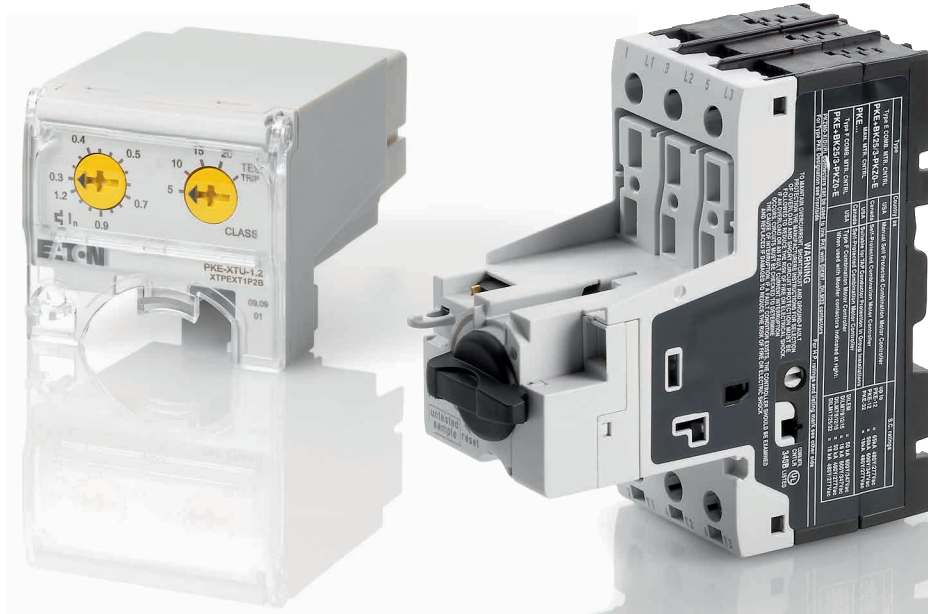


# Flexible. Intelligent. Trendsetting.



Motor-Protective  
Circuit-Breakers  
PKE up to 65A  
with Electronic Wide-Range  
Overload Protection

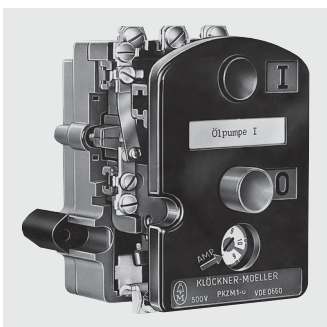




# Obligated by Tradition

With its PKE series of devices, Eaton continues to improve and enhance Moeller's motor-protective circuit breakers. Moeller had already developed the motor-protective circuit-breaker PKZ in 1932. Our ideas and developments in the development center in Bonn 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.

It was Moeller who pioneered the integration of overload protection and short-circuit protection into a compact device thus abolishing the usual separation between both protective functions as used up to then. The awareness of this long tradition in the motor protection field has helped establish and maintain a core competence, which has been continued through to today by Eaton. The term PKZ is not just the embodiment of quality, but also the generally used synonym by experts for motor-protective circuit-breakers.



# Motor-Protective Circuit-Breaker PKE – Switch and Protect Motors up to 65 A with Electronic Wide-Range Overload Protection

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

The functional safety and the service life of a motor depends mainly on the motor protection. Motor-protective circuit-breakers PKE with electronic wide-range overload protection offer an interesting alternative to the bimetal solutions here and complement the intelligent PKZ series from Eaton. They provide the highest level of flexibility

featuring a compact and modular design with its plug-in control unit. Control units are also available for system protection applications. The PKE can be re-equipped in a single step for motor and system protection with various plug-in control units.



## 3 base units + 8 control units = current range up to 65 A

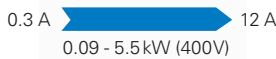


12 A (45 mm)

**PKE 12**

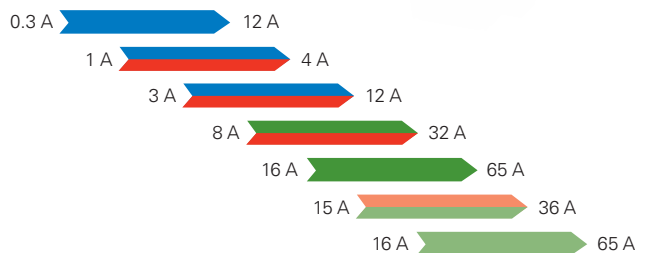


Motor protection



System protection

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



32 A (45 mm)

**PKE 32**

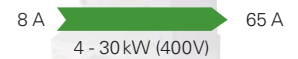


System protection

15 A —————> 36 A

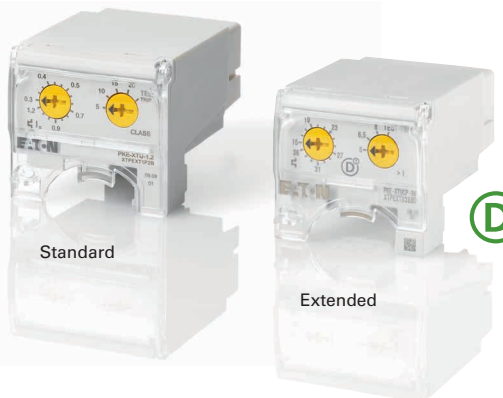
65 A (55 mm)

**PKE 65**



System protection

15 A —————> 65 A

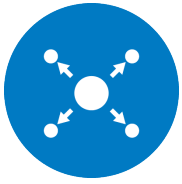


### Motor-protective circuit-breaker PKE: The benefits at a glance

- Efficient:** Wide current setting ranges  
→ Reduces the number of variants minimizing the engineering work and costs accordingly.
- Flexible:** Plug-in trip blocks up to 65 A  
→ Improves the service-friendliness - short conversion times, fast commissioning
- Simple:** 100 kA at 400 V  
→ Simplify engineering

- Compatible:** Integrated into the modular system xStart  
→ Facilitates enhanced flexibility through the use of standard components
- Intelligent:** Interface to SmartWire-DT or Modbus RTU  
→ Increases the levels of system availability by the transfer of process-relevant data  
→ Saves time-consuming troubleshooting during commissioning and maintenance

- Compact:** Motor starter design from standard components  
→ Provides safety with 2 independent separate contact systems in the motor starter

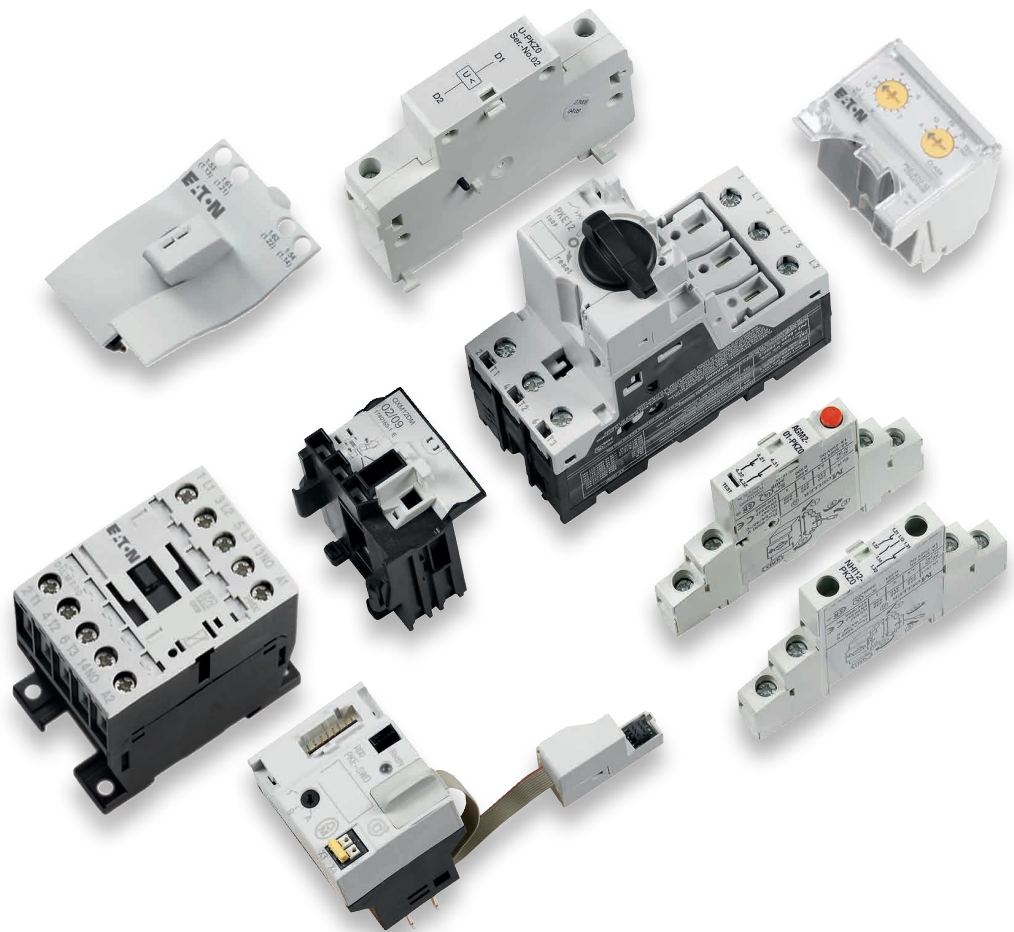


# Systematic Solutions



The motor-protective circuit-breaker PKE has versatile, approved accessories available from the xStart range for safe and rational control panel construction.

Modular standard components optimally matched to one another and simple to combine fulfil the customer requirements for exchangeable "standard" devices



## System advantages at a glance

**Expandable:** Flexible solutions for divergent demands

→ Uses the existing system accessories from the system xStart

**Modular (plug-in):** Fast and cost-effective mounting and wiring

→ Configuration of motor-starter combinations up to 15A with plug-in main current wiring

