SmartWire-DT Catalog

Build machines and operate systems more efficiently
Build it in.

EATON

Powering Business Worldwide

Energizing a world that demands more.

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

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.

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.com

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Powering Business Worldwide

Reducing complexity for more compact, cost-optimised machines.

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 machine footprint.

SmartWire-DT is a unique wiring solution that streamlines connection and communications inside and outside control panels.

Machine 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 by up to 85%.

Build it in.

Simplify wiring. Reduce costs.

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, and optimizing machine maintenance and availability for the customer.

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 meet customer demand more easily.

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, and even 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.

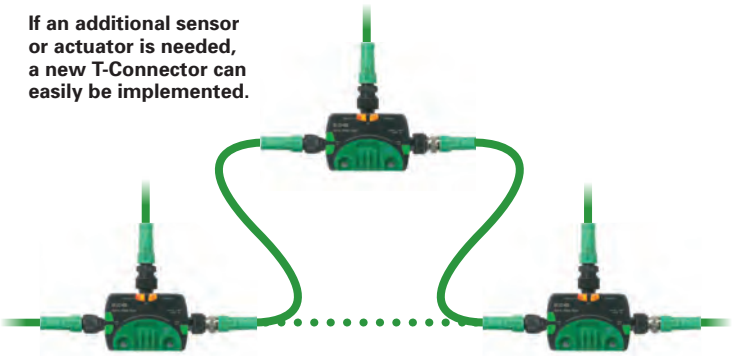
Compliant to industrial fieldbus standards

With industrial fieldbus gateways, SmartWire-DT can be connected to PLCs from any manufacturer and existing installations can be easily extended.

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.

If an additional sensor or actuator is needed, a new T-Connector can easily be implemented.



Build it in.

Optimized availability increases profitability

Compliant to all industrial fieldbus standards

Up to 99 devices installed along 600m

Intelligent devices at the heart of Industrie 4.0

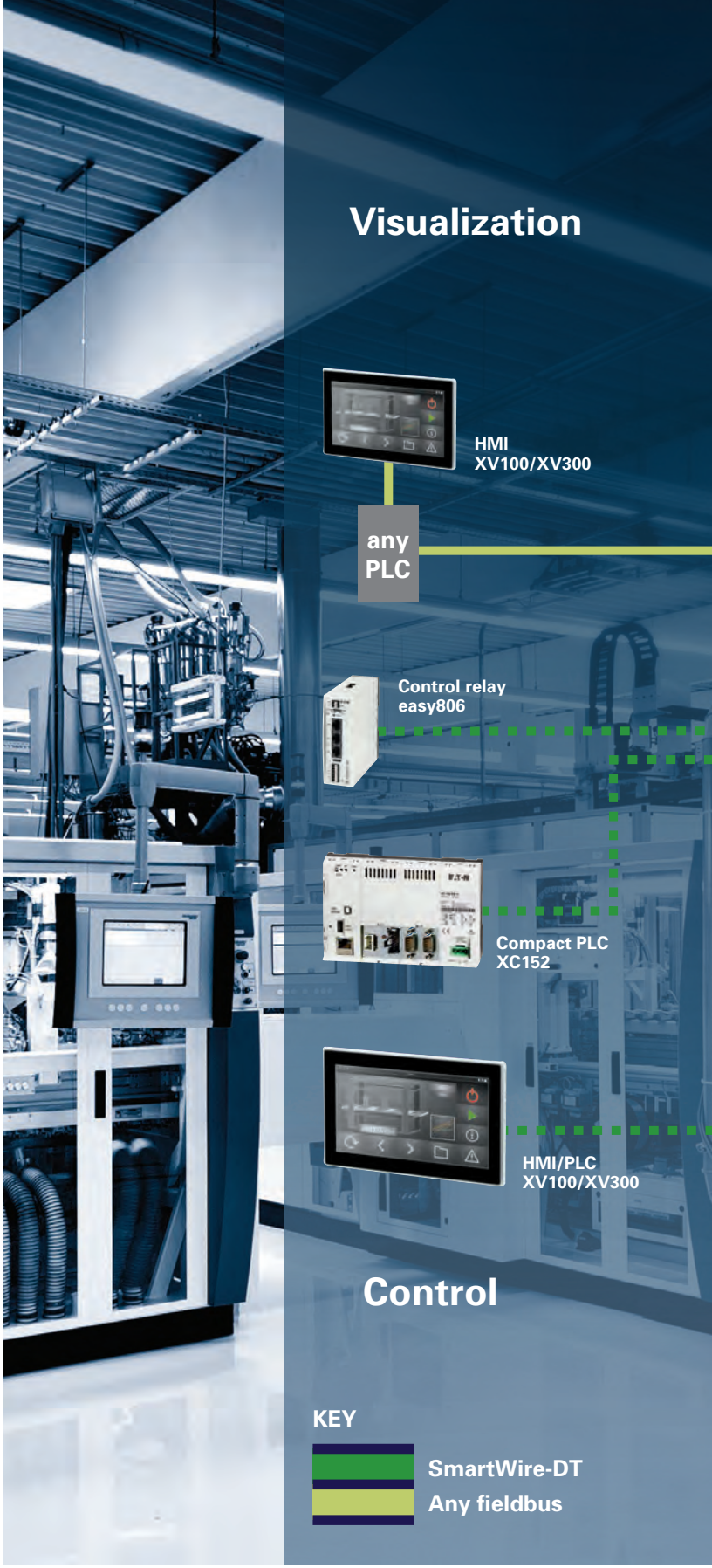
Intelligent devices and open communication standards are essential to solutions true to an Industry 4.0 vision. They have to be able to communicate with every controller within an open architecture while also controlling specific distributed processes independently.

With its SmartWire-DT platform and intelligent devices, Eaton brings the vision of Industry 4.0 to life. These intelligent devices help engineers to run their businesses on a lean, smart and efficient basis and take another step toward implementing complete Industry 4.0 solutions.

Intelligent Motor Control Centre with SmartWire-DT®

With motor control centers, SmartWire-DT replaces all control wiring in the corresponding withdrawable units. Mounting is simplified, wiring reduced and space saved. The information the MCC delivers with SmartWire-DT helps minimise system downtime.

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.

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.

Build it in.

Operate

Start a motor

Input/Output

SmartWire-DT gateway

Signal tower SL

Control circuit devices RMQ-Titan

Control circuit devices in surface mounting enclosure

Circuit breaker NZM

Module for NZM

Motor-protective circuit breaker PKE 65

Miniature circuit breaker FAZ

Residual current circuit breaker FRC

Variable frequency drive DC1, DA1

Variable speed starter DE1 / DE11

Soft starter DS7

Electronic motor starter EMS

Motor starter combination with PKE/PKZ

Inside the cabinet

IP20 modules, EU5E-SWD-...

Digital

Analog

Temperature

Outside the cabinet

IP67 modules, EU1E-SWD-... / EU2E-SWD-...

10 V; 20 mA

°C

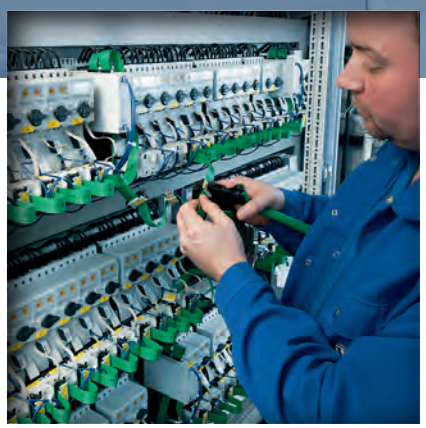
°C

Circuit Protection

Actuator

Valve

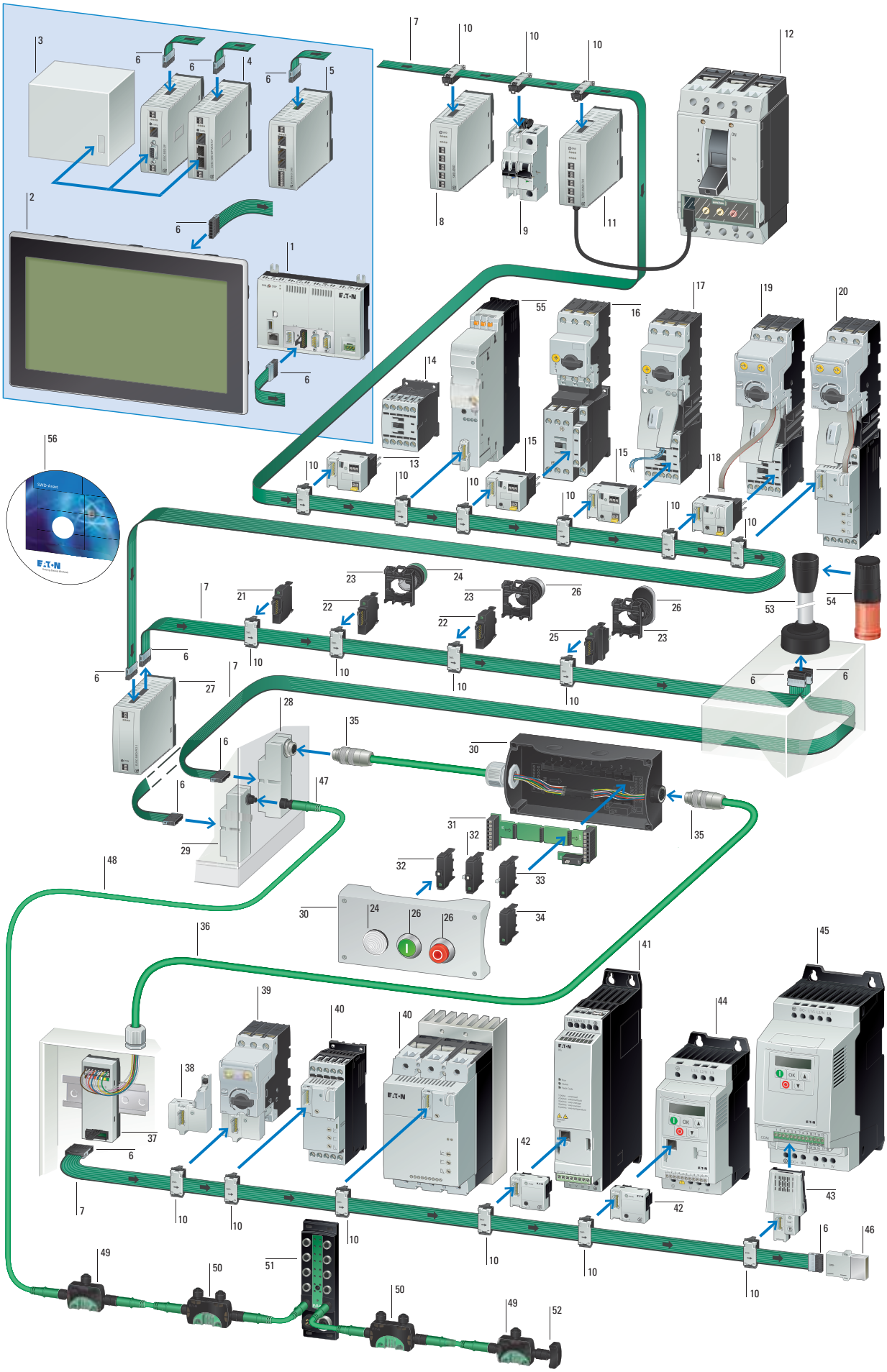
Valve



Electrical and Hydraulic

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

System overview



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

http://eaton.de/ecat http://www.eaton.eu/swd http://www.eaton.eu/swdproducts

Features

SmartWire-DT coordinators
Touch display
with SWD master and PLC function
3.5“ , 5.7“, 7“ , 10“ or 15“ TFT-LCD screen,
additional field bus interfaces, Ethernet, WEB server

Compact controller
with SWD master
additional fieldbus interfaces, Ethernet, WEB server

Control relay
with SWD master

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 modules

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

DS7 Soft starter with integrated SWD interface

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
- XNH fuse switch-disconnector

SmartWire-DT accessories

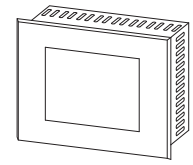
Several connection elements are necessary to ensure the SWD line function
- Power feeder module
- SWD cables
- SWD housing and switch cabinet bushings
- Plugs and plug-in connections
- Links
- Couplings, cable adapters
- Bus termination resistors
- Tools
- Programming accessories

Ordering

Touch display with integrated controller (HMI-PLC)

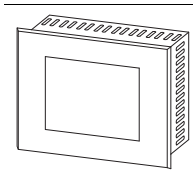
XV100
Windows CE 5.0 (licence incl.), Approvals: cUL (UL508)
Slots for SD card: 1
Resistive touch with TFT display, 64 k colors
Standard front with standard membrane (fully enclosed)

Insulating enclosure and front plate



Screen diagonal Inch	Resolution Pixel	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	Part no.	Article no.	Std. pack UL, CSA
3.5	QVGA 320 x 240	✓	-	-	✓	-	-	✓	XV-102-BE-35TQRC-10	153524	1 off
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



Screen diagonal Inch	Resolution Pixel	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	Part no.	Article no.	Std. pack UL, CSA
5.7	VGA 640 x 480	✓	✓	✓	✓	✓	-	✓	XV-152-E6-57TVRC-10	166700	1 off
		✓	✓	✓	✓	-	✓	✓	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	

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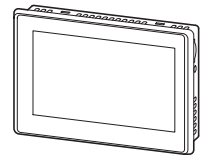
Multi-touch display with integrated controller (HMI-PLC)

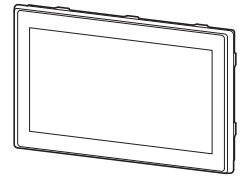
Windows Embedded Compact 7 Pro, Approvals: cUL 61010-2-201
Slots for SD card: 1
Resolution: WSVGA 1024 x 600 Pixel
PLC licence inclusive
Capacitive multi-touch technology (PCT), Number of colors: 16 million
Model: Plastic enclosure and glass panel in plastic frame

XV300 7"



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	Part no.	Article no.	Std. pack UL, CSA
✓	-	✓	✓	✓	✓	✓	-	✓	XV-303-70-BE0-A00-1C	179655	1 off
-	✓	✓	✓	✓	✓	✓	-	✓	XV-303-70-CE0-A00-1C	179656	
✓	-	✓	✓	✓	✓	✓	✓	✓	XV-303-70-BE2-A00-1C	179657	
-	✓	✓	✓	✓	✓	✓	✓	✓	XV-303-70-CE2-A00-1C	179658	

XV300 10.1"



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	Part no.	Article no.	Std. pack UL, CSA
✓	-	✓	✓	✓	✓	✓	-	✓	XV-303-10-BE0-A00-1C	179667	1 off
-	✓	✓	✓	✓	✓	✓	-	✓	XV-303-10-CE0-A00-1C	179668	
✓	-	✓	✓	✓	✓	✓	✓	✓	XV-303-10-BE2-A00-1C	179669	
-	✓	✓	✓	✓	✓	✓	✓	✓	XV-303-10-CE2-A00-1C	179670	

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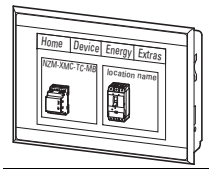
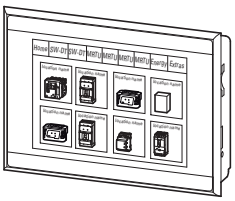
	Description	Part no.	Article no.	Std. pack UL, CSA
pre-programmed solution				
BreakerVisu				
	Visualize and log circuit-breaker and/or measuring device data Read diagnostic memories Create energy logs Connect NZM using NZM-XSWD-704 Connect all NZM…-XMC-MB… measuring modules and NZM-XMC-TC-MB Connection 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 SmartWire-DT 3.5 Inch Color display, TFT	**NZM-XMC-MDISP35-SWD**	172765	1 off
	Max. 32 devices via MODBUS RTU and/or max. 16 devices via SmartWire-DT 7 Inch Color display, TFT	**NZM-XMC-MDISP70**	172766	1 off

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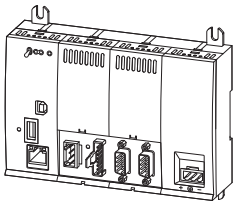
XC compact PLCs

24 V DC power supply
Slot 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
Cycle time for 1 k of instructions (Bit, Byte) 0.04 ms

	Built-in interfaces							Part no.	Article no.	Std. pack UL, CSA
	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-152-E3-11**	167850	1 off
	✓	-	✓	✓	✓	-	✓	**XC-152-E6-11**	167851	
	✓	-	✓	✓	-	✓	✓	**XC-152-E8-11**	167852	

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easy800 control relay

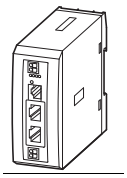
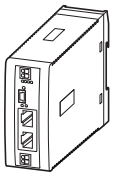
Combines the functionality of an easy800 with direct connection to SmartWire-DT communication system
Up to 99 SmartWire-DT modules with a total of up to 166 digital inputs/outputs and/or up to 128 analog inputs/outputs can be connected via a SmartWire-DT line
Supply voltage 24 V DC

	Inputs			Outputs		Real time clock	Part no.	Article no.	Std. pack UL, CSA
	Digital	Of which can be used as outputs	SmartWire-DT	Transistor	SmartWire-DT				
	-	-	83	-	83	✓	**EASY802-DC-SWD**	152901	1 off
	4	2	83	2	83	✓	**EASY806-DC-SWD**	152902	1 off

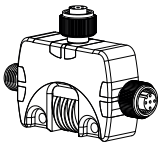
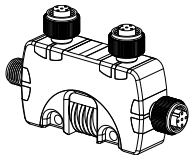
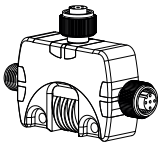
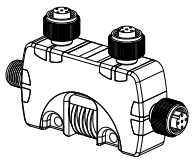
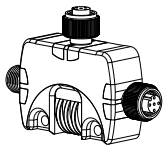
www.eaton.eu/easy

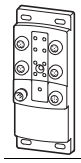
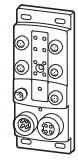
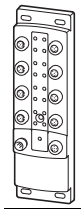
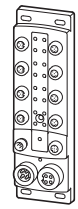
Gateways

Used to connect the SmartWire-DT communication system to industrial field bus systems
Powers SmartWire-DT modules and switchgear

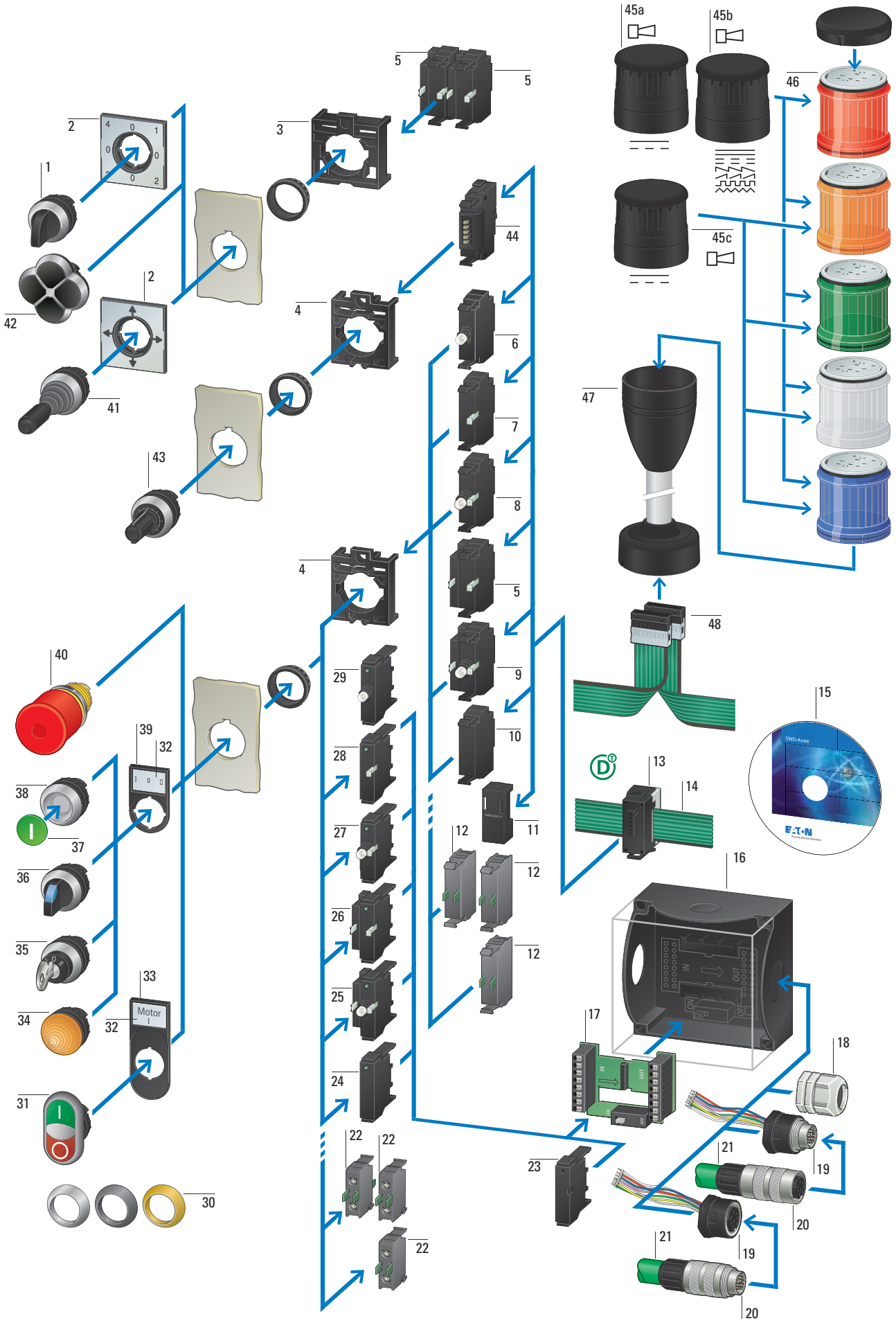
		Baud Rates	Number of SmartWire-DT slaves	**Part no.**	Article no.	Std. pack UL, CSA
	For connection to CANopen® field bus Field bus connection via 9 pole SUB-D plug Separate RS232 diagnostics interface (RJ45)	up to 1 MBit/s	Max. 99	**EU5C-SWD-CAN**	116307	1 off
	For connection to PROFIBUS-DP field bus Field bus connection via 9 pole SUB-D socket Separate RS232 diagnostics interface (RJ45)	up to 12 MBit/s	Max. 58	**EU5C-SWD-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	
	For connection to an SERCOS III fieldbus as a slave Field bus connection via Ethernet Switch Separate USB diagnostics interface (Mini-USB)	100 MBit/s	Max. 99	**EU5C-SWD-SERCOS**	184982	

		Inputs Digital	Inputs Analog	Outputs Relay	Outputs Transistor	Outputs Analog	Part no.	Article no.	Std. pack UL, CSA
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	1 off
	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	Inputs Analog	Outputs Transistor	Outputs Analog	Part no.	Article no.	Std. pack UL, CSA
Input/output modules (IP67) T-Connector								
Digital modules IP67 For connection of digital I/O signals								
	-	1	-	-	-	EU1E-SWD-1DX	174710	1 off
	-	2	-	-	-	EU1E-SWD-2DX	174711	
	Freely configurable inputs/outputs, max. 2 The outputs are short-circuit proof.	≤ 2	-	≤ 2	-	EU1E-SWD-2DD	174715	
	-	2	-	-	-	EU2E-SWD-2DX	174725	
	-	4	-	-	-	EU2E-SWD-4DX	174726	
	Freely configurable inputs/outputs, max. 2 The outputs are short-circuit proof.	≤ 2	-	≤ 2	-	EU2E-SWD-2DD	174730	
	Freely configurable inputs/outputs, max. 4 The outputs are short-circuit proof.	≤ 4	-	≤ 4	-	EU2E-SWD-4DD	174732	
	Freely configurable inputs/outputs, max. 4 The outputs are short-circuit proof. Plug configuration (X1: 1 I/O, X2: 3 I/O)	≤ 4	-	≤ 4	-	EU2E-SWD-4DD-1	180406	
Analog modules IP67 For connection of analog I/O signals								
	Input: 0 - 10 V	-	1	-	-	EU1E-SWD-1AX-1	174717	1 off
	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	-	2	-	-	EU2E-SWD-2PT	174733	
Counter module IP67 For connecting a counter								
	Counter/incremental encoder 24 V DC, max. 30 kHz	-	-	-	-	EU1E-SWD-1CX	174721	1 off

	Short Description	Output current	Inputs Digital	Outputs Transistor	**Part no.**	Article no.	Std. pack UL, CSA
Input/output modules (IP67) Block module							
Digital modules IP67 For connection of digital I/O signals							
	-	-	4	-	**EU6E-SWD-4DX**	174735	1 off
	-	-	8	-	**EU6E-SWD-8DX**	174736	
	Freely configurable inputs/outputs, max. 8 The outputs are short-circuit proof.	0.5 A	≤ 8	≤ 8	**EU6E-SWD-8DD**	174742	
	With supply	0.5 A	2	2	**EU6E-SWD-2D2D-1**	183264	
		0.5 A	4	4	**EU6E-SWD-4D4D-1**	183266	
		0.5 A	-	4	**EU6E-SWD-4XD-1**	183268	
		0.5 A	-	8	**EU6E-SWD-8XD-1**	183270	
		2 A	2	2	**EU6E-SWD-2D2D-2**	183265	
		2 A	4	4	**EU6E-SWD-4D4D-2**	183267	
		2 A	-	4	**EU6E-SWD-4XD-2**	183269	
	-	-	16	-	**EU8E-SWD-16DX**	174744	
	Freely configurable inputs/outputs, max. 16 The outputs are short-circuit proof.	0.5 A	≤ 16	≤ 16	**EU8E-SWD-16DD**	174750	
	With supply	0.5 A	4	4	**EU8E-SWD-4D4D-1**	183272	
		0.5 A	8	8	**EU8E-SWD-8D8D-1**	183273	
		0.5 A	-	8	**EU8E-SWD-8XD-1**	183274	
		0.5 A	-	16	**EU8E-SWD-16XD-1**	183271	

System overview



1 RMQ-Titan, 4-way selector switch actuator

2 RMQ-Titan, label with label mount for 4-way selector switch actuator and joystick

3 SWD front mounting adapter for 2 × M22-SWD-K22

4 RMQ-Silver, front mounting adapter with three mounting locations

5 SWD function element with 3 positions and LED for front mounting

6 SWD LED element for front mounting

7 SWD function element with 2 positions for front mounting

8 SWD function element with 2 positions and LED for front mounting

9 SWD function element with 3 positions and LED for front mounting

10 Universal module for front mounting

11 Link for SWD external device plug

12 RMQ-Titan, M22 contact elements for front mounting

13 SWD external device plug

14 SWD ribbon cable

15 SWD-Assist, planning and ordering tool

16 RMQ-Titan, surface mounting enclosure

17 SWD circuit board for surface mounting enclosure cable gland for SWD round cable

18 Cable gland for SWD round cable

19 SWD bulkhead interface/socket with assembled signal cables

20 SWD socket/plug for round cable

21 SWD round cable, 8 pole

22 RMQ-Titan, M22 contact elements for base fixing

23 Link for SWD circuit card

24 Universal module for base fixing

25 SWD function element with 3 positions and LED for base fixing

26 SWD function element with 3 positions for base fixing

27 SWD function element with 2 positions and LED for base fixing

28 SWD function element with 2 positions for base fixing

29 SWD LED element for base fixing

30 RMQ-Titan, bezels

31 RMQ-Titan, double actuator pushbutton

32 RMQ-Titan, insert labels

33 RMQ-Titan, Label mount for double actuator pushbuttons

34 RMQ-Titan, indicator light

35 RMQ-Titan, key-operated button

36 RMQ-Titan, selector switch actuators

37 RMQ-Titan, button plates/button lenses

38 RMQ-Titan, pushbuttons

39 RMQ-Titan, label mounts

40 RMQ-Titan, emergency-stop button (for safety circuits use only M22 standard contacts)

41 RMQ-Titan, joystick

42 RMQ-Titan, 4-way position switch

43 RMQ-Titan, potentiometer/encoder

44 Function element for potentiometer/encoder

45 Acoustic modules signal tower

46 Illumination modules signal tower

47 SWD interface module for signal tower

48 SWD ribbon cable with blade terminal

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Features

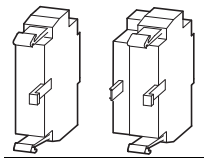
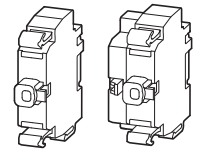
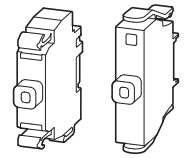
SWD RMQ connection for front mount
- Adaptation with standard adapter M22-A or M22-SWD-A4 for 4-way selector switch/pushbutton and joystick.
- Combination with standard pilot devices of the RMQ-Titan M22 series.
- Types with one or two change-over contacts and with/without integrated LED element.
- LED elements in four colors.
- Function elements for connecting to potentiometer / encoder
- SWD diagnostics LED for signaling the communication status of the function element.
- Connection to SWD ribbon cable line with external device plug.

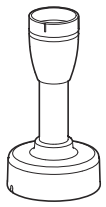
SWD RMQ connection for base fixing
- For use with SWD card, RMQ-Titan surface mounting enclosure and RMQ-Titan M22 pilot devices.
- Types with one or two change-over contacts and with/without integrated LED element.
- LED elements in four colors.
- SWD diagnostics LED to signal the communication status of the function element

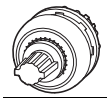
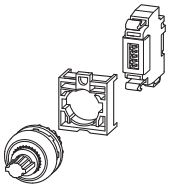
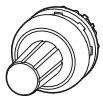
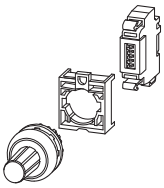
SWD card for function elements
- Connecting SWD function elements for base fixing
- Type with 1, 2, 3, 4 and 6 slots.
- Bridging of free slots with links for base fixing.
- Integrated connectible bus termination resistor
- Connection to 8 pole SWD round cable via terminals or plug-in with enclosure bushing

SWD connection - base module for signal tower SL4/SL7
- Connection to SWD ribbon cable line with blade terminal.
- Actuation of up to 5 signal modules.
- 24 V DC supply of the signal modules via SWD ribbon cable or separately.

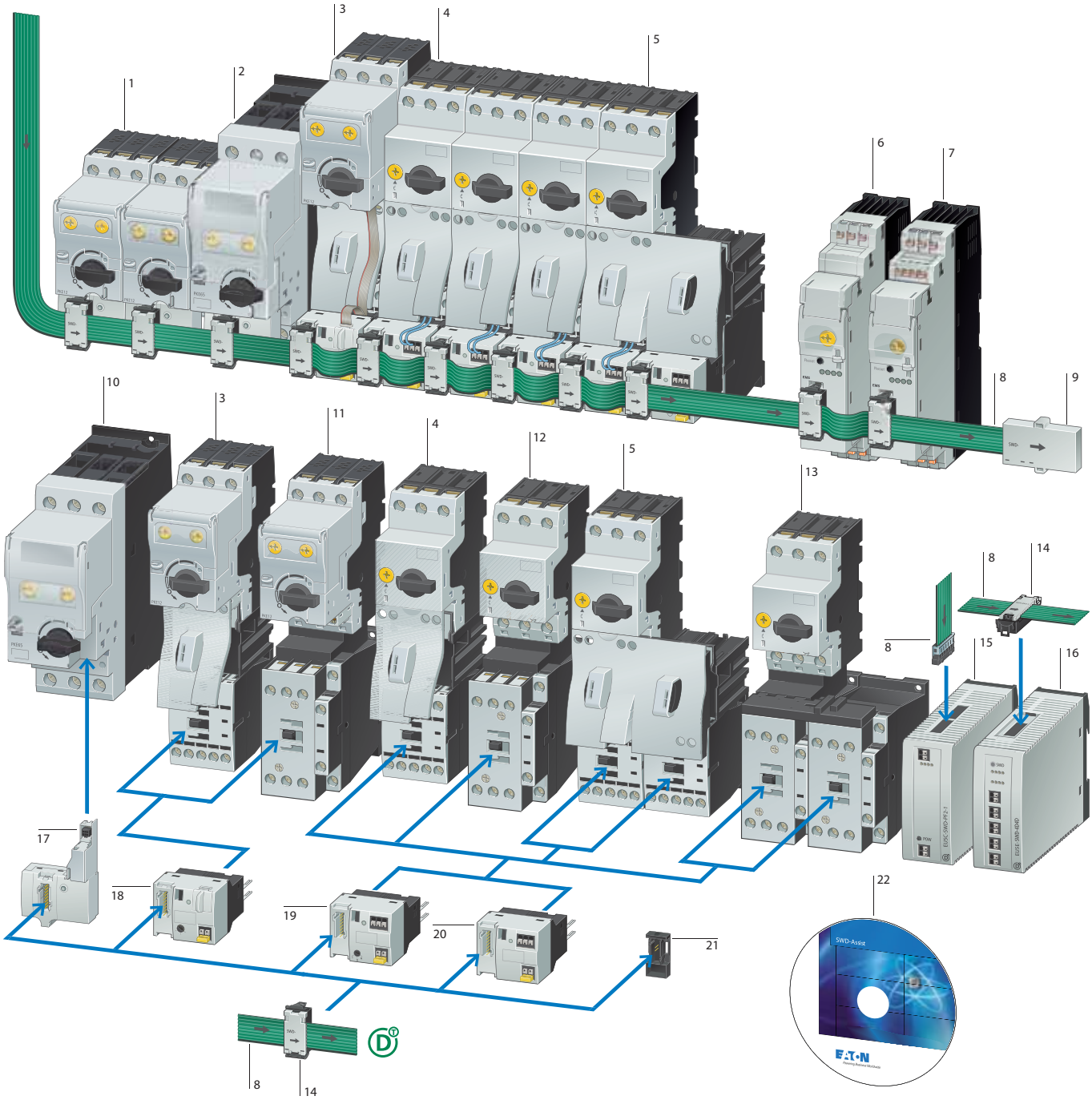
Ordering

	Contacts	Color	Front fixing Part no.	Article no.	Base fixing Part no.	Article no.	Std. pack UL, CSA
RMQ connections							
For combination with RMQ-Titan operating elements M22-...							
Function elements							
	1 changeover contact	-	**M22-SWD-K11**	115964	**M22-SWD-KC11**	115995	20 off
	2 changeover contact	-	**M22-SWD-K22**	115965	**M22-SWD-KC22**	115996	10 off
	1 changeover contact	○	**M22-SWD-K11LED-W**	115972	**M22-SWD-K11LEDC-W**	116003	20 off
		●	**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	10 off
		●	**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	20 off
	-	●	**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.	Std. pack UL, CSA
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 External power supply connectable (24 V DC) Configurable with SWD-Assist (planning and ordering tool) Further technical data, see manual MN05006001Z.	100 mm	SL4-L-... SL4-BL-... SL4-FL-... SL4-AP-...	**SL4-SWD**	171311	1 off
		100 mm	SL7-L-... SL7-BL-... SL7-FL-... SL7-AP-...	**SL7-SWD**	171459	

	Description	Part no.	Article no.	Std. pack UL, CSA
Potentiometer				
	Front element SmartWire-DT potentiometer Only in conjunction with M22-SWD-R function element	**M22-R-SWD**	179292	1 off
	Function element SmartWire-DT potentiometer Only in conjunction with M22-R-SWD front element	**M22-SWD-R** **M22-R-SWD-R**	179293	
	Standard pack for hanging Complete practical solution Can be ordered using a single article no	**M22-R-SWD-R**	179294	
Encoder				
	Front element SmartWire-DT encoder With actuation function Only in conjunction with M22-SWD-INC function element	**M22-INC-SWD**	179981	1 off
	Function element SmartWire-DT encoder Only in conjunction with M22-INC-SWD front element	**M22-SWD-INC**	179982	
	Standard pack for hanging Complete practical solution Can be ordered using a single article no	**M22-INC-SWD-INC**	179983	

System overview



1 Network-capable motor-protective circuit-breaker PKE 12/PKE 32 with trip block PKE-XTUA-... up to 15 kW

2 Network-capable PKE65 motor-protective circuit-breaker with PKE-XTUA-... trip block up to 30 kW

3 Network-capable motor starter MSC-DEA based on PKE up to 5.5 kW

4 MSC-D direct-on-line starter based on PKZM0 up to 5.5 kW

5 Reversing starter MSC-R based on PKZM0 up to 5.5 kW

6 Electronic motor starter EMS up to 3 kW

7 Electronic motor starter EMS up to 3 kW for controlled stop

8 SWD ribbon cable, 8 pole

9 SWD bus termination resistor for SWD ribbon cable, 8 pole

10 Network-capable PKE circuit-breaker to protect wires and cables

11 Network-capable motor starter MSC-DEA based on PKE up to 15 kW

12 Direct-on-line starter MSC-D based on PKZM0 up to 15 kW

13 Reversing starter MSC-R based on PKZM0 up to 15 kW

14 SWD external device plug, 8 pole

15 SWD power feeder modules

16 SWD I/O module with relay outputs

17 SWD module for PKE circuit-breaker

18 SWD module for PKE motor-starter combinations

19 SWD contactor module with manual 0 automatic switch

20 SWD contactor module

21 link for external device plug

22 SmartWire-DT planning and ordering tool (SWD-Assist)

Features

SWD contactor modules
- Suitable for contactors DILM7(24VDC)…DILM38(RDC24), DILMC7(24VDC)…DILMC32(RDC24), DILA, DILMP20(24VDC)…DILMP45(RDC24)
- Use of the standard accessories in the xStart series
- Suitable for contactor combinations with PKZ or with Z overloads
- Integrated switch position polling
- Integrated mechanical switch position indication
- Contactor actuation
- SWD diagnostics LED for signaling communication status and signaling the switch command via SWD
- Two independently fed digital inputs for scanning potentially isolated contacts, such as motor protective circuit-breaker auxiliary contacts.
- Connection to the SWD ribbon cable via external device plug

SWD input/output modules
- Digital module with four 24 V DC digital inputs and two relay outputs for actuating DILM40...DILM72 contactors.
- Connection to the SWD via external device plug.

Safety technology for SWD contactor modules and SWD PKE module (motor starter)
Controlled stop switch off as per IEC/EN 954-1, switching category 3; EN ISO 13849-1 PL d; IEC 62061 SIL 2.
Switching off control voltage centrally at the gateway or power feeder module
Can be combined with safety-oriented switchgear.

Power feeder module
- SWD supply voltage incoming unit.
- 24 V DC supply voltage incoming unit for activation of the contactors.
- Assembly of controlled stop groups.

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SWD PKE module (motor starter)
- Suitable for motor starters MSC-DEA-…(24 V DC) or DILM(C)7 -DILM(C)32 in combination with PKE12/32 and trip block PKE-XTUA-…
- Use of the standard accessories in the xStart series
- Integrated mechanical switch position indication of the contactor state
- Integrated switch position polling
- Integrated mechanical switch position indication
- Transmission of PKE-specific data (PKE contactor state, relative motor current, thermal motor image, trip indications (overload, short-circuit,…), type PKE trip block, set value overload release and time-lag class).
- Communication cable (PKE32-COM) for connection to PKE trip block included as standard.
- Contactor actuation
- Selectable overload relay function (switches off the contactor in the event of an overload)
- SWD diagnostics LED to signal the communication status of the module and to signal the switching command via SWD
- Hand/Auto functionality for automatic or manual switching-on of the connected contactor.
- Connection to the SWD ribbon cable via external device plug

SWD PKE module (motor-protective circuit-breaker)
- Can be fitted to PKE12, PKE32, PKE65 motor-protective circuit-breaker with PKE-XTUA-... trip block
- Use of standard accessories for PKE motor-protective circuit-breaker
- Transmission of PKE-specific data (switch position PKE, relative motor current, thermal motor image, trip indications (overload, short-circuit,…), type PKE trip block, set value overload release and time-lag class)
- Remote tripping of PKE motor-protective circuit-breaker
- SWD diagnostics LED for signaling of the communication status
- Connection to the SWD ribbon cable via external device plug

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SWD PKE module (circuit-breaker)
- Can be fitted to PKE32, PKE65 motor-protective circuit-breaker with PKE-XTUACP-... trip block.
- Use of standard PKE accessories
- Transmission of PKE specific data: PKE contactor state, relative phase current (L1 ...L3), thermal pattern, trip indications (overload, short-circuit, ...) trip block type, value set for overload trip and shortcircuit release
- Remote tripping of PKE motor-protective circuitbreaker
- SWD diagnostics LED for signaling of the communication status
- Connection to SWD flat band conductor via external device plug.

Electronic motor starter EMS with SWD
- Motor direct start
- Motor reverse start
- Motor protection
- Useable up to 3 kW rated motor output
- Transmission of EMS specific data: operating direction, relative motor current, absolute motor current, thermal motor pattern, tripped messages (overload, phase failure, ...), device type, value set for overload trip
- Overload pre-warning
- Remote reset after overload trip
- Remote configuration of the set motor current
- SWD diagnostics LED for signaling of the communication status
- Connection to the SWD ribbon cable via external device plug

Electronic EMS motor starter for controlled stop with SWD
- Motor direct start
- Motor reverse start
- Motor protection
- Controlled stop via additional terminal up to SIL3/PLe.
- Useable up to 3kW rated motor output
- Transmission of EMS specific data: operating direction, relative motor current, absolute motor current, thermal motor pattern, tripped messages (overload, phase failure, ...), device type, value set for overload trip
- Overload pre-warning
- Remote reset after overload trip
- SWD diagnostics LED for signaling of the communication status
- Connection to the SWD ribbon cable via external device plug

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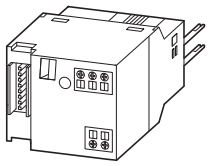
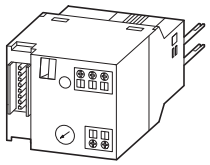
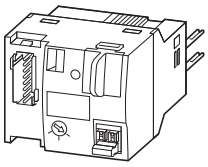
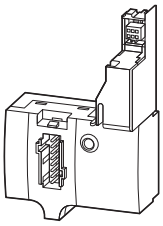
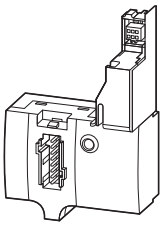
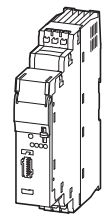
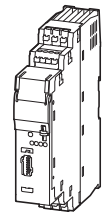
Ordering

	Description	For use with	Part no. Article no.	Std. pack UL, CSA
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	5 off
	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	5 off
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 fir 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. 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	4 off
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	1 off
PKE module (circuit-breaker)				
For connecting the PKE circuit-breaker with PKE-XTU(W)ACP-... trip blocks to SmartWire-DT				
	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 **Commands** Part no. of trip block Remote circuit-breaker de-energization	PKE32 PKE65	**PKE-SWD-CP** 172735	1 off

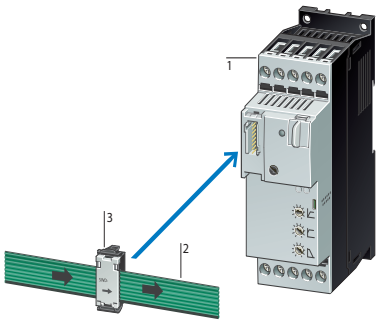
Notes

1) 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.

2) Connection terminals for electrical interlocking are not suitable for safety technology.

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

System overview



1 Soft Starter DS7

2 SWD ribbon cable, 8 pole

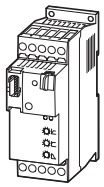
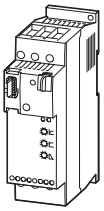
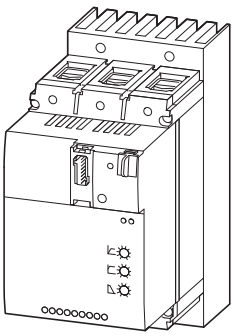
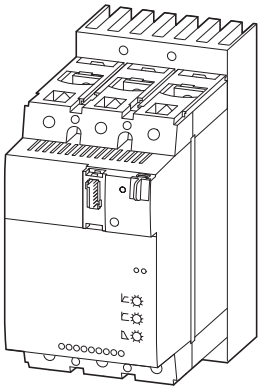
3 SWD external device plug, 8 pole

The DS7-…-D soft starters are designed for connection to SmartWire-DT. These two-phase-controlled soft starters control three-phase motors for applications with normal operating frequency in the performance range from 4 to 200 A (1.5 to 110 kW at 400 V mains voltage). Due to Eaton's special control method the true run behavior of a DS7 can be compared with that of three-phase soft starters.

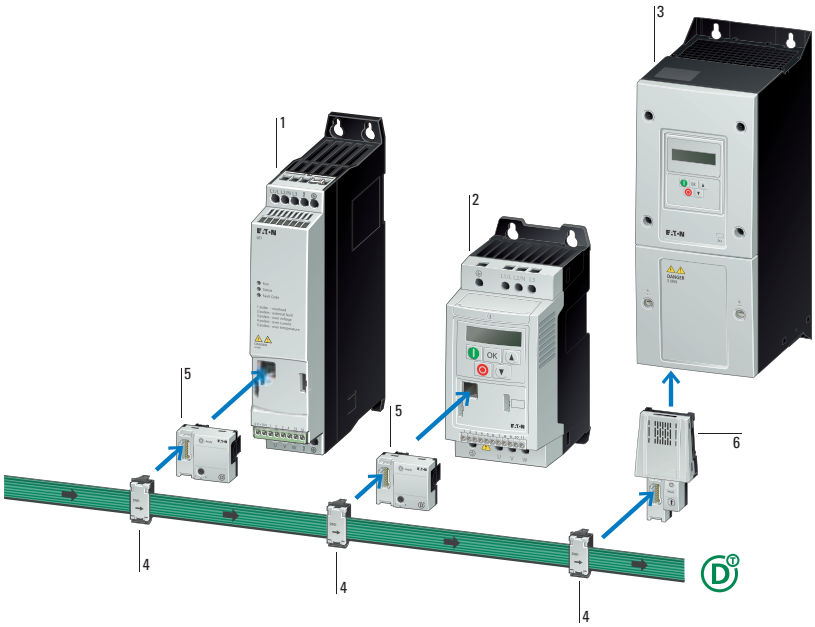
SmartWire-DT provides a direct connection to the DS7, without control signal wiring. Through SmartWire-Darwin the PLC transmits all control signals directly to the soft starter. The device data are available for processing in the master control system without additional configuration. The connection with SmartWire-DT is fast, easy, inexpensive and convenient.

www.eaton.eu/ds7

Ordering

	Rated operational current of the soft starter I_e A	Assigned motor rating at 400 V, 50 Hz P kW	Assigned motor rating at 460 V, 60 Hz P HP	**Part no.** Article no.	Std. pack UL, CSA
Soft starters					
Soft starters for three-phase loads, mains supply voltage 230 – 480 V AC (50/60 Hz) Rated control circuit voltage U_c: 24 V DC SmartWire-DT					
	4	1.5	2	**DS7-34DSX004N0-D** 134943	1 off
	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	

System overview



1 Power XL DE1 variable speed starter

2 Power XL DC1 variable frequency drive

3 Power XL DA1 variable frequency drive

4 SWD external device plug, 8 pole

5 SWD function element for DC1 variable frequency drive,
DE1 Variable speed starter

6 SWD function element for DA1 variable frequency drive

PowerXL DE1 variable speed starter

The PowerXL DE1 variable speed starter offers simple handling and highest reliability while at the same time variable motor speed and improved energy efficiency of the machine. This new device class closes the loop between conventional motor starters and variable frequency drives.

- Performance range 0.25 -7.5 kW
- Connection to SmartWire-DT via SWD module DX-NET-SWD3

PowerXL DC1 variable frequency drive, Compact Machinery Drive

The compact PowerXL DC1 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 - 11 kW
- Connection to SmartWire-DT via SWD module DX-NET-SWD3

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.

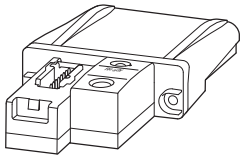
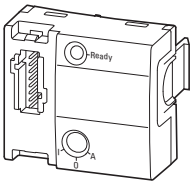
- Performance range 0.75 - 250 kW
- Connection to SmartWire DT via SWD module DX-NET-SWD1

SWD modules DX-NET, for connecting to variable speed starter and variable frequency drive

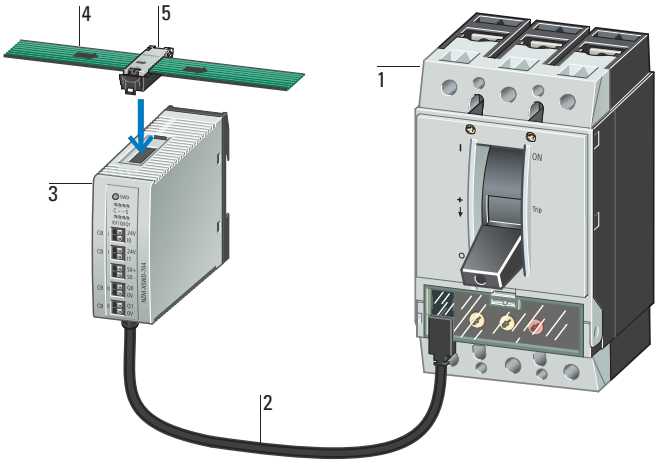
- Reading and writing cyclic and acyclic data
- Complete command volume for controlling the variable frequency drive
- Complete command volume for configuring the variable frequency drive
- Complete access to status, error and diagnostic messages
- Fast and fault-free wiring with plug-in units

www.eaton.eu/powerxl

Ordering

	Connection technique	For use with	Part no.	Article no.	Std. pack UL, CSA
SWD function elements					
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	1 off
	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	1 off

System overview



1	NZM circuit-breaker
2	Connection cable
3	SWD interface for NZM
4	SWD ribbon cable, 8 pole
5	SWD external device plug, 8 pole

SWD module to connect to NZM2/3/4 circuit-breaker

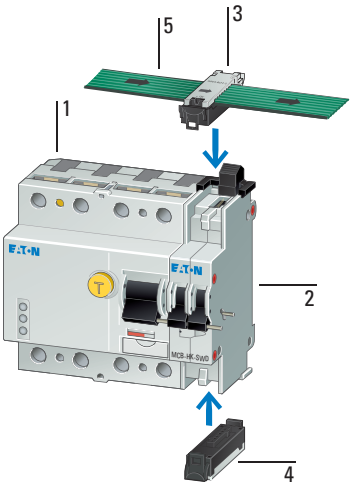
Status data NZM: ON/OFF/TRIPPED
- Status data of the circuit-breaker
- Load warnings
- Reason for last trip
- Actual current values
- Switch type
- Actual settings of the rotary coding switches

www.eaton.eu/nzm

Ordering

	Description	Part no. Article no.	Std. pack UL, CSA
	SWD function element		
	SmartWire-DT interface for NZM The module implements the data connection between the NZM2/3/4 with electronic release and 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	1 off

System overview



1 Residual current circuit-breakers

2 Fuse auxiliary contact

3 SWD external device plug, 8 pole

4 Covering cap

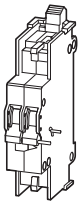
5 SWD ribbon cable, 8 pole

SWD module for circuit-breakers and residual current circuit-breakers

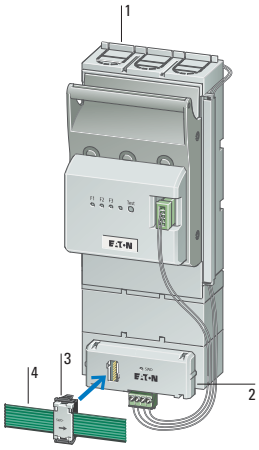
The SmartWire-DT auxiliary contact module makes it possible to easily connect a circuit-breaker, fault current switch or combination protective switch to the SmartWire -DT line using plug-in connection and to in this way easily and quickly integrate the protective switching devices. This makes the I/O level redundant and at the same time the information is implemented in the controllers and the drives. With the SmartWire-DT auxiliary contact, the states ON, OFF and triggered (as a result of a fault) can be transmitted.

www.eaton.eu/cp

Ordering

	Short Description	Side mounting	**Part no.** Article no.	Std. pack UL, CSA
SmartWire-DT function element for miniature circuit-breaker, residual current circuit-breaker, or residual current operated circuit-breaker with overcurrent protection				
SmartWire-DT module for XEffect protective switchgear				
	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	1 off

System overview



1 XNH fuse switch-disconnector

2 SWD module for XNH

3 SWD external device plug, 8 pole

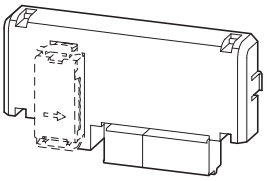
4 SWD ribbon cable, 8 pole

SWD module for XNH fuse switch-disconnector

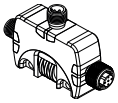
The XNH-SWD... SmartWire-DT module makes it easy to integrate XNH switch-disconnectors into the SmartWire-DT communication system.
It transmits both the corresponding switch position indication state and the trip indication.
There is a second version to which current transformers can be connected as well, making it possible to transmit the three-phase currents too.

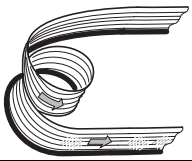
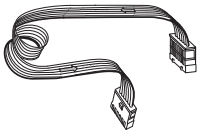
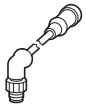
www.eaton.eu/xnh

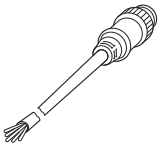
Ordering

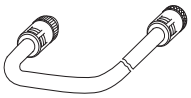
	Description	For use with	**Part no.** Article no.	Std. pack UL, CSA
SmartWire-DT function element for XNH fuse switch-disconnector				
Only in conjunction with FCE fuse monitoring				
	Basic module with 2 digital inputs for XNH Contact plug, 4 pole (included as standard)	XNH00-FCE-… XNH1-FCE-… XNH2-FCE-… XNH3-FCE-…	**XNH-SWD-2DX-1** 183089	1 off
	High-performance module with 2 digital and 3 analog inputs Contact plug, 4 pole + 6 pole (included as standard)	XNH00-FCE-… XNH1-FCE-… XNH2-FCE-… XNH3-FCE-…	**XNH-SWD-2DX-3AX-1** 183090	1 off
Wiring set, consisting of basic module, prefabricated cables, and additional connection area cover				
	Mounting on XNH switch-disconnectors	XNH00-FCE-…	**XNH00-SWD-KIT** 183083	1 off
		XNH1-FCE-…	**XNH1-SWD-KIT** 183084	1 off
		XNH2-FCE-…	**XNH2-SWD-KIT** 183085	1 off
		XNH3-FCE-…	**XNH3-SWD-KIT** 183086	1 off
	Fitting on mounting plate	XNH00-FCE-…	**XNH00-SWD-KIT-EXT** 183087	1 off
		XNH1-FCE-… XNH2-FCE-… XNH3-FCE-…	**XNH123-SWD-KIT-EXT** 183088	1 off

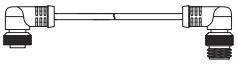
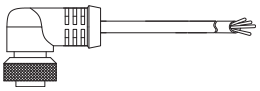
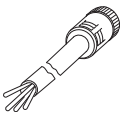
Ordering

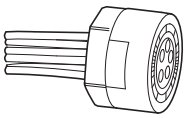
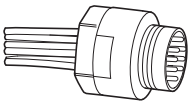
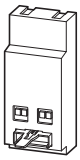
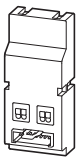
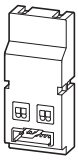
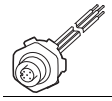
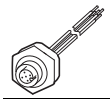
	Description	**Part no.** Article no.	Std. pack UL, CSA
Power feeder module			
	For feeding control voltage in order to connect additional motor starters and contactors to the SmartWire-DT ribbon cable For the formation of emergency switching off groups for motor starters and contactors	**EU5C-SWD-PF1-1** 116309	1 off
	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	1 off
	For feeding supply voltage in order to connect additional SmartWire-DT modules (IP 67) and connected sensors/actuators	**EU1S-SWD-PF1-2** 174724	1 off

	Description	Protection type (IEC/EN 60529, EN50178, VBG 4)	Length m	**Part no.** Article no.	Std. pack UL, CSA
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	1 off
	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	1 off
		IP67	250	**SWD4-250LR8-24** 144878	
SWD round cable M12 For connecting peripheral SmartWire-DT cards					
	5 pole not ready-assembled	IP67	250	**SWD4-250LR5** 187457	1 off
SWD round cable M12 For connecting peripheral SmartWire-DT cards					
	5 pole prefabricated with M12 socket and M12 plug, A-keyed	IP67	0.1	**SWD4-M1LR5-2S** 174760	1 off
		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	
SWD round cable M12 For directly connecting sensors/actuators to IP67 SWD modules					
	5 pole Prefabricated with right-angle M12 plug and straight M12 socket, A-keyed	IP67	0.1	**SWD4-M1LR5-RS** 183155	1 off
	5 pole Prefabricated with straight M12 plug and right-angle M12 socket, A-keyed	IP67	0.1	**SWD4-M1LR5-SR** 183144	1 off

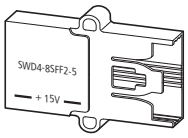
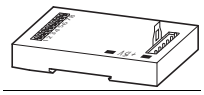
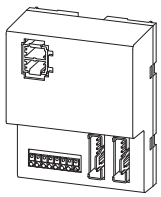
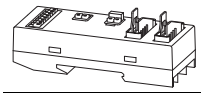
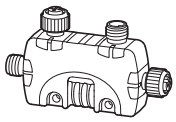
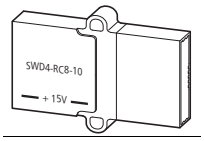
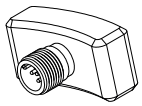
	Description	Protection type (IEC/EN 60529, EN50178, VBG 4)	Length m	**Part no.** Article no.	Std. pack UL, CSA
SWD Connection cables					
I/O round cable M12 For directly connecting sensors/actuators to IP67 SWD modules					
	5 pole prefabricated on one side with M12 plug, A-keyed	IP67	0.3	**SWD4-M3LR5-S** 174771	1 off
		IP67	0.6	**SWD4-M6LR5-S** 174772	
		IP67	1	**SWD4-1LR5-S** 174697	
		IP67	2	**SWD4-2LR5-S** 174698	
I/O round cable M12 For connecting to the signal tower					
	8 pole prefabricated on one side with M12 plug, A-keyed	IP67	0.3	**SWD4-M3LR8-S** 174699	1 off
		IP67	0.6	**SWD4-M6LR8-S** 174700	
		IP67	1	**SWD4-1LR8-S** 174701	
		IP67	2	**SWD4-2LR8-S** 174702	
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	1 off
		IP67	0.6	**SWD4-M6LR5-1-2S** 179544	
		IP67	1	**SWD4-1LR5-1-2S** 179545	
		IP67	2	**SWD4-2LR5-1-2S** 179546	

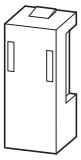
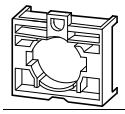
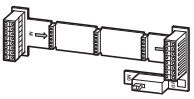
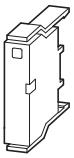
	Description	Protection type (IEC/EN 60529, EN50178, VBG 4)	Length m	**Part no.** Article no.	Std. pack UL, CSA
SWD Connection cables					
Supply cable For connecting the power supply to EU6E.., EU8E.. IP67 SWD modules					
	4 pole, not prefabricated	IP67	25	**SWD4-25LR4P** 184486	1 off
		IP67	50	**SWD4-50LR4P** 184487	
		IP67	100	**SWD4-100LR4P** 184485	
	4 pole prefabricated with 7/8" plug and 7/8" socket	IP67	0.3	**SWD4-M3LR4P-2S** 183208	1 off
		IP67	0.6	**SWD4-M6LR4P-2S** 183209	
		IP67	1	**SWD4-1LR4P-2S** 183210	
		IP67	1.5	**SWD4-1M5LR4P-2S** 183211	
		IP67	2	**SWD4-2LR4P-2S** 183212	
		IP67	3	**SWD4-3LR4P-2S** 183213	
		IP67	4	**SWD4-4LR4P-2S** 183214	
		IP67	5	**SWD4-5LR4P-2S** 183215	
		IP67	10	**SWD4-10LR4P-2S** 183216	
		IP67	20	**SWD4-20LR4P-2S** 183217	

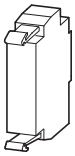
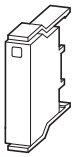
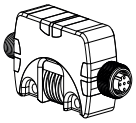
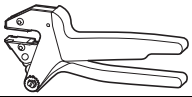
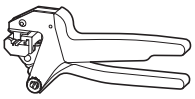
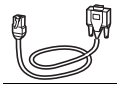
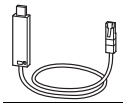
	Description	Protection type (IEC/EN 60529, EN50178, VBG 4)	Length m	**Part no.** Article no.	Std. pack UL, CSA
SWD Connection cables					
Supply cable For connecting the power supply to EU6E.., EU8E.. IP67 SWD modules					
	4 pole prefabricated with 7/8" right-angle plug and 7/8" right-angle socket	IP67	0.3	**SWD4-M3LR4P-2R** 183218	1 off
		IP67	0.6	**SWD4-M6LR4P-2R** 183219	
		IP67	1	**SWD4-1LR4P-2R** 183220	
		IP67	1.5	**SWD4-1M5LR4P-2R** 183221	
		IP67	2	**SWD4-2LR4P-2R** 183222	
		IP67	3	**SWD4-3LR4P-2R** 183223	
		IP67	4	**SWD4-4LR4P-2R** 183224	
		IP67	5	**SWD4-5LR4P-2R** 183225	
		IP67	10	**SWD4-10LR4P-2R** 183226	
		IP67	20	**SWD4-20LR4P-2R** 183227	
	4 pole prefabricated on one side with 7/8" right-angle socket	IP67	2	**SWD4-2LR4P-R** 183198	1 off
		IP67	4	**SWD4-4LR4P-R** 183199	
		IP67	6	**SWD4-6LR4P-R** 183200	
		IP67	10	**SWD4-10LR4P-R** 183201	
		IP67	20	**SWD4-20LR4P-R** 183202	
	4 pole prefabricated on one side with 7/8" straight socket	IP67	2	**SWD4-2LR4P-S** 183203	1 off
		IP67	4	**SWD4-4LR4P-S** 183204	
		IP67	5	**SWD4-6LR4P-S** 183205	
		IP67	10	**SWD4-10LR4P-S** 183206	
		IP67	20	**SWD4-20LR4P-S** 183207	

	Description	Function	Protection type (IEC/EN 60529, EN50178, VBG 4)	Length m	**Part no.** Article no.	Std. pack UL, CSA
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	IP20	0.15	**SWD4-SF8-20** 116031	1 off
	8 pole M20 plug 8 prefabricated cables for connection to PCB M22-SWD-I...		IP20	0.15	**SWD4-SM8-20** 116032	1 off
	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	IP20	-	**SWD4-SFL8-20** 121380	1 off
	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		IP20	-	**SWD4-SML8-20** 121381	1 off
	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	IP20	-	**SWD4-SFL8-12** 174756	1 off
	SWD control panel bushing 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	IP20	-	**SWD4-SML8-12** 174755	1 off
	Control panel cable gland for 5-conductor SWD4-…LR8-24 M12 SmartWire-DT round cable, M12 plug/socket	For flush mounting in an enclosure	IP20	-	**SWD4-SML5-12** 174757	1 off
	5 pole M12 socket, A-coded 5 prefabricated cables		IP20	1	**SWD4-PRF5-1-S** 174758	1 off
	5 pole M12 plug, A-coded 5 prefabricated cables		IP20	1	**SWD4-PRM5-1-S** 174759	1 off
	5 pole M12 socket, A-coded 5 prefabricated cables		IP20	0.15	**SWD4-PRF5-2-S** 179541	1 off
	5 pole M12 plug, A-coded 5 prefabricated cables		IP20	0.15	**SWD4-PRM5-2-S** 179542	1 off

	Description	Function	Protection type (IEC/EN 60529, EN50178, VBG 4)	**Part no.** Article no.	Std. pack UL, CSA
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	10 off
	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	10 off
	8 pole socket Straight Soldering connection	Plug connector for 8 pole SWD4-…LR8-24 round cables	IP67	**SWD4-SF8-67** 116033	1 off
	8-pinplug connector Straight Soldering connection		IP67	**SWD4-SM8-67** 116034	
	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		IP67	**SWD4-SM5-67** 179548	
	4 pole socket Straight Screw connection	Plug connector for 4 pole SWD4-…LR4P-.. round cables	IP67	**SWD4-SF4P-67** 183228	
	4 pole plug Straight Screw connection		IP67	**SWD4-SM4P-67** 183230	
	4 pole socket Angled Screw connection		IP67	**SWD4-SF4P-67R** 183229	
	4 pole plug Angled Screw connection		IP67	**SWD4-SM4P-67R** 183231	
	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 4		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 2		IP67	**SWD4-SP-4082** 174706	
	Splitter with IP67 degree of protection, M12 plug into two 3 pole M8 sockets		IP67	**SWD4-SP-3084** 174707	
	Cap with monitoring function for M12 bushings on SWD connector (IP67)		IP67	**SWD4-ACAP-10** 174751	
	Cap for M12 sockets on SWD connector (IP67)		IP67	**SWD4-PCAP-F** 174752	
	Cap for M12 plugs on SWD connector (IP67)		IP67	**SWD4-PCAP-M** 174753	
	Cap for 7/8" sockets on SWD module EU6E.., EU8E.. (IP67)		IP67	**SWD4-PCAPP-F** 184489	
	Cap for 7/8" plugs on SWD module EU6E.., EU8E..		IP67	**SWD4-PCAPP-M** 184490	

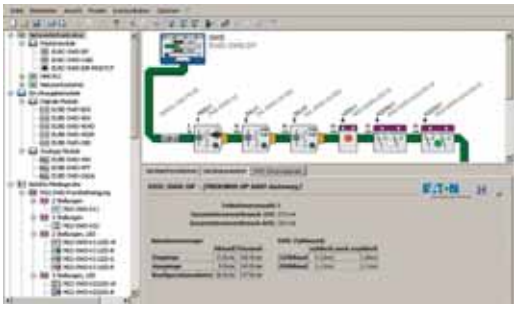
	Description	Function	Protection type (IEC/EN 60529, EN50178, VBG 4)	**Part no.** Article no.	Std. pack UL, CSA
SWD coupling					
	Coupling via two 8-pin blade terminals	To connect SWD ribbon cables over SWD4-8MF2 blade terminals	IP20	**SWD4-8SFF2-5** 116024	1 off
SWD cable adapters					
	SmartWire-DT cable adapter for connecting a ribbon cable (plug) to a round cable (terminal)		IP20	**SWD4-8FRF-10** 121377	1 off
	SWD power supply module for modules (IP20) on a local SWD segment		IP20	**SWD4-FFR-PF1-1** 168880	1 off
	SmartWire-DT cable adapter for putting together a local SmartWire-DT segment		IP20	**SWD4-FFR-ST1-1** 168881	1 off
	SWD branch for putting together a local SWD network with SWD module (IP67)		IP67	**EU2A-SWD-PBWN** 174734	1 off
SWD bus termination					
	SmartWire-DT bus termination; plugged onto SWD4-8MF2 blade terminal at the end of the SmartWire-DT ribbon cable	For the SmartWire-DT bus termination on the SmartWire-DT ribbon cable	IP20	**SWD4-RC8-10** 116020	1 off
	SmartWire-DT bus termination 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	IP67	**SWD4-RC5-10** 174754	1 off

	Function	Protection type (IEC/EN 60529, EN50178, VBG 4)	**Part no.** Article no.	Std. pack UL, CSA
Link				
	For bridging open mounting locations for SWD4-8SF2-5 external device plugs	IP20	**SWD4-SEL8-10** 116021	5 off
RMQ				
	For 2 function elements M22-SWD-K22… For two M22-SWD-NOP universal modules	IP67	**M22-SWD-A4** 116016	10 off
	For mounting 1 base function element	IP20	**M22-SWD-I1-LP01** 115990	1 off
	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	IP20	**M22-SWD-SEL8-10** 116698	5 off

	Function	Protection type (IEC/EN 60529, EN50178, VBG 4)	**Part no.** Article no.	Std. pack UL, CSA
Universal module				
	For configured but not yet installed SWD modules connected to the SWD ribbon cable	IP20	**M22-SWD-NOP** 147637	20 off
	For configured but not yet installed SWD modules on the M22-SWD-I... card	IP20	**M22-SWD-NOPC** 147638	20 off
	For configured but not yet installed SWD modules connected to the SWD ribbon cable SWD4-...LR5-2S	IP67	**EU1M-SWD-NOP** 174716	1 off
Tools für plugs				
	Crimping tool to install external device plug SWD4-8SF2-5 on SmartWire-DT ribbon cable		**SWD4-CRP-1** 116025	1 off
	Crimping tool to install external blade terminal SWD4-8MF2 at both ends of the SmartWire-DT ribbon cable		**SWD4-CRP-2** 116699	1 off
Programming accessories				
	For transferring the user program to the PLC or for diagnosing SmartWire-DT networks SUB-D, 9 pole serial		**EU4A-RJ45-CAB1** 106726	1 off
	For transferring the user program to the PLC or for diagnosing SmartWire-DT networks USB		**EU4A-RJ45-USB-CAB1** 115735	1 off
	Programming and visualisation software		**EASY-SOFT-PRO** 266040	1 off

Current consumption 15-V-SWD supply voltage

Type	Current consumption mA	Notes
DIL-SWD-32-001	40	-
DIL-SWD-32-002	40	-
DS7-34DSX…-D	50	-
DX-NET-SWD1, DX-NET-SWD3	22	-
EMS-DO-T-2,4-SWD, EMS-DO-T-9-SWD	50	-
EMS-DOS-T-2,4-SWD, EMS-DOS-T-9-SWD	50	-
EMS-RO-T-2,4-SWD, EMS-RO-T-9-SWD	50	-
EMS-ROS-T-2,4-SWD, EMS-ROS-T-9-SWD	50	-
EU5E-SWD-4DX	33	-
EU5E-SWD-8DX	16	-
EU5E-SWD-4D4D	33	-
EU5E-SWD-4D2R	45	-
EU5E-SWD-X8D	43	-
EU5E-SWD-4AX	22	-
EU5E-SWD-2A2A	22	-
EU5E-SWD-4PT	22	-
EU5E-SWD-4PT-2	22	-
MCB-HK-SWD	27	-
M22-SWD-K11 , M22-SWD-K22	10	-
M22-SWD-KC11, M22-SWD-KC22	10	-
M22-SWD-NOP, M22-SWD-NOPC	10	-
M22-SWD-LEDC-… , M22-SWD-LED-…	22	-
M22-SWD-K11LED-…, M22-SWD-K22LED-…	22	-
M22-SWD-K11LEDC-…, M22-SWD-K22LEDC-…	22	-
M22-SWD-I…-LP01	17	with bus termination resistor switched on
M22-SWD-INC	20	-
M22-SWD-R	20	-
NZM-XSWD-704	25	-
PKE-SWD-32	58	-
PKE-SWD-SP, PKE-SWD-CP	35	-
SL7-SWD, SL4-SWD	26	-
SWD4-RC8-10	17	-
XNH-SWD-2DX-3AX-1	40	-
XNH-SWD-2DX, XHN…-SWD-KIT…	19	-



SWD-Assist can be downloaded for free from our website:
www.eaton.eu/swdassist
Planning and ordering tool

Achieving results quicker using SWD-Assist:
.. Planning .. Engineering .. Commissioning

The SWD-Assist software supports you to plan, configure and put a SWD network into operation. Not only does it offer planning and configuration functions, but the network can be easily initialized using the SWD coordinator diagnostics interface.
SWD-Assist contains the following functions:

Offline:
- Easy design of SWD networks
- Validity check while automatically adding missing components
- Creation of project-specific field bus description files (e.g. Profibus, Profinet)
- Print-out of the SWD network

Online:
- Importing installed network configurations
- Verifying correct installation (target-actual configuration comparison)
- Display process data of digital and analog inputs and outputs
- Wiring test (setting outputs in the stop position of the controller)
- Display of fault messages for easy fault diagnostics

Technical data

			XV-102-BE-35TQRC-10 153524	NZM-XMC-MDISP35-SWD 172765
Display				
Display - Type			Color display, TFT	Color display, TFT
Screen diagonal		Inch	3.5	3.5
Resolution		Pixel	QVGA, 320 x 240	QVGA, 320 x 240
Visible screen area		mm	70 x 53	70 x 53
Number of colours			64 k Colours	64 k Colours
Contrast ratio (Normally)			Normally 300:1	Normally 300:1
Brightness		cd/m²	Normally 250	Normally 250
Back-lighting			LED, dimmable via software	LED, dimmable via software
Service life of back-lighting		h	Normally 40000	Normally 40000
Operation				
Front type			Standard front with standard membrane (fully enclosed)	
Technology			Resistive-Touch, 4 wire	Resistive-Touch, 4 wire
Touch sensor			Glass with film	Glass with film
System				
Processor			RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz
Internal memory			DRAM (OS, Program and data memory): 64 MByte NAND-Flash (can be used for data backup): approx. 128 MByte available NVRAM (retained data): approx. 32 KByte available	
External memory			SD Memory Card Slot: SDA Specification 1.00	
Cooling			Fanless CPU and system cooling, natural convection-based passive cooling	
Back-up of real-time clock				
Battery (service life)			Zero maintenance	Zero maintenance
Backup (time at zero voltage)			Normally 10 years	Normally 10 years
Operating system			Windows CE 5.0 (licence incl.)	Windows CE 5.0 (licence incl.)
Engineering				
Visualisation software			GALILEO, EPAM, XSOFT-CODESYS-2, XSOFT-CODESYS-3	-
PLC-Programming software			XSOFT-CODESYS-2 XSOFT-CODESYS-3	-
Target and web visualization			Yes	no
Interfaces, communication				
built-in interfaces			1 x Ethernet 10/100 Mbps 1 x USB device 1 x SmartWire-DT	1 x Ethernet 100base-TX/10base-T 1 x USB device 1 x SmartWire-DT
PLC-licence			PLC licence inclusive	PLC licence inclusive
SmartWire-DT master			Yes	Yes
Ethernet			100Base-TX/10Base-T	100Base-TX/10Base-T
easyNet			no	no
MPI			no	no
Power supply				
Nominal voltage			24 V DC SELV (safety extra low voltage)	
permissible voltage			Effective: 19.2-30.0 V DC (rated operating voltage -20%/+25%) Absolute with ripple: 18,0-31,2 V DC Battery powered: 18,0-31,2 V DC (rated operating voltage -25%/+30%) 35 V DC for a duration of < 100 ms	
Voltage dips		ms	≤ 10 ms from rated voltage (24 V DC), ≤ 5 ms from undervoltage (19.2 V DC)	
Power consumption	$P_{max.}$	W	5	5
Note on power consumption			Basic device USB Slave to USB Host: 2.5 Total: 9.5	Basic device USB Slave to USB Host: 2.5 Total: 9.5
Heat dissipation		W	5	5
Note on heat dissipation			Heat dissipation with power consumption for 24 V, all ports and interfaces connected	
Siemens MPI, (optional)			yes	yes
Type of fuse			Yes (fuse not accessible)	
Potential isolation			no potential isolation	no potential isolation

XV-102-E6-57TVRC-10 153525	**XV-102-E8-57TVRC-10** 153526	**XV-102-E6-70TWRC-10** 153527	**XV-102-E8-70TWRC-10** 153528	**NZM-XMC-MDISP70** 172766
Color display, TFT	Color display, TFT	Color display, TFT	Color display, TFT	Color display, TFT
5.7	5.7	7	7	7
VGA, 640 x 480	VGA, 640 x 480	WVGA, 800 x 480	WVGA, 800 x 480	WVGA, 800 x 480
115 x 86	115 x 86	152 x 91	152 x 91	152 x 91
64 k Colours	64 k Colours	64 k Colours	64 k Colours	64 k Colours
Normally 300:1	Normally 300:1	Normally 300:1	Normally 300:1	Normally 300:1
Normally 250	Normally 250	Normally 250	Normally 250	Normally 250
LED, dimmable via software	LED, dimmable via software	LED, dimmable via software	LED, dimmable via software	LED, dimmable via software
Normally 40000	Normally 40000	Normally 40000	Normally 40000	Normally 40000
Standard front with standard membrane (fully enclosed)				
Resistive-Touch, 4 wire	Resistive-Touch, 4 wire	Resistive-Touch, 4 wire	Resistive-Touch, 4 wire	Resistive-Touch, 4 wire
Glass with film	Glass with film	Glass with film	Glass with film	Glass with film
RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz
DRAM (OS, Program and data memory): 64 MByte NAND-Flash (can be used for data backup): approx. 128 MByte available NVRAM (retained data): approx. 32 KByte available				
SD Memory Card Slot: SDA Specification 1.00				
Fanless CPU and system cooling, natural convection-based passive cooling				
Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years
Windows CE 5.0 (licence incl.)				
GALILEO, EPAM, XSOFT-CODESYS-2, XSOFT-CODESYS-3				-
XSOFT-CODESYS-2 XSOFT-CODESYS-3	XSOFT-CODESYS-2 XSOFT-CODESYS-3	XSOFT-CODESYS-2 XSOFT-CODESYS-3	XSOFT-CODESYS-2 XSOFT-CODESYS-3	-
Yes	Yes	Yes	Yes	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 SmartWire-DT	1 x Ethernet 10/100 Mbps 1 x RS485 1 x USB host 2.0 1 x USB device 1 x PROFIBUS/MPI 1 x SmartWire-DT	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 SmartWire-DT	1 x Ethernet 10/100 Mbps 1 x RS485 1 x USB host 2.0 1 x USB device 1 x PROFIBUS/MPI 1 x SmartWire-DT	1 x Ethernet 100base-TX/ 10base-T 1 x RS485 1 x USB host 1 x USB device 1 x SmartWire-DT
PLC licence inclusive	PLC licence inclusive	PLC licence inclusive	PLC licence inclusive	PLC licence inclusive
Yes	Yes	Yes	Yes	Yes
100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T
Yes	no	Yes	no	no
no	Yes	no	Yes	no
24 V DC SELV (safety extra low voltage)				
Effective: 19.2-30.0 V DC (rated operating voltage -20%/+25%) Absolute with ripple: 18,0-31,2 V DC Battery powered: 18,0-31,2 V DC (rated operating voltage -25%/+30%) 35 V DC for a duration of < 100 ms				
≤ 10 ms from rated voltage (24 V DC), ≤ 5 ms from undervoltage (19.2 V DC)				
10	10	10	10	7
Basic device USB Slave to USB Host: 2.5 Total: 9.5				
9.5	9.5	9.5	9.5	7
Heat dissipation with power consumption for 24 V 7 W for basic device + 2.5 W for USB module				Heat dissipation with power consumption for 24 V, all ports and interfaces connected
yes	yes	yes	yes	yes
Yes (fuse not accessible)				
no potential isolation	no potential isolation	no potential isolation	no potential isolation	no potential isolation

			XV-102-BE-35TQRC-10 153524	NZM-XMC-MDISP35-SWD 172765
General				
Housing material			Plastic, gray	Insulated material black
Front type			Standard front with standard membrane (fully enclosed)	
Dimensions (W x H x D)		mm	136 x 100 x 30	136 x 100 x 30
flush mounted			Clearance: W x H x D ≥ 30 mm (1.18") Inclination from vertical: ±45° (if using natural convection)	
Weight		kg	0.3	0.3
Degree of protection (IEC/EN 60529, EN50178, VBG 4)			IP65 (at front), IP20 (at rear)	
Approvals				
Approvals			cUL (UL508)	cUL (UL508)
Explosion protection (according to ATEX 94/9/EC)			II 3D Ex II T70°C IP5x: Zone 22, Category 3D	
shipping classification			DNV GL	
Environmental conditions				
Temperature				
Operation	ϑ	°C	0 - +50	0 - +50
Storage / Transport	ϑ	°C	-20 - +60	-20 - +60
Relative humidity			10 - 95%, non-condensing	10 - 95%, non-condensing
Supply voltage U_{Aux}				
Rated operational voltage	U_{Aux}	V	24 V DC (-20/+25%)	24 V DC (-20/+25%)
Residual ripple on the input voltage		%	≦ 5	≦ 5
Protection against polarity reversal			Yes	Yes
Max. current	I_{max}	A	3	3
Note			If contactors with a total power consumption > 3 A are connected, a power feeder module EU5C-SWD-PF1/2 has to be used.	-
Short-circuit rating			no, external fuse FAZ Z3	no, external fuse FAZ Z3
Potential isolation			No	No
Rated operating voltage of 24-V-DC slaves		V	typ. U_{Aux} - 0.2	-
Supply voltage U_{Pow}				
Supply voltage	U_{Pow}	V	24 DC -20 % + 25 %	24 DC -20 % + 25 %
Input voltage ripple		%	≦ 5	≦ 5
Siemens MPI, (optional)			yes	yes
Rated current	I	A	0.7	0.7
Overload proof			yes	yes
Inrush current and duration		A	12.5 A/6 ms	12.5 A/6 ms
Heat dissipation at 24 V DC		W	1.0	1.0
Potential isolation between U_{Pow} and 15 V SmartWire-DT supply voltage			No	No
Bridging voltage dips		ms	10	10
Repetition rate		s	1	1
Status indication		LED	yes	yes
SmartWire-DT supply voltage				
Rated operating voltage	U_e	V	14,5 ± 3 %	14,5 ± 3 %
max. current	I_{max}	A	0.7	0.7
Note			If SmartWire-DT modules with a total power consumption > 0.7 A are connected, a power feeder module EU5C-SWD-PF2 has to be used.	
Short-circuit rating			Yes	Yes
Connection supply voltages				
Connection type			Push in terminals	Push in terminals
Solid		mm^2	0.2 - 1.5	0.2 - 1.5
Flexible with ferrule		mm^2	0.25 - 1.5	0.25 - 1.5
UL/CSA solid or stranded		AWG	24 - 16	24 - 16
SmartWire-DT network				
Station type			SmartWire-DT master	SmartWire-DT master
Number of SmartWire-DT slaves			99	8
Baud Rates		kBd	125, 250	125, 250
Address allocation			automatic	automatic
Status indication		LED	SmartWire-DT master LED: red/green Configurations LED: red/green	
Connections			Plug, 8-pole	2 x plug, 8-pole
Plug connectors			Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2

XV-102-E6-57TVRC-10 153525	XV-102-E8-57TVRC-10 153526	XV-102-E6-70TWRC-10 153527	XV-102-E8-70TWRC-10 153528	NZM-XMC-MDISP70 172766
Plastic, gray	Plastic, gray	Plastic, gray	Plastic, gray	Insulated material black
Standard front with standard membrane (fully enclosed)				
170 x 130 x 39	170 x 130 x 39	210 x 135 x 38	210 x 135 x 38	210 x 135 x 38
Clearance: W x H x D ≥ 30 mm (1.18") Inclination from vertical: ±45° (if using natural convection)				
0.6	0.6	0.6	0.6	0.6
IP65 (at front), IP20 (at rear)				
cUL (UL508)	cUL (UL508)	cUL (UL508)	cUL (UL508)	cUL (UL508)
II 3D Ex II T70°C IP5x: Zone 22, Category 3D				
DNV GL				
0 - +50	0 - +50	0 - +50	0 - +50	0 - +50
-20 - +60	-20 - +60	-20 - +60	-20 - +60	-20 - +60
10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing
24 V DC (-20/+25%)	24 V DC (-20/+25%)	24 V DC (-20/+25%)	24 V DC (-20/+25%)	24 V DC (-20/+25%)
≦ 5	≦ 5	≦ 5	≦ 5	≦ 5
Yes	Yes	Yes	Yes	Yes
3	3	3	3	3
If contactors with a total power consumption > 3 A are connected, a power feeder module EU5C-SWD-PF1/2 has to be used.				-
no, external fuse FAZ Z3				
No	No	No	No	No
typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	-
24 DC -20 % + 25 %	24 DC -20 % + 25 %	24 DC -20 % + 25 %	24 DC -20 % + 25 %	24 DC -20 % + 25 %
≦ 5	≦ 5	≦ 5	≦ 5	≦ 5
yes	yes	yes	yes	yes
0.7	0.7	0.7	0.7	0.7
yes	yes	yes	yes	yes
12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms
1.0	1.0	1.0	1.0	1.0
No	No	No	No	No
10	10	10	10	10
1	1	1	1	1
yes	yes	yes	yes	yes
14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %
0.7	0.7	0.7	0.7	0.7
If SmartWire-DT modules with a total power consumption > 0.7 A are connected, a power feeder module EU5C-SWD-PF2 has to be used.				
Yes	Yes	Yes	Yes	Yes
Push in terminals	Push in terminals	Push in terminals	Push in terminals	Push in terminals
0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5
0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5
24 - 16	24 - 16	24 - 16	24 - 16	24 - 16
SmartWire-DT master	SmartWire-DT master	SmartWire-DT master	SmartWire-DT master	SmartWire-DT master
99	99	99	99	16
125, 250	125, 250	125, 250	125, 250	125
automatic	automatic	automatic	automatic	automatic
SmartWire-DT master LED: red/green Configurations LED: red/green				
Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	2 x plug, 8-pole
Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2

			XV-152-E6-57TVRC-10 166700	XV-152-E8-57TVRC-10 166701
Display				
Display - Type			Color display, TFT	Color display, TFT
Screen diagonal		Inch	5.7	5.7
Resolution		Pixel	VGA, 640 x 480	VGA, 640 x 480
Visible screen area		mm	115 x 86	115 x 86
Number of colours			64 k Colours	64 k Colours
Contrast ratio (Normally)			Normally 300:1	Normally 300:1
Brightness		cd/m²	Normally 250	Normally 250
Back-lighting			LED, dimmable via software	LED, dimmable via software
Service life of back-lighting		h	Normally 40000	Normally 40000
Operation				
Front type			Standard front with standard membrane (fully enclosed)	Standard front with standard membrane (fully enclosed)
Technology			Resistive-Touch 4 wire	Resistive-Touch 4 wire
Touch sensor			Glass with film	Glass with film
System				
Processor			RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz
Internal memory			DRAM (OS, Program and data memory): 64 MByte NAND-Flash (can be used for data backup): approx. 64 MByte available NVRAM (Retain data): 125 kByte NOR-Flash: 2 MByte	
External memory			SD Memory Card Slot: SDA Specification 1.00	
Cooling			Fanless CPU and system cooling, natural convection-based passive cooling	
Back-up of real-time clock				
Battery (service life)			CR 2032 (190 mA/h), zero maintenance (soldered)	
Backup (time at zero voltage)			Normally 10 years	Normally 10 years
Operating system			Windows CE 5.0 (licence incl.)	Windows CE 5.0 (licence incl.)
Engineering				
Visualisation software			GALILEO EPAM XSOFT-CODESYS-2 XSOFT-CODESYS-3	GALILEO EPAM XSOFT-CODESYS-2 XSOFT-CODESYS-3
PLC-Programming software			XSOFT-CODESYS-2 XSOFT-CODESYS-3	XSOFT-CODESYS-2 XSOFT-CODESYS-3
Target and web visualization			Yes	Yes
Interfaces, communication				
built-in interfaces			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 SmartWire-DT	1 x Ethernet 10/100 Mbps 1 x RS485 1 x USB host 2.0 1 x USB device 1 x PROFIBUS/MPI 1 x SmartWire-DT
PLC-licence			PLC licence inclusive	PLC licence inclusive
SmartWire-DT master			Yes	Yes
Ethernet			100Base-TX/10Base-T	100Base-TX/10Base-T
easyNet			Yes	no
MPI			no	Yes
Power supply				
Nominal voltage			24 V DC SELV (safety extra low voltage)	24 V DC SELV (safety extra low voltage)
permissible voltage			Effective: 19.2-30.0 V DC (rated operating voltage -20%/+25%) Absolute with ripple: 18,0-31,2 V DC Battery powered: 18,0-31,2 V DC (rated operating voltage -25%/+30%) 35 V DC for a duration of < 100 ms	
Voltage dips		ms	≤ 10 ms from rated voltage (24 V DC) ≤ 5 ms from undervoltage (19.2 V DC)	≤ 10 ms from rated voltage (24 V DC) ≤ 5 ms from undervoltage (19.2 V DC)
Power consumption	$P_{max.}$	W	7	7
Note on power consumption			Basic device USB Slave to USB Host: 2.5 Total: 9.5	Basic device USB Slave to USB Host: 2.5 Total: 9.5
Heat dissipation		W	9.5	9.5
Note on heat dissipation			Heat dissipation with power consumption for 24 V, 7 W for basic device + 2.5 W for USB module	
Siemens MPI, (optional)			yes	yes
Type of fuse			Yes (fuse not accessible)	Yes (fuse not accessible)
Potential isolation			no potential isolation	no potential isolation

XV-152-E6-84TVRC-10 166702	XV-152-E8-84TVRC-10 166703	XV-152-E6-10TVRC-10 166704	XV-152-E8-10TVRC-10 166705
Color display, TFT	Color display, TFT	Color display, TFT	Color display, TFT
8.4	8.4	10.4	10.4
VGA, 640 x 480	VGA, 640 x 480	VGA, 640 x 480	VGA, 640 x 480
170 x 128	170 x 128	211 x 158	211 x 158
64 k Colours	64 k Colours	64 k Colours	64 k Colours
Normally 300:1	Normally 300:1	Normally 300:1	Normally 300:1
Normally 250	Normally 250	Normally 250	Normally 250
LED, dimmable via software	LED, dimmable via software	LED, dimmable via software	LED, dimmable via software
Normally 40000	Normally 40000	Normally 40000	Normally 40000
Standard front with standard membrane (fully enclosed)	Standard front with standard membrane (fully enclosed)	Standard front with standard membrane (fully enclosed)	Standard front with standard membrane (fully enclosed)
Resistive-Touch 4 wire	Resistive-Touch 4 wire	Resistive-Touch 4 wire	Resistive-Touch 4 wire
Glass with film	Glass with film	Glass with film	Glass with film
RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz
DRAM (OS, Program and data memory): 64 MByte NAND-Flash (can be used for data backup): approx. 64 MByte available NVRAM (Retain data): 125 kByte NOR-Flash: 2 MByte			
SD Memory Card Slot: SDA Specification 1.00			
Fanless CPU and system cooling, natural convection-based passive cooling			
CR 2032 (190 mA/h), zero maintenance (soldered)			
Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years
Windows CE 5.0 (licence incl.)	Windows CE 5.0 (licence incl.)	Windows CE 5.0 (licence incl.)	Windows CE 5.0 (licence incl.)
GALILEO EPAM XSOFT-CODESYS-2 XSOFT-CODESYS-3	GALILEO EPAM XSOFT-CODESYS-2 XSOFT-CODESYS-3	GALILEO EPAM XSOFT-CODESYS-2 XSOFT-CODESYS-3	GALILEO EPAM XSOFT-CODESYS-2 XSOFT-CODESYS-3
XSOFT-CODESYS-2 XSOFT-CODESYS-3	XSOFT-CODESYS-2 XSOFT-CODESYS-3	XSOFT-CODESYS-2 XSOFT-CODESYS-3	XSOFT-CODESYS-2 XSOFT-CODESYS-3
Yes	Yes	Yes	Yes
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 SmartWire-DT	1 x Ethernet 10/100 Mbps 1 x RS485 1 x USB host 2.0 1 x USB device 1 x PROFIBUS/MPI 1 x SmartWire-DT	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 SmartWire-DT	1 x Ethernet 10/100 Mbps 1 x RS485 1 x USB host 2.0 1 x USB device 1 x PROFIