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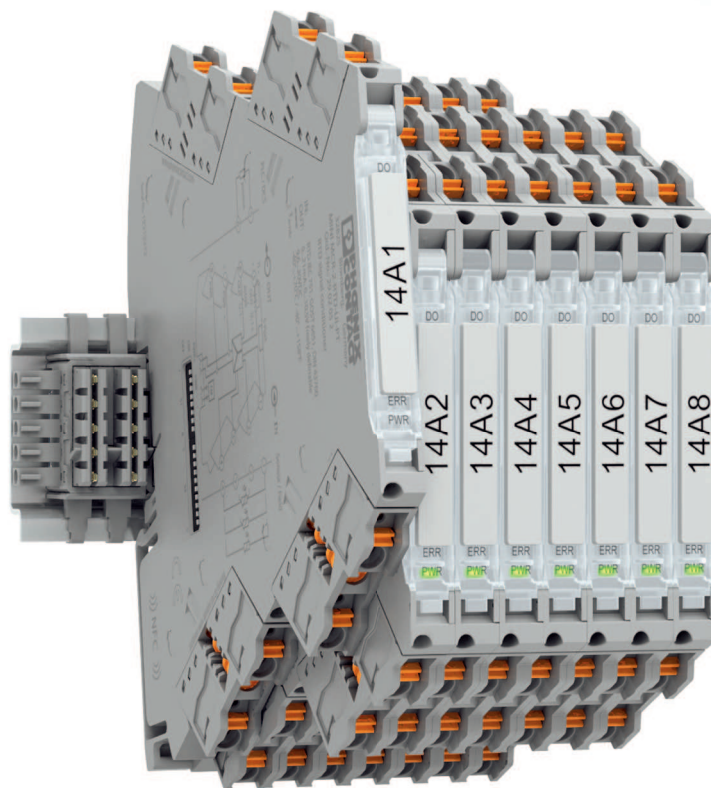
Address: A1208, Overseas Decoration Building, #122 Zhenhua RD., Futian, Shenzhen, China



# Interface Technology and Switching Devices

2015/2016

# 7





# Interface technology and switching devices



## Terminal blocks

- Terminal blocks



## Surge protection and power supplies

- Surge protection and interference suppression filters
- Power supplies and UPS
- Protective devices



## Sensor/actuator cabling and industrial connectors

- Sensor/actuator cabling
- Cables and lines
- Connectors



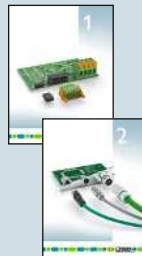
## Control technology, I/O systems, and automation infrastructure

- Lighting and signaling
- Fieldbus components and systems
- Functional Safety
- HMIs and industrial PCs
- I/O systems
- Industrial Ethernet
- Industrial communication technology
- Software
- Controllers
- Wireless data communication



## Marking systems, tools, and mounting material

- Marking and labeling
- Tools
- Installation and mounting material



## PCB connection technology and electronics housing 2013/14

- PCB terminal blocks and PCB connectors
- Electronics housing

## Connection technology for field devices 2013/14

- Connectors
- Cables and lines

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# Complete overview

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# Complete overview

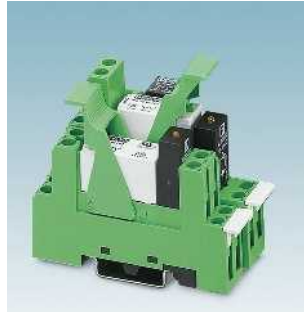
## Product range overview

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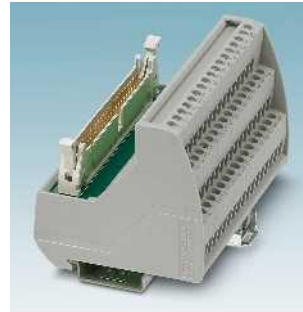
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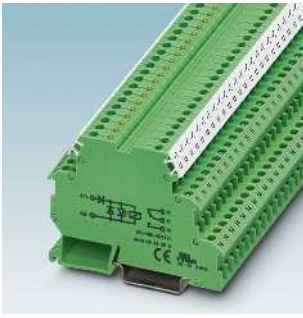
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# Electronic switching devices and motor control

Switching devices for starting, reversing, and protecting electric motors are some of the most frequently used components in automation technology. These are often designed redundantly for safety-sensitive applications. When it comes to reducing installation time and space requirements, CONTACTRON hybrid motor starters are the state-of-the-art alternative.

This is because CONTACTRON hybrid motor starters combine up to four functions in a single device. Integration into popular fieldbus systems is realized via the INTERFACE system connection or via the SmartWire-DT™ wiring system.

For protection of the entire system, the product range now includes the electronic motor manager (EMM). In addition to typical measured values such as voltage and current, the behavior of the system is monitored and protected by means of real power measurement. The process data in all popular fieldbus systems can be supplied via gateways and evaluated by a controller.