**International:** No problems with export of machines and systems

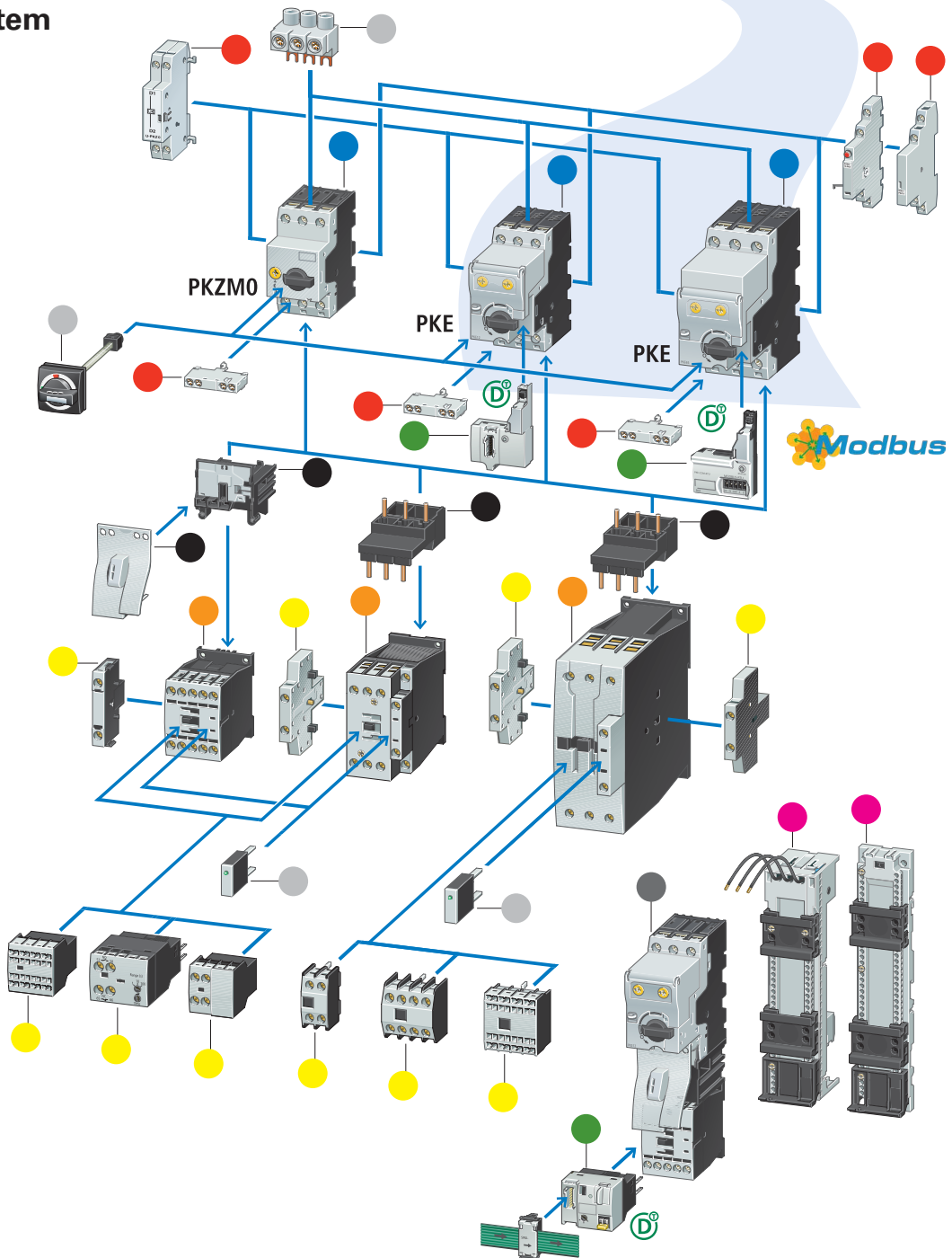
→ Worldwide approved system components and accessories

## One always fits the other. Full functionality with just a few variants

Whether on or off, overload or short-circuit: The differential signalling always leads quickly to the cause of the trip release. The auxiliary contacts can be installed without tools and inform with control circuit reliability about every switching state. Particularly comfortable, the optional

auxiliary contact NHI-E, which can be installed at a later date in circuit-breakers that are already installed and wired. Of course all auxiliary contacts and releases are devices for world markets with the conventional mains voltages.

### PKE in System

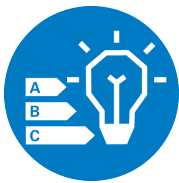


### The modular xStart System

Modular standard components for motor starter configuration, optimally matched to one another and simple to combine with the same accessories from the PKZ system, fulfil the customer requirements for exchangeable "standard" devices.

- Base units PKE/PKZ
- Auxiliary contacts and trip releases PKE/PKZ
- Connection technology for motor starter configuration PKE/PKZ
- Contactors DIL

- Auxiliary contacts DIL
- Top-hat rail adapter and busbar adapter
- Communication module SmartWire-DT and Modbus RTU
- Accessories
- Motor starter MSC



# Perfect Start



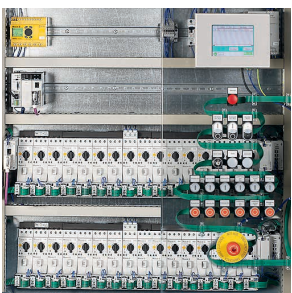
One of the main tasks of low-voltage switchgear is to switch and protect motors. This is specifically the task of the motor starter, which is available from Eaton in different versions for diverse applications. The short-circuit safely under control.

Whether coordination type "1" or coordination type "2". Motor starter combinations PKE with the proven circuit-breakers DILM master short-circuit currents of 100 kA /400V up to 32A and 50 kA at 400V /65A. They ensure the highest level of operational continuity. Standstill times are reduced to a minimum.



Safely switch energy-efficient IE3 motors

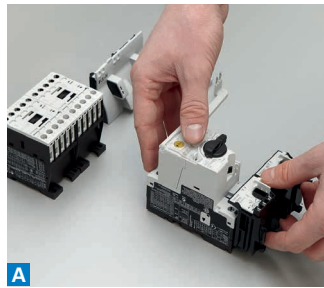
The use of energy-efficient motors belonging to efficiency class IE3 comes with higher loads for switchgear, especially when it comes to start-stop torques. Motor-protective circuit breakers and motor-starter combinations by Eaton guarantee that these energy-efficient motors will operate safely and be reliably protected. The motor starters' switching duty ensures trouble-free operation, while a modified short-circuit level prevents nuisance tripping caused by higher inrush currents.



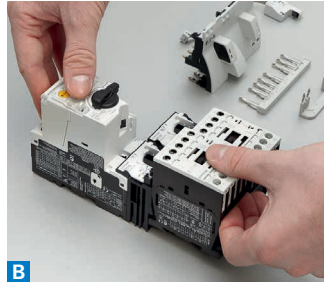
\* In order to comply with the requirement profile for coordination type "2", the motor starter must be suitable for renewed operation after a shut-down due to a short-circuit without a need to replace parts. Motor starters of this type ensure the highest level of operational continuity.

A reversing starter can be configured in just a few simple steps from a contactor IL, a motor-protective circuit-breaker PKE and a wiring set

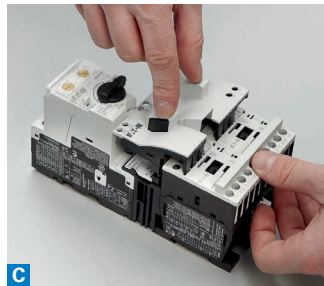
**A** Snap-in mechanical plug-in connector.



**B** Push on the contactor.



**C** Plug on the electrical connectors and jumpers. Ready to go!



## Lean solution: Motor starters from standard components

Up to 15 A, comfortable motor starters utilizing tool-less plug connection are on offer, requiring only a top-hat rail. A connector for direct-on-line and reversing starters is available for motor starters with rated motor current from 17 A to 65 A. Whether as a completed motor-starter combination MSC or assembled from individual components by the user, you are always on the safe side with tested motorstarters from Eaton. Motor starters with PKE and DILM up to 65 A are available in 3 narrow widths. Contactor DILM and circuit-breaker PKE always have the same compact width. No precious millimetre of control panel space is wasted

→ Motor starter configuration from standard components enables a unique assignment of the protective devices PKE and switching device DIL M and enhances the safety with 2 independent separate contact systems in the motor starter.

→ Modular configuration principle facilitates the fast and cost-effective exchange of worn components instead of the complete motor starter.

## Motor and System Protection



### PKE as a circuit-breaker to IEC 60947-2

In addition to use as a motor-protective circuit-breaker, the PKE can also be used as a circuit-breaker to IEC/EN 60947-2.

With the corresponding trip blocks of type PKE-XTUCP-..., the PKE can also be used for protecting cables and wiring up to rated currents of 65 A. In contrast to motor protection, when a PKE is used as a circuit-breaker, an unsymmetrical loading due to different loads is possible. The additional adjustability of the electronic short-circuit release facilitates reliable protection with various cable lengths and cable cross-sections.

### The advantages at a glance

#### **Versatile:** Flexible protection

→ Use as a circuit-breaker or motor-protective circuit-breaker using various trip blocks

#### **Adaptable:** For heavy starting duty also

→ Adjustable short-circuit releases, time-lag class settings for individual contactor characteristics

#### **Robust:** Safe shut-down

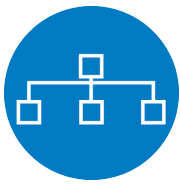
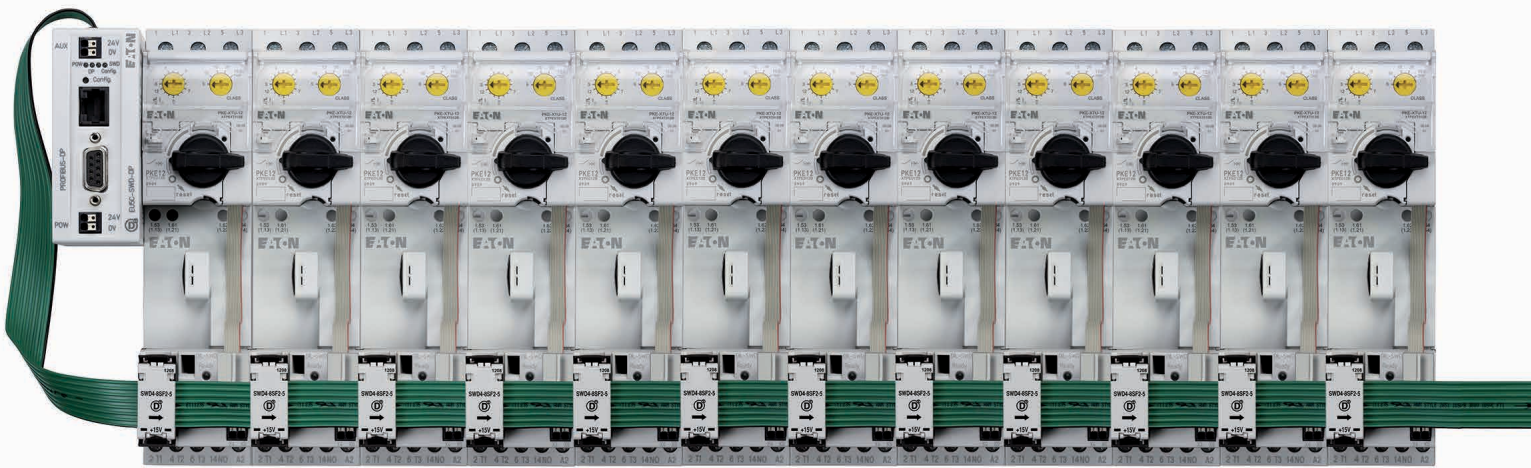
→ High short-circuit breaking capacity 100kA/400V

#### **Economic:** Guarantee availability

→ Fast exchange of individual components through the modular system concept

#### **Safe:** Even after long periods of operation

→ Configuration of motor-starter combination



# Everything at a Glance

SmartWire-DT is the innovative and intelligent connection technology for the control panel. Without control wiring, without distributed I/O level, without laborious addressing via DIP switch. Simply connect and work.

SmartWire-DT is continued in the peripherals directly on the machine and transforms standard switchgear to intelligent and communicative automation devices. RMQ-Titan control circuit devices are also connected with just a single cable.

SmartWire-DT is the optimum extension to the motor starter combinations PKE. It offers all the necessary information without complex wiring.



## Innovative exhaust air system in the chemistry department

The exhaust air system in the buildings of the chemistry department of a major German university was re-conceived using SmartWire-DT, motor starters PKE and Eaton Touch Display controls. Around 500 Eaton PKE motor starters with a SmartWire-DT interface were used to control the exhaust air system. Compared to conventional HVAC building solutions, the new solution is based on high-performance standard components and offers verifiable cost savings using standard components, reduced wiring requirement, simple commissioning without complex troubleshooting. The data transparency significantly increases the efficiency and operational reliability of the system.



## Data transparency for every motor

SmartWire-DT with PKE controls the conveyor system for transporting cement clinker at Holcim (Deutschland) AG. The data provided enables increased transparency in manufacturing processes to the early detection of critical states or failures right through to preventative maintenance management.



## Universal networking for motor and system protection

The plug-in networking solution PKE-SWD-SP enables integration of the motor-protective circuit-breaker PKE into the system SmartWire-DT. In an instant, a motor-protective circuit-breaker is created with communication capability that signals both simple status data as well as the switching state, trip causes and switch settings as well as analog information such as the actual current value and thermal motor image. This provides a better insight into the system and optimization of processes and facilitates prevention of process failures. The combination of the function element PKE-SWD-SP can be undertaken with the PKE base units. This results in a universal networking solution for the current range from 0.3 A to 65 A. With the PKE-SWD-CP module the circuit-breakers PKE-XTU(W)ACP are combined with the system SmartWire-DT.

## Networked PKE motor-starter combination up to 32 A

The function element PKE-SWD-32 enables the integration of PKE motor starter combinations up to 32 A into the system SmartWire-DT. The function element is plugged directly onto the contactor of the motor-starter combination and connected via an additional connection to the PKE motor-protective circuit-breaker. The integrated interface to the contactor coil enables the control of the motor-starter combination and reports its state. The control wiring required up to now as well as the respective digital input/output level of the PLC are no longer required. The measuring and state data of the circuit-breaker and the motor to be monitored are transferred via the connection to the PKE motor-protective circuit-breaker. With the assistance of the resulting data transparency, far-reaching possibilities exist for optimization of the manufacturing process.

## Information at your fingertips thanks to SmartWire-DT

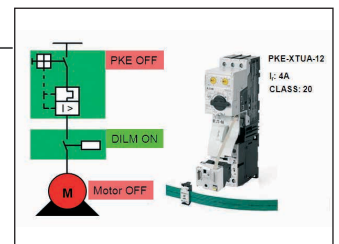
Through the integration of the the motorprotective circuit-breaker PKE to SmartWire- DT, all switching states and status messages, which were only accessible using additional equipment up to this point, are transferred to the control. This reduces the wiring effort of the motor connector and simultaneously provides enhanced transparency. The additional transfer of process data such as the actual motor current and thermal motor loading indicate potential process failures in advance. This improves the servicefriendliness and availability of the system.

### The advantages at a glance

- Recording of switching states without the use of auxiliary contacts
- Integrated current measurement and transfer without the use of additional measurement sensors and evaluation electronics.
- Integrated current measurement and transfer without the use of additional measurement sensors and evaluation electronics
- Monitoring of switch settings enables preventative motor protection
- Refined tripping indication simplifies troubleshooting
- Substitution of the control wiring and the digital I/O level by the SmartWire-DT concept

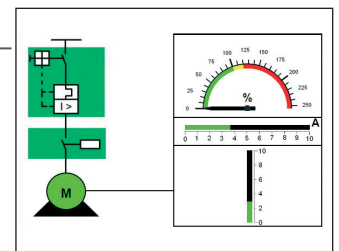
### Status

- Switch position PKE, contactor
- Set rated current
- Set time-lag class



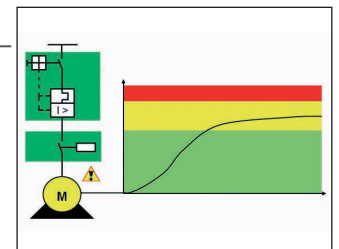
### Current / capacity utilization

- Relative motor current value
- Thermal motor loading



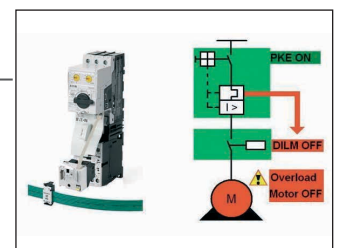
### Diagnostics

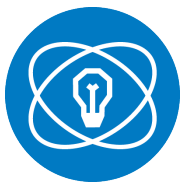
- Overcurrent (short-circuit), phase loss, overload, test



### Additional functions

- Overload relay function (contactor is switched off at overload)
- Manual / automatic operation via rotary switch





# Open Communication

With the PKE communication module, transparent and open communication is possible in every application. Due to the established and widespread serial Fieldbus Modbus RTU the communication module is an open and standardized Communication interface. Which can be quickly and easily integrated into existing Connecting systems. Besides frequency drives, programmable logic controllers and circuit breakers, the motor starters are now also controlled via Modbus RTU and adjustable. The PKE communication module thus fits perfectly into the extensive product portfolio from Eaton.

