZT-C13/1	240805	FAZT-C13/1N	241029	FAZT-C13/2	240859	FAZT-C13/3	240893
15	25	FAZT-C15/1	240806	FAZT-C15/1N	241030	FAZT-C15/2	240860	FAZT-C15/3	240894
16	25	FAZT-C16/1	240807	FAZT-C16/1N	241034	FAZT-C16/2	240861	FAZT-C16/3	240895
20	25	FAZT-C20/1	240808	FAZT-C20/1N	241038	FAZT-C20/2	240862	FAZT-C20/3	240896
25	25	FAZT-C25/1	240809	FAZT-C25/1N	241044	FAZT-C25/2	240863	FAZT-C25/3	240897
32	20	FAZT-C32/1	141909	FAZT-C32/1N	142511	FAZT-C32/2	142487	FAZT-C32/3	142495
40	20	FAZT-C40/1	142480	FAZT-C40/1N	142512	FAZT-C40/2	142488	FAZT-C40/3	142496
Characteristic D Response current of short-circuit release 10-20 x I_n									
1	25	FAZT-D1/1	240810	FAZT-D1/1N	241048	FAZT-D1/2	240864	FAZT-D1/3	240898
2	25	FAZT-D2/1	240811	FAZT-D2/1N	241051	FAZT-D2/2	240865	FAZT-D2/3	240899
3	25	FAZT-D3/1	240812	FAZT-D3/1N	241052	FAZT-D3/2	240866	FAZT-D3/3	240900
4	25	FAZT-D4/1	240813	FAZT-D4/1N	241053	FAZT-D4/2	240867	FAZT-D4/3	240901
6	25	FAZT-D6/1	240814	FAZT-D6/1N	241054	FAZT-D6/2	240868	FAZT-D6/3	240902
10	25	FAZT-D10/1	240815	FAZT-D10/1N	241055	FAZT-D10/2	240869	FAZT-D10/3	240903
12	25	FAZT-D12/1	240816	FAZT-D12/1N	241056	FAZT-D12/2	240870	FAZT-D12/3	240904
13	25	FAZT-D13/1	240817	FAZT-D13/1N	241057	FAZT-D13/2	240871	FAZT-D13/3	240905
15	20	FAZT-D15/1	240818	FAZT-D15/1N	241058	FAZT-D15/2	240872	FAZT-D15/3	240910
16	20	FAZT-D16/1	240819	FAZT-D16/1N	241059	FAZT-D16/2	240873	FAZT-D16/3	240915
20	20	FAZT-D20/1	142481	FAZT-D20/1N	142513	FAZT-D20/2	142489	FAZT-D20/3	142497
25	15	FAZT-D25/1	142482	FAZT-D25/1N	142514	FAZT-D25/2	142490	FAZT-D25/3	142498
32	15	FAZT-D32/1	142483	FAZT-D32/1N	142515	FAZT-D32/2	142491	FAZT-D32/3	142499
40	15	FAZT-D40/1	142484	FAZT-D40/1N	142516	FAZT-D40/2	142492	FAZT-D40/3	142500



Rated current I _n A	Switching capacity (IEC/EN 60947-2) kA	1 pole		2 pole		3 pole	
		Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
Miniature circuit-breakers FAZ for North America							
Characteristic B Response current of short-circuit release 3-5 x I _n							
1	10	FAZ-B1/1-NA	132414	FAZ-B1/2-NA	132693	FAZ-B1/3-NA	132712
1.5	10	FAZ-B1,5/1-NA	132415	FAZ-B1,5/2-NA	132694	FAZ-B1,5/3-NA	132713
2	10	FAZ-B2/1-NA	132416	FAZ-B2/2-NA	132695	FAZ-B2/3-NA	132714
3	10	FAZ-B3/1-NA	132417	FAZ-B3/2-NA	132696	FAZ-B3/3-NA	132715
4	10	FAZ-B4/1-NA	132418	FAZ-B4/2-NA	132697	FAZ-B4/3-NA	132716
5	10	FAZ-B5/1-NA	132419	FAZ-B5/2-NA	132698	FAZ-B5/3-NA	132717
6	10	FAZ-B6/1-NA	132680	FAZ-B6/2-NA	132699	FAZ-B6/3-NA	132718
7	10	FAZ-B7/1-NA	132681	FAZ-B7/2-NA	132700	FAZ-B7/3-NA	132719
8	10	FAZ-B8/1-NA	132682	FAZ-B8/2-NA	132701	FAZ-B8/3-NA	132720
10	10	FAZ-B10/1-NA	132683	FAZ-B10/2-NA	132702	FAZ-B10/3-NA	132721
13	10	FAZ-B13/1-NA	132684	FAZ-B13/2-NA	132703	FAZ-B13/3-NA	132722
15	14	FAZ-B15/1-NA	132685	FAZ-B15/2-NA	132704	FAZ-B15/3-NA	132723
16	14	FAZ-B16/1-NA	132686	FAZ-B16/2-NA	132705	FAZ-B16/3-NA	132724
20	14	FAZ-B20/1-NA	132687	FAZ-B20/2-NA	132706	FAZ-B20/3-NA	132725
25	14	FAZ-B25/1-NA	132688	FAZ-B25/2-NA	132707	FAZ-B25/3-NA	132726
30	10	FAZ-B30/1-NA	132689	FAZ-B30/2-NA	132708	FAZ-B30/3-NA	132727
32	10	FAZ-B32/1-NA	132690	FAZ-B32/2-NA	132709	FAZ-B32/3-NA	132728
35	10	FAZ-B35/1-NA	132691	FAZ-B35/2-NA	132710	FAZ-B35/3-NA	132729
40	10	FAZ-B40/1-NA	132692	FAZ-B40/2-NA	132711	FAZ-B40/3-NA	132730
Characteristic C Response current of short-circuit release 5-10 x I _n							
0.5	10	FAZ-C0,5/1-NA	102077	FAZ-C0,5/2-NA	102157	FAZ-C0,5/3-NA	102237
1	10	FAZ-C1/1-NA	102078	FAZ-C1/2-NA	102158	FAZ-C1/3-NA	102238
1.5	10	FAZ-C1,5/1-NA	102079	FAZ-C1,5/2-NA	102159	FAZ-C1,5/3-NA	102239
2	10	FAZ-C2/1-NA	102080	FAZ-C2/2-NA	102160	FAZ-C2/3-NA	102240
3	10	FAZ-C3/1-NA	102081	FAZ-C3/2-NA	102161	FAZ-C3/3-NA	102241
4	10	FAZ-C4/1-NA	102082	FAZ-C4/2-NA	102162	FAZ-C4/3-NA	102242
5	10	FAZ-C5/1-NA	102083	FAZ-C5/2-NA	102163	FAZ-C5/3-NA	102243
6	10	FAZ-C6/1-NA	102084	FAZ-C6/2-NA	102164	FAZ-C6/3-NA	102244
7	10	FAZ-C7/1-NA	102085	FAZ-C7/2-NA	102165	FAZ-C7/3-NA	102245
8	10	FAZ-C8/1-NA	102086	FAZ-C8/2-NA	102166	FAZ-C8/3-NA	102246
10	10	FAZ-C10/1-NA	102087	FAZ-C10/2-NA	102167	FAZ-C10/3-NA	102247
13	10	FAZ-C13/1-NA	102088	FAZ-C13/2-NA	102168	FAZ-C13/3-NA	102248
15	14	FAZ-C15/1-NA	102089	FAZ-C15/2-NA	102169	FAZ-C15/3-NA	102249
16	14	FAZ-C16/1-NA	102090	FAZ-C16/2-NA	102170	FAZ-C16/3-NA	102250
20	14	FAZ-C20/1-NA	102091	FAZ-C20/2-NA	102171	FAZ-C20/3-NA	102251
25	14	FAZ-C25/1-NA	102092	FAZ-C25/2-NA	102172	FAZ-C25/3-NA	102252
30	10	FAZ-C30/1-NA	102093	FAZ-C30/2-NA	102173	FAZ-C30/3-NA	102253
32	10	FAZ-C32/1-NA	102094	FAZ-C32/2-NA	102174	FAZ-C32/3-NA	102254
35	10	FAZ-C35/1-NA	102095	FAZ-C35/2-NA	102175	FAZ-C35/3-NA	102255
40	10	FAZ-C40/1-NA	102096	FAZ-C40/2-NA	102176	FAZ-C40/3-NA	102256

Circuit-breaker

FAZ-NA, FAZ-NA-DC miniature circuit-breakers for North America

Moeller® series



Rated current I _n A	Switching capacity (IEC/EN 60947-2) kA	1 pole		2 pole		3 pole	
		Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
FAZ miniature circuit-breakers for North America							
Characteristic D Response current of short-circuit release 10-20 x I _n							
0.5	10	FAZ-D0,5/1-NA	102097	FAZ-D0,5/2-NA	102177	FAZ-D0,5/3-NA	102257
1	10	FAZ-D1/1-NA	102098	FAZ-D1/2-NA	102178	FAZ-D1/3-NA	102258
1.5	10	FAZ-D1,5/1-NA	102099	FAZ-D1,5/2-NA	102179	FAZ-D1,5/3-NA	102259
2	10	FAZ-D2/1-NA	102100	FAZ-D2/2-NA	102180	FAZ-D2/3-NA	102260
3	10	FAZ-D3/1-NA	102101	FAZ-D3/2-NA	102181	FAZ-D3/3-NA	102261
4	10	FAZ-D4/1-NA	102102	FAZ-D4/2-NA	102182	FAZ-D4/3-NA	102262
5	10	FAZ-D5/1-NA	102103	FAZ-D5/2-NA	102183	FAZ-D5/3-NA	102263
6	10	FAZ-D6/1-NA	102104	FAZ-D6/2-NA	102184	FAZ-D6/3-NA	102264
7	10	FAZ-D7/1-NA	102105	FAZ-D7/2-NA	102185	FAZ-D7/3-NA	102265
8	10	FAZ-D8/1-NA	102106	FAZ-D8/2-NA	102186	FAZ-D8/3-NA	102266
10	10	FAZ-D10/1-NA	102107	FAZ-D10/2-NA	102187	FAZ-D10/3-NA	102267
13	10	FAZ-D13/1-NA	102108	FAZ-D13/2-NA	102188	FAZ-D13/3-NA	102268
15	14	FAZ-D15/1-NA	102109	FAZ-D15/2-NA	102189	FAZ-D15/3-NA	102269
16	14	FAZ-D16/1-NA	102110	FAZ-D16/2-NA	102190	FAZ-D16/3-NA	102270
20	14	FAZ-D20/1-NA	102111	FAZ-D20/2-NA	102191	FAZ-D20/3-NA	102271
25	14	FAZ-D25/1-NA	102112	FAZ-D25/2-NA	102192	FAZ-D25/3-NA	102272
30	10	FAZ-D30/1-NA	102113	FAZ-D30/2-NA	102193	FAZ-D30/3-NA	102273
32	10	FAZ-D32/1-NA	102114	FAZ-D32/2-NA	102194	FAZ-D32/3-NA	102274
35	10	FAZ-D35/1-NA	102115	FAZ-D35/2-NA	102195	FAZ-D35/3-NA	102275
40	10	FAZ-D40/1-NA	102116	FAZ-D40/2-NA	102196	FAZ-D40/3-NA	102276
Miniature circuit-breaker for North America for DC applications							
Characteristic C Response current of short-circuit release 5-10 x I _n							
2	10	FAZ-C2/1-NA-DC	113752	FAZ-C2/2-NA-DC	137239	-	-
3	10	FAZ-C3/1-NA-DC	113753	FAZ-C3/2-NA-DC	137250	-	-
4	10	FAZ-C4/1-NA-DC	113754	FAZ-C4/2-NA-DC	137251	-	-
5	10	FAZ-C5/1-NA-DC	113755	FAZ-C5/2-NA-DC	137252	-	-
6	10	FAZ-C6/1-NA-DC	113756	FAZ-C6/2-NA-DC	120638	-	-
7	10	FAZ-C7/1-NA-DC	113757	FAZ-C7/2-NA-DC	120639	-	-
8	10	FAZ-C8/1-NA-DC	113758	FAZ-C8/2-NA-DC	120640	-	-
10	10	FAZ-C10/1-NA-DC	113759	FAZ-C10/2-NA-DC	120641	-	-
13	10	FAZ-C13/1-NA-DC	113760	FAZ-C13/2-NA-DC	120642	-	-
15	10	FAZ-C15/1-NA-DC	113761	FAZ-C15/2-NA-DC	120643	-	-
16	10	FAZ-C16/1-NA-DC	113762	FAZ-C16/2-NA-DC	120644	-	-
20	10	FAZ-C20/1-NA-DC	113763	FAZ-C20/2-NA-DC	120645	-	-
25	10	FAZ-C25/1-NA-DC	113764	FAZ-C25/2-NA-DC	120646	-	-
30	10	FAZ-C30/1-NA-DC	113765	FAZ-C30/2-NA-DC	120647	-	-
32	10	FAZ-C32/1-NA-DC	113766	FAZ-C32/2-NA-DC	120648	-	-
35	10	FAZ-C35/1-NA-DC	113767	FAZ-C35/2-NA-DC	120649	-	-
40	10	FAZ-C40/1-NA-DC	113768	FAZ-C40/2-NA-DC	120650	-	-



Rated current I_n A	Rated fault current $I_{\Delta N}$ A	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
Residual current circuit breakers FRCdM, digital (please enquire for 60-Hz products)		Type B, All current sensitive, 240/415 V		Type B+, All current sensitive, 240/415 V		Type Bfq, All current sensitive - frequency converter-proof, 240/415 V	
Type G, Short time-delayed							
25	0.03	FRCdM-25/4/003-G/B	167892	FRCdM-25/4/003-G/B+	167880	FRCdM-25/4/003-G/BFQ	179530
40	0.03	FRCdM-40/4/003-G/B	167893	FRCdM-40/4/003-G/B+	167881	FRCdM-40/4/003-G/BFQ	179531
63	0.03	FRCdM-63/4/003-G/B	167894	FRCdM-63/4/003-G/B+	167882	FRCdM-63/4/003-G/BFQ	179532
25	0.3	FRCdM-25/4/03-G/B	167896	FRCdM-25/4/03-G/B+	167884	FRCdM-25/4/03-G/BFQ	167904
40	0.3	FRCdM-40/4/03-G/B	167897	FRCdM-40/4/03-G/B+	167885	FRCdM-40/4/03-G/BFQ	167905
63	0.3	FRCdM-63/4/03-G/B	167898	FRCdM-63/4/03-G/B+	167886	FRCdM-63/4/03-G/BFQ	167906
Type S, selective switch off							
25	0.3	FRCdM-25/4/03-S/B	167900	FRCdM-25/4/03-S/B+	167888	FRCdM-25/4/03-S/BFQ	167908
40	0.3	FRCdM-40/4/03-S/B	167901	FRCdM-40/4/03-S/B+	167889	FRCdM-40/4/03-S/BFQ	167909
63	0.3	FRCdM-63/4/03-S/B	167902	FRCdM-63/4/03-S/B+	167890	FRCdM-63/4/03-S/BFQ	167910
Residual current circuit breakers FRCmM-125							
125	0.03	FRCmM-125/4/003-G/B	171188	FRCmM-125/4/003-G/B+	171189	-	-
125	0.03	FRCmM-125/4/003-B	171184	-	-	-	-
125	0.1	FRCmM-125/4/01-B	171185	-	-	-	-
125	0.3	FRCmM-125/4/03-B	171186	-	-	FRCmM-125/4/03-S/BFQ	171190
125	0.5	FRCmM-125/4/05-B	171187	-	-	FRCmM-125/4/05-S/BFQ	171191
FRCdM residual current circuit-breaker, digital		Type U, pulse-current sensitive, suitable for variable frequency drives, 240/415 V		Type R, Radiography applications, 240/415 V		Type A, Pulse-current sensitive, 240/415 V	
Type G, Short time-delayed							
25	0.03	-	-	-	-	FRCdM-25/4/003-G/A	168646
40	0.03	FRCdM-40/4/003-U	168643	-	-	FRCdM-40/4/003-G/A	168648
63	0.03	FRCdM-63/4/003-U	168640	FRCdM-63/4/003-R	168636	FRCdM-63/4/003-G/A	168650
80	0.03	-	-	-	-	FRCdM-80/4/003-G/A	168634
25	0.3	-	-	-	-	FRCdM-25/4/03-G/A	168647
40	0.3	-	-	-	-	FRCdM-40/4/03-G/A	168649
63	0.3	-	-	-	-	FRCdM-63/4/03-G/A	168651
80	0.3	-	-	-	-	FRCdM-80/4/03-G/A	168635
Type S, selective switch off							
40	0.3	FRCdM-40/4/03-U	168644	-	-	FRCdM-40/4/03-S/A	168637
63	0.3	FRCdM-63/4/03-U	168641	-	-	FRCdM-63/4/03-S/A	168638
80	0.3	FRCdM-80/4/03-U	168642	-	-	FRCdM-80/4/03-S/A	168639
FRCmM Residual current circuit-breaker							
Type G, Short time-delayed							
16	0.03	FRCmM-16/4/003-U	170452	FRCmM-16/4/003-R	170308	-	-
25	0.03	FRCmM-25/4/003-U	170453	FRCmM-25/4/003-R	170309	-	-
40	0.03	FRCmM-40/4/003-U	170454	FRCmM-40/4/003-R	170310	-	-
63	0.03	FRCmM-63/4/003-U	170455	FRCmM-63/4/003-R	170311	-	-
80	0.03	FRCmM-80/4/003-U	170456	FRCmM-80/4/003-R	170312	-	-
100	0.03	FRCmM-100/4/003-U	170457	FRCmM-100/4/003-R	170313	-	-
Type S, selective switch off							
16	0.1	FRCmM-16/4/01-U	170458	-	-	-	-
25	0.1	FRCmM-25/4/01-U	170459	-	-	-	-
40	0.1	FRCmM-40/4/01-U	170460	-	-	-	-
63	0.1	FRCmM-63/4/01-U	170461	-	-	-	-
16	0.3	FRCmM-16/4/03-U	170462	-	-	-	-
25	0.3	FRCmM-25/4/03-U	170463	-	-	-	-
40	0.3	FRCmM-40/4/03-U	170464	-	-	-	-
63	0.3	FRCmM-63/4/03-U	170465	-	-	-	-
80	0.3	FRCmM-80/4/03-U	170466	-	-	-	-
100	0.3	FRCmM-100/4/03-U	170467	-	-	-	-



Rated current I_n A	Rated fault current $I_{\Delta N}$ A	2 pole 240/415 V Part no.	Article no.	4 pole 240/415 V Part no.	Article no.
FRCmM Residual current circuit-breaker					
(please enquire for products for other voltage ranges)					
Type A, Pulse-current sensitive					
16	0.03	FRCMM-16/2/003-A	170430	FRCMM-16/4/003-A	170285
25	0.03	FRCMM-25/2/003-A	170431	FRCMM-25/4/003-A	170332
40	0.03	FRCMM-40/2/003-A	170432	FRCMM-40/4/003-A	170333
63	0.03	FRCMM-63/2/003-A	170433	FRCMM-63/4/003-A	170334
80	0.03	FRCMM-80/2/003-A	170434	FRCMM-80/4/003-A	170335
100	0.03	FRCMM-100/2/003-A	170435	FRCMM-100/4/003-A	170336
125	0.03	FRCMM-125/2/003-A	171164	FRCMM-125/4/003-A	171174
16	0.3	FRCMM-16/2/03-A	170278	FRCMM-16/4/03-A	170340
25	0.3	FRCMM-25/2/03-A	170279	FRCMM-25/4/03-A	170341
40	0.3	FRCMM-40/2/03-A	170280	FRCMM-40/4/03-A	170342
63	0.3	-	-	FRCMM-63/4/03-A	170343
80	0.3	-	-	FRCMM-80/4/03-A	170344
100	0.3	-	-	FRCMM-100/4/03-A	170345
125	0.3	FRCMM-125/2/03-A	171166	FRCMM-125/4/03-A	171176
16	0.5	FRCMM-16/2/05-A	170281	FRCMM-16/4/05-A	170346
25	0.5	FRCMM-25/2/05-A	170282	FRCMM-25/4/05-A	170347
40	0.5	FRCMM-40/2/05-A	170283	FRCMM-40/4/05-A	170348
63	0.5	FRCMM-63/2/05-A	170284	FRCMM-63/4/05-A	170349
80	0.5	-	-	FRCMM-80/4/05-A	170350
100	0.5	-	-	FRCMM-100/4/05-A	170351
125	0.5	FRCMM-125/2/05-A	171167	FRCMM-125/4/05-A	171177
Type G/A (ÖVE E 8601), Short time-delayed					
16	0.03	FRCMM-16/2/003-G/A	170382	FRCMM-16/4/003-G/A	170293
25	0.03	FRCMM-25/2/003-G/A	170383	FRCMM-25/4/003-G/A	170294
40	0.03	FRCMM-40/2/003-G/A	170384	FRCMM-40/4/003-G/A	170295
63	0.03	FRCMM-63/2/003-G/A	170385	FRCMM-63/4/003-G/A	170296
80	0.03	FRCMM-80/2/003-G/A	170386	FRCMM-80/4/003-G/A	170297
100	0.03	FRCMM-100/2/003-G/A	170387	FRCMM-100/4/003-G/A	170298
125	0.03	FRCMM-125/2/003-G/A	171168	FRCMM-125/4/003-G/A	171178
16	0.3	FRCMM-16/2/03-G/A	170290	FRCMM-16/4/03-G/A	170302
25	0.3	FRCMM-25/2/03-G/A	170291	FRCMM-25/4/03-G/A	170303
40	0.3	FRCMM-40/2/03-G/A	170292	FRCMM-40/4/03-G/A	170304
63	0.3	-	-	FRCMM-63/4/03-G/A	170305
80	0.3	-	-	FRCMM-80/4/03-G/A	170306
100	0.3	-	-	FRCMM-100/4/03-G/A	170307
125	0.3	FRCMM-125/2/03-G/A	171170	FRCMM-125/4/03-G/A	171180
Type S/A, selective switch off					
40	0.3	-	-	FRCMM-40/4/03-S/A	170448
63	0.3	-	-	FRCMM-63/4/03-S/A	170449
FRCmM-NA residual current circuit-breakers for North America		IEC: 240/415 V; UL: 480Y/277 V		IEC: 240/415 V; UL: 480Y/277 V	
Type A, Pulse-current sensitive					
25	0.03	FRCMM-25/2/003-A-NA	167113	FRCMM-25/4/003-A-NA	167125
40	0.03	FRCMM-40/2/003-A-NA	167114	FRCMM-40/4/003-A-NA	167102
63	0.03	FRCMM-63/2/003-A-NA	167115	FRCMM-63/4/003-A-NA	167103
25	0.3	FRCMM-25/2/03-A-NA	167116	FRCMM-25/4/03-A-NA	167104
40	0.3	FRCMM-40/2/03-A-NA	167117	FRCMM-40/4/03-A-NA	167105
63	0.3	FRCMM-63/2/03-A-NA	167118	FRCMM-63/4/03-A-NA	167106
Type G/A (ÖVE E 8601), Short time-delayed					
25	0.03	FRCMM-25/2/003-G/A-NA	167119	FRCMM-25/4/003-G/A-NA	167107
40	0.03	FRCMM-40/2/003-G/A-NA	167120	FRCMM-40/4/003-G/A-NA	167108
63	0.03	FRCMM-63/2/003-G/A-NA	167121	FRCMM-63/4/003-G/A-NA	167109
25	0.3	FRCMM-25/2/03-G/A-NA	167122	FRCMM-25/4/03-G/A-NA	167110
40	0.3	FRCMM-40/2/03-G/A-NA	167123	FRCMM-40/4/03-G/A-NA	167111
63	0.3	FRCMM-63/2/03-G/A-NA	167124	FRCMM-63/4/03-G/A-NA	167112