## Product range overview

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## Product overview

### Motor management



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### Hybrid motor starters



Network-capable hybrid motor starters with reversing function  
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Network-capable hybrid motor starters with direct start function  
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### IP67 motor starters



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Hybrid motor starters with short-circuit protection

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Loop bridge for hybrid motor starters

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SmartWire-DT™ accessories

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### Electronic motor management (EMM)

The electronic motor management modules offer all the advantages of modern real power monitoring.

The measuring and evaluation electronics for all performance classes. EMM offers the same functionality for all performance classes, only without a power section.

#### Power within limits

Monitoring is based on freely parameterizable switching and signaling thresholds for overload and underload detection. Identical or separate settings can be made for the thresholds relating to the two directions of rotation.

Parameterization relies on the real power consumed (calculated from three currents, voltages, and the phase angle), thereby offering a much more precise basis than if only the current is taken into consideration, as it is independent of voltage fluctuations and drive load. If a switching threshold is violated, the EMM initiates an emergency shutdown of the motor immediately (or with an adjustable “delay time”). In addition, a message can be sent via an output.

This state can only be deactivated via a defined reset. If the real power consumed is determined as being above or below the message thresholds, all that occurs is that a

check-back is returned for the duration for which the module was addressed.

In addition, signals are generated by the module for the recognition of the direction of rotation. Asymmetry and phase failures are detected and signaled.

Permanent status monitoring with high scanning rates and the fast semiconductor switch enable complete system protection, including motor protection.

Without any extra wiring - and with just a single device - pumps, actuating drives, fans, and tools are monitored for proper functioning, contamination (filter or similar), and wear. The adjustable “inrush suppression” time can be used to mask out the switching operation from the monitoring process.

### INTERFACE system

The INTERFACE system (IFS) consists of devices which can be connected to each other via the DIN rail connector (TBUS). A GATEWAY with up to 32 IFS devices forms the head of the INTERFACE system and manages the station.

INTERFACE system properties:

- Use of the INTERFACE system via the DIN rail connector for the purpose of parameterization, diagnostics, and exchange of data with one another
- Compatible with defined IFS accessories
- 24 V supply of the devices (e.g., EMM...IFS, ELR...IFS, EM-GATEWAY-IFS) via the DIN rail connector



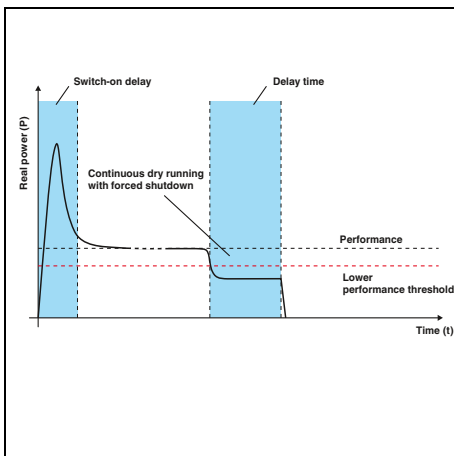
Protection against dry running, blocking, and cavitation, warning thresholds to indicate filter contamination.



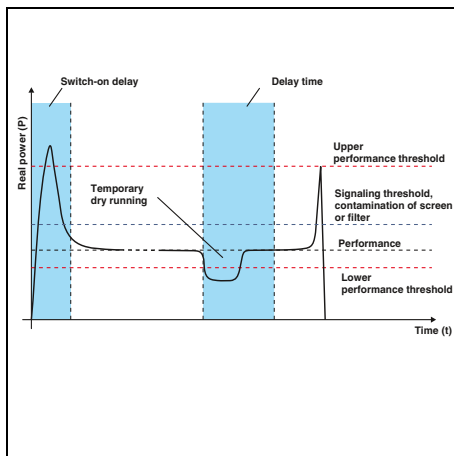
Protection against blocking, warning thresholds for bearing wear and other cases that trigger overload.



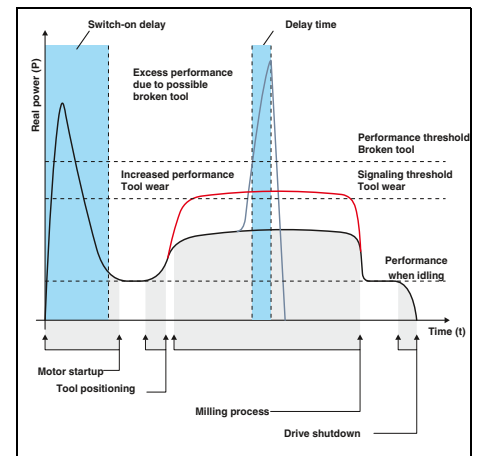
Protection against blocking and broken tools, warning thresholds for tool and bearing wear.



In the case of motor-driven pumps, the lower performance threshold provides reliable protection against hazardous dry running.



Forced shutdown of the drive can be delayed by the "delay time". This prevents forced shutdown in the event of air bubbles.

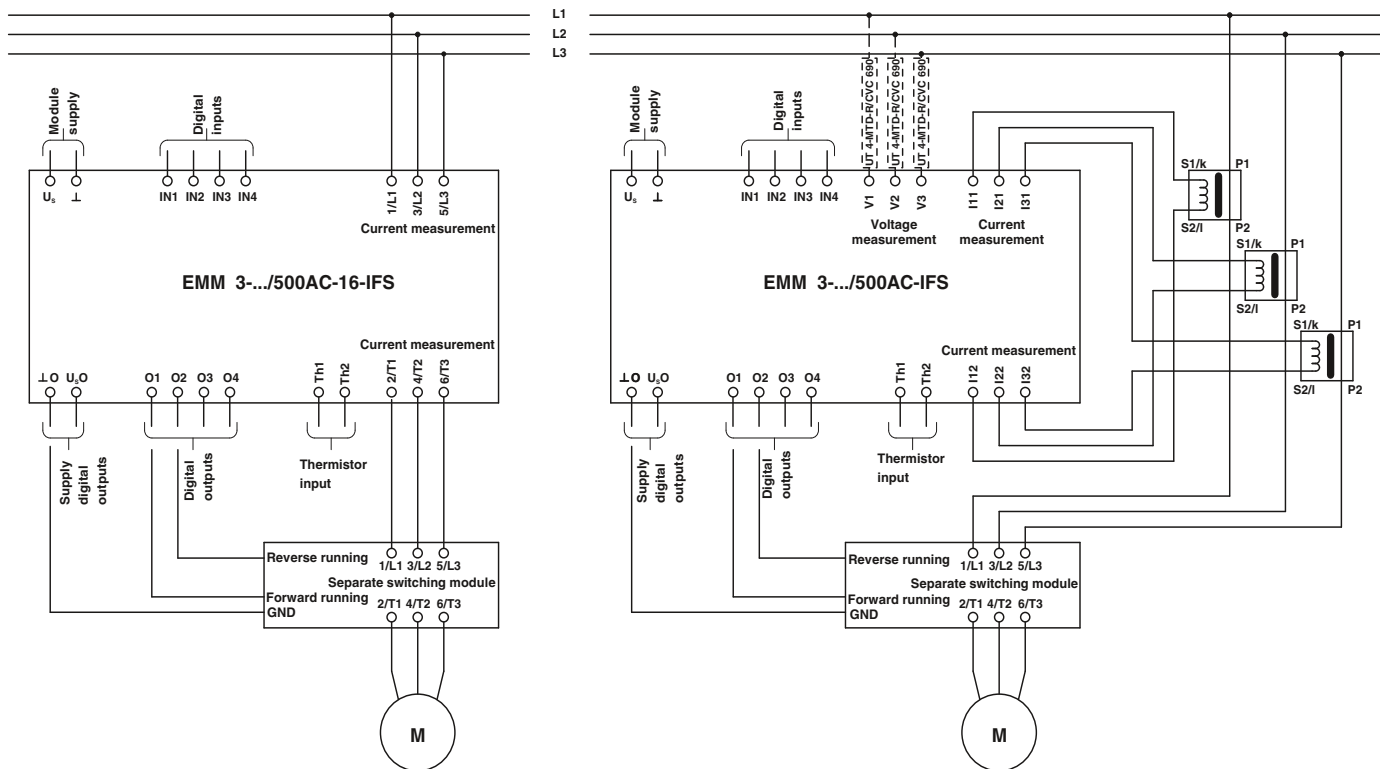


Machine tools are monitored and protected in a similar way when drilling, milling or grinding. If the feed value on a milling machine is set too high, a tool may break in the "worst-case" scenario. The power threshold - parameterized accordingly - can be used to resolve this issue.

Additionally, a message threshold signals tool wear in advance.



Electronic motor management



The electronic motor management modules offer all the advantages of modern real power monitoring. Every 6.6 ms, the real power of a drive system or of any other 3-phase load is calculated from three currents, voltages, and the phase angle. Currents of up to 16 A can be directly acquired and currents >16 A are supplied via external converters. Digital outputs can be used to control separate mechanical or electronic switching elements that adopt the actual switching of the load. In this configuration, the EMM reliably protects connected loads – irrespective of their power consumption – against overload and underload, and provides permanent status monitoring.

Up to 8 freely parameterizable switching, message thresholds and up to four freely configurable inputs and outputs enable the protection of electrical drives and the system.

The EMM modules can record the following data:

- Apparent real and reactive power
  - Currents and voltages
  - Phase angle
  - Cycle and operating hours counter
  - Power meter
- Additional functions:
- Adjustable bimetal function class 5-30
  - Thermistor monitor
  - Recording measured values
  - GATEWAY connection via TBUS
  - Pre-configured motor exits such as reversing starters, star-delta starters, etc.

The EMM modules can be used to record complete curves that can be used for system documentation.

Actuating and regulating drives, pumps, tools, conveyer belts or similar are switched and monitored for function, contamination or wear in the following operating modes: right rotation, left rotation, reverse, and limit switch operation (with integrated restart inhibit).

**Current transformer**

The external converters should be selected with a secondary nominal current of 5 A. The primary current is determined by the current consumption of the load (refer to connection diagram). For suitable current transformers, see INTERFACE catalog.

**TBUS DIN rail connector**

The TBUS (Order No. 2707437) can be used to supply several EMMs with 24 V DC or to couple up to 32 EMMs (for example) to the PROFIBUS-GATEWAY-IFS.

**Switching element**

Depending on the particular requirements of the application, either an electro-mechanical contactor or reversing contactor combination, or a solid-state contactor or a solid-state reversing contactor is to be used for the actual task of switching the load. These switching elements are controlled via the digital outputs of the EMM modules.

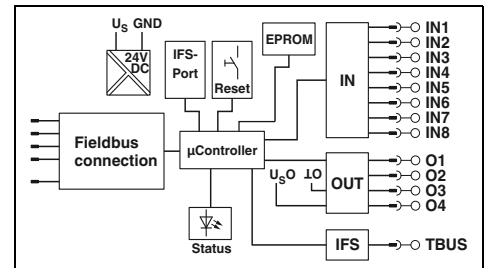
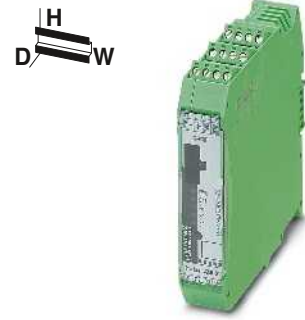


## Motor management

### IFS gateways for INTERFACE system devices

EM...GATEWAY-IFS for connecting INTERFACE system devices (IFS) to popular bus systems: PROFIBUS DP, Modbus, Modbus/TCP, DeviceNet™, CANopen®, and PROFINET, EtherNet/IP™.

- Communication via TBUS with up to 32 INTERFACE system devices such as EMM...IFS and ELR...IFS modules
- Equipped with freely parameterizable digital inputs and outputs
- Digital switching outputs for direct control



#### Technical data

<b>Input data</b>	
Rated control supply voltage $U_S$	24 V DC -20 % ... +25 %
Rated control supply current $I_S$	85 mA (plus load current of the outputs)
Input circuit	Protection against polarity reversal
<b>Digital inputs</b>	
Rated actuating voltage $U_C$	24 V DC $\pm$ 20 %
Rated actuating current $I_C$	3 mA
Input circuit	Protection against polarity reversal
<b>Digital outputs</b>	
Maximum switching voltage	23 V DC ( $U_B - U_{resid.}$ of the output)
Max. switching current	500 mA
Residual voltage	1 V
Output protection	Parallel protection against polarity reversal, pay attention to the fuse
<b>IFS interface</b>	
Connection method	DIN rail connector
<b>General data</b>	
Ambient temperature (operation)	-35 °C ... 50 °C
Nominal operating mode	100% operating factor
Standards/regulations	EN 50178
Degree of protection	IP20
Mounting position / mounting	any / can be aligned without spacing
Connection data solid / stranded / AWG	0.2 ... 2 mm <sup>2</sup> / 0.2 ... 2.5 mm <sup>2</sup> / 12 - 24
Dimensions	22.5 mm / 99 mm / 114.5 mm
EMC note	Class A product, see page 625

W / H / D

#### Ordering data

Description	Type	Order No.	Pcs. / Pkt.
<b>IFS gateway for PROFIBUS DP</b>	<b>EM-PB-GATEWAY-IFS</b>	<b>2297620</b>	1
RS-232	EM-RS232-GATEWAY-IFS	2901526	1
RS-485	EM-RS485-GATEWAY-IFS	2901527	1
Modbus/TCP	EM-MODBUS-GATEWAY-IFS	2901528	1
DeviceNet™	EM-DNET-GATEWAY-IFS	2901529	1
CANopen®	EM-CAN-GATEWAY-IFS	2901504	1
PROFINET	EM-PNET-GATEWAY-IFS	2904472	1
EtherNet/IP™	EM-ETH-GATEWAY-IFS	2901988	1

#### Accessories

Programming adapter for configuring modules with S-PORT interface	IFS-USB-PROG-ADAPTER	2811271	1
<b>DIN rail connector</b>	ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50
<b>Mini COMBICON connector</b>	MC 1,5/ 5-ST-3,81	1803604	50
- Socket contact	IMC 1,5/ 5-ST-3,81	1857919	50
- Pin contact			

**Device Type Manager (DTM) for motor management modules EMM...IFS**

- CONTACTRON-DTM-IFS, programming adapter, and user manual on CD available as configuration package
- USB programming adapter also available separately as an option
- CONTACTRON-DTM-IFS also available free of charge as a separate download from phoenixcontact.com



		Ordering data	
Description	Type	Order No.	Pcs. / Pkt.
<b>Configuration package</b> for the EMM...IFS, comprising CONTACTRON-DTM-IFS, USB programming adapter, and user manual on CD	MM-CONF-SET	2297992	1
		Accessories	
<b>Programming adapter</b> for configuring modules with S-PORT interface	IFS-USB-PROG-ADAPTER	2811271	1



Hybrid motor starters for controlling 3-phase asynchronous motors combine up to four functions in one device as required. These include forward running, reverse running with optional reversing function including load wiring. The locking circuit for the reversing function is also integrated and certified as a single electronic reversing starter according to UL 508a and the new UL 60947-1. Furthermore, the devices protect the motor by means of an integrated motor protection relay with automatic and remote reset function. The implemented safety function according to Performance Level e (PL e) of EN ISO 13849-1 provides the emergency stop requirement. A PDT confirmation contact provides information regarding the availability of the device, and the motor state. This means that in the event of motor control without an error message the integrated current measurement and symmetry scanning ensures that the motor is turning. Even with these numerous functions, the hybrid motor starter is just 22.5 mm wide.

Short-circuit-proof hybrid motor starters with integrated protective devices, for mounting on 35 mm DIN rails and 60 mm busbar systems and connection to popular bus systems via SmartWire-DT™ complete the product portfolio.



Hybrid motor starters with up to four functions in one device: forward running, reverse running, motor protection, and emergency stop.



Short-circuit-proof hybrid motor starters with integrated fuses for mounting on 35 mm DIN rails and 60 mm busbar systems.



Connection of hybrid motor starters in a bus system via SmartWire-DT™. Gateways are provided for the main bus systems: PROFIBUS, Modbus/TCP, EtherNet/IP™, and CANopen®.



Connection of the hybrid motor starter to a bus system via the IFS INTERFACE system.

Gateways are provided for the main bus systems: PROFIBUS DP, Modbus/TCP, EtherNet/IP™, CANopen®, DeviceNet™, PROFINET, etc.

## Hybrid motor starters

### Network-capable hybrid motor starters with reversing function

These 3-phase hybrid motor starters provide up to four functions: right contactor, left contactor, motor protection relay, and emergency stop up to category 3.

They offer the following advantages:

- Connection to INTERFACE system (IFS) via TBUS
  - Connection to SmartWire-DT™ (SWD)
  - 22.5 mm wide
  - Reduction in wiring
  - Bi-metal function, adjustable up to 3 A
  - Long service life
  - Space-saving
  - 3-phase loop bridging
- Safety level according to:
- IEC 61508-1: SIL3
  - ISO 13849: PL e

Notes:
Type of housing: Polyamide PA non-reinforced, color: green.
Marking systems and mounting material See Catalog 5



new

Motor protection and SmartWire-DT™ support

Input data	
Rated control supply voltage $U_s$	24 V DC
Rated control supply voltage range with reference to $U_s$	0.8 ... 1.25
Rated control supply current $I_s$ at $U_s$	40 mA
Rated actuating voltage UC EN+	-
Rated actuating voltage range with reference to $U_c$	-
Rated actuating current $I_c$ at $U_c$	-
Input circuit	Protection against polarity reversal, surge protection
Operating voltage / status / error indicator	Green LED / Yellow LED / Red LED
Output data load side	
Output voltage range	42 V AC ... 550 V AC
Surge current	100 A (t = 10 ms)
Output protection	Surge protection
General data	
Rated insulation voltage	550 V
Rated surge voltage	6 kV (safe isolation)
Ambient temperature (operation)	-5 °C ... 55 °C
Electrical service life	3 x 10 <sup>7</sup> cycles
Standards/regulations	IEC 60947-1 / EN 60947-4-2 IEC 60947-1
Mounting position	Vertical (horizontal DIN rail)
Mounting	can be aligned with spacing: see derating
Screw connection solid / stranded / AWG	0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14
Dimensions	22.5 mm / 99 mm / 114.5 mm

### Technical data

Rated control supply voltage $U_s$	24 V DC
Rated control supply voltage range with reference to $U_s$	0.8 ... 1.25
Rated control supply current $I_s$ at $U_s$	40 mA
Rated actuating voltage UC EN+	-
Rated actuating voltage range with reference to $U_c$	-
Rated actuating current $I_c$ at $U_c$	-
Input circuit	Protection against polarity reversal, surge protection
Operating voltage / status / error indicator	Green LED / Yellow LED / Red LED
Output data load side	
Output voltage range	42 V AC ... 550 V AC
Surge current	100 A (t = 10 ms)
Output protection	Surge protection
General data	
Rated insulation voltage	550 V
Rated surge voltage	6 kV (safe isolation)
Ambient temperature (operation)	-5 °C ... 55 °C
Electrical service life	3 x 10 <sup>7</sup> cycles
Standards/regulations	IEC 60947-1 / EN 60947-4-2 IEC 60947-1
Mounting position	Vertical (horizontal DIN rail)
Mounting	can be aligned with spacing: see derating
Screw connection solid / stranded / AWG	0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14
Dimensions	22.5 mm / 99 mm / 114.5 mm

Description
<b>Load current 0.075 - 0.6 A</b> Screw connection Push-in connection
<b>Load current 0.18 A ... 3 A</b> Screw connection Push-in connection

### Ordering data

Type	Order No.	Pcs. / Pkt.
ELR H5-I-PT-SWD/500AC-06	2905073	1
ELR H5-I-PT-SWD/500AC-3	2905074	1

<b>Device plug, 8-pos.</b>
<b>DIN rail connector</b>

### Accessories

SWD4-8SF2-5 PXC	2903107	10
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new