## Data transparency

- Complete recording of the machine condition
  - Turned on or off
  - Reason for triggering (e.g. overload, short circuit, asymmetry, phase failure etc.)
  - Number of switch-on operations
  - Current detection
  - Thermal image of the machine
- The consistent and clear condition monitoring supports the optimal planning of preventive Maintenance

## Flexible

- All-in-One: Switching, protecting and measuring in just one Device
- One device for all applications from motor protection to
- Plant protection
- Simple, cost-effective and fast integration into
- existing units
- Open and standardized communication via Modbus
- RTU
- Up to 1000m network range and 63 addressable
- Participants
- No special software or proprietary peripherals
- required
- Simple addressing via Dip switches



# FuturFit - All Information at a glance



## The advantages at a glance

- Open, standardised communication interface directly via Modbus RTU to IoT
- Two devices in one, (2in1) motor protection and system protection.
- Recording of switching states without the use of auxiliary contacts
- Integrated current measurement and transmission without the use of additional measuring sensors and evaluation electronics
- Enables the avoidance of process failures in case of motor overload
- Monitoring of switch settings enables preventive motor protection
- Differentiated triggering message simplifies troubleshooting

## Status

- Switching position PKE
- Adjusted rated current
- Adjusted inertia

## Power / Utilization

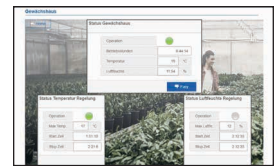
- Relative motor current
- Thermal motor load

## Diagnostics

- Overcurrent (short circuit), overload, Phase failure, test

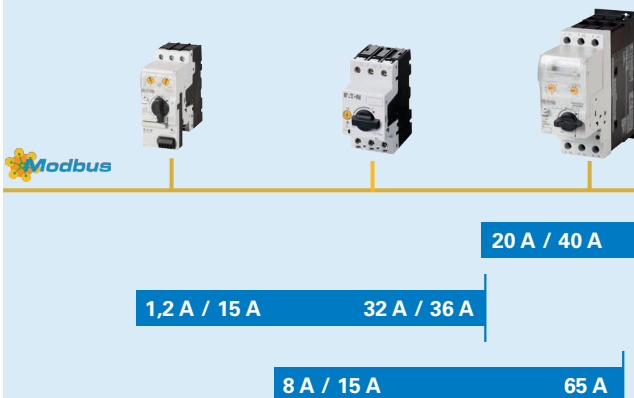
## Additional functions

- Overcurrent (short circuit), Overload, phase failure, Test trip, asymmetry
- Recording the number of trips & type and frequency of operation
- Remote controlled triggering
- Plain text Transmission of the values (e.g. current in A)

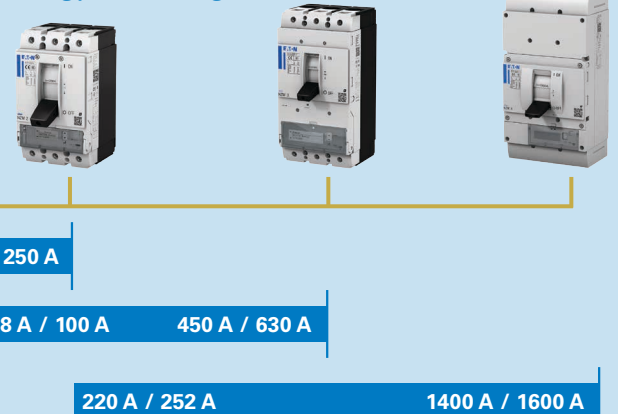


## Continuous communication

### Circuit breaker PKE Load and current monitoring



### Compact circuit-breaker NZM Load and Energy monitoring



Continuous communication solution from 0.3 A to 1600 A

# Motor-Protective Circuit-Breakers

Moeller® series






Setting range Overload release $I_r$ A	Base unit		Control option Standard		Control option Advanced		Motor-protective circuit-breakers Standard Complete devices	
	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
<b>Motor-protective circuit-breaker PKE, Coordination type "1" and "2"</b>								
0,3...1,2 A	PKE12	121721	PKE-XTU-1,2	121723	PKE-XTUA-1,2	121727	PKE12/XTU-1,2	121731
1...4 A	PKE12	121721	PKE-XTU-4	121724	PKE-XTUA-4	121728	PKE12/XTU-4	121732
3...12 A	PKE12	121721	PKE-XTU-12	121725	PKE-XTUA-12	121729	PKE12/XTU-12	121733
8...32 A	PKE32	121722	PKE-XTU-32	121726	PKE-XTUA-32	121730	PKE32/XTU-32	121734
<b>Motor-protective circuit-breaker PKE with lockable handle</b>								
0,3...1,2 A	PKE12/AK	158241	PKE-XTU-1,2	121723	PKE-XTUA-1,2	121727	PKE12/AK/XTU-1,2	158242
1...4 A	PKE12/AK	158241	PKE-XTU-4	121724	PKE-XTUA-4	121728	PKE12/AK/XTU-4	158244
3...12 A	PKE12/AK	158241	PKE-XTU-12	121725	PKE-XTUA-12	121729	PKE12/AK/XTU-12	158243
8...32 A	PKE32/AK	158245	PKE-XTU-32	121726	PKE-XTUA-32	121730	PKE32/AK/XTU-32	158246
<b>Circuit-breaker PKE for cable and line protection</b>								
15...36 A	PKE32	121722	PKE-XTUCP-36	153164	PKE-XTUACP-36	168795	PKE32/XTUCP-36	168972



Setting range Overload release $I_r$ A	Base unit		Control option Standard		Control option Advanced		Motor-protective circuit-breakers Standard Complete devices	
	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.	Part no.	Article no.
<b>Motor-protective circuit-breaker PKE, Coordination type "1" and "2"</b>								
8...32 A	PKE65	138258	PKE-XTUW-32	138261	PKE-XTUWA-32	138262	PKE32/XTUW-32	138517
16...65 A	PKE65	138258	PKE-XTU-65	138259	PKE-XTUA-65	138260	PKE65/XTU-65	138516
<b>Motor-protective circuit-breaker PKE with lockable handle</b>								
8...32 A	PKE65/AK	158247	PKE-XTUW-32	138261	PKE-XTUWA-32	138262	PKE32/AK/XTUW-32	158249
16...65 A	PKE65/AK	158247	PKE-XTU-65	138259	PKE-XTUA-65	138260	PKE65/AK/XTU-65	158248
<b>Circuit-breaker PKE for cable and line protection</b>								
15...36 A	PKE65	138258	PKE-XTUWCP-36	168796	PKE-XTUWACP-36	168797	PKE65/XTUWCP-36	168973
30...65 A	PKE65	138258	PKE-XTUCP-65	168798	PKE-XTUACP-65	168799	PKE65/XTUCP-65	168974






1) Extended Trip Unit, for SmartWire-DT or Modbus RTU connection





	Motor data		Setting range Overload release	Motor starter Actuating voltage 230 V 50 Hz		Motor starter Actuating voltage 24 DC						
	Rated short-circuit current			Part no.	Article no.	Part no.	Article no.					
Complete device MSC-DE	380–415 V	380–415 V	I <sub>r</sub> A 									
	Coordination type "1"	Coordination type "2"										
	I <sub>q</sub> kA	I <sub>q</sub> kA										
	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	0,3-1,2	MSC-DME-1,2-M17(230V50HZ)	192753	MSC-DME-1,2-M17(24VDC)	192759					
	100	100	1-4	MSC-DME-4-M17(230V50HZ)	192754	MSC-DME-4-M17(24VDC)	192760					
	100	100	3-12	MSC-DME-12-M17(230V50HZ)	192755	MSC-DME-12-M17(24VDC)	192761					
	100	100	8-32	MSC-DME-32-M17(230V50HZ)	192756	MSC-DME-32-M17(24VDC)	192762					
	100	100	8-32	MSC-DME-32-M25(230V50HZ)	192757	MSC-DME-32-M25(24VDC)	192763					
	100	100	8-32	MSC-DME-32-M32(230V50HZ)	192758	MSC-DME-32-M32(24VDC)	192764					
	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	0,3-1,2	–	–	MSC-DMEA-1,2-M17(24VDC)	192765					
	100	100	1-4	–	–	MSC-DMEA-4-M17(24VDC)	192766					
	100	100	3-12	–	–	MSC-DMEA-12-M17(24VDC)	192767					
	100	100	8-32	–	–	MSC-DMEA-32-M17(24VDC)	192768					
	100	100	8-32	–	–	MSC-DMEA-32-M25(24VDC)	192769					
	100	100	8-32	–	–	MSC-DMEA-32-M32(24VDC)	192770					

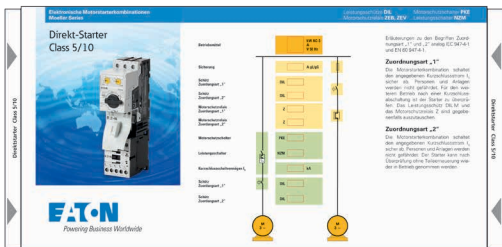
	Short Circuit Current Rating			Setting range Overload release	Motor starter Actuating voltage 230 V 50 Hz		Motor starter Actuating voltage 24 DC	
	240 V	480 Y 277 V	600 Y 347 V		Part no.	Article no.	Part no.	Article no.
Complete devices type E Standard up to 32 A	14	14	14	0,3 - 1,2	MSC-DE-1,2-M17-SP(220V50HZ,240V60HZ)	167806	MSC-DE-1,2-M17-SP(24VDC)	167818
	18	18	–	1–4	MSC-DE-4-M17-SP(220V50HZ,240V60HZ)	167807	MSC-DE-4-M17-SP(24VDC)	167819
	18	18	–	3–12	MSC-DE-12-M17-SP(220V50HZ,240V60HZ)	167808	MSC-DE-12-M17-SP(24VDC)	167820
	18	18	–	8–32	MSC-DE-32-M32-SP(220V50HZ,240V60HZ)	167809	MSC-DE-32-M32-SP(24VDC)	167821
Standard up to 65 A (without contactor)	65	65	25	8 - 32	PKE65/AK/XTUW-32-SP	170483	PKE65/AK/XTUW-32-SP	170483
	65	65	–	16 - 65	PKE65/AK/XTU-65-SP	170482	PKE65/AK/XTU-65-SP	170482

# Communication modules

Modbus RTU -Communication module for PKE12/32/65			Part no. Article no.
			<b>PKE-COM-RTU</b> 199344
SmartWire-DT-Communication circuit for PKE12/32/65			Part no. Article no.
	Functional element motor protective circuit		<b>PKE-SWD-SP</b> 150614
	Functional element circuit breaker		<b>PKE-SWD-CP</b> 172735
SmartWire-DT-Communication circuit for PKE12/32, MSC-DEA			Part no. Article no.
	Functional element motor protective circuit		<b>PKE-SWD-32</b> 126895
	Functional element circuit breaker		

# Accessories

Incoming terminal			Part no. Article no.
	For PKE32 use and rated currents exceeding 32 A	For three-phase commoning link protected against accidental contact U <sub>e</sub> = 690 V, I <sub>u</sub> = 63 A For conductor cross-sections: 2.5 – 25 mm <sup>2</sup> stranded 2.5 – 16 mm <sup>2</sup> flexible with ferrules For use on terminals 2, 4, 6	<b>BK25/3-PKZ0-U</b> 292886
Relay function module			Part no. Article no.
	For use with PKE advanced trip blocks	When using PKE-XZMR module an overload does not cause the motor-protection circuit-breaker to trip. The overload indication is produced by means of two auxiliary contacts.	<b>PKE-XZMR</b> in Vorbereitung
Fixing bracket			Part no. Article no.
	For screw fixing to mounting plate		<b>PKE32-XMB</b> 134837
Door coupling handle			Part no. Article no.
Protection type IP65, UL/CS Type 4X / Type12	For use as main switch to EN 60204	black	Plug-in extension shaft PKZ0-XAH can be cut to desired length for mounting depths of 100...240 mm.
	For use as main switch with Emergency-Stop function to EN 60204	red-yellow	Carrier with extension shaft included in delivery. With ON/OFF switch position and "+" (tripped), lockable with 3 padlocks, 4 – 8 mm hasp.
	For use as a main switch to EN 60204 in MCC power distribution systems and with PKE installed when rotated by 90°	black	
	For use as a main switch to EN 60204 in MCC power distribution systems and with PKE installed when rotated by 90°	red-yellow	

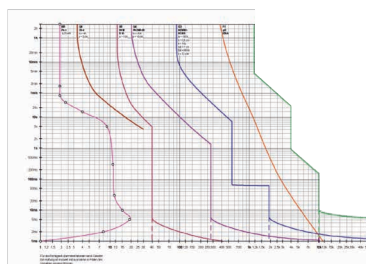


## Engineering tool for motor starters and energy distribution

### Selector slide for motor starter combinations

As a simple tool, the Eaton selection slider facilitates the dimensioning of different motor starter types taking the required coordination types for short-circuit coordination into consideration.

		Motor-protective circuit-breakers PKE 12 and PKE 32	Motor-protective circuit-breaker PKE65
<b>General</b>			
Standards and regulations		IEC/EN 60947-4-1, VDE0660 UL 508, CSA C22.2 No.14	IEC/EN 60947-4-1, VDE0660 UL 508, CSA C22.2 No.14
Climatic proofing		Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30	Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60068-2-30
Ambient temperature	Storage	-25... +80°C	-25... +80°C
	Open	-25... +55°C	-25... +55°C
	Enclosed	-25... +40°C	-25... +40°C
Direction of incoming supply		any	any
Degree of protection	Device	IP20	IP20
	Terminals	IP00	IP00
Touch protection to EN50274		Finger- and back-of-hand-proof	Finger- and back-of-hand-proof
Mechanical shock resistance halfsinu- soidal shock 10 ms to IEC 60068-2-27		25 g	10 g on top-hat rail 15 g on mounting plate
Altitude		max. 2000m	max. 2000m
Screw terminal conductor cross-section	Solid	1 x (1–6) mm <sup>2</sup> 1 x (1–6) mm <sup>2</sup>	1 x (0,75–16) mm <sup>2</sup> 1 x (0,75–16) mm <sup>2</sup>
	Stranded with ferrule to DIN 46228	1 x (1–6) mm <sup>2</sup> 1 x (1–6) mm <sup>2</sup>	1 x (0,75–35) mm <sup>2</sup> 1 x (0,75–35) mm <sup>2</sup>
	Solid or stranded	18–10 AWG	14–2 AWG
Main conductor		1,7 Nm	3,3 Nm
Auxiliary conductor		1 Nm	1 Nm
<b>Main circuit</b>			
Rated impulse withstand voltage	$U_{imp}$	6000 V AC	6000 V AC
Overvoltage category / pollution degree		III/3	III/3
Rated operational voltage	$U_e$	690V	690V
Rated uninterrupted current = rated output current	$I_u = I_e$	32A or setting value of the overcurrent release	65A or setting value of the overcurrent release
Rated frequency		40–60 Hz	40–60 Hz
Current heating losses (3-pole at operating temperature)		6W	11W
Lifespan, mechanical	Operations	0,05 x 10 <sup>6</sup>	0,05 x 10 <sup>6</sup>
Lifespan, electrical (AC-3 at 400 V)	Operations	0,05 x 10 <sup>6</sup>	0,05 x 10 <sup>6</sup>
Maximum operating frequency	Operations/h	60 S/h	60 S/h
Motor switching capacity AC	AC-3 bis 690V	32A	65A
<b>Trip release</b>			
Temperature compensation to IEC/EN 60947, VDE 0660		-25...+55 °C	-25...+55 °C
Operating range		-25...+55 °C	-25...+55 °C
Temperature compensation residual error for T > 40°C		-	-
Overload release setting range		0,25–1	0,25–1
Short-circuit release tolerance		+ 20%	+ 20%
Single-phasing sensitivity		IEC/EN 60947-4-1; VDE 0660 Teil 102	IEC/EN 60947-4-1; VDE 0660 Teil 102



### Technical Data – Characteristics program for protection devices

CurveSelect is a free-of-charge tool that offers evaluation of tripping characteristics of several protective devices on the same time and current scale. The assessment of the interaction of the circuit-breakers of the NZM and IZM series, as well as motor-protective circuit-breakers PKE and PKZ, overload relay ZB and miniature circuit-breakers as well as low-voltage high-breaking-capacity fuses is made significantly easier. [www.eaton.eu/selectiontools](http://www.eaton.eu/selectiontools)

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**Eaton Industries GmbH**  
Hein-Moeller-Str. 7-11  
D-53115 Bonn/Germany

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