Rated current I_n A	Rated fault current $I_{\Delta N}$ A	2 pole Part no.	Article no.	4 pole Part no.	Article no.
Residual current circuit breakers FRCmM-NA-110 for North America					
IEC: 110/190 V; UL: 208/120 V					
Type A, Pulse-current sensitive					
25	0.03	-	-	FRCMM-25/4/003-A-NA-110	167699
40	0.03	-	-	FRCMM-40/4/003-A-NA-110	167700
63	0.03	-	-	FRCMM-63/4/003-A-NA-110	167701
25	0.3	-	-	FRCMM-25/4/03-A-NA-110	167702
40	0.3	-	-	FRCMM-40/4/03-A-NA-110	167703
63	0.3	-	-	FRCMM-63/4/03-A-NA-110	167704
Type G/A (ÖVE E 8601), Short time-delayed					
25	0.03	FRCMM-25/2/003-G/A-NA-110	167693	FRCMM-25/4/003-G/A-NA-110	167705
40	0.03	FRCMM-40/2/003-G/A-NA-110	167694	FRCMM-40/4/003-G/A-NA-110	167706
63	0.03	FRCMM-63/2/003-G/A-NA-110	167695	FRCMM-63/4/003-G/A-NA-110	167707
25	0.3	FRCMM-25/2/03-G/A-NA-110	167696	FRCMM-25/4/03-G/A-NA-110	167708
40	0.3	FRCMM-40/2/03-G/A-NA-110	167697	FRCMM-40/4/03-G/A-NA-110	167709
63	0.3	FRCMM-63/2/03-G/A-NA-110	167698	FRCMM-63/4/03-G/A-NA-110	167710
Add-on residual current protection unit FBSmV					
240/415 V (please enquire for products for 120 V and 440 V)					
Type A, Pulse-current sensitive					
40	0.03	FBSMV-40/2/003-A	170207	FBSMV-40/4/003-A	170227
63	0.03	FBSMV-63/2/003-A	170208	FBSMV-63/4/003-A	170228
40	0.1	FBSMV-40/2/01-A	170209	FBSMV-40/4/01-A	170229
63	0.1	FBSMV-63/2/01-A	170210	FBSMV-63/4/01-A	170230
40	0.3	FBSMV-40/2/03-A	170211	FBSMV-40/4/03-A	170231
63	0.3	FBSMV-63/2/03-A	170212	FBSMV-63/4/03-A	170232
40	0.5	FBSMV-40/2/05-A	170213	FBSMV-40/4/05-A	170233
63	0.5	FBSMV-63/2/05-A	170214	FBSMV-63/4/05-A	170234
40	1	FBSMV-40/2/1-A	170215	FBSMV-40/4/1-A	170235
63	1	FBSMV-63/2/1-A	170216	FBSMV-63/4/1-A	170236
Type S/A, selective switch off					
40	0.1	FBSMV-40/2/01-S/A	170158	FBSMV-40/4/01-S/A	170166
63	0.1	FBSMV-63/2/01-S/A	170159	FBSMV-63/4/01-S/A	170167
40	0.3	FBSMV-40/2/03-S/A	170160	FBSMV-40/4/03-S/A	170168
63	0.3	FBSMV-63/2/03-S/A	170161	FBSMV-63/4/03-S/A	170169
Add-on residual current protection unit FBHmV					
240/415 V (please enquire for products for 440 V)					
Type A, Pulse-current sensitive					
80	0.03	FBHmV-80/2/003-A	170257	FBHmV-80/4/003-A	170265
125	0.03	FBHmV-125/2/003-A	170258	FBHmV-125/4/003-A	170130
80	0.3	FBHmV-80/2/03-A	170259	FBHmV-80/4/03-A	170131
125	0.3	FBHmV-125/2/03-A	170260	FBHmV-125/4/03-A	170132
80	0.5	FBHmV-80/2/05-A	170261	FBHmV-80/4/05-A	170133
125	0.5	FBHmV-125/2/05-A	170262	FBHmV-125/4/05-A	170134
80	1	FBHmV-80/2/1-A	170263	FBHmV-80/4/1-A	170135
125	1	FBHmV-125/2/1-A	170264	FBHmV-125/4/1-A	170136
Type A, selective switch off					
80	0.3	FBHmV-80/2/03-S/A	170137	FBHmV-80/4/03-S/A	170171
125	0.3	FBHmV-125/2/03-S/A	170138	FBHmV-125/4/03-S/A	170172
80	0.5	FBHmV-80/2/05-S/A	170139	FBHmV-80/4/05-S/A	170173
125	0.5	FBHmV-125/2/05-S/A	170140	FBHmV-125/4/05-S/A	170174
80	1	FBHmV-80/2/1-S/A	170141	FBHmV-80/4/1-S/A	170175
125	1	FBHmV-125/2/1-S/A	170170	FBHmV-125/4/1-S/A	170176



Rated current I_n A	Rated fault current $I_{\Delta n}$ A	Tripping characteristic: B Response current of short-circuit release $3-5 \times I_n$ Part no.	Article no.	Tripping characteristic: C Response current of short-circuit release $5-10 \times I_n$ Part no.	Article no.	Tripping characteristic: D Response current of short-circuit release $10-20 \times I_n$ Part no.	Article no.
Digital FRBmM residual current operated circuit-breakers with overcurrent protection							
Type A, Pulse-current sensitive, 240 V							
1 pole+N, Short time-delayed							
6	0.01	-	-	FRBDM-C6/1N/001-G/A	168252	FRBDM-D6/1N/001-G/A	168258
10	0.01	FRBDM-B10/1N/001-G/A	168249	FRBDM-C10/1N/001-G/A	168253	FRBDM-D10/1N/001-G/A	168259
13	0.01	FRBDM-B13/1N/001-G/A	168250	FRBDM-C13/1N/001-G/A	168254	FRBDM-D13/1N/001-G/A	168260
16	0.01	FRBDM-B16/1N/001-G/A	168251	FRBDM-C16/1N/001-G/A	168255	FRBDM-D16/1N/001-G/A	168261
20	0.01	-	-	FRBDM-C20/1N/001-G/A	168256	FRBDM-D20/1N/001-G/A	168262
25	0.01	-	-	FRBDM-C25/1N/001-G/A	168257	FRBDM-D25/1N/001-G/A	168263
6	0.03	-	-	FRBDM-C6/1N/003-G/A	168267	FRBDM-D6/1N/003-G/A	168273
10	0.03	FRBDM-B10/1N/003-G/A	168264	FRBDM-C10/1N/003-G/A	168268	FRBDM-D10/1N/003-G/A	168274
13	0.03	FRBDM-B13/1N/003-G/A	168265	FRBDM-C13/1N/003-G/A	168269	FRBDM-D13/1N/003-G/A	168275
16	0.03	FRBDM-B16/1N/003-G/A	168266	FRBDM-C16/1N/003-G/A	168270	FRBDM-D16/1N/003-G/A	168276
20	0.03	-	-	FRBDM-C20/1N/003-G/A	168271	FRBDM-D20/1N/003-G/A	168277
25	0.03	-	-	FRBDM-C25/1N/003-G/A	168272	FRBDM-D25/1N/003-G/A	168278
6	0.1	-	-	FRBDM-C6/1N/01-G/A	168282	FRBDM-D6/1N/01-G/A	168288
10	0.1	FRBDM-B10/1N/01-G/A	168279	FRBDM-C10/1N/01-G/A	168283	FRBDM-D10/1N/01-G/A	168289
13	0.1	FRBDM-B13/1N/01-G/A	168280	FRBDM-C13/1N/01-G/A	168284	FRBDM-D13/1N/01-G/A	168290
16	0.1	FRBDM-B16/1N/01-G/A	168281	FRBDM-C16/1N/01-G/A	168285	FRBDM-D16/1N/01-G/A	168291
20	0.1	-	-	FRBDM-C20/1N/01-G/A	168286	FRBDM-D20/1N/01-G/A	168292
25	0.1	-	-	FRBDM-C25/1N/01-G/A	168287	FRBDM-D25/1N/01-G/A	168293
2 pole, Short time-delayed							
6	0.01	-	-	FRBDM-C6/2/001-G/A	168297	FRBDM-D6/2/001-G/A	168303
10	0.01	FRBDM-B10/2/001-G/A	168294	FRBDM-C10/2/001-G/A	168298	FRBDM-D10/2/001-G/A	168304
13	0.01	FRBDM-B13/2/001-G/A	168295	FRBDM-C13/2/001-G/A	168299	FRBDM-D13/2/001-G/A	168305
16	0.01	FRBDM-B16/2/001-G/A	168296	FRBDM-C16/2/001-G/A	168300	FRBDM-D16/2/001-G/A	168195
20	0.01	-	-	FRBDM-C20/2/001-G/A	168301	FRBDM-D20/2/001-G/A	168196
25	0.01	-	-	FRBDM-C25/2/001-G/A	168302	FRBDM-D25/2/001-G/A	168197
6	0.03	-	-	FRBDM-C6/2/003-G/A	168201	FRBDM-D6/2/003-G/A	168207
10	0.03	FRBDM-B10/2/003-G/A	168198	FRBDM-C10/2/003-G/A	168202	FRBDM-D10/2/003-G/A	168208
13	0.03	FRBDM-B13/2/003-G/A	168199	FRBDM-C13/2/003-G/A	168203	FRBDM-D13/2/003-G/A	168209
16	0.03	FRBDM-B16/2/003-G/A	168200	FRBDM-C16/2/003-G/A	168204	FRBDM-D16/2/003-G/A	168210
20	0.03	-	-	FRBDM-C20/2/003-G/A	168205	FRBDM-D20/2/003-G/A	168211
25	0.03	-	-	FRBDM-C25/2/003-G/A	168206	FRBDM-D25/2/003-G/A	168212
6	0.1	-	-	FRBDM-C6/2/01-G/A	168216	FRBDM-D6/2/01-G/A	168222
10	0.1	FRBDM-B10/2/01-G/A	168213	FRBDM-C10/2/01-G/A	168217	FRBDM-D10/2/01-G/A	168223
13	0.1	FRBDM-B13/2/01-G/A	168214	FRBDM-C13/2/01-G/A	168218	FRBDM-D13/2/01-G/A	168224
16	0.1	FRBDM-B16/2/01-G/A	168215	FRBDM-C16/2/01-G/A	168219	FRBDM-D16/2/01-G/A	168225
20	0.1	-	-	FRBDM-C20/2/01-G/A	168220	FRBDM-D20/2/01-G/A	168226
25	0.1	-	-	FRBDM-C25/2/01-G/A	168221	FRBDM-D25/2/01-G/A	168227
FRBmM combined residual-current/power circuit-breakers							
Type A, Pulse-current sensitive, 240 V (please enquire for products for other voltage ranges)							
1 pole+N, non-delayed							
2	0.03	-	-	FRBMM-C2/1N/003-A	170614	FRBMM-D2/1N/003-A	170643
4	0.03	-	-	FRBMM-C4/1N/003-A	170615	FRBMM-D4/1N/003-A	170644
6	0.03	FRBMM-B6/1N/003-A	170702	FRBMM-C6/1N/003-A	170616	FRBMM-D6/1N/003-A	170645
10	0.03	FRBMM-B10/1N/003-A	170703	FRBMM-C10/1N/003-A	170617	FRBMM-D10/1N/003-A	170646
13	0.03	FRBMM-B13/1N/003-A	170704	FRBMM-C13/1N/003-A	170618	FRBMM-D13/1N/003-A	170647
16	0.03	FRBMM-B16/1N/003-A	170705	FRBMM-C16/1N/003-A	170619	FRBMM-D16/1N/003-A	170648
20	0.03	FRBMM-B20/1N/003-A	170706	FRBMM-C20/1N/003-A	170620	FRBMM-D20/1N/003-A	170649
25	0.03	FRBMM-B25/1N/003-A	170707	FRBMM-C25/1N/003-A	170621	-	-
32	0.03	FRBMM-B32/1N/003-A	170708	FRBMM-C32/1N/003-A	170622	-	-
40	0.03	FRBMM-B40/1N/003-A	170709	FRBMM-C40/1N/003-A	170623	-	-



Rated current	Rated fault current	Tripping characteristic: B Response current of short-circuit release 3-5 x I _n Part no. Article no.		Tripping characteristic: C Response current of short-circuit release 5-10 x I _n Part no. Article no.		Tripping characteristic: D Response current of short-circuit release 10-20 x I _n Part no. Article no.	
I _n A	I _{ΔN} A						
FRBmM combined residual-current/power circuit-breakers							
Type A, Pulse-current sensitive, 240 V (please enquire for products for other voltage ranges)							
1 pole+N, non-delayed							
2	0.1	-	-	FRBMM-C2/1N/01-A	170682	FRBMM-D2/1N/01-A	170544
4	0.1	-	-	FRBMM-C4/1N/01-A	170683	FRBMM-D4/1N/01-A	170545
6	0.1	FRBMM-B6/1N/01-A	170664	FRBMM-C6/1N/01-A	170684	FRBMM-D6/1N/01-A	170546
10	0.1	FRBMM-B10/1N/01-A	170665	FRBMM-C10/1N/01-A	170685	FRBMM-D10/1N/01-A	170547
13	0.1	FRBMM-B13/1N/01-A	170666	FRBMM-C13/1N/01-A	170686	FRBMM-D13/1N/01-A	170548
16	0.1	FRBMM-B16/1N/01-A	170667	FRBMM-C16/1N/01-A	170687	FRBMM-D16/1N/01-A	170549
20	0.1	FRBMM-B20/1N/01-A	170668	FRBMM-C20/1N/01-A	170688	FRBMM-D20/1N/01-A	170550
25	0.1	FRBMM-B25/1N/01-A	170669	FRBMM-C25/1N/01-A	170689	-	-
32	0.1	FRBMM-B32/1N/01-A	170670	FRBMM-C32/1N/01-A	170690	-	-
40	0.1	FRBMM-B40/1N/01-A	170671	FRBMM-C40/1N/01-A	170691	-	-
2	0.3	-	-	FRBMM-C2/1N/03-A	170571	FRBMM-D2/1N/03-A	170594
4	0.3	-	-	FRBMM-C4/1N/03-A	170572	FRBMM-D4/1N/03-A	170595
6	0.3	FRBMM-B6/1N/03-A	170607	FRBMM-C6/1N/03-A	170573	FRBMM-D6/1N/03-A	170596
10	0.3	FRBMM-B10/1N/03-A	170608	FRBMM-C10/1N/03-A	170574	FRBMM-D10/1N/03-A	170597
13	0.3	FRBMM-B13/1N/03-A	170609	FRBMM-C13/1N/03-A	170575	FRBMM-D13/1N/03-A	170598
16	0.3	FRBMM-B16/1N/03-A	170610	FRBMM-C16/1N/03-A	170576	FRBMM-D16/1N/03-A	170599
20	0.3	FRBMM-B20/1N/03-A	170611	FRBMM-C20/1N/03-A	170577	FRBMM-D20/1N/03-A	170888
25	0.3	FRBMM-B25/1N/03-A	170552	FRBMM-C25/1N/03-A	170578	-	-
32	0.3	FRBMM-B32/1N/03-A	170553	FRBMM-C32/1N/03-A	170579	-	-
40	0.3	FRBMM-B40/1N/03-A	170554	FRBMM-C40/1N/03-A	170580	-	-
1 pole+N, Short time-delayed							
13	0.03	FRBMM-B13/1N/003-G/A	170716	-	-	FRBMM-D13/1N/003-G/A	170653
16	0.03	FRBMM-B16/1N/003-G/A	170717	FRBMM-C16/1N/003-G/A	170631	FRBMM-D16/1N/003-G/A	170654
20	0.03	FRBMM-B20/1N/003-G/A	170528	FRBMM-C20/1N/003-G/A	170632	FRBMM-D20/1N/003-G/A	170655
25	0.03	FRBMM-B25/1N/003-G/A	170529	FRBMM-C25/1N/003-G/A	170633	-	-
32	0.03	FRBMM-B32/1N/003-G/A	170530	FRBMM-C32/1N/003-G/A	170634	-	-
40	0.03	FRBMM-B40/1N/003-G/A	170531	FRBMM-C40/1N/003-G/A	170635	-	-
2 pole, non-delayed							
6	0.03	-	-	FRBMM-C6/2/003-A	170785	-	-
10	0.03	FRBMM-B10/2/003-A	170879	FRBMM-C10/2/003-A	170786	-	-
13	0.03	FRBMM-B13/2/003-A	170880	FRBMM-C13/2/003-A	170787	-	-
16	0.03	FRBMM-B16/2/003-A	170881	FRBMM-C16/2/003-A	170788	-	-
20	0.03	FRBMM-B20/2/003-A	170882	FRBMM-C20/2/003-A	170789	-	-
25	0.03	FRBMM-B25/2/003-A	170883	-	-	-	-
32	0.03	FRBMM-B32/2/003-A	170884	-	-	-	-
40	0.03	FRBMM-B40/2/003-A	170885	-	-	-	-
6	0.1	-	-	FRBMM-C6/2/01-A	170819	-	-
10	0.1	FRBMM-B10/2/01-A	170803	FRBMM-C10/2/01-A	170820	-	-
13	0.1	FRBMM-B13/2/01-A	170804	FRBMM-C13/2/01-A	170821	-	-
16	0.1	FRBMM-B16/2/01-A	170805	FRBMM-C16/2/01-A	170822	-	-
20	0.1	FRBMM-B20/2/01-A	170806	FRBMM-C20/2/01-A	170823	-	-
6	0.3	-	-	FRBMM-C6/2/03-A	170863	-	-
10	0.3	FRBMM-B10/2/03-A	170844	FRBMM-C10/2/03-A	170864	-	-
13	0.3	FRBMM-B13/2/03-A	170845	FRBMM-C13/2/03-A	170865	-	-
16	0.3	FRBMM-B16/2/03-A	170846	FRBMM-C16/2/03-A	170866	-	-
20	0.3	FRBMM-B20/2/03-A	170847	FRBMM-C20/2/03-A	170867	-	-

Rated current	Rated fault current	Tripping characteristic: B Response current of short-circuit release 3-5 x I _n		Tripping characteristic: C Response current of short-circuit release 5-10 x I _n		Tripping characteristic: D Response current of short-circuit release 10-20 x I _n	
I _n	I _{ΔN}	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
A	A						
FRBmM combined residual-current/power circuit-breakers							
Type A, Pulse-current sensitive (please enquire for products for other voltage ranges)							
2 pole, Short time-delayed, 240 V							
6	0.03	-	-	FRBMM-C6/2/003-LIA	170795	-	-
10	0.03	FRBMM-B10/2/003-LIA	170886	FRBMM-C10/2/003-LIA	170796	-	-
13	0.03	FRBMM-B13/2/003-LIA	170887	FRBMM-C13/2/003-LIA	170797	-	-
16	0.03	FRBMM-B16/2/003-LIA	170888	FRBMM-C16/2/003-LIA	170798	-	-
20	0.03	FRBMM-B20/2/003-LIA	170889	FRBMM-C20/2/003-LIA	170799	-	-
6	0.1	-	-	FRBMM-C6/2/01-LIA	170829	-	-
10	0.1	FRBMM-B10/2/01-LIA	170810	FRBMM-C10/2/01-LIA	170830	-	-
13	0.1	FRBMM-B13/2/01-LIA	170811	FRBMM-C13/2/01-LIA	170831	-	-
16	0.1	FRBMM-B16/2/01-LIA	170812	FRBMM-C16/2/01-LIA	170832	-	-
20	0.1	FRBMM-B20/2/01-LIA	170813	FRBMM-C20/2/01-LIA	170833	-	-
3 pole, non-delayed, 415 V							
6	0.03	-	-	FRBMM-C6/3/003-A	170737	FRBMM-D6/3/003-A	170774
10	0.03	FRBMM-B10/3/003-A	170733	FRBMM-C10/3/003-A	170738	FRBMM-D10/3/003-A	170775
13	0.03	FRBMM-B13/3/003-A	170734	FRBMM-C13/3/003-A	170739	FRBMM-D13/3/003-A	170776
16	0.03	FRBMM-B16/3/003-A	170735	FRBMM-C16/3/003-A	170740	FRBMM-D16/3/003-A	170777
20	0.03	FRBMM-B20/3/003-A	170736	FRBMM-C20/3/003-A	170741	FRBMM-D20/3/003-A	170778
25	0.03	-	-	FRBMM-C25/3/003-A	170772	FRBMM-D25/3/003-A	170779
32	0.03	-	-	FRBMM-C32/3/003-A	170773	-	-
6	0.1	-	-	FRBMM-C6/3/01-A	170742	FRBMM-D6/3/01-A	170749
10	0.1	FRBMM-B10/3/01-A	170780	FRBMM-C10/3/01-A	170743	FRBMM-D10/3/01-A	170750
13	0.1	FRBMM-B13/3/01-A	170781	FRBMM-C13/3/01-A	170744	FRBMM-D13/3/01-A	170751
16	0.1	FRBMM-B16/3/01-A	170782	FRBMM-C16/3/01-A	170745	FRBMM-D16/3/01-A	170752
20	0.1	FRBMM-B20/3/01-A	170783	FRBMM-C20/3/01-A	170746	FRBMM-D20/3/01-A	170753
25	0.1	-	-	FRBMM-C25/3/01-A	170747	FRBMM-D25/3/01-A	170754
32	0.1	-	-	FRBMM-C32/3/01-A	170748	-	-
6	0.3	-	-	FRBMM-C6/3/03-A	170759	FRBMM-D6/3/03-A	170766
10	0.3	FRBMM-B10/3/03-A	170755	FRBMM-C10/3/03-A	170760	FRBMM-D10/3/03-A	170767
13	0.3	FRBMM-B13/3/03-A	170756	FRBMM-C13/3/03-A	170761	FRBMM-D13/3/03-A	170768
16	0.3	FRBMM-B16/3/03-A	170757	FRBMM-C16/3/03-A	170762	FRBMM-D16/3/03-A	170769
20	0.3	FRBMM-B20/3/03-A	170758	FRBMM-C20/3/03-A	170763	FRBMM-D20/3/03-A	170770
25	0.3	-	-	FRBMM-C25/3/03-A	170764	FRBMM-D25/3/03-A	170771
32	0.3	-	-	FRBMM-C32/3/03-A	170765	-	-
3 pole+N, non-delayed, 240/415 V							
6	0.03	-	-	FRBM6-C6/3N/003-A	170996	FRBM6-D6/3N/003-A	171008
10	0.03	-	-	FRBM6-C10/3N/003-A	170997	FRBM6-D10/3N/003-A	170892
13	0.03	FRBM6-B13/3N/003-A	170987	FRBM6-C13/3N/003-A	170998	FRBM6-D13/3N/003-A	170893
16	0.03	FRBM6-B16/3N/003-A	170988	FRBM6-C16/3N/003-A	170999	FRBM6-D16/3N/003-A	170894
20	0.03	-	-	FRBM4-C20/3N/003-A	171000	FRBM4-D20/3N/003-A	170895
25	0.03	-	-	FRBM4-C25/3N/003-A	171001	-	-
32	0.03	-	-	FRBM4-C32/3N/003-A	171002	-	-
6	0.1	-	-	FRBM6-C6/3N/01-A	170926	FRBM6-D6/3N/01-A	170938
10	0.1	-	-	FRBM6-C10/3N/01-A	170927	FRBM6-D10/3N/01-A	170939
13	0.1	FRBM6-B13/3N/01-A	170898	FRBM6-C13/3N/01-A	170928	FRBM6-D13/3N/01-A	170940
16	0.1	FRBM6-B16/3N/01-A	170899	FRBM6-C16/3N/01-A	170929	FRBM6-D16/3N/01-A	170941
20	0.1	-	-	FRBM4-C20/3N/01-A	170930	FRBM4-D20/3N/01-A	170942
25	0.1	-	-	FRBM4-C25/3N/01-A	170931	-	-
32	0.1	-	-	FRBM4-C32/3N/01-A	170932	-	-
6	0.3	-	-	FRBM6-C6/3N/03-A	170954	FRBM6-D6/3N/03-A	170966
10	0.3	-	-	FRBM6-C10/3N/03-A	170955	FRBM6-D10/3N/03-A	170967
13	0.3	FRBM6-B13/3N/03-A	170945	FRBM6-C13/3N/03-A	170956	FRBM6-D13/3N/03-A	170968
16	0.3	FRBM6-B16/3N/03-A	170946	FRBM6-C16/3N/03-A	170957	FRBM6-D16/3N/03-A	170969
20	0.3	-	-	FRBM4-C20/3N/03-A	170958	FRBM4-D20/3N/03-A	170970
25	0.3	-	-	FRBM4-C25/3N/03-A	170959	-	-
32	0.3	-	-	FRBM4-C32/3N/03-A	170960	-	-

Description	Part no.	Article no.
Accessories for circuit-breakers, IEC		
SmartWire-DT connection module for miniature-circuit breakers, residual current circuit-breakers, and residual current operated circuit-breakers with overcurrent protection	MCB-HK-SWD 	177175
Auxiliary contact, screwable		
Auxiliary contact for FI, 1 N/O/1 N/C	Z-HK	248432
Auxiliary contact for miniature-circuit breakers and residual current operated circuit-breakers with overcurrent protection, 1 N/O / 1 N/C	Z-AHK	248433
Tripping signal contact for miniature-circuit breakers, residual current circuit-breakers, and residual current operated circuit-breakers with overcurrent protection, 2 W	Z-NHK	248434
Auxiliary contact, snap-on		
Auxiliary contact for miniature-circuit breakers and residual current operated circuit-breakers with overcurrent protection, 1 N/O / 1 N/C	ZP-IHK	286052
Auxiliary contact for miniature-circuit breakers and residual current operated circuit-breakers with overcurrent protection, 1 W	ZP-WHK	286053
Tripping signal contact for miniature-circuit breakers and residual current operated circuit-breakers with overcurrent protection, 2 W	ZP-NHK	248437
Shunt release, snap-on		
12 - 110 V DC	ZP-ASA/24	248438
110 - 415 V DC	ZP-ASA/230	248439
Undervoltage release, non-delayed		
115 V DC	Z-USA/115	248288
230 V DC	Z-USA/230	248289
400 V DC	Z-USA/400	248290
Accessories for circuit-breakers, UL/CSA		
Auxiliary contact for FAZ-NA, -RT	Z-IHK-NA	113895
Shunt release for FAZ-NA, -RT, 12 - 110 V AC	FAZ-XAA-NA12-110VAC	102037
Shunt release for FAZ-NA, -RT, 110 - 415 V AC	FAZ-XAA-NA110-415VAC	102036

Description	Devices Number	Type	Part no.	Article no.
Busbars				
Busbar for FAZ, can be cut, 100 A				
Cross-section: 18 mm ²	-	Single phase	BB-UL-18/1P-1M/57	121981
Cross-section: 18 mm ²	-	2 phase	BB-UL-18/2P-2M/56	121982
Cross-section: 18 mm ²	-	Three-phase	BB-UL-18/3P-3M/57	121983
Cross-section: 25 mm ²	-	Single phase	BB-UL-25/1P-1M/57	121989
Cross-section: 25 mm ²	-	2 phase	BB-UL-25/2P-2M/56	121990
Cross-section: 25 mm ²	-	Three-phase	BB-UL-25/3P-3M/57	121991
Busbar for FAZ-NA and -RT, can be cut, 100 A				
Cross-section: 25 mm ²	-	Single phase	Z-BB/UL25/1P1MU/57	171131
Cross-section: 25 mm ²	-	Single-phase + auxiliary contact	Z-BB/UL25/1P1MU+AUX/37	171137
Cross-section: 25 mm ²	-	2 x single-phase + HS	Z-BB/UL25/2X1P1MU+AUX/38	171143
Cross-section: 25 mm ²	-	3 x single-phase + HS	Z-BB/UL25/3X1P1MU+AUX/39	171141
Cross-section: 25 mm ²	-	2 phase	Z-BB/UL25/2P1MU/56	171132
Cross-section: 25 mm ²	-	2-phase + auxiliary contact	Z-BB/UL25/2P1MU+AUX/46	171138
Cross-section: 25 mm ²	-	Three-phase	Z-BB/UL25/3P1MU/57	171133
Cross-section: 25 mm ²	-	3-phase + auxiliary contact	Z-BB/UL25/3P1MU+AUX/48	171139
End cap for shroud section	-	-	Z-ECUL	171145
Extension terminals	-	-	Z-TEUL35	171144
Busbar tag shroud	-	-	Z-FPUL	171146
Z-SV/UL busbar for FAZ-NA and -RT, 80 A				
Cross-section: 16 mm ²	6	Single phase	Z-SV/UL-16/1P-1TE/6	104892
Cross-section: 16 mm ²	12	Single phase	Z-SV/UL-16/1P-1TE/12	104893
Cross-section: 16 mm ²	18	Single phase	Z-SV/UL-16/1P-1TE/18	104894
Cross-section: 16 mm ²	6	2 phase	Z-SV/UL-16/2P-2TE/6	104895
Cross-section: 16 mm ²	12	2 phase	Z-SV/UL-16/2P-2TE/12	104896
Cross-section: 16 mm ²	18	2 phase	Z-SV/UL-16/2P-2TE/18	104897
Cross-section: 16 mm ²	6	Three-phase	Z-SV/UL-16/3P-3TE/6	104898
Cross-section: 16 mm ²	12	Three-phase	Z-SV/UL-16/3P-3TE/12	104899
Cross-section: 16 mm ²	18	Three-phase	Z-SV/UL-16/3P-3TE/18	104900
Connection terminal 2,5 - 35 mm ²	-	-	Z-EK/35/UL	104901
Connection terminal 1,5 - 50 mm ²	-	-	Z-EB/50/UL	104902
Busbar tag shroud for 3 pins	-	-	ZV-BS-UL	104904

Build it in.



SASY 60i busbar system provides highest efficiency in the control panel



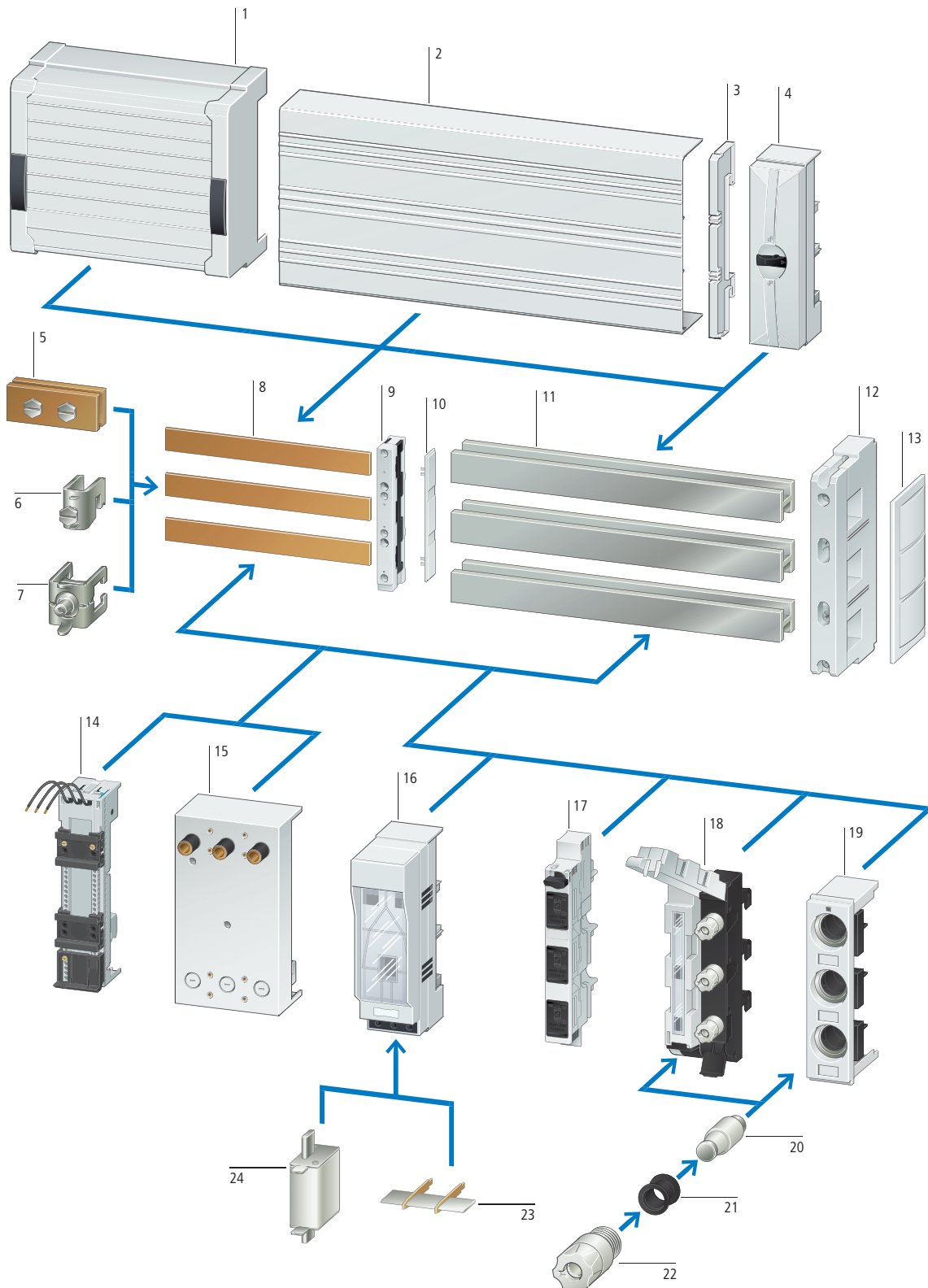
SASY 60i – safety and reliability in a single product: SASY 60i is a comprehensive UL-certified solution for switching, controlling, protecting, and distributing power that is designed for use with motor-protective circuit breakers and molded-case circuit breakers.

More specifically, the SASY 60i modular busbar system has been designed for efficient power distribution in control panels. And thanks to its busbar adapter, feeder and outgoing circuit breakers can be quickly and easily mounted directly on its busbar system while saving space.

On top of this, the SASY 60i system's double-T profiled DIN busbars reduce the amount of work required in order to prepare contact points. In addition, they combine an extremely high rated peak withstand current with a small number of busbar supports, meaning that they take full advantage of every inch of control cabinet space available. The large surface of the busbar profile allows optimum heat dissipation.



www.eaton.eu/xnh
www.eaton.eu/sasy60i



- | | | | |
|-------------------------------------|------------------------------------|--|-----------------------------------|
| 1 System cover | 7 Expansion terminals | 15 Busbar adapters for NZM | 19 D busbar mounting fuse devices |
| 2 Cover for empty sections, modular | 8 Profile busbars | 16 NH fuse switch-disconnector | 20 Fuse links |
| 3 Cover for empty sections support | 9 Double T profile busbar supports | 17 D fuse switch-disconnectors with flashing function | 21 Fuse adapters |
| 4 Terminal plates | 10 End shroud | 18 D fuse switch-disconnectors without flashing function | 22 Screw caps |
| 5 Busbar end-to-end connectors | 11 Flat busbars | | 23 Disconnecting blades |
| 6 Universal conductor terminals | 12 Busbar supports | | 24 NH fuse-link |
| | 13 End shroud | | |
| | 14 Busbar adapters for PKZ and PKE | | |

SASY busbar system 60 mm

System for flat and profiled busbars

Moeller® series

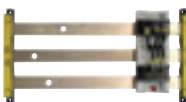
Description	Pole	Rated operational current I_e A	For use with	Part no. Article no.	
Busbar supports					
Thermoplast, silicon free, chlorine free Halogen free					
IEC busbar supports					
	Can be fitted to all busbar sizes using concertina system With screw block inside	3	630	Flat busbars	BBS-3/FL 107066
		4	630	Flat busbars	BBS-4/FL 138381
UL busbar supports					
	Can be fitted to all busbar sizes using concertina system With screw block inside	3	630	Flat busbars	BBS-3/FL-NA 107067
PE/N busbar carrier					
	Can be fitted to all busbar sizes using concertina system Can be mounted individually	1	630	Flat busbars	BBS-1/FL 107161
		2	630	Flat busbars	BBS-2/FL 107069
Double T profile busbar carrier					
	Suitable for assembly of PE or N bar With screw block inside	1	1600	Double T profile	BBS-1/PR 107165
	Suitable for outside and middle carrier With screw block inside	3	1600	Double T profile	BBS-3/PR 107162
End shroud					
	For covering the busbars	-	-	BBS-3/FL BBS-3/FL-NA	ES-BBS-3/FL 107068
		-	-	BBS-3/PR	ES-BBS-3/PR 107164
UL bottom plate					
	For use when the air gap between the busbars and the mounting plate is not sufficient.	-	-	BBS-3/FL BBS-3/FL-NA BBS-3/PR	BBC-BT-NA 107172
Bar covers					
	-	-	-	All 5 mm thick flat busbars	BBC-FL5 107173
	-	-	-	All 10 mm thick flat busbars	BBC-FL10 107174
	-	-	-	Double T profile	BBC-CU-BAR/PR 107175
Profiled busbars					
E-CU double T profile busbars					
	Cross-section 500 mm ² , 2400 mm long, tin-plated	-	1250	BBS-3/PR, BBS-1/PR, BBS-3/FL-185	CU-BAR-500/T 107166
	Cross-section 720 mm ² , 2400 mm long, tin-plated	-	1600	BBS-3/PR, BBS-1/PR, BBS-3/FL-185	CU-BAR-720/T 107167
System covers, complete					
	Length 228 mm	3	-	-	BBC-CS1 107209
	Length 228 mm	4	-	-	BBC-CS4 138387

Description	Width mm	Pole	Rated operational current I_e A	Terminal capacity	For use with	Part no. Article no.
Clamp plate						
 The terminal can be removed for the connection of uncut conductors Looping is not possible	54	3	300	6 - 50 mm ² AWG 10 - AWG 2/0.	Double T profile 12 x 5/10 15 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10	BBA-TP3/50 107183
Clamp terminals						
 Termination to busbars without drilling	38	-	480	35 - 150 mm ² AWG2/0 - MCM 300.	12 x 5/10 20 x 5/10	AKS150 138374
 Termination to busbars without drilling	38	-	500	95 - 185 mm ² AWG3/0 - MCM 350.	Double T profile 20 x 5/10 25 x 5/10 30 x 5/10	AKS185 107195
Profile terminals						
 Termination to busbars without drilling	72	-	1600	800 mm ² , terminal area 41 x 20 - 42	Double T profile	AKP800 107198
Universal conductor connection terminals						
 With integrated retaining spring, open terminal chamber and captive terminal screw	11.5	-	180	1.5 - 16 mm ² AWG 14 - AWG 6.	All 5 mm thick flat busbars	AKU16/5 107187
	23.5	-	440	16 - 120 mm ² AWG 4 - MCM 250.	All 10 mm thick flat busbars	AKU120/10 107194
	38	-	630	Cable lugs M10	All 10 mm thick flat busbars Double T profile	AKU-M10/10 138361

SASY busbar system 60 mm

Busbar adapters for NZM, DIN devices

Moeller® series

	Number of poles	Rated operational current I _e A	Adapter width mm	For use with	Part no. Article no.
Component adapter for circuit-breakers and switch-disconnectors					
For surface mounting on flat copper busbars 12 – 30 x 5 – 10, double T and triple T profile					
	3 pole	160	92	NZM1, PN1, N(S)1	NZM1-XAD160 104554
		250	106	NZM2, PN2, N(S)2	NZM2-XAD250 104555
		630	140	NZM3, PN3, N(S)3	NZM3-XAD630 107206
	4 pole	250	140	NZM2, PN2, N2 NZM2(-4), PN2(-4), N2(-4)	NZM2-4-XAD250 138388
		630	185	NZM3, PN3, N3 NZM3(-4), PN3(-4), N3(-4)	NZM3-4-XAD630 138389
Connection block for component adapters					
	3 pole	250	-	NZM2, PN2, N(S)2	NZM2-XKR4 281666
		630	-	NZM3, PN3, N(S)3	NZM3-XKR13 281668
	4 pole	250	-	NZM2-4, PN2-4, N2-4	NZM2-4-XKR4 118907
		630	-	NZM3-4, PN3-4, N3-4	NZM3-4-XKR13 119020
Busbar adapter for DIN devices					
Dual adapters					
	3 pole	35	54	Double T profile 12x5/10 15x5/10 20x5/10 25x5/10 30x5/10	Z-SS-60-ADD/6-54 288791

	Rated operational current I_e A	Frame size	Connection	Part no. Article no.
NH fuse-switch disconnectors				
IEC/EN 60947-3 3-pole With reach-over guard Rated conditional short-circuit currents of 120 kA (500 V) and 100 kA (690 V) Flammability characteristics as per UL94 (self-extinguishing) Cable connection can be either at the top or bottom Contacts made of electrolytic copper, silver-plated				
NH fuse switch-disconnectors without flashing function				
	160	NH00	Box terminal 1.5 - 95 mm²	XNH00-S160-BT1 183034
	250	NH1	Box terminal 35 - 150 mm²	XNH1-S250-BT 183052
	400	NH2	Box terminal 95 - 300 mm²	XNH2-S400-BT 183066
	630	NH3	Box terminal 95 - 300 mm²	XNH3-S630-BT 183078
NH fuse switch-disconnectors with flashing function The flash function indicates the blowing of fuse link				
	160	NH00	Box terminal 1.5 - 95 mm²	XNH00-FCL-S160-BT1 183037
	250	NH1	Box terminal 35 - 150 mm²	XNH1-FCL-S250-BT 183054
	400	NH2	Box terminal 95 - 300 mm²	XNH2-FCL-S400-BT 183068
	630	NH3	Box terminal 95 - 300 mm²	XNH3-FCL-S630-BT 183080

	Rated operational current I_e A	Rated operational voltage U_e V AC	Frame size	Mounting width mm	For use with	Part no. Article no.
D busbar mounted fuse devices						
Guage ring Delivery, empty, without screw cap						
	63	400	E18, D 02	27	12 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double T profile	D02-S0/63/3-R-27 114315
D fuse switch-disconnectors without flashing function						
Guage ring Delivery, empty, without screw cap						
	63	400	E18, D 02	36	20 x 5/10 30 x 5/10 Double T profile	D02-S/63/3-RS 284649
D fuse switch-disconnectors with flashing function						
The flash function indicates the blowing of fuse link Supplied empty, without adapter sleeves and fuse links Contact position indicator Switches the load on all poles and without touching by hand Sealable and lockable						
	63	400	E18, D02	27	12 x 5/10 15 x 5/10 20 x 5/10 25 x 5/10 30 x 5/10 Double T profile	D02-LTS/63/3-R 114316

Build it in.



One range: complete circuit protection

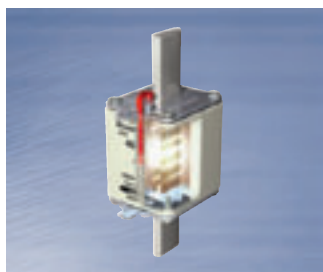
Eaton's Bussmann series range of NH DIN style fuse links and bases offers unrivalled choice and performance for industrial applications.

Available in a comprehensive range of voltage, current and sizes. The fuses' dual indication system saves time and money as the operated fuses can be quickly identified and replaced. The insulated metal gripping lugs enhance the safety of the fuses as the lug is voltage free.

It's a range that sets the standard for protecting electrical systems.



www.eaton.com/bussmannseries



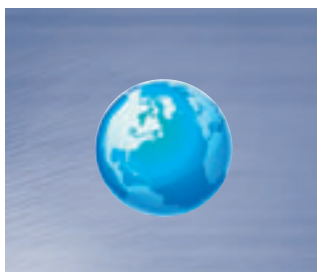
Dual indicator system

Eaton's patented dual indicator system provides clear indication, ensuring extremely reliable local and remote signalling, decreasing fuse link replacement time and costs.



Low power loss

Eaton's 'low watts loss' fuse links reduce overall operating costs and carbon footprint through lower energy consumption and heat transfer to equipment.



Globally compliant

Eaton's Bussmann series NH fuse links are tested and comply with IEC 60269-1 and 2, DIN 43620, VDE, CE, CCC ensuring global acceptance.



Recycling

Eaton is dedicated to produce recyclable products and is a member of an industry recognised recycling scheme. The HRC symbol certifies that the product is suitable for recycling. The fuses are also lead and cadmium free and suitable for use in RoHS compliant applications.



NH400 Volts

Eaton's Bussmann series range of class gG 400 Volts NH square bodied industrial fuse links is suitable for a wide variety of industrial applications.

- 2 to 630 Amps
- Class gG/gL
- Breaking capacity 120 kA AC
- Sizes 000 to 3
- IEC 60269-1 and 2, VDE 0636, DIN 43620 and CE
- Available with metal lugs or insulated metal gripping lugs



NH500 Volts

Eaton's Bussmann series range of class gG and aM 500 Volts NH square bodied industrial fuse links is suitable for a wide variety of industrial and motor protection applications.

- 2 to 1250 Amps
- Class gG/gL and aM
- Breaking capacity 120 kA AC
- Sizes 000 to 4
- IEC 60269-1 and 2, VDE 0636, DIN 43620 and CE
- Available with metal lugs or insulated metal gripping lugs



NH690 Volts

Eaton's Bussmann series range of class gG and aM 690 Volts NH square bodied industrial fuse links is suitable for a wide variety of industrial and motor protection applications.

- 2 to 800 Amps
- Class gG/gL and aM
- Breaking capacity 120 kA AC
- Sizes 000 to 4
- IEC 60269-1 and 2, VDE 0636, DIN 43620 and CE
- Available with metal lugs



NHBases

Eaton's Bussmann series range of NH bases has been designed with thermoplastic bodies, DIN-Rail and/or screw mounting. This range comes with a complete range of accessories: phase barriers, IP20 fingersafe protection kits and neutral links.

- 160 to 1600 Amps
- 690 VAC
- Rated for fuse links with breaking capacity 120 kA
- Sizes 00 to 4
- IEC 60269-1 and 2, VDE 0636-1 and 2

Build it in.



A complete line of circuit protection solutions for UL markets



Catalog download:
www.eaton.com/bussmannseries

Eaton's Bussmann series UL Listed fuse links, bases and blocks offer unrivalled choice and performance for industrial and commercial applications.

Available in a comprehensive range of voltage, current and sizes. They are suitable for applications or equipment to be exported to the USA or other UL markets.

With global capability and accreditation, our extensive portfolio helps deliver safe electricity, protecting assets and people.



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UL Low voltage – branch circuit fuse links overview

		Class CC	Class J	Class RK1	Class T
					
Catalog numbers		LP-CC, FNQ-R, KTK-R	LPJ-SP(I), JKS	LPN-RK-SP(I), LPS-RK-SP(I), KTN-R, KTS-R	JJN, JJS
Rated voltage	V AC	600	600	600	600
	V DC	300	300	Up to 300	160/170
Rated current		Up to 30 A	Up to 600 A	Up to 600 A	Up to 1200 A
Breaking capacity	RMS Sym	200 kA	200/300 kA	200/300 kA	200 kA
	DC	20 kA	100 kA	100 kA	20/100 kA
Operating class		Time delay, fast acting	Time delay, fast acting	Time delay, fast acting	Fast acting
Fuse holders		Optima, CHCC, HPF, HPS	CUBEFuse, CH Class J modular holders, Safety J™	N/A	N/A
Fuse blocks		BCM	Power distribution, modular knifeblade, JM600, JP Pyramid blocks panel mount, modular type, BH modular-style	Modular knifeblade, RM250 and RM600	BH Modular style, T300 and T600 panel mount
Standards		CE, UL Listed and CSA Certified			
Applications		Specialised circuits, industrial control, isolated in-line fuse holder, line protection small control transformers	Power panelboards, branch circuit breaker panelboard mains, machinery disconnects, industrial control	Large distribution switchboards, power panelboards, motor control centers, machinery disconnect switches	Large apartment complexes, multi family meter stacks, VFD line protection

UL Low voltage – supplementary fuse links overview

		Fast acting		Time delay	
					
Catalogue numbers		KTK	KLM	FNM	FNQ
Rated voltage	V AC	600	600	250	500
	V DC	-	600	-	-
Rated current		Up to 30 A	Up to 30 A	Up to 30 A	Up to 30 A
Breaking capacity	RMS Sym	100 kA	100 kA	200/300 kA	200 kA
	DC	N/A	50 kA	N/A	N/A
Operating class		Fast acting fuse links		Time delay fuse links	
Fuse holders		Optima, CH, HPG, HPC, HPS, HPM, HPF, HEB, HEX, HEY, NDNF1-WH, CCP		Optima, CH, HPG, HPC, HPS, HPM, HPF, HEB, HEX, HEY, NDNF1-WH, CCP	
Fuse blocks		BCM, 4421 and 4515		BCM, 4421 and 4515	
Standards		CE, UL Listed and CSA Certified		CE, UL Listed and CSA Certified	
Applications		Control circuits, lightning circuit protection, meter circuits		Circuit with high inrush currents (motor/transformer loads). Supplemental protection for 125 V AC and 250 V AC inductive circuits	Motor control transformers, circuits with in-rush currents

Bussmann series fuses

Cylindrical fuses

	Rated current	Rated voltage	Breaking capacity	Operating class	Frame size	Part no.
	A	VAC	kA		mm	
Cylindrical fuses 10 x 38 mm and 14 x 51 mm						
	0,5	500	120	gG	10 x 38	C10G0-5
	1					C10G1
	2					C10G2
	4					C10G4
	6					C10G6
	8					C10G8
	10					C10G10
	12					C10G12
	16					C10G16
	20					C10G20
	25					C10G25
	32					C10G32
	0.16	500	120	aM	10 x 38	C10M0-16
	0.25					C10M0-25
	0.5					C10M0-5
	1					C10M1
	2					C10M2
	4					C10M4
	6					C10M6
	8					C10M8
	10					C10M10
	12					C10M12
	16					C10M16
	20	400				C10M20
	25					C10M25
	32					C10M32
	1	690	80	gG	14 x 51	C14G1
	2					C14G2
	4					C14G4
	6					C14G6
	8					C14G8
	10					C14G10
	12					C14G12
	16					C14G16
	20					C14G20
	25					C14G25
	32	500	120			C14G32
	40	500				C14G40
	50	400				C14G50

	Rated current	Rated voltage	Breaking capacity	Operating class	Frame size	Part no.		
	A	VAC	kA		mm			
Cylindrical fuses 14 x 51 mm and 22 x 58 mm								
	0.25	500	80	aM	14 x 51	C14M0-25		
	0.5					C14M0-5		
	1					C14M1		
	2					C14M2		
	4					C14M4		
	6					C14M6		
	8					C14M8		
	10					C14M10		
	12					C14M12		
	16					C14M16		
	20					C14M20		
	25					C14M25		
	32		120			C14M32		
	40					C14M40		
	45					C14M45		
	50	400				C14M50		
	2	690	80	gG	22 x 58	C22G2		
	4					C22G4		
	6					C22G6		
	8					C22G8		
	10					C22G10		
	12					C22G12		
	16					C22G16		
	20					C22G20		
	25					C22G25		
	32					C22G32		
	40					C22G40		
	50					C22G50		
	63					C22G63		
	80	500	120			C22G80		
	100	500				C22G100		
	125	400				C22G125		
	2	690	80	aM	22 x 58	C22M2		
	4					C22M4		
	6					C22M6		
	8					C22M8		
	10					C22M10		
	12					C22M12		
	16					C22M16		
	20					C22M20		
	25					C22M25		
	32					C22M32		
	40					C22M40		
	50					C22M50		
	63					C22M63		
	80	500	120			C22M80		
	100	500				C22M100		
	125	400				C22M125		

Bussmann series fuses

Cylindrical fuse holders for cylindrical fuses

Design as illustrated	Rated current	Rated voltage	Function	Part no.
	A	V/VAC		
Cylindrical fuse holders for 10 x 38 mm cylindrical fuses				
1	30	600 V (UL)	1-pole with indicator	CHCC1DIU
			2-pole with indicator	CHCC2DIU
			3-pole with indicator	CHCC3DIU
			1-pole	CHCC1DU
			2-pole	CHCC2DU
			3-pole	CHCC3DU
2	32	690 VAC (IEC), 600 V (UL)	1-pole	CHM1DU
			2-pole	CHM2DU
			3-pole	CHM3DU
			4-pole	CHM4DU
			1-pole with indicator	CHM1DIU
			2-pole with indicator	CHM2DIU
			3-pole with indicator	CHM3DIU
			4-pole with indicator	CHM4DIU
Cylindrical fuse holders for 14 x 51 mm cylindrical fuses				
3	50	690 VAC (IEC)	1-pole	CH141DU
3			2-pole	CH142DU
4			3-pole	CH143DU
-			4-pole	CH144DU
5			1-pole with microswitch	CH141DMSU-F
5			3-pole with microswitch	CH143DMSU-F
Cylindrical fuse holders for 22 x 58 mm cylindrical fuses				
6	125	690 VAC (IEC)	1-pole	CH221DU
7			2-pole	CH222DU
8			3-pole	CH223DU
9			4-pole	CH224DU
-			3-pole with neutral	CH223DNU
-			3-pole with neutral and microswitch	CH223DMSU-L

Notes



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	Rated current	Rated voltage	Breaking capacity	Operating class	Frame size	Part no. ¹⁾
	A	VAC	kA			
NH fuses						
	2	500	120	gG/gl	000	2NHG000B
	4					4NHG000B
	6					6NHG000B
	10					10NHG000B
	16					16NHG000B
	20					20NHG000B
	25					25NHG000B
	32					32NHG000B
	35					35NHG000B
	40					40NHG000B
	50					50NHG000B
	63					63NHG000B
	80					80NHG000B
	100					100NHG000B
	50	500	120	gG/gl	00	50NHG00B
	63					63NHG00B
	80					80NHG00B
	100					100NHG00B
	125					125NHG00B
	160					160NHG00B
	6	500	120	gG/gl	0	6NHG0B
	10					10NHG0B
	16					16NHG0B
	20					20NHG0B
	25					25NHG0B
	32					32NHG0B
	35					35NHG0B
	40					40NHG0B
	50					50NHG0B
	63					63NHG0B
	80					80NHG0B
	100					100NHG0B
	125					125NHG0B
	160					160NHG0B
	6	500	120	gG/gl	01	6NHG01B
	10					10NHG01B
	16					16NHG01B
	20					20NHG01B
	25					25NHG01B
	32					32NHG01B
	35					35NHG01B
	40					40NHG01B
	50					50NHG01B
	63					63NHG01B
	80					80NHG01B
	100					100NHG01B
	125					125NHG01B
	160					160NHG01B

Notes

¹⁾ Insulated metal gripping lugs options also available

Bussmann series fuses

NH fuses

	Rated current	Rated voltage	Breaking capacity	Operating class	Frame size	Part no. ¹⁾
	A	VAC	kA			
NH fuses						
	50	500	120	gG/gl	1	50NHG1B
	63					63NHG1B
	80					80NHG1B
	100					100NHG1B
	125					125NHG1B
	160					160NHG1B
	200					200NHG1B
	224					224NHG1B
	250					250NHG1B
	315	440	120	gG/gl	1	315NHG1B
	355	440				355NHG1B
	35	500	120	gG/gl	02	35NHG02B
	40					40NHG02B
	50					50NHG02B
	63					63NHG02B
	80					80NHG02B
	100					100NHG02B
	125					125NHG02B
	160					160NHG02B
	200					200NHG02B
	224					224NHG02B
	250					250NHG02B
	250	500	120	gG/gl	2	250NHG2B
	300					300NHG2B
	315					315NHG2B
	355					355NHG2B
	400					400NHG2B
	425					425NHG2B
	450					450NHG2B
	500	440	120	gG/gl	2	500NHG2B
	250	500	120	gG/gl	03	250NHG03B
	315					315NHG03B
	355					355NHG03B
	400					400NHG03B
	315	500	120	gG/gl	3	315NHG3B
	355					355NHG3B
	400					400NHG3B
	425					425NHG3B
	500					500NHG3B
	630					630NHG3B

Notes

¹⁾ Insulated metal gripping lugs options also available

	Rated current	Rated voltage	Breaking capacity	Operating class	Frame size	Part no.
	A	VAC	kA			
NH fuses						
	500	500	120	gG/gL	4	500NHG4G
	630	500	120	gG/gL	4	630NHG4G
	6	690	120	aM	000	6NHM000B-690
	10					10NHM000B-690
	16					16NHM000B-690
	20					20NHM000B-690
	25					25NHM000B-690
	32					32NHM000B-690
	35					35NHM000B-690
	40					40NHM000B-690
	50					50NHM000B-690
	63	690	120	aM	00	63NHM00B-690
	80					80NHM00B-690
	100					100NHM00B-690
	50	690	120	aM	1	50NHM1B-690
	63					63NHM1B-690
	80					80NHM1B-690
	100					100NHM1B-690
	125					125NHM1B-690
	160					160NHM1B-690
	125	690	120	aM	2	125NHM2B-690
	160					160NHM2B-690
	200					200NHM2B-690
	224					224NHM2B-690
	250					250NHM2B-690
	315					315NHM2B-690
	355					355NHM2B-690
	315	690	120	aM	3	315NHM3B-690
	355					355NHM3B-690
	400					400NHM3B-690
	500					500NHM3B-690

Bussmann series fuses

NH fuses, high speed fuses

	Rated current	Rated voltage	Breaking capacity	Operating class	Frame size	Part no.
	A	V/VAC	kA			
NH fuses						
	160	690 VAC	-	-	00	SD00-D
	250		-	-	1	SD1-D
	400		-	-	2	SD2-D
	630		-	-	3	SD3-D
	160	690 VAC	-	-	00	TD00-D
	250		-	-	1	TD1-D
	400		-	-	2	TD2-D
	630		-	-	3	TD3-D
European square body DIN 43620 - dual indicator fuses						
	10	690 (IEC), 700 (UL)	200	aR	000	170M1558D
	16					170M1559D
	20					170M1560D
	25					170M1561D
	32					170M1562D
	40					170M1563D
	50					170M1564D
	63					170M1565D
	80					170M1566D
	100					170M1567D
	125					170M1568D
	160					170M1569D
	200					170M1570D
	250					170M1571D
	315	690 (IEC), 700 (UL)	200	aR	00	170M1572D
	40	690 (IEC), 700 (UL)	200	aR	1	170M3808D
	50					170M3809D
	63					170M3810D
	80					170M3811D
	100					170M3812D
	125					170M3813D
	160					170M3814D
	200					170M3815D
	250					170M3816D
	315					170M3817D
	350					170M3818D
	400					170M3819D
	450					170M4863D
	500					170M4864D
	550					170M4865D
	630					170M4866D
	400	690 (IEC), 700 (UL)	200	aR	2	170M5808D
	450					170M5809D
	500					170M5810D
	550					170M5811D
	630					170M5812D
	500	690 (IEC), 700 (UL)	200	aR	3	170M6808D
	550					170M6809D
	630					170M6810D

Rated current	Rated voltage	Operating class	-/80 Visual indicator	-TN/80 type T Indicator for micro switch	
A	V/VAC		Part no.	Part no.	
European square body DIN 43653 fuses - stud mount					
Breaking capacity: 200 kA (VAC), 50 kA (VDC)					
Frame size: 000					
	10	690 VAC (IEC), 700 VAC/VDC (UL)	gR	170M1358	170M1408
	16			170M1359	170M1409
	20			170M1360	170M1410
	25			170M1361	170M1411
	32			170M1362	170M1412
	40			170M1363	170M1413
	50			170M1364	170M1414
	63			170M1365	170M1415
	80			170M1366	170M1416
	100			170M1367	170M1417
	125			170M1368	170M1418
	160			170M1369	170M1419
	200			170M1370	170M1420
	250			170M1371	170M1421
	315			170M1372	170M1422
Breaking capacity: 200 kA					
Frame size: 00					
	25	690 VAC (IEC)	gR	-	170M2658
	32			-	170M2659
	40			-	170M2660
	50			-	170M2661
	63			-	170M2662
	80			-	170M2663
	100	690 VAC (IEC), 700 VAC (UL)		-	170M2664
	125			-	170M2665
	160			-	170M2666
	200			-	170M2667
	250			-	170M2668
	315			-	170M2669
	350			-	170M2670
	400			-	170M2671

Bussmann series fuses

High speed fuses

	Rated current	Rated voltage	Breaking capacity	Operating class	-TN/80 type T Indicator for micro switch	-TN/110 type T Indicator for micro switch
	A	VAC	kA		Part no.	Part no.
European square body DIN 43653 fuses - stud mount						
	Frame size: 1					
	40	690 (IEC), 700 (UL)	200	gR	170M3058	170M3208
	50				170M3059	170M3209
	63				170M3060	170M3210
	80				170M3061	170M3211
	100				170M3062	170M3212
	125				170M3063	170M3213
	160				170M3064	170M3214
	200				170M3065	170M3215
	250				170M3066	170M3216
	315				170M3067	170M3217
	350				170M3068	170M3218
	400				170M3069	170M3219
	450				170M3070	170M3220
	500				170M3071	170M3221
	550				170M3072	170M3222
	630				170M3073	170M3223
	Frame size: 1					
	200	690 (IEC), 700 (UL)	200	gR	170M4058	170M4208
	250				170M4059	170M4209
	315				170M4060	170M4210
	350				170M4061	170M4211
	400				170M4062	170M4212
	450				170M4063	170M4213
	500				170M4064	170M4214
	550				170M4065	170M4215
	630				170M4066	170M4216
	Frame size: 2					
	400	690 (IEC), 700 (UL)	200	gR	170M5058	170M5208
	450				170M5059	170M5209
	500				170M5060	170M5210
	550				170M5061	170M5211
	630				170M5062	170M5212
	Frame size: 3					
	500	690 (IEC), 700 (UL)	200	gR	170M6058	170M6208
	550				170M6059	170M6209
	630				170M6060	170M6210
	Frame size: 2					
	250	1250 (IEC), 1300 (UL)	200	gR	-	170M5188
	280				-	170M5189
	315				-	170M5190
	350				-	170M5191
	400				-	170M5192
	450				-	170M5193
	500				-	170M5194
	550				-	170M5195
	630				-	170M5196

	Rated current	Rated voltage	Operating class	-/80 Visual indicator	-TN/80 type T Indicator for micro switch
	A	V/VAC		Part no.	Part no.
European square body DIN 43653 fuses - stud mount					
Breaking capacity: 200 kA (VAC), 50 kA (VDC) Frame size: 000					
	10	690 VAC (IEC), 700 VAC/VDC (UL)	gR	170M1358	170M1408
	16			170M1359	170M1409
	20			170M1360	170M1410
	25			170M1361	170M1411
	32			170M1362	170M1412
	40			170M1363	170M1413
	50			170M1364	170M1414
	63			170M1365	170M1415
	80			170M1366	170M1416
	100			170M1367	170M1417
	125			170M1368	170M1418
	160			170M1369	170M1419
	200			170M1370	170M1420
	250			170M1371	170M1421
	315			170M1372	170M1422
Breaking capacity: 200 kA Frame size: 00					
	25	690 (IEC)	gR	170M2608	170M2658
	32			170M2609	170M2659
	40			170M2610	170M2660
	50			170M2611	170M2661
	63			170M2612	170M2662
	80			170M2613	170M2663
	100	690 (IEC), 700 (UL)	gR	170M2614	170M2664
	125			170M2615	170M2665
	160			170M2616	170M2666
	200			170M2617	170M2667
	250			170M2618	170M2668
	315			170M2619	170M2669
	350			170M2620	170M2670
	400			170M2621	170M2671

Busmann series fuses

North American UL fuses links

	Rated current	Rated voltage	Breaking capacity	Operating class	Part No
	A	V	kA		
Low peak dual element, time delay fuse links					
	1	600 V a.c./ 300 V d.c.	300 Ka RMS Sym. / 100 kA d.c.	Time delay	LPJ-1SP
	1.25				LPJ-1-1-4SP
	1.6				LPJ-1-6-10SP
	1.8				LPJ-1-8-10SP
	2				LPJ-2SP
	2.25				LPJ-2-1-4SP
	2.5				LPJ-2-1-2SP
	2.8				LPJ-2-8-10SP
	3				LPJ-3SP
	3.2				LPJ-3-2-10SP
	3.5				LPJ-3-1-2SP
	4				LPJ-4SP
	4.5				LPJ-4-1-2SP
	5				LPJ-5SP
	5.6				LPJ-5-6-10SP
	6				LPJ-6SP
	7				LPJ-7SP
	8				LPJ-8SP
	9				LPJ-9SP
	10				LPJ-10SP
	12				LPJ-12SP
	15				LPJ-15SP
	17.5				LPJ-17-1-2SP
	20				LPJ-20SP
	25				LPJ-25SP
	30				LPJ-30SP
	35				LPJ-35SP
	40				LPJ-40SP
	45				LPJ-45SP
	50				LPJ-50SP
	60				LPJ-60SP
	70				LPJ-70SP
	80				LPJ-80SP
	90				LPJ-90SP
	100				LPJ-100SP
	110				LPJ-110SP
	125				LPJ-125SP
	150				LPJ-150SP
	175				LPJ-175SP
	200				LPJ-200SP
	225				LPJ-225SP
	250				LPJ-250SP
	300				LPJ-300SP
	350				LPJ-350SP
	400				LPJ-400SP
	450				LPJ-450SP
	500				LPJ-500SP
	600				LPJ-600SP

Design as illustrated	Rated current	Rated voltage	Function	Part No
	A	kA	kA	
Class J Modular fuse holders				
1	30	600	1 pole	CH30J1
			1 pole with neon indicator	CH30J1I
			2 pole	CH30J2
			2 pole with neon indicator	CH30J2I
			3 pole	CH30J3
			3 pole with neon indicator	CH30J3I
2	60	600	1 pole	CH60J1
			1 pole with neon indicator	CH60J1I
			2 pole	CH60J2
			2 pole with neon indicator	CH60J2I
			3 pole	CH60J3
			3 pole with neon indicator	CH60J3I
Modular knifeblade fuse blocks				
3	70 - 100	600	1 pole	JM60100-1CR
			2 pole	JM60100-2CR
			3 pole	JM60100-3CR
4	110 - 200	600	1 pole	JM60200-1CR
			2 pole	JM60200-2CR
			3 pole	JM60200-3CR
5	225 - 400	600	1 pole	JM60400-1CR
			2 pole	JM60400-2CR
			3 pole	JM60400-3CR
6	450 - 600	600	1 pole	JM60600-1CR
			2 pole	JM60600-2CR
			3 pole	JM60600-3CR
Notes				



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Build it in.



Safe switching, isolating and control with rotary switch T and switch disconnector P



The high-performance, robust and compact T rotary switches and P switch-disconnectors are used in industry, trade and building engineering applications. The degree of protection IP65 with the switch mounts and the switch front enables use in harsh environments. Ten basic switch types in four different construction types, in a whole range of standard switches and across a wide performance range are available. Customised circuits can also be implemented in addition to the standard configurations. The possibilities are almost unlimited. A comprehensive accessory range complements the switch range and rounds off the range of applications. All contacts feature double breaking contacts.

With the metal extension shafts our reliable P1 and P3 switches can be mounted in electrical cabinets of up to 600 mm deep and with several Handle and Shaft options a solution can be found for every application. Also the most common types are available as a complete switch/shaft/handle package.



www.eaton.eu/camswitches



Rotary switch T

The rotary switch T represents a very flexible, compact and robust modular system. The TM, T0, T3, T5B, T5, T6, T8 rating sizes are available in four different construction types. The rating of the T switch ranges from 6.5 kW to 132 kW with AC 23 A at 400/415 V, 50-60 Hz. The rated uninterrupted current I_u is between 10 A and 315 A. The rotary switch T has a widely varied range of application uses. Customized circuits on request.



Switch-disconnector P

The switch-disconnectors P1 up to 32 A, P3 up to 100 A, P5 up to 315 A are very compact and robust. The manual operator acts directly on the contacts. The contacts are positively opened on de-energization. In addition to their use as switch disconnectors with and without the Emergency-Stop function, switch-disconnectors P can be used as On-Off switches as well as maintenance, manual override or safety switches.



Main switch with Emergency-Stop function¹⁾

Process and processing machines require a power disconnecting device conform to EN 60204-1. Furthermore, standstill in an emergency must also be assured. As shown in the above textile processing machine, both of these functions are assumed by a switch-disconnector P3. Standstill in an emergency requires:

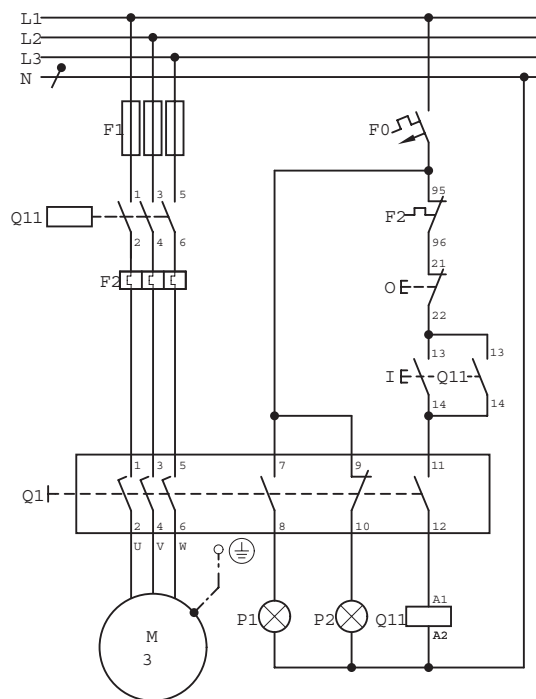
- priority function and operation in all operating modes
- the power supply, which is connected to the machine states which produce the danger, must switch off as quickly as possible.

¹⁾ The EMERGENCY-STOP devices from Eaton can also be used as EMERGENCY-OFF devices.



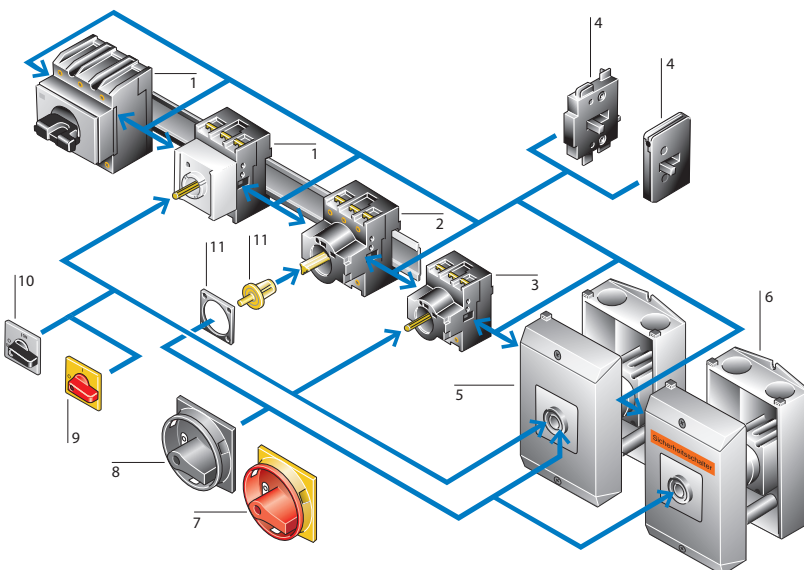
Safety switch with load shedding and signalling

The safety switches P and T are functionally designed as maintenance and manual override switches. Safe isolation of a load from the mains is the primary function. The switch can be loaded with rated uninterrupted current I_u due to the load shedding circuit. The switch switches without a load! The additional signalling contacts can be used for indicating the switch position. The respective processing and use in the application program of the system enhances safety.



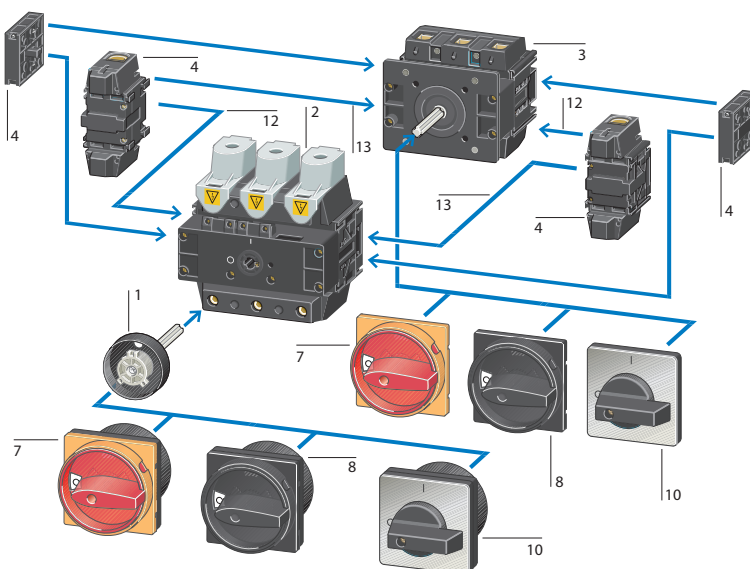
P1 = On
P2 = Off
Q11 = Load shedding

ON-OFF switches P1, P3

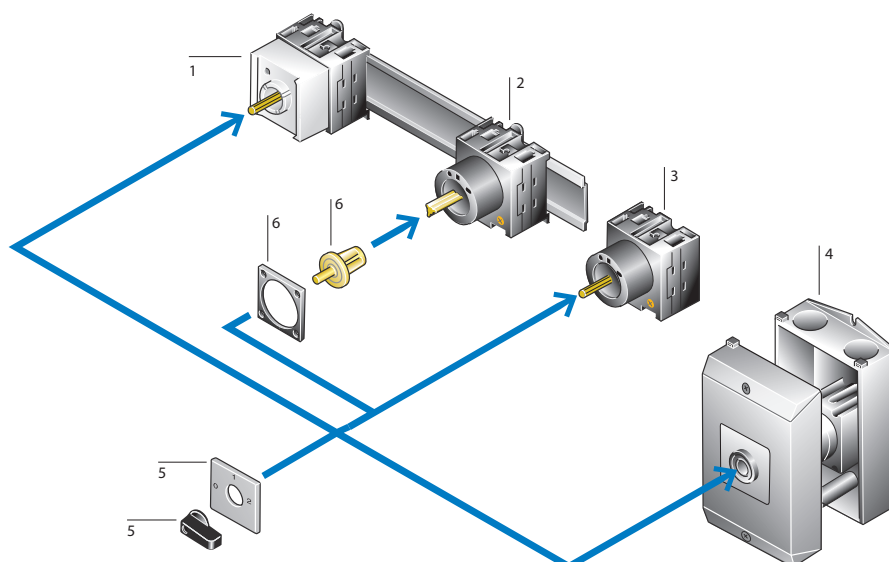


- 1 Service distribution board mounting
- 2 Rear mounting
- 3 Flush mounting
- 4 Neutral conductors, auxiliary contacts
- 5 Surface mounting
- 6 Safety switch
- 7 Main switch (kit) for use as emergency switching off device
- 8 Main switch (kit)
- 9 Thumb-grip, for use as emergency switching off device
- 10 Thumb-grip
- 11 Coupling drive
- 12 Protective conductor terminal
- 13 Neutral terminal

ON OFF switches P5

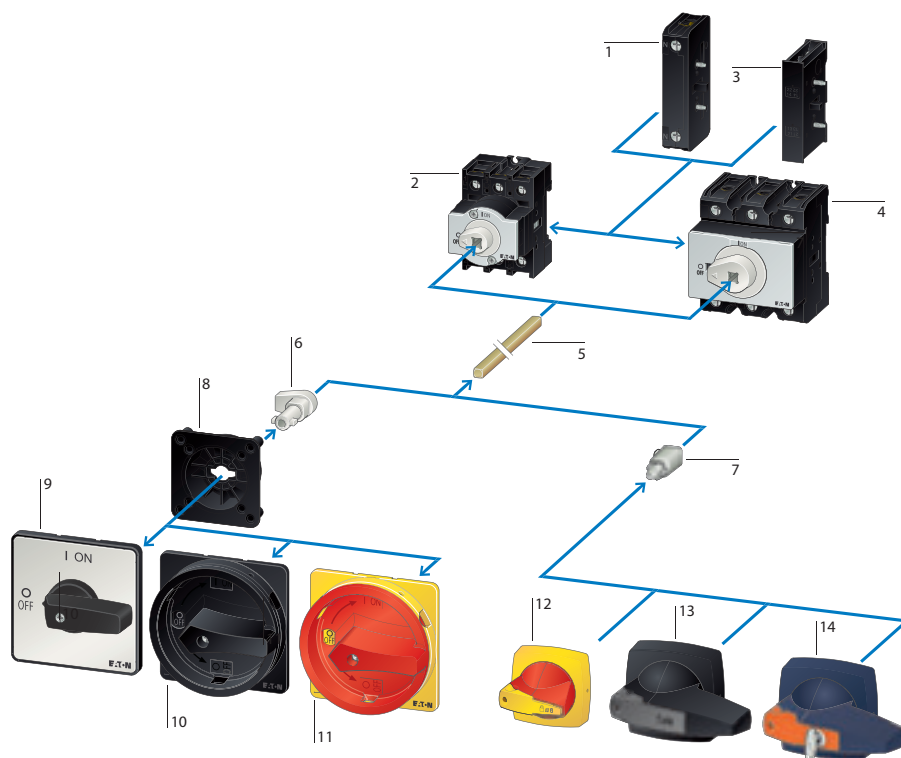


Control switches T0, T3, T5B, T5



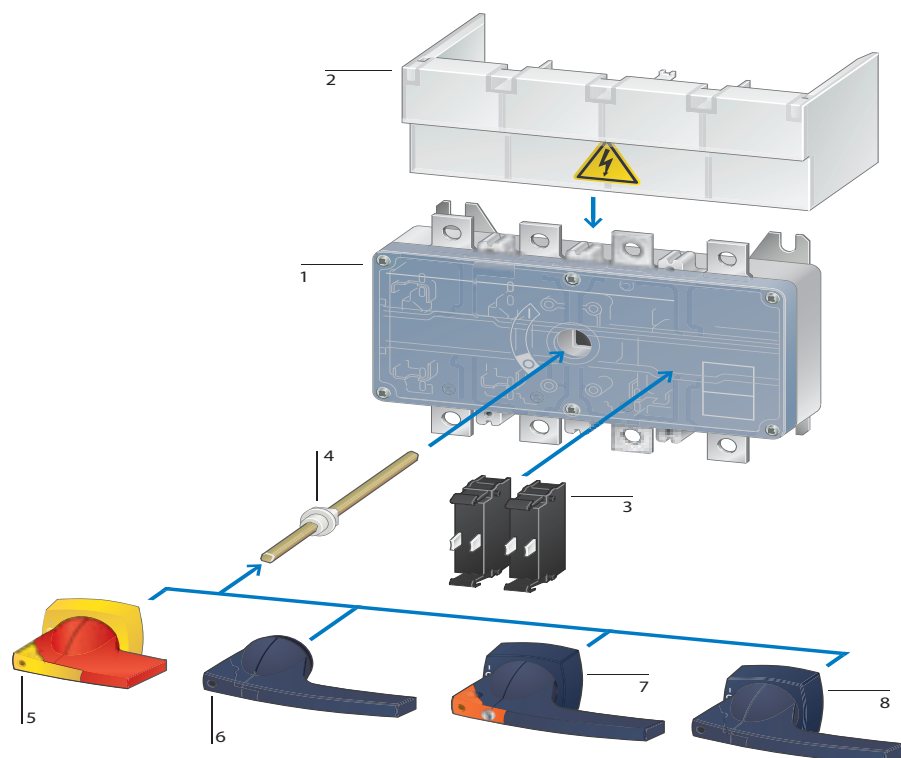
- 1 Service distribution board mounting
- 2 Rear mounting
- 3 Flush mounting
- 4 Surface mounting
- 5 Thumb-grip
- 6 Coupling drive

On-Off switch P1, P3 with metal shaft



- 1 Neutral conductor
- 2 P1 rear-mounting switch
- 3 Auxiliary contact
- 4 P3 rear-mounting switch
- 5 Metal shaft
- 6,7 Centring tip
- 8 Centring adapter
- 9 Thumb-grip
- 10 Main switch kit (black)
- 11 Main switch kit for use as emergency switching off device (red)
- 12 Thumb-grip kit, for use as emergency switching off device (red)
- 13 Thumb-grip kit for padlock (grey)
- 14 Thumb-grip kit with cylinder lock (blue)

On-Off switch DMM, DMV



- 1 On-Off switch DMM, DMV
- 2 Clamp cover
- 3 Auxiliary contact
- 4 Metal shaft
- 5 Thumb-grip, for use as emergency switching off device (red)
- 6 Thumb-grip for direct mounting
- 7 Thumb-grip for door mounting, with cylinder lock
- 8 Thumb-grip for door mounting with padlock

Cam switches, switch-disconnectors

Main switch, maintenance switch, Repair switch

Moeller® series

Main circuits Poles	Auxiliary circuits	Rated uninter- rupted current	 Surface mounting IP65 Part no. Article no.	 Flush mounting Front IP65 Part no. Article no.	 Rear mounting Front IP65 Part no. Article no.	 Rear mounting With metal shaft for a control panel depth of 400 mm Front IP65 Part no. Article no.
  		I_u A				

Main switch, maintenance switch, Repair switch

With red rotary handle and yellow locking ring

Note: All types are available with a black thumb-grip → Online Catalog.

Lockable in the 0 (Off) position

1	-	-	20	T0-1-8200/I1/SVB	207145	T0-1-8200/EA/SVB	053110	T0-1-8200/V/SVB	057856	-
			32	T3-1-8200/I2/SVB	207200	T3-1-8200/EA/SVB	066576	T3-1-8200/V/SVB	007255	-
			63	T5B-1-8200/I4/SVB	207240	T5B-1-8200/EA/SVB	094279	T5B-1-8200/V/SVB	094273	-
			100	-	-	T5-1-8200/EA/SVB	097224	T5-1-8200/V/SVB	097222	-
2	-	-	20	T0-1-102/I1/SVB	207143	T0-1-102/EA/SVB	091078	T0-1-102/V/SVB	095824	-
			32	T3-1-102/I2/SVB	207198	T3-1-102/EA/SVB	014374	T3-1-102/V/SVB	019120	-
			63	T5B-1-102/I4/SVB	207238	T5B-1-102/EA/SVB	094469	T5B-1-102/V/SVB	094463	-
			100	T5-1-102/I5/SVB	207273	T5-1-102/EA/SVB	098808	T5-1-102/V/SVB	098806	-
3	-	-	20	T0-2-1/I1/SVB	207147	T0-2-1/EA/SVB	038873	T0-2-1/V/SVB	043619	-
			25	P1-25/I2/SVB	207293	P1-25/EA/SVB	041097	P1-25/V/SVB	055335	P1-25/M4/SVB 172875
			32	P1-32/I2/SVB	207314	P1-32/EA/SVB	081438	P1-32/V/SVB	095676	P1-32/M4/SVB 172865
			63	P3-63/I4/SVB	207343	P3-63/EA/SVB	031607	P3-63/V/SVB	048218	P3-63/M4/SVB 172784
			100	P3-100/I5/SVB	207373	P3-100/EA/SVB	074320	P3-100/V/SVB	088558	P3-100/M4/SVB 172818
			125	DMM-125/3/I5/P-R	172851	P5-125/EA/SVB	280898	P5-125/V/SVB	280914	DMM-125/3/M4/P-R 6094964
			160	DMM-160/3/I5/P-R	172794	P5-160/EA/SVB	280922	P5-160/V/SVB	280928	DMM-160/3/M4/P-R 6094965
			250	-	-	P5-250/EA/SVB	280936	P5-250/V/SVB	280942	DMV-250/3/M4/P-R 6094966
			315	-	-	P5-315/EA/SVB	280950	P5-315/V/SVB	280956	-
			400	-	-	-	-	-	-	DMV-400/3/M4/P-R 6094967
3 + N	-	-	20	T0-2-8900/I1/SVB	207151	-	-	-	-	-
			25	P1-25/I2/SVB/N	207298	P1-25/EA/SVB/N	081587	P1-25/V/SVB/N	086333	P1-25/M4/SVB/N 172877
			32	P1-32/I2/SVB/N	207319	P1-32/EA/SVB/N	091079	P1-32/V/SVB/N	095825	P1-32/M4/SVB/N 172867
			63	P3-63/I4/SVB/N	207349	P3-63/EA/SVB/N	010398	P3-63/V/SVB/N	015144	P3-63/M4/K2-PR/N 172812
			100	P3-100/I5/SVB/N	207379	P3-100/EA/SVB/N	019890	P3-100/V/SVB/N	024636	P3-100/M4/K2-PR/N 172828
			125	DMM-125/4/I5/P-R	172854	P5-125/EA/SVB/N	280910	P5-125/V/SVB/N	280916	DMM-125/4/M4/P-R 6094968
			160	DMM-160/4/I5/P-R	172797	P5-160/EA/SVB/N	280924	P5-160/V/SVB/N	280930	DMM-160/4/M4/P-R 6094969
			250	-	-	P5-250/EA/SVB/N	280938	P5-250/V/SVB/N	280944	DMV-250/4/M4/P-R 6094970
			315	-	-	P5-315/EA/SVB/N	280952	P5-315/V/SVB/N	280958	-
			400	-	-	-	-	-	-	DMV-400/4/M4/P-R 6094971
3	1	0	20	T0-2-15679/I1/SVB	207149	T0-2-15679/EA/SVB	081588	T0-2-15679/V/SVB	086334	-
3	1	1	25	P1-25/I2/SVB/HI11	207297	P1-25/EA/SVB/HI11	091080	P1-25/V/SVB/HI11	095826	P1-25/M4/SVB/HI11 172767
			32	P1-32/I2/SVB/HI11	207318	P1-32/EA/SVB/HI11	072567	P1-32/V/SVB/HI11	015145	P1-32/M4/SVB/HI11 172869
			63	P3-63/I4/SVB/HI11	207348	P3-63/EA/SVB/HI11	019891	P3-63/V/SVB/HI11	024637	P3-63/M4/SVB/HI11 172788
			100	P3-100/I5/SVB/HI11	207378	P3-100/EA/SVB/HI11	029383	P3-100/V/SVB/HI11	034129	P3-100/M4/SVB/HI11 172822
3 + N	1	1	20	T0-3-15680/I1/SVB	207153	T0-3-15680/EA/SVB	038875	T0-3-15680/V/SVB	043621	-
			25	-	-	P1-25/EA/SVB/N/HI11	048367	P1-25/V/SVB/N/HI11	053113	P1-25/M4/SVB/N/HI11 172769
			32	T3-3-15680/I2/SVB	207202	P1-32/EA/SVB/N/HI11	057859	P1-32/V/SVB/N/HI11	062605	P1-32/M4/SVB/N/HI11 172871
			63	P3-63/I4/SVB/N/HI11	207350	P3-63/EA/SVB/N/HI11	067351	P3-63/V/SVB/N/HI11	072097	P3-63/M4/K2-PR/N/HI11 172816
			100	P3-100/I5/SVB/N/HI11	207380	P3-100/EA/SVB/N/HI11	076843	P3-100/V/SVB/N/HI11	081589	P3-100/M4/K2-PR/N/HI11 172832
3	2	1	20	T0-3-15683/I1/SVB	207157	T0-3-15683/EA/SVB	015571	T0-3-15683/V/SVB	015634	-
6	-	-	20	T0-3-8342/I1/SVB	207159	T0-3-8342/EA/SVB	029382	T0-3-8342/V/SVB	034128	-
			32	T3-3-8342/I2/SVB	207208	T3-3-8342/EA/SVB	071326	T3-3-8342/V/SVB	076072	-
			63	T5B-3-8342/I4/SVB	207242	T5B-3-8342/EA/SVB	092308	T5B-3-8342/V/SVB	092300	-
			100	T5-3-8342/I5/SVB	207279	T5-3-8342/EA/SVB	096383	T5-3-8342/V/SVB	096381	-

Molded case switch (UL/CSA) as main switch in accordance with NFPA 79

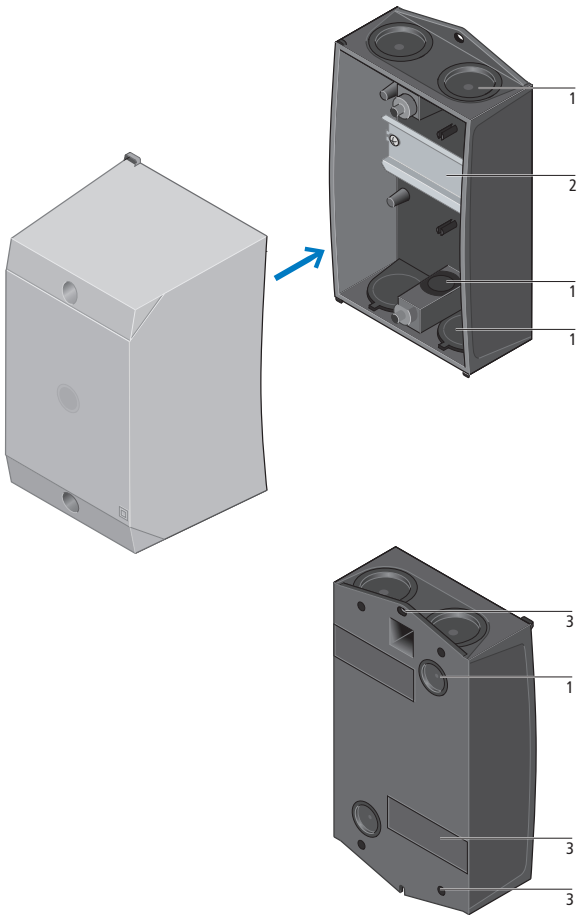
3	-	-	30	-	P3-30/EA/SVB-MCS	237892	P3-30/V/SVB-MCS	237894	-
				-	P3-30/EA/SVB-SW-MCS¹⁾	237893	P3-30/V/SVB-SW-MCS	237895	-

Notes

¹⁾ With black handle

								
Front plate no.	Main circuits Poles			Flush mounting Front IP65 Part no. Article no.	Centre mounting Front IP65 Part no. Article no.	Surface mounting IP65 Part no. Article no.	Service distribution board mounting Front IP30 Part no. Article no.	Rear mounting Front IP65 Part no. Article no.
		N/O	N/C					
								
On-Off switch								
 FS 908	1	-	-	T0-1-8200/E 067352	T0-1-8200/EZ 069725	T0-1-8200/I1 207074	T0-1-8200/IVS 074471	T0-1-8200/Z 076844
	2	-	-	T0-1-102/E 088709	T0-1-102/EZ 091082	T0-1-102/I1 207061	T0-1-102/IVS 015147	T0-1-102/Z 095828
	3	-	-	T0-2-1/E 024639	T0-2-1/EZ 027012	T0-2-1/I1 207081	T0-2-1/IVS 031758	T0-2-1/Z 036504
	3	1	0	T0-2-15679/E 029387	T0-2-15679/EZ 031760	T0-2-15679/I1 207094	T0-2-15679/IVS 036506	T0-2-15679/Z 041252
	3 + N	-	-	T0-2-8900/E 207398	T0-2-8900/EZ 207402	T0-2-8900/I1 207109	T0-2-8900/IVS 207403	T0-2-8900/Z 207407
Changeoverswitches								
 FS 684	1	-	-	T0-1-8210/E 012742	T0-1-8210/EZ 048337	T0-1-8210/I1 207076	T0-1-8210/IVS 074440	T0-1-8210/Z 019862
	2	-	-	T0-2-8211/E 022234	T0-2-8211/EZ 053083	T0-2-8211/I1 207102	T0-2-8211/IVS 076813	T0-2-8211/Z 029354
	3	-	-	T0-3-8212/E 029353	T0-3-8212/EZ 057829	T0-3-8212/I1 207123	T0-3-8212/IVS 079186	T0-3-8212/Z 036473
	4	-	-	T0-4-8213/E 031726	T0-4-8213/EZ 062575	T0-4-8213/I1 207136	T0-4-8213/IVS 081559	T0-4-8213/Z 043592
 FS 943	1	-	-	T0-1-8220/E 031728	T0-1-8220/EZ 095799	T0-1-8220/I1 207078	T0-1-8220/IVS 055459	T0-1-8220/Z 086312
	2	-	-	T0-2-8221/E 038847	T0-2-8221/EZ 010372	T0-2-8221/I1 207104	T0-2-8221/IVS 057832	T0-2-8221/Z 074450
	3	-	-	T0-3-8222/E 048339	T0-3-8222/EZ 015118	T0-3-8222/I1 207124	T0-3-8222/IVS 060205	T0-3-8222/Z 088686
	4	-	-	T0-4-8223/E 050712	T0-4-8223/EZ 019864	T0-4-8223/I1 207137	T0-4-8223/IVS 062578	T0-4-8223/Z 086315
 FS 4011	1	-	-	T0-1-8214/E 019863	T0-1-8214/EZ 076815	T0-1-8214/I1 207077	T0-1-8214/IVS 045967	T0-1-8214/Z 050720
	2	-	-	T0-2-8215/E 022236	T0-2-8215/EZ 081561	T0-2-8215/I1 207103	T0-2-8215/IVS 048340	T0-2-8215/Z 053093
	3	-	-	T0-3-8216/E 024609	T0-3-8216/EZ 086307	T0-3-8216/I1 207434	T0-3-8216/IVS 050713	T0-3-8216/Z 055466
Reversing switches								
 FS 684	3	-	-	T0-3-8401/E 091047	T0-3-8401/EZ 093420	T0-3-8401/I1 207132	T0-3-8401/IVS 098166	T0-3-8401/Z 010366

						
		Flush mounting	Centre mounting	Surface mounting	Service distribution board mounting	Rear mounting
Front plate no.	Main circuits Poles	Front IP65 Part no. Article no.	Front IP65 Part no. Article no.	IP65 Part no. Article no.	Front IP30 Part no. Article no.	Front IP65 Part no. Article no.
						
ON-OFF switches						
	1	T0-1-15401/E 038854	T0-1-15401/EZ 041227	T0-1-15401/I1 207067	T0-1-15401/IVS 045973	T0-1-15401/Z 048346
FS 415	2	T0-1-15402/E 053092	T0-1-15402/EZ 055465	T0-1-15402/I1 207068	T0-1-15402/IVS 060211	T0-1-15402/Z 062584
	3	T0-2-15403/E 067330	T0-2-15403/EZ 069703	T0-2-15403/I1 207088	T0-2-15403/IVS 074449	T0-2-15403/Z 076822
Voltmeter selector switches						
	3 + N	T0-3-8007/E 095813	T0-3-8007/EZ 098186	T0-3-8007/I1 207120	T0-3-8007/IVS 012759	T0-3-8007/Z 015132
FS 1410759						
Ammeter selector switches						
	3	T0-3-8048/E 034116	T0-3-8048/EZ 036489	-	T0-3-8048/IVS 041235	T0-3-8048/Z 043608
FS 9440						
Step switches						
	1	T0-2-8231/E 012750	T0-2-8231/EZ 015123	T0-2-8231/I1 207106	T0-2-8231/IVS 019869	T0-2-8231/Z 022242
FS 606						
	1	T0-2-8241/E 050716	T0-2-8241/EZ 053089	T0-2-8241/I1 207107	T0-2-8241/IVS 057835	T0-2-8241/Z 062581
FS 420						
Changeoverswitches						
	1	T0-1-15431/E 019872	T0-1-15431/EZ 022245	T0-1-15431/I1 207070	T0-1-15431/IVS 026991	T0-1-15431/Z 029364
FS 1401	2	T0-2-15432/E 034110	T0-2-15432/EZ 036483	T0-2-15432/I1 207091	T0-2-15432/IVS 041229	T0-2-15432/Z 043602
	3	T0-3-15433/E 048348	T0-3-15433/EZ 050721	T0-3-15433/I1 207115	T0-3-15433/IVS 055467	T0-3-15433/Z 057840



Degree of protection IP65

- 1 Metric cable entries: push-through membrane or hard knockouts
- 2 Mounting systems for basic enclosures mounting rail or mounting plate
- 3 Mounting: horizontal and vertical slot apertures for wall mounting, captive cover screws, rubber feet to compensate for uneven walls for CI-K1 and CI-K2

	Width mm	Height mm	Depth mm	Cable entry	Part no.	Article no.
CI-K empty enclosures						
With mounting rail to IEC/EN 60715						
	80	120	95	Push-through cable entry diaphragm	CI-K1-95-TS	206881
	100	160	100		CI-K2-100-TS	206882
	100	160	145		CI-K2-145-TS	206883
	80	120	95	Hard knockout version	CI-K1H-95-TS	105853
	100	160	100		CI-K2H-100-TS	229304
	100	160	145		CI-K2H-145-TS	229305
	120	200	125		CI-K3-125-TS	206884
	120	200	160		CI-K3-160-TS	206885
	160	240	125		CI-K4-125-TS	206886
	160	240	160		CI-K4-160-TS	206890
	200	280	125		CI-K5-125-TS	206891
	200	280	160		CI-K5-160-TS	206892
With adapter plate for contactors DILE with motor-protective relay ZE						
100	160	145	Push-through cable entry diaphragm	CI-K2-145-AD	207632	
100	160	145	Hard knockout version	CI-K2H-145-AD	229308	
With mounting plate						
100	160	100	Push-through cable entry diaphragm	CI-K2-100-M	206893	
100	160	145		CI-K2-145-M	206894	
100	160	100	Hard knockout version	CI-K2H-100-M	229306	
100	160	145		CI-K2H-145-M	229307	
120	200	125		CI-K3-125-M	206895	
120	200	160		CI-K3-160-M	206896	
160	240	125		CI-K4-125-M	206897	
160	240	160		CI-K4-160-M	206898	
200	280	125		CI-K5-125-M	206899	
200	280	160		CI-K5-160-M	206900	

Build it in.



CS sheet steel wall-mount enclosures: Safe and reliable enclosure technology for people who value their time

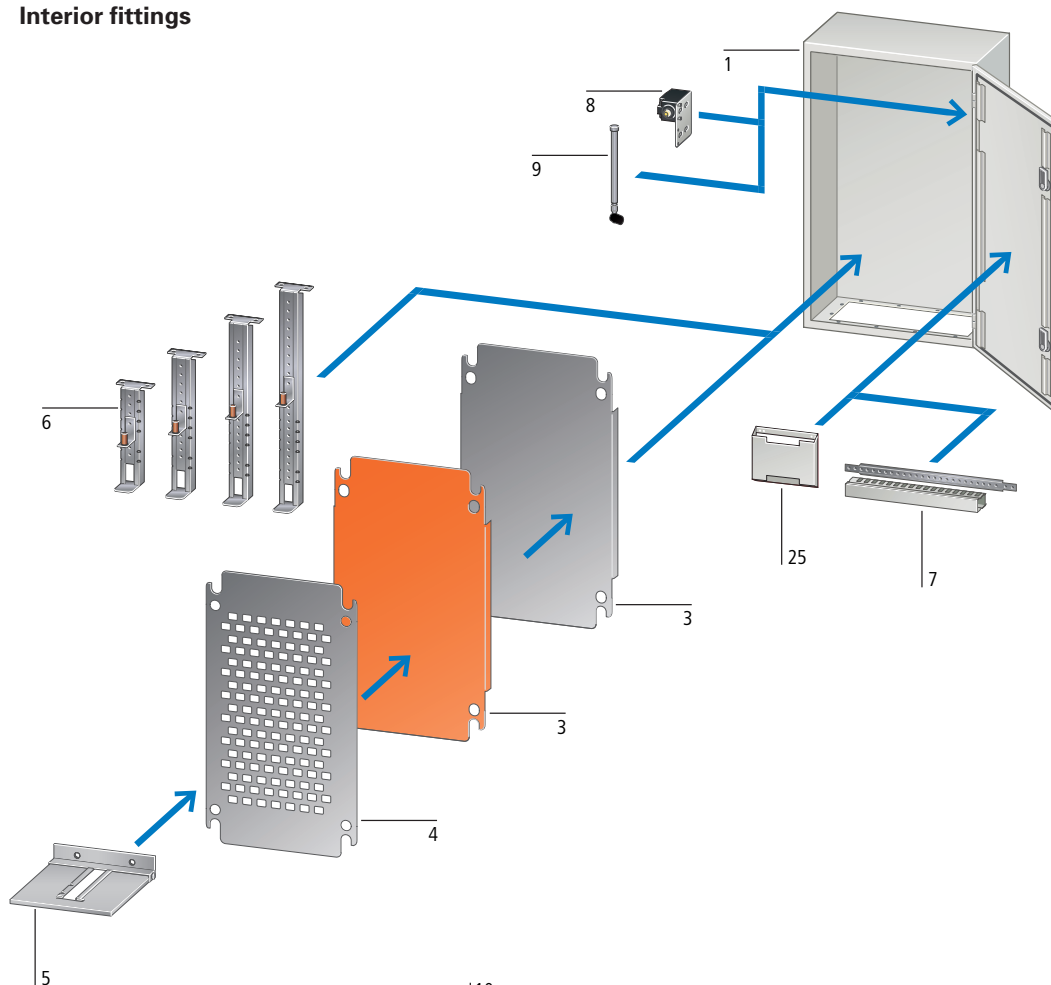


Eaton's second generation of CS sheet steel enclosures is characterized by maximum ruggedness and can be used anywhere where a high level of protection is required, both to effectively protect against direct contact with live parts and to protect all installed components from damaging external factors such as liquids. The enclosures' IP66 degree of protection (UL/CSA types 1, 4, 12) – achieved with a continuous CNC foamed polyurethane gasket – prevents water, oil, and dirt from entering them. This, together with other characteristics, makes the CS series of enclosures a perfect match for sub-distribution systems in control systems for industrial buildings, as well as for machine building environments. In addition, these heavy-duty steel sheet enclosures meet the requirements set forth in IEC/EN 62208, i.e., they are approved for use in switchgear assemblies as defined in IEC/EN 61439-2.



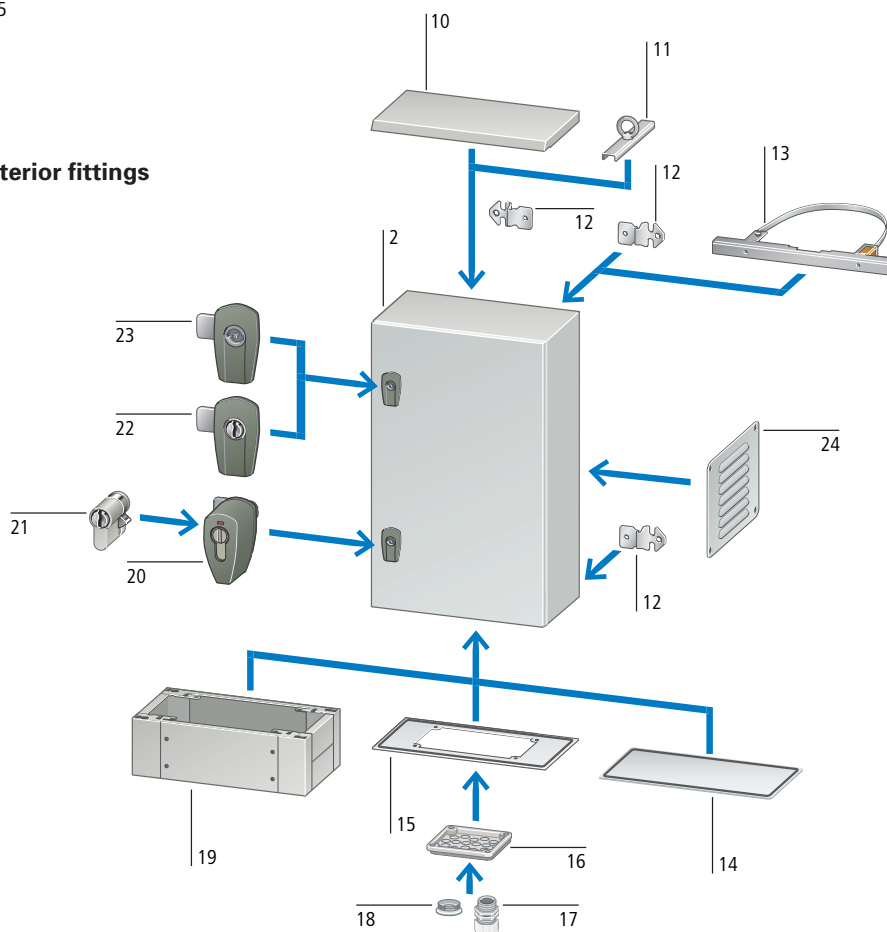
www.eaton.eu/boxcs

Interior fittings



- 1 CS sheet steel wall-mount enclosure (interior fittings)
- 2 CS sheet steel wall-mounting enclosure (exterior fittings)
- 3 Mounting plate, unperforated, galvanized or RAL 2000
- 4 Mounting plate, perforated, galvanized, for cage nuts
- 5 Mounting rail module for soft starters
- 6 Depth adjustment elements for mounting plates
- 7 Mounting bars for door profile moldings and cable ducts
- 8 Universal brackets for door contact switches and cable conduit holders
- 9 Quick-C hinge pin
- 10 Rain canopy
- 11 Lift eye kit with profile bracket
- 12 Wall fixing bracket
- 13 Mast fastening
- 14 Bottom plates without apertures
- 15 Bottom plates with apertures for F3A flanges
- 16 F3A flanges
- 17 Metric cable glands to EN 50262, metric ventilation cable gland
- 18 Metric diaphragm grommets, cable grommet
- 19 Cable interconnect frame
- 20 Lock for half-cylinder, comfort rotary handle
- 21 Cylinder lock
- 22 Locks with inserts, lock cylinder
- 23 Locks with inserts, two-way key bit
- 24 Ventilation louvers
- 25 Circuit diagram pockets insulating material

Exterior fittings



Overview of technical advantages

① Rainwater drain profile



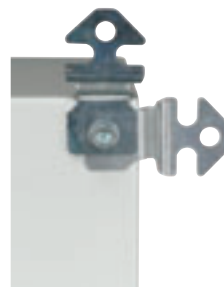
② Continuous CNC foamed gasket



③ Solid enclosure construction



④ Wall fixing bracket



⑫ RAL 7035



⑤ Standardised lock system



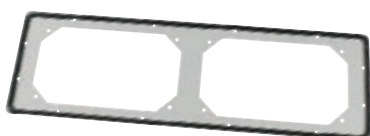
⑥ PHZ-A comfort rotary handle



⑪ Mounting plate



⑩ Flange plates



⑦ Door profile molding



⑨ Hinge pin with quick-change technology



⑧ Accessories



1 Rainwater drain profile

Sealing is guaranteed by a continuous CNC foamed polyurethane gasket. A surrounding rainwater drain profile protects against the ingress of liquids such as water or oil as well as dirt when the door is opened.

2 Continuous CNC foamed gasket

A high IP66 degree of protection provides absolute safety for the equipment and components inside the enclosure under most ambient conditions. One of the elements ensuring this is the continuous CNC foamed polyurethane gasket applied.

3 Solid enclosure construction

A rugged enclosure structure made of strong quality sheet steel provides effective protection against direct contact with live parts. Moreover, the back plate features holes with a diameter of 10 mm that are designed to make it easy to mount the enclosure on a wall. The enclosures come with two M6 threaded weld studs on the inside for protective earth connections. Also, their IK09 mechanical impact rating, as defined in EN 62262, means that their interior is effectively protected against mechanical damage. There are 45 enclosure sizes available, ranging from 250 x 200 x 150 mm to 1200 x 1200 x 250 mm. Finally, the enclosures do not have a designated top or bottom face, which means they can be installed in such a way as to route in cables from the top or bottom as necessary.

4 Wall fixing bracket

The innovative WFB-SET-CS wall fixing bracket makes it easier to place the enclosure on a wall, as it can be mounted either vertically or horizontally as necessary.

5 Standardised lock system

The new impact-resistant locks, which are completely made of metal, provide additional safety and security.

6 PHZ-A comfort rotary handle

One of the enclosures' highlights is the PHZ-A comfort rotary handle, which features a lock position indicator. The rotary handle can accommodate any standard euro profile half cylinder on the market. Also, its lock position indicator is one of its most compelling features, as it makes it possible to easily see whether the cylinder is in the "open" or "closed" position. In addition, the PHZ-A handle can be quickly fitted without having to remove the CS wall-mount enclosures' standard lock, avoiding the use of locking rotary levers that require time-consuming installation procedures.

7 Door profile molding

Door profile rail with perforations every 25 mm. For mounting DIN rails or securing conduits and cables. Precise-fit mounting brackets for door profile rails, used to secure cable ducts without having to drill any holes.

8 Accessories

Rational additional equipment for versatile use of the wall-mounted enclosures CS. Depth adjustment sections for vertically adjustable mounting plates (Accessories)
Equipment supplied

- Mounting plate with fixing material
- Flange plate with installation material
- Hermetic plugs for closure of the wall mounting holes
- Fixing material for protective earth connection
- 1 key

9 Hinge pin with quick-change technology

The new hinge pins with Quick Change technology enable users to quickly hinge the door left or right, as each metal pin can be easily removed without any tools, preventing damage to the door gasket.

10 Flange plates

The large gland plate openings provide electricians and technicians with greater flexibility. In addition, the flange plates' foamed-in-place gasket does away with long installation times, as it eliminates the need for users to glue foam rubber gaskets in place. Moreover, both gland plates and mounting plates are automatically incorporated into the enclosures' grounding system, eliminating the need for additional protective earth connection. As a special service, Eaton also offers individual solutions tailored to customer specifications.

11 Mounting plate

The three millimeter-thick mounting plate, which is made of galvanized sheet steel, ensures that switchgear can be safely and securely installed and provides basic EMC protection. The two millimeter-thick mounting plate, which is used in the series' small enclosures, can also be inserted quickly and without tilting. In addition, it allows for switchgear to be safely and securely installed and provides basic EMC protection as well.

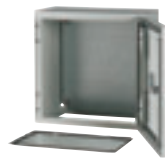
12 RAL 7035

Internal and external powder coated surface provides an abrasion and corrosion resistant protection (structured surface) in the color RAL 7035.

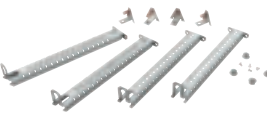
CS sheet steel wall-mounting enclosure

Wall-mounting housing CS

Moeller® series

	Dimensions			Locks	Door profile molding	Flange plates		Mounting plates		Part no. Article no.
	Height mm	Width mm	Depth mm	Number	Number	Width mm	Depth mm	Height mm	Width mm	
Wall-mounting housing with mounting plate										
Degree of Protection IP66 IP23 (with ventilating plates) Foamed polyurethane sealing throughout. Impact resistance category IK09 to EN 62262. Sheet steel mounting plate Bottom plate with foamed gasket. Single door, door stop on the right, door opening angle 120° Door hinge pins with quick change technology. Standardized locking system with sash fastener. Powder coating RAL 7035 inside and outside										
	250	200	150	1	1	112	182	220	150	CS-2520/150 111646
	300	200	150	1	1	112	182	270	150	CS-32/150 111647
	300	300	150	1	2	112	232	270	250	CS-33/150 111648
	300	300	200	1	2	172	262	270	250	CS-33/200 111649
	300	400	200	1	2	172	332	270	350	CS-34/200 111680
	400	300	150	1	2	112	232	370	250	CS-43/150 111681
	400	300	200	1	2	172	262	370	250	CS-43/200 111682
	400	400	150	1	2	112	332	370	350	CS-44/150 111683
	400	400	200	1	2	172	332	370	350	CS-44/200 111684
	400	600	200	1	2	172	532	370	550	CS-46/200 111685
	400	600	250	1	2	172	532	370	550	CS-46/250 111686
	400	600	300	1	2	172	532	370	550	CS-46/300 111687
	500	400	150	2	2	112	332	470	350	CS-54/150 111688
	500	400	200	2	2	172	332	470	350	CS-54/200 111689
	500	400	250	2	2	172	332	470	350	CS-54/250 111690
	500	500	250	2	2	172	432	470	450	CS-55/250 111691
	600	400	150	2	2	112	332	570	350	CS-64/150 111692
	600	400	200	2	2	172	332	570	350	CS-64/200 111693
	600	400	250	2	2	172	332	570	350	CS-64/250 111694
	600	500	150	2	2	112	332	570	450	CS-65/150 111695
	600	500	200	2	2	172	432	570	450	CS-65/200 111696
	600	500	250	2	2	172	432	570	450	CS-65/250 111697
	600	600	200	2	2	172	532	570	550	CS-66/200 111698
	600	600	250	2	2	172	532	570	550	CS-66/250 111699
	600	600	300	2	2	172	532	570	550	CS-66/300 111700
	600	800	300	2	2	172	732	570	750	CS-68/300 111701
	700	500	200	2	2	172	432	670	450	CS-75/200 111702
	700	500	250	2	2	172	432	670	450	CS-75/250 111703
	800	400	200	2	2	172	332	770	350	CS-84/200 111704
	800	400	250	2	2	172	332	770	350	CS-84/250 111705

	Dimensions			Locks	Door profile molding	Flange plates		Mounting plates		Part no. Article no.
	Height mm	Width mm	Depth mm	Number	Number	Width mm	Depth mm	Height mm	Width mm	
	Wall-mounting housing with mounting plate									
	800	600	200	2	2	172	532	770	550	CS-86/200 111706
	800	600	250	2	2	172	532	770	550	CS-86/250 111707
	800	600	300	2	2	172	532	770	550	CS-86/300 111708
	800	800	200	2	2	172	732	770	750	CS-88/200 111709
	800	800	300	2	2	172	732	770	750	CS-88/300 111710
	800	1000	300	2	2	172	932	770	950	CS-810/300 111711
	1000	600	250	1 (3-point)	2	172	532	970	550	CS-106/250 111712
	1000	600	300	1 (3-point)	2	172	532	970	550	CS-106/300 111713
	1000	800	250	1 (3-point)	2	172	732	970	750	CS-108/250 111714
	1000	800	300	1 (3-point)	2	172	732	970	750	CS-108/300 111715
	1000	1000	300	1 (3-point)	2	172	932	970	950	CS-1010/300 111716
	1200	600	250	1 (3-point)	2	172	532	1170	550	CS-126/250 111717
	1200	800	300	1 (3-point)	2	172	732	1170	750	CS-128/300 111718
	1200	1000	300	1 (3-point)	2	172	932	1170	950	CS-1210/300 111719
1200	1200	250	1 (3-point)	2	2 x 172	532	1170	1150	CS-1212/250 111720	

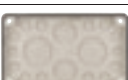
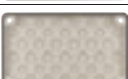
	For use with enclosure Width mm	Depth mm	Part no. Article no.
Mounting bars for door profile moldings/cable ducts			
For fitting to vertical door profiles For screwless mounting of cabling ducts KL... through snap fitting of cable duct covers on rear Fixing holes M6 spaced at 25 mm Steel plate Galvanized			
	300	-	MTR-D3-CS 140530
	400	-	MTR-D4-CS 140531
	500	-	MTR-D5-CS 140532
	600	-	MTR-D6-CS 140533
	800	-	MTR-D8-CS 140534
Depth adjustment elements			
Depth-adjustable in 25-mm-grid Steel plate Galvanized Including fixing sundries			
	-	150	DAS-SET/150-CS 138656
	-	200	DAS-SET/200-CS 138657
	-	250	DAS-SET/250-CS 138658
	-	300	DAS-SET/300-CS 138659

CS sheet steel wall-mounting enclosure

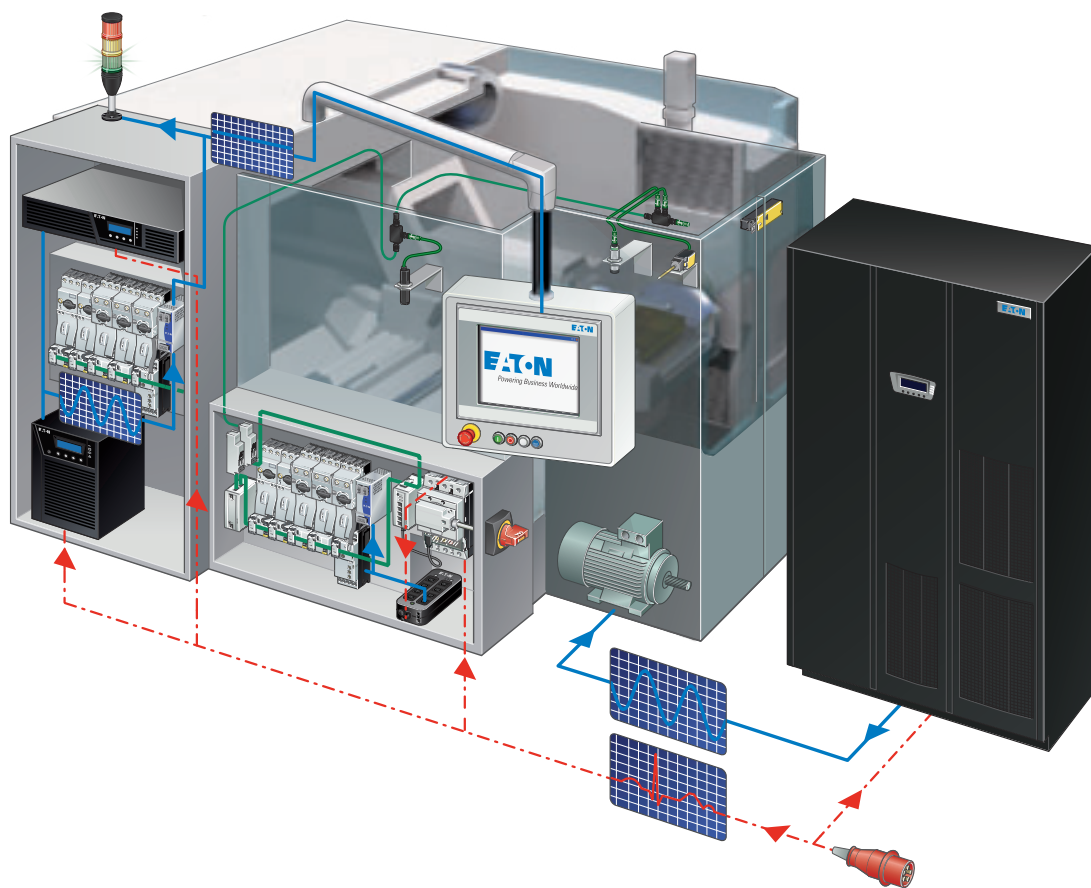
Accessories exterior fitting

Moeller® series

Description		Part no. Article no.
Wall fixing bracket set For fixing on the wall Vertical or horizontal mounting Sheet steel 3 mm, Galvanized One set contains 4 wall fixing brackets with fixing material and gasket IP66.		
		WFB-SET-CS 112639
Comfort rotary handles Rotary handle for standardized cylinder locks Complete kit With built-in locked indication Suitable for all universal locks LC-... Handle made from high-grade, impact-resistant pressure-cast zinc For standardized door cut-outs 22.5 × 20.4 mm Colour dusty grey RAL 7037, with powder coating Order cylinder locks separately		
		PHZ-A-COMP 133105
		PHZ-A-ADD-ON 133106
Cylinder locks for comfort handles For use with Comfort rotary and toggle handles Lock cylinder designed to DIN 18252 and DIN EN 1303 Cylinder lock 10/30 with nickel silver tumblers Lock bit with eight adjustment positions, five pin pairs		
		PHZ-E10/30-GS 138574
		PHZ-E10/30-VS 138575
Spare key for cylinder lock PHZ-E...-GS cylinder locks		
		KEY-E10/30-GS 138576

		For use with enclosure		Flange apertures	Part no.	Article no.
		Width mm	Depth mm	Number		
Bottom plates with flange apertures						
For flange F3A Usable as a roof plate by turning the enclosure through 180° Not suitable for enclosure CS-.../150 Material: Steel plate Surface finish: With powder coating RAL 7035						
	300	-	1	AFP-3-CS	112914	
	400	-	1	AFP-4-CS	112915	
	500	-	1	AFP-5-CS	112916	
	600	-	2	AFP-6-CS	112917	
	800	-	3	AFP-8-CS	112918	
	1000	-	3	AFP-10-CS	112919	
	1200	-	2 x 2	AFP-12-CS	112920	
Cable marshalling bases						
Height 200 mm Steel plate Powder-spray painted RAL 7035 Front and side walls removable Including fixing sundries						
	600	250	-	PLI-6/250-200-CS	140472	
	600	300	-	PLI-6/300-200-CS	140473	
	800	250	-	PLI-8/250-200-CS	140474	
	800	300	-	PLI-8/300-200-CS	140475	
	1000	300	-	PLI-10/300-200-CS	140476	
	1200	250	-	PLI-12/250-200-CS	140477	
				Part no.	Article no.	
Flanges						
	Insulating material	Blank plate	-	F3A-0	074182	
	Insulating material	With metric cable entry knockouts	6 x M25/16; 8 x M32/20, 4 x M16	F3A-4	081301	
	Insulating material	With metric cable entry knockouts	2 x M20 8 x M25/16 4 x M32/20 1 x M50/32	F3A-8	091468	
	Insulating material	With metric cable entry knockouts	12 x M20, 2 x M16 2 x M40/25 2 x M50/32	F3A-12	076555	
	Insulating material	With metric cable entry knockouts	24 x M16 13 x M20	F3A-34	078928	
	Insulating material	With cable grommets	2 cables up to 70 mm Ø	F3A-KTD	083674	
	Insulating material	Sponge-rubber flange	40 cables, 10 – 13 mm Ø 4 cables, 17 – 21 mm Ø 2 cables, 27 - 30 mm Ø	F3A-D	010145	
	Steel plate	Blank plate 2 mm, with powder coating RAL 7035, sponge-rubbed gasket	-	F3A-XP	113426	

Build it in.



Backup power solutions for machines and production lines



Intelligent Power Software helps monitor, manage and gracefully shut down UPSs remotely. Visit www.eaton.eu/intelligentpower to view demos and download software

Eaton's Uninterruptible Power Supplies (UPS) help you minimise production downtime and data loss caused by voltage dips, power outages or surges, minimising ramp-up times and related costs. Our UPSs also contribute to the continuous operation of all critical operational safety systems.

High productivity and availability of machinery as well as energy monitoring and reduction requirements are key priorities. Our broad range of machine level power quality and energy management products and solutions help machine operators' track, manage and secure power safely and efficiently.



Safe and reliable manufacturing with Eaton

Production reliability

- Prevent downtimes
- Reduce start-up times

Employee protection

- Keep safety functions and circuit breakers running
- Increase operational machine safety

Machine Safeguarding

- Protect sensitive electronic assembly parts from power outages and "dirty" power

Product protection

- Keep cooling and refrigeration systems running while you start your backup generators

Environmental protection

- Improve effectiveness and save energy
- The growing use of renewable energies means that mains power is likely to become less stable in the future. Eaton UPS systems not only "clean" voltage and improve its quality, but also supply power instantaneously in the event of a power failure.

Building protection

- Keep safety systems going, e.g., process monitoring at anaerobic digestion plants and building monitoring systems

Data security

- Prevent data loss caused by power failures
- Low operating cost → high efficiency

For more information about Eaton power quality products and solutions, visit www.eaton.eu/powerquality.

Power problem	Type of UPS	Topology	Product details	
Power outage	Series 3 single-phase UPSs	Offline	• Cost-effective • Compact design • Plug with protective contact (SCHUKO) • Replaceable batteries • 500 – 1600 VA	
Voltage dip				
Overvoltage peaks				
Secondary voltage (voltage drop)	Series 5 single-phase UPSs	Line Interactive	• Extremely compact design • Graphic LCD display • Measures energy consumption • Efficiency of up to 99% • Replaceable batteries • 500 – 3000 VA	
Overvoltage				
Electrical interference signals	Series 9 single-phase and three-phase UPSs	Online	• Maximum voltage protection • Multi-language graphic display • Remote monitoring • 700 VA–1200 kVA	
Frequency instability				
Peaks caused by switching operations				
Harmonic distortion (harmonics)				

Uninterruptible Power Supply (UPS)

Single phase UPS

	UPS rating	UPS rating	Input connections	Output connections	Article no.
	VA	W	Type	(Quantity) Type	
Eaton 5P Line Interactive UPS					
Communication: USB, serial port, slot for optional management card Remote power off, remote on/off Output signal: 3 optocouplers					
	650	420	IEC320 10 A	(4) IEC320 10 A	5P650i
	850	600		(6) IEC320 10 A	5P850i
	1150	770		(8) IEC320 10 A	5P1150i
	1550	1100			5P1550i
	650	420	IEC320 10 A	(4) IEC320 10 A	5P650iR
	850	600			5P850iR
	1150	770		(6) IEC320 10 A	5P1150iR
	1550	1100			5P1550iR
Eaton 5PX Line Interactive UPS					
Communication: USB, serial port, slot for optional management card (network management card included with 5PX3000iRTN) Remote power off, remote on/off Output signal: 3 optocouplers					
	1500	1350	IEC320 10 A	(8) IEC320 10 A	5PX1500iRT
	2200	1980	IEC320 16 A	(8) IEC320 10 A, (1) IEC320 16 A	5PX2200iRT
	3000	2700			5PX3000iRTN
	3000	2700	IEC320 16 A	(8) IEC320 10 A, (1) IEC320 16 A	5PX3000iRT3U
Eaton 9130 Online Double Conversion UPS					
Communication: USB, serial port, slot for optional management card Remote power off Output signal: 2 optocouplers, 1 relay Input signal: 1 configurable (on DB9 port)					
	700	630	IEC320 10 A	(6) IEC320 10 A	103006433-6591
	1000	900			103006434-6591
	1500	1350			103006435-6591
	2000	1800	IEC320 16 A	(8) IEC320 10 A, (1) IEC320 16 A	103006436-6591
	3000	2700			103006437-6591
	5000	4500	Hard-wired	Hard-wired	103007841-6591
	6000	5400			103007842-6591
	1000	900	IEC320 10 A	(6) IEC320 10 A	103006455-6591
	1500	1350			103006456-6591
	2000	1800	IEC320 16 A	(8) IEC320 10 A, (1) IEC320 16 A	103006457-6591
	3000	2700			103006463-6591

Uninterruptible Power Supply (UPS)

Single phase UPS, Three phase UPS

	UPS rating	UPS rating	Input connections	Output connections	Article no.
	VA	W	Type	(Quantity) Type	
Eaton 9PX Online Double Conversion UPS					
Communication: USB, serial port, slot for optional management card Remote power off, remote on/off Output signal: 4 relays Maintenance bypass switch					
1:1 topology					
	5000	4500	Hard-wired	(3) IEC320 10 A, (2) IEC320 16 A, hard-wired	9PX5KiBP
	6000	5400			9PX6KiBP
1:1 topology					
	8000	7200	Hard-wired	(4) IEC320 16 A, hard-wired	9PX8KiBP
	11000	10000			9PX11KiBP
3:1 topology					
	6000	5400	Hard-wired	(4) IEC320 16 A, hard-wired	9PX6KiBP31
	8000	7200			9PX8KiBP31
	11000	10000			9PX11KiBP31

	UPS rating	UPS rating	Battery equipment	Article no.	Part no.
	VA	W	Quantity (blocks or strings), capacity		
Eaton 9155 Online UPS, 8-30 kVA					
Input connection: 3 phases, output connection: 1 phase With standard batteries and maintenance bypass switch					
	8000	7200	32 x 7 Ah	9155-8-N-10-32x7Ah-MBS	1022507
			32 x 9 Ah	9155-8-N-15-32x9Ah-MBS	1022508
			64 x 7 Ah	9155-8-N-28-64x7Ah-MBS	1022509
			64 x 9 Ah	9155-8-N-33-64x9Ah-MBS	1022510
	10000	9000	32 x 7 Ah	9155-10-N-6-32x7Ah-MBS	1022467
			32 x 9 Ah	9155-10-N-10-32x9Ah-MBS	1022511
			64 x 7 Ah	9155-10-N-20-64x7Ah-MBS	1022512
			64 x 9 Ah	9155-10-N-26-64x9Ah-MBS	1022513
	15000	13500	32 x 9 Ah	9155-15-N-5-32x9Ah-MBS	1022517
			64 x 7 Ah	9155-15-N-10-64x7Ah-MBS	1022518
			64 x 9 Ah	9155-15-N-15-64x9Ah-MBS	1022519
	20000	18000	1 x 9 Ah	9155-20-N-5-1x9Ah-MBS	1026598
2 x 9 Ah			9155-20-N-13-2x9Ah-MBS	1026599	
3 x 9 Ah			9155-20-N-22-3x9Ah-MBS	1026600	
4 x 9 Ah			9155-20-N-31-4x9Ah-MBS	1026601	
30000	27000	2 x 9 Ah	9155-30-N-7-2x9Ah-MBS	1026602	
		3 x 9 Ah	9155-30-N-13-3x9Ah-MBS	1026603	
		4 x 9 Ah	9155-30-N-20-4x9Ah-MBS	1026604	

Uninterruptible Power Supply (UPS)

Three phase UPS

	UPS rating	UPS rating					Article no.	Part no.
	kVA	kW	Maintenance bypass switch	Input switch	With internal batteries	Battery breaker		
Eaton 93E Online UPS, 15-80 kVA								
Input connection: 3 phases, output connection: 3 phases With standard maintenance bypass switch and optional batteries								
	15	13.5	✓	✓	-	-	93E 15 kVA battery kit	93E15KMBSB
			✓	✓	✓	-	93E 15 kVA 2 x 9 Ah batteries	93E15KMBSBI
	20	18	✓	✓	-	-	93E 20 kVA battery kit	93E20KMBSB
			✓	✓	✓	-	93E 20 kVA 2 x 9 Ah batteries	93E20KMBSBI
	30	27	✓	✓	-	-	93E 30 kVA battery kit	93E30KMBSB
			✓	✓	✓	-	93E 30 kVA 3 x 9 Ah batteries	93E30KMBSBI
	40	36	✓	✓	-	-	93E 40 kVA battery kit	93E40KMBSB
			✓	✓	✓	-	93E 40 kVA 4 x 9 Ah batteries	93E40KMBSBI
	60	54	✓	✓	-	-	93E 60 kVA	93E60KMBSN
	80	72	✓	✓	-	-	93E 80 kVA	93E80KMBSN
Eaton 93E Online UPS, 100-200 kVA								
	100	90	-	-	-	-	93E-100kVA	93E100K
	100	90	✓	✓	-	-	93E-100kVA-MBS	93E100KMBS
	120	108	-	-	-	-	93E-120kVA	93E120K
	120	108	✓	✓	-	-	93E-120kVA-MBS	93E120KMBS
	160	144	-	-	-	-	93E-160kVA	93E160K
	200	180	-	-	-	-	93E-200kVA	93E200K
Eaton 93PS Online UPS, 8-40 kVA								
	8	8	-	✓	-	✓	93PS-8(20)-20-0-6	BA80A0206A01000000
	8	8	-	✓	✓	✓	93PS-8(20)-20-2x9Ah-6	BA80AB206A01000000
	8	8	✓	✓	-	✓	93PS-8(20)-20-0-MBS-6	BA80A0306A01000000
	8	8	✓	✓	✓	✓	93PS-8(20)-20-2x9Ah-MBS-6	BA80AB306A01000000
	10	10	-	✓	-	✓	93PS-10(20)-20-0-6	BA01A0206A01000000
	10	10	-	✓	✓	✓	93PS-10(20)-20-2x9Ah-6	BA01AB206A01000000
	10	10	✓	✓	-	✓	93PS-10(20)-20-0-MBS-6	BA01A0306A01000000
	10	10	✓	✓	✓	✓	93PS-10(20)-20-2x9Ah-MBS-6	BA01AB306A01000000
	15	15	-	✓	-	✓	93PS-15(20)-20-0-6	BA51A0206A01000000
	15	15	-	✓	✓	✓	93PS-15(20)-20-2x9Ah-6	BA51AB206A01000000
	15	15	✓	✓	-	✓	93PS-15(20)-20-0-MBS-6	BA51A0306A01000000
	15	15	✓	✓	✓	✓	93PS-15(20)-20-2x9Ah-MBS-6	BA51AB306A01000000
	20	20	-	✓	-	✓	93PS-20(20)-20-0-6	BA02A0206A01000000
	20	20	-	✓	✓	✓	93PS-20(20)-20-2x9Ah-6	BA02AB206A01000000
	20	20	✓	✓	-	✓	93PS-20(20)-20-0-MBS-6	BA02A0306A01000000
	20	20	✓	✓	✓	✓	93PS-20(20)-20-2x9Ah-MBS-6	BA02AB306A01000000
	30	30	-	✓	-	✓	93PS-30(40)-40-0-6	BD03A0206A01000000
	30	30	-	✓	✓	✓	93PS-30(40)-40-4x9Ah-6	BD03AD206A01000000
	30	30	✓	✓	-	✓	93PS-30(40)-40-0-MBS-6	BD03A0306A01000000
	30	30	✓	✓	✓	✓	93PS-30(40)-40-4x9Ah-MBS-6	BD03AD306A01000000
	40	40	-	✓	-	✓	93PS-40(40)-40-0-6	BD04A0206A01000000
	40	40	-	✓	✓	✓	93PS-40(40)-40-4x9Ah-6	BD04AD206A01000000
	40	40	✓	✓	-	✓	93PS-40(40)-40-0-MBS-6	BD04A0306A01000000
	40	40	✓	✓	✓	✓	93PS-40(40)-40-4x9Ah-MBS-6	BD04AD306A01000000

	UPS rating		UPS rating		Maintenance bypass switch	Input switch	With internal batteries	Battery breaker	Article no.	Part no.
	kVA	kW								
Eaton 93PM Online UPS, 30-200 kVA										
	30	30	-	✓	-	✓			93PM-30(50)-BB-0	P-105000007-001
	30	30	-	✓	✓	✓	✓		93PM-30(50)-BB-6x9Ah	P-105000007-005
	30	30	✓	✓	-	✓			93PM-30(50)-MBS-BB-0	P-105000007-009
	30	30	✓	✓	✓	✓	✓		93PM-30(50)-MBS-BB-6x9Ah	P-105000007-013
	40	40	-	✓	-	✓			93PM-40(50)-BB-0	P-105000007-016
	40	40	-	✓	✓	✓			93PM-40(50)-BB-6x9Ah	P-105000007-020
	40	40	✓	✓	-	✓			93PM-40(50)-MBS-BB-0	P-105000007-024
	40	40	✓	✓	✓	✓			93PM-40(50)-MBS-BB-6x9Ah	P-105000007-028
	50	50	-	✓	-	✓			93PM-50(50)-BB-0	P-105000007-031
	50	50	-	✓	✓	✓			93PM-50(50)-BB-6x9Ah	P-105000007-034
	50	50	✓	✓	✓	✓			93PM-50(50)-MBS-BB-6x9Ah	P-105000007-040
	50	50	✓	✓	-	✓			93PM-50(50)-MBS-BB-0	P-105000007-037
	60	60	-	✓	-	✓			93PM-60(60)-BB-0	P-105000043-001
	60	60	-	✓	✓	✓			93PM-60(60)-BB-6x9Ah	P-105000043-003
	60	60	✓	✓	✓	✓			93PM-60(60)-MBS-BB-6x9Ah	P-105000043-006
	60	60	✓	✓	-	✓			93PM-60(60)-MBS-BB-0	P-105000043-004
	80	80	-	-	-	-			93PM-80(100)	P-105000011-005
	80	80	✓	✓	-	-			93PM-80(100)-IS-MBS	P-105000011-006
	80	80	-	✓	-	✓			93PM-80(100)-IS-BB	P-105000011-007
	80	80	✓	✓	-	✓			93PM-80(100)-IS-MBS-BB	P-105000011-008
	100	100	-	-	-	-			93PM-100(100)	P-105000011-009
	100	100	✓	✓	-	-			93PM-100(100)-IS-MBS	P-105000011-010
	100	100	-	✓	-	✓			93PM-100(100)-IS-BB	P-105000011-011
	100	100	✓	✓	-	✓			93PM-100(100)-IS-MBS-BB	P-105000011-012
	120	120	-	-	-	-			93PM-120(150)	P-105000014-005
	120	120	✓	✓	-	-			93PM-120(150)-IS-MBS	P-105000014-006
	120	120	-	✓	-	✓			93PM-120(150)-IS-BB	P-105000014-007
	120	120	✓	✓	-	✓			93PM-120(150)-IS-MBS-BB	P-105000014-008
	150	150	-	-	-	-			93PM-150(150)	P-105000014-009
	150	150	✓	✓	-	-			93PM-150(150)-IS-MBS	P-105000014-010
	150	150	-	✓	-	✓			93PM-150(150)-IS-BB	P-105000014-011
	150	150	✓	✓	-	✓			93PM-150(150)-IS-MBS-BB	P-105000014-012
	160	160	-	-	-	-			93PM-160(200)	P-105000016-002
	200	200	-	-	-	-			93PM-200(200)	P-105000016-003
Power Xpert 9395P Online UPS, 250-1200 kVA										
	250	250	-	-	-	-			9395P-300-250-U	P-105000046-001
	300	275	-	-	-	-			9395P-300	P-105000047-001
	300	275	✓	-	-	-			9395P-300-MBS	P-105000047-005
	500	500	-	-	-	-			9395P-600-500-U	P-105000049-001
	600	550	-	-	-	-			9395P-600	P-105000050-001
	750	750	-	-	-	-			9395P-900-750-U	P-105000056-001
	900	825	-	-	-	-			9395P-900	P-105000057-001
	1000	1000	-	-	-	-			9395P-1200-1000-U	P-105000073-001
	1200	1100	-	-	-	-			9395P-1200	P-105000074-001



Worldwide export of machines and plants

European machine and system building and worldwide exports are closely related. Even if you don't export your machines at present, you should be prepared for it in the future. Eaton provides switchgear and protective devices with all the essential approvals and certificates for machine and system building. In most countries around the world, conformity with international standards is the sole requirement for successful exports. This is because components in these locations are governed by compliance with well known and established IEC standards. In this respect, the European CE mark is not only the passport for exports within Europe but also far beyond its borders.



World market equipment for machine building

Nearly all the switchgear and protective devices of Eaton's Moeller® series are world market devices. Each product line thus carries all the approvals and certification marks required for worldwide use.

These product lines include those for

- Pilot devices, limit switches
- Contactors and various timing and special relays
- Motor-protective circuit breakers and relays
- Electronic components and systems.

With circuit breakers and switch-disconnectors, Eaton offers IEC devices for use in most countries in the world and NA devices with virtually the same dimensions and the same accessories for the North American market. This considerably simplifies device selection since the North American standards often involve the need for considerably different technical specifications.

Electrical engineering products and their applications are not harmonized internationally.



The greatest differences to the IEC world are in North America, i.e. the USA and Canada. For many newcomers to the export business, it is initially surprising to experience the very different approaches and solutions.

Special components, such as handles for main switches that can only be operated by the intentional switching of an



additional handle when the control panel door is opened, may sometimes be required for export to North America. Likewise, the European motor-protective circuit breaker is only accepted with an upstream protective device (e.g., a UL 248 fuse) or with larger clearances and creepage distances at the input terminals. Eaton is the competent partner of choice for export-related issues here.

Qualified information is a critical key to success

	
Insulated enclosure open above/below, HxWxD=296x234x150mm, NA type	
Part no.	C22-125-NA
Article no.	002234
Delivery programme	
Product range	Insulated enclosures G for North America
Basic function	Basic enclosure
Product function	Distribution board enclosures for North America
Single unit/Complete unit	Panel enclosure with cover and flanges
Degree of Protection	IP65
Description	Flange with removable smooth flanges on all 4 sides Flange screw for wall fixing Sealable cover fasteners
Type cover	Transparent
Surface finish	RAL 9002 (steel)
Dimensions	
Width	mm 234
Height	mm 296
Depth	mm 150
Mounting depth	mm 125
Mount base	Enclosure side plates with flanges
Mount base	Enclosure side plates with removable smooth flanges
Approvals	
Product Standards	UL 508A, CSA C22.2 No.94, IEC/EN60529, CE marking
UL File No.	E54120, E337418
UL Category Control No.	NITW
CSA File No.	27130
CSA Class No.	3211-07
UL listed, CSA certified	UL listed, CSA certified
Specially designed for North America	Yes
Suitable for Industrial Control Panels	Yes
Current Limiting Circuit-Breaker	No
Degree of Protection	IEC: IP65, UL/CSA Types 1, 12, 13, 4X, indoor only
Design verification as per IEC/EN 61439	
Technique of design verification	
Heat dissipation, at an ambient temperature of 20°C, duty 1-20 degrees, calculated as per IEC 60890	
Individual enclosure for wall mounting	P _N CO 12
Starting enclosure for wall mounting	P _N CO 11
Mobile enclosure for wall mounting	P _N CO 10
Heat dissipation, at an ambient temperature of 20°C, duty 1-20 degrees, calculated as per IEC 60890	
Individual enclosure for wall mounting	P _N CO 24

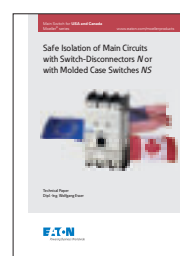
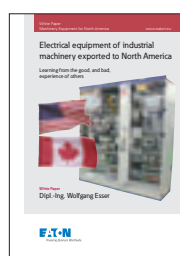
For reliable information concerning the approval of components for export to North America, please refer to the Eaton online catalog. The catalog provides the following information for each product: the applicable product standard, the E-File Number, the Category Control Number, or the CSA Class Number. You can incorporate this information into your bills of materials and documentation in order to be well prepared for all relevant acceptance procedures.

Approvals	
Product Standards	UL 508A; CSA-C22.2 No.94; IEC/EN60529; CE marking
UL File No.	E54120, E337418
UL Category Control No.	NITW
CSA File No.	27130
CSA Class No.	3211-07
North America Certification	UL listed, CSA certified
Specially designed for North America	Yes
Suitable for	Industrial Control Panels
Current Limiting Circuit-Breaker	No
Degree of Protection	IEC: IP65; UL/CSA Types 1, 12, 13, 4X, indoor only

Up to 13 data items are listed here for each product, such as the suitability for use in feeders or branch circuits, the maximum operating voltage, or the North American degree of protection, such as UL / CSA Type 4X.



The link <http://applications.eaton.eu> shows the relevant approvals or permits for each component type. This therefore enables you to view the certificates provided or, depending on the test authority, also the product report. The information given is the same as what is provided in the databases of the authorities.



Anyone wishing to avoid unfortunate experiences, should make use beforehand of the large number of publications that Eaton is offering on the issue of exports to North America. They contain the implementation of the codes & standards and a description of different practices.

These technical articles can be accessed via <http://www.eaton.eu/publications>
They can be downloaded free of charge.

All-around service for your machine control systems

Powering Business: For Eaton, this promise means more than just providing reliable products and technologies. It means using our support expertise and services to provide you with an engineering solution that is perfectly tailored to your own specific needs. Or, put more simply, turnkey solutions designed to drive your success.

Engineering for your machine control systems

From the initial idea to bringing your application to life – Eaton will accompany you through every step involved in developing your machine, providing unparalleled support all throughout. The Lean Solution expert's know-how, combined with the innovation of Eaton products, ensures that you will be able to take advantage of our engineering edge to establish a solid competitive advantage on the market.

Eaton will not only help you select products, but will also provide advice concerning your machine's electrical and hydraulic design and be there for you every step of the way while you implement your applications and programs and commission your system. By combining these services with Eaton components, you can rest assured knowing that your needs will be fully met.

Enabling businesses to successfully export their products to North America

Our long business partnership with SAE Schaltanlagenbau Erfurt, which has the required certifications for building control panels for export to North America, enables us to provide our customers with solutions that are ideal for use in that region. In addition to our products and to the production of control panels built in accordance with UL 508A and NFPA 79, Eaton's and SAE's range of services includes workshops designed to provide the special know-how required to successfully export electrical equipment to North America.



Our Service, Your Benefit

- Warehouse processes, inventory & supply chain will be optimized
- Focus on core competencies
- Reduction of resources and investments
- Reduction of assembly costs & time
- Failure reduction via correct product combinations
- Less packaging waste

VAS-EMEA@eaton.com



Increased efficiency means eliminating unnecessary work. This can be particularly valuable to logistics operations, where valuable time is often lost due to unnecessary operator intervention. By using our value-added services, you can streamline the logistics processes in your company so that they will be as smooth and efficient as possible.

Intralogistics: We will supply you with products exactly as you need them – even unpacked in reusable transport containers if necessary. And if you use items assembled from multiple Eaton products, we will be more than glad to deliver them to you pre-assembled.

Production: We will package your goods exactly as you need – even if that means you need them in unusual configurations. And if you need to export those goods, we will make sure to deliver them in appropriate special packaging suitable for international shipping. We can, of course, add as well customer specific labels with your own item number system to the products.

Our service, your benefit:

- Harmonized logistics concepts
- Product range optimization for your warehouse
- Special packaging concepts
- Set delivery days as agreed
- Support with all questions concerning logistics
- Customer-oriented logistics reports
- Customs clearance
- Help with compliance screening (compliance with anti-terrorism regulations)
- Order management services in multiple languages every day from 7:00 AM to 8:00 PM
- Shipment tracking
- Returns management





To find the right contact person:

At Eaton, we believe that building and maintaining strong relationships with our customers is something that deserves our undivided attention.

This is why you can rest assured knowing that you will be able to count on us for every project from the very start. To find out whom to contact for your needs, please visit our website:

In just a few steps, we will get you the contact information for the person or team in charge of support for your specific industry in your region.

To find the right contact person anywhere in the world, visit:

→ www.eaton.eu/contact

Support and service for UPS systems and hydraulic system solutions

Building a strong relationship with you is of utmost importance to us. This is why you can count on us to quickly get your questions, requests, and suggestions to the relevant specialists. After all, your challenges are our challenges.

Questions regarding uninterrupted power supplies (UPS)?

Our Technical Service staff will be more than glad to assist you if you are experiencing any difficulties with an Eaton UPS, DC power supply system, or any other Power Quality product.

Our Technical Support staff is there to answer any questions you may have regarding our products.

To find the right contact person anywhere in the world, please visit

www.eaton.eu/contact

Questions regarding hydraulic system solutions?

Simply contact our customer service head office in Baden-Baden and our staff will be glad to put you in contact with a local contact person.

Customer Service:

Eaton Hydraulics Group
Dr.-Reckeweg-Straße 1
D-76532 Baden-Baden
Germany

Phone: +49 (0)7221 682 - 0

Fax: +49 (0)7221 682 - 788

E-mail: customersupportemea@eaton.com



Eatons after sales service

Eaton is known for its unparalleled after-sales support for all low-voltage switchgear, switchgear systems, and services. For more detailed information, as well as to view our terms and conditions, please visit www.eaton.eu/aftersales

Europe, Middle East, Africa24/7

Hotline

For immediate support please call +49 (0) 180 5 223822* (24/7). You will receive competent and fast, round the clock assistance, with unplanned machine and system stand stills, system malfunctions and device failures.

(* 0,14 Euro per minute from the Deutsche Telekom network AG)

Helpdesk

Eaton specialists: +49 (0) 228 602 3640 (Monday–Friday from 08:00–16:00 CET) or contact your local Eaton representative.

We offer extensive support from commissioning to application queries as well as in the area of fault analysis, which can also include remote diagnostics.

We can also offer you an individual consulting service contract which is tailor-made to suit your requirements. If you would like to communicate your service queries in writing, please use the following e-mail address:

AfterSalesEGBonn@eaton.com

At Eaton, we're energized by the challenge of powering a world that demands more. With over 100 years experience in electrical power management, we have the expertise to see beyond today. From groundbreaking products to turnkey design and engineering services, critical industries around the globe count on Eaton.

We power businesses with reliable, efficient and safe electrical power management solutions. Combined with our personal service, support and bold thinking, we are answering tomorrow's needs today. Follow the charge with Eaton. **Visit eaton.eu.**

**To contact an Eaton salesperson or
local distributor/agent, please visit
www.eaton.eu/electrical/customersupport**

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