Motor protection, emergency stop, and INTERFACE system support



new

Motor protection and INTERFACE system support

Technical data
24 V DC 0.8 ... 1.25
40 mA 24 V DC 0.8 ... 1.25
5 mA Protection against polarity reversal, surge protection Green LED / Yellow LED / Red LED
42 V AC ... 550 V AC 100 A (t = 10 ms) Surge protection
550 V 6 kV (safe isolation) -5 °C ... 60 °C 3 x 10 <sup>7</sup> cycles IEC 60947-1 / EN 60947-4-2 / IEC 61508 / ISO 13849 IEC 60947-1 Vertical (horizontal DIN rail) can be aligned with spacing: see derating 0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14 22.5 mm / 99 mm / 114.5 mm

Technical data
24 V DC 0.8 ... 1.25
40 mA - -
- Protection against polarity reversal, surge protection Green LED / Yellow LED / Red LED
42 V AC ... 550 V AC 100 A (t = 10 ms) Surge protection
550 V 6 kV (safe isolation) -5 °C ... 60 °C 3 x 10 <sup>7</sup> cycles IEC 60947-1 / EN 60947-4-2 IEC 60947-1 Vertical (horizontal DIN rail) can be aligned with spacing: see derating 0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14 22.5 mm / 99 mm / 114.5 mm

Ordering data		
Type	Order No.	Pcs. / Pkt.
ELR H5-IES-SC/500AC-06-IFS	2905151	1
ELR H5-IES-PT/500AC-06-IFS	2905138	1
ELR H5-IES-SC/500AC-3-IFS	2905152	1
ELR H5-IES-PT/500AC-3-IFS	2905139	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
ELR H5-I-SC/500AC-06-IFS	2905157	1
ELR H5-I-PT/500AC-06-IFS	2905144	1
ELR H5-I-SC/500AC-3-IFS	2905159	1
ELR H5-I-PT/500AC-3-IFS	2905146	1

Accessories		
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50

Accessories		
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50

## Hybrid motor starters

### Hybrid motor starters with reversing function

These 3-phase hybrid motor starters provide up to four functions: right contactor, left contactor, motor protection relay, and emergency stop up to category 3.

They offer the following advantages:

- 22.5 mm wide
- Reduction in wiring
- Bi-metal function, adjustable up to 9 A
- Long service life
- Space-saving
- 3-phase loop bridging
- Safety level according to:
  - IEC 61508-1: SIL3
  - ISO 13849: PL e

Notes:
Type of housing: Polyamide PA non-reinforced, color: green.
Marking systems and mounting material See Catalog 5



**Motor protection and emergency stop**

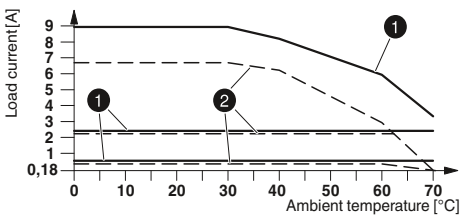


Input data		
Rated control supply voltage $U_S$	24 V DC	230 V AC (50/60 Hz)
Rated control supply voltage range with reference to $U_S$	0.8 ... 1.25	0.4 ... 1.1
Rated control supply current $I_S$ at $U_S$	40 mA	4 mA
Rated actuating voltage $U_C$ R/L	24 V DC	230 V AC
Rated actuating voltage range with reference to $U_C$	0.8 ... 1.25	0.4 ... 1.1
Rated actuating current $I_C$ at $U_C$	5 mA	7 mA
Input circuit	Protection against polarity reversal, surge protection	Surge protection
Operating voltage / status / error indicator	Green LED / Yellow LED / Red LED	
Output data load side		
Output voltage range	42 V AC ... 550 V AC	42 V AC ... 550 V AC
Surge current	100 A (t = 10 ms)	100 A (t = 10 ms)
Output protection	Surge protection	
General data		
Rated insulation voltage	500 V	
Rated surge voltage	6 kV (safe isolation)	6 kV (safe isolation)
Ambient temperature (operation)	-25 °C ... 70 °C	
Electrical service life	3 x 10 <sup>7</sup> cycles	
Standards/regulations	EN 60947 / IEC 61508 / ISO 13849 DIN EN 50178	
Mounting position	Vertical (horizontal DIN rail)	
Mounting	can be aligned with spacing: see derating	
Screw connection solid / stranded / AWG	0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14	
Dimensions	22.5 mm / 99 mm / 114.5 mm	

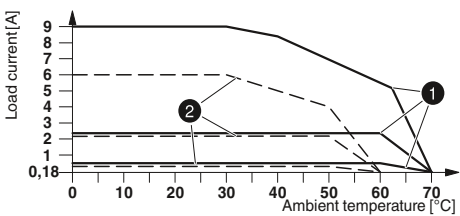
Technical data		
Rated control supply voltage $U_S$	24 V DC	230 V AC (50/60 Hz)
Rated control supply voltage range with reference to $U_S$	0.8 ... 1.25	0.4 ... 1.1
Rated control supply current $I_S$ at $U_S$	40 mA	4 mA
Rated actuating voltage $U_C$ R/L	24 V DC	230 V AC
Rated actuating voltage range with reference to $U_C$	0.8 ... 1.25	0.4 ... 1.1
Rated actuating current $I_C$ at $U_C$	5 mA	7 mA
Input circuit	Protection against polarity reversal, surge protection	Surge protection
Operating voltage / status / error indicator	Green LED / Yellow LED / Red LED	
Output data load side		
Output voltage range	42 V AC ... 550 V AC	42 V AC ... 550 V AC
Surge current	100 A (t = 10 ms)	100 A (t = 10 ms)
Output protection	Surge protection	
General data		
Rated insulation voltage	500 V	
Rated surge voltage	6 kV (safe isolation)	6 kV (safe isolation)
Ambient temperature (operation)	-25 °C ... 70 °C	
Electrical service life	3 x 10 <sup>7</sup> cycles	
Standards/regulations	EN 60947 / IEC 61508 / ISO 13849 DIN EN 50178	
Mounting position	Vertical (horizontal DIN rail)	
Mounting	can be aligned with spacing: see derating	
Screw connection solid / stranded / AWG	0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14	
Dimensions	22.5 mm / 99 mm / 114.5 mm	

Description
<b>Load current 0.075 - 0.6 A</b>
Screw connection
Push-in connection
Screw connection
<b>Load current 0.18 A ... 2.4 A</b>
Screw connection
Push-in connection
Screw connection
<b>Load current 1.5 - 9 A</b>
Screw connection
Push-in connection
Screw connection
<b>Load current 0 - 9 A</b>
Screw connection
Screw connection

Ordering data		
Type	Order No.	Pcs. / Pkt.
ELR H5-IES-SC- 24DC/500AC-0,6	2900582	1
ELR H5-IES-PT- 24DC/500AC-0,6	2903902	1
ELR H5-IES-SC-230AC/500AC-0,6	2900692	1
ELR H5-IES-SC- 24DC/500AC-2	2900414	1
ELR H5-IES-PT- 24DC/500AC-2	2903904	1
ELR H5-IES-SC-230AC/500AC-2	2900420	1
ELR H5-IES-SC- 24DC/500AC-9	2900421	1
ELR H5-IES-PT- 24DC/500AC-9	2903906	1
ELR H5-IES-SC-230AC/500AC-9	2900422	1



Derating curve for ELR H5...24DC...



Derating curve for ELR H5...230AC...



Motor protection



Reversing function only



Technical data	
24 V DC 0.8 ... 1.25	230 V AC (50/60 Hz) 0.4 ... 1.1
40 mA 24 V DC 0.8 ... 1.25	4 mA 230 V AC 0.4 ... 1.1
5 mA Protection against polarity reversal, surge protection	7 mA Surge protection
Green LED / Yellow LED / Red LED	
42 V AC ... 550 V AC 100 A (t = 10 ms)	42 V AC ... 550 V AC 100 A (t = 10 ms)
Surge protection	
500 V 6 kV (safe isolation) -25 °C ... 70 °C 3 x 10 <sup>7</sup> cycles EN 60947 DIN EN 50178 Vertical (horizontal DIN rail) can be aligned with spacing: see derating 0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14 22.5 mm / 99 mm / 114.5 mm	

Technical data	
24 V DC 0.8 ... 1.25	230 V AC (50/60 Hz) 0.4 ... 1.1
40 mA 24 V DC 0.8 ... 1.25	4 mA 230 V AC 0.4 ... 1.1
5 mA Protection against polarity reversal, surge protection	7 mA Surge protection
Green LED / Yellow LED / Red LED	
42 V AC ... 550 V AC 100 A (t = 10 ms)	42 V AC ... 550 V AC 100 A (t = 10 ms)
Surge protection	
500 V 6 kV (safe isolation) -25 °C ... 70 °C 3 x 10 <sup>7</sup> cycles EN 60947 DIN EN 50178 Vertical (horizontal DIN rail) can be aligned with spacing: see derating 0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14 22.5 mm / 99 mm / 114.5 mm	

Ordering data		
Type	Order No.	Pcs. / Pkt.
ELR H5-I-SC- 24DC/500AC-0,6	2900573	1
ELR H5-I-PT- 24DC/500AC-0,6	2903908	1
ELR H5-I-SC-230AC/500AC-0,6	2900691	1
ELR H5-I-SC- 24DC/500AC-2	2900574	1
ELR H5-I-PT- 24DC/500AC-2	2903910	1
ELR H5-I-SC-230AC/500AC-2	2900575	1
ELR H5-I-SC- 24DC/500AC-9	2900576	1
ELR H5-I-PT- 24DC/500AC-9	2903912	1
ELR H5-I-SC-230AC/500AC-9	2900578	1
		1

Ordering data		
Type	Order No.	Pcs. / Pkt.
ELR H5-SC- 24DC/500AC-9	2900538	1
ELR H5-SC-230AC/500AC-9	2900539	1



## Hybrid motor starters

### Network-capable hybrid motor starters with direct start function

These 3-phase hybrid motor starters provide up to three functions: right contactor, motor protection relay, and emergency stop up to category 3.

They offer the following advantages:

- Connection to INTERFACE system (IFS) via TBUS
  - Connection to SmartWire-DT™ (SWD)
  - 22.5 mm wide
  - Reduction in wiring
  - Bi-metal function, adjustable up to 3 A
  - Long service life
  - Space-saving
  - 3-phase loop bridging
- Safety level according to:
- IEC 61508-1: SIL3
  - ISO 13849: PL e

Notes:
Type of housing: Polyamide PA non-reinforced, color: green.
Marking systems and mounting material See Catalog 5



new

Motor protection and SmartWire-DT™ support

Input data	
Rated control supply voltage $U_s$	24 V DC (according to IEC 60947-1)
Rated control supply voltage range with reference to $U_s$	0.8 ... 1.25
Rated control supply current $I_s$ at $U_s$	40 mA
Rated actuating voltage UC EN+	-
Rated actuating voltage range with reference to $U_c$	-
Rated actuating current $I_c$ at $U_c$	-
Input circuit	Protection against polarity reversal, surge protection
Operating voltage / status / error indicator	Green LED / Yellow LED / Red LED
Output data load side	
Output voltage range	42 V AC ... 550 V AC
Surge current	100 A (t = 10 ms)
Output protection	Surge protection
General data	
Rated insulation voltage	550 V
Rated surge voltage	6 kV (safe isolation)
Ambient temperature (operation)	-5 °C ... 55 °C
Electrical service life	3 x 10 <sup>7</sup> cycles
Standards/regulations	IEC 60947-1 / EN 60947-4-2 IEC 60947-1
Mounting position	Vertical (horizontal DIN rail)
Mounting	can be aligned with spacing: see derating
Screw connection solid / stranded / AWG	0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14
Dimensions	22.5 mm / 99 mm / 114.5 mm

### Technical data

Ordering data		
<b>Type</b>	<b>Order No.</b>	<b>Pcs. / Pkt.</b>
ELR H3-I-PT-SWD/500AC-06	2905076	1
ELR H3-I-PT-SWD/500AC-3	2905078	1
Accessories		
SWD4-8SF2-5 PXC	2903107	10

Description
<b>Load current 0.075 - 0.6 A</b> Screw connection Push-in connection
<b>Load current 0.18 A ... 3 A</b> Screw connection Push-in connection
<b>Device plug, 8-pos.</b>
<b>DIN rail connector</b>

Ordering data		
<b>Type</b>	<b>Order No.</b>	<b>Pcs. / Pkt.</b>
ELR H3-I-PT-SWD/500AC-06	2905076	1
ELR H3-I-PT-SWD/500AC-3	2905078	1
Accessories		
SWD4-8SF2-5 PXC	2903107	10



new



Motor protection, emergency stop, and INTERFACE system support



new



Motor protection and INTERFACE system support

Technical data
24 V DC 0.8 ... 1.25
40 mA 24 V DC 0.8 ... 1.25
5 mA Protection against polarity reversal, surge protection Green LED / Yellow LED / Red LED
42 V AC ... 550 V AC 100 A (t = 10 ms) Surge protection
550 V 6 kV (safe isolation) -5 °C ... 60 °C 3 x 10 <sup>7</sup> cycles IEC 60947-1 / EN 60947-4-2 / IEC 61508 / ISO 13849 IEC 60947-1 Vertical (horizontal DIN rail) can be aligned with spacing: see derating 0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14 22.5 mm / 99 mm / 114.5 mm

Technical data
24 V DC 0.8 ... 1.25
40 mA - -
- Protection against polarity reversal, surge protection Green LED / Yellow LED / Red LED
42 V AC ... 550 V AC 100 A (t = 10 ms) Surge protection
550 V 6 kV (safe isolation) -5 °C ... 60 °C 3 x 10 <sup>7</sup> cycles IEC 60947-1 / EN 60947-4-2 IEC 60947-1 Vertical (horizontal DIN rail) can be aligned with spacing: see derating 0.14 - 2.5 mm <sup>2</sup> / 0.14 - 2.5 mm <sup>2</sup> / 26 - 14 22.5 mm / 99 mm / 114.5 mm

Ordering data		
Type	Order No.	Pcs. / Pkt.
ELR H3-IES-SC/500AC-06-IFS	2905154	1
ELR H3-IES-PT/500AC-06-IFS	2905141	1
ELR H3-IES-SC/500AC-3-IFS	2905155	1
ELR H3-IES-PT/500AC-3-IFS	2905142	1

Ordering data		
Type	Order No.	Pcs. / Pkt.
ELR H3-I-SC/500AC-06-IFS	2905162	1
ELR H3-I-PT/500AC-06-IFS	2905148	1
ELR H3-I-SC/500AC-3-IFS	2905163	1
ELR H3-I-PT/500AC-3-IFS	2905149	1

Accessories		
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50

Accessories		
ME 22,5 TBUS 1,5/ 5-ST-3,81 GN	2707437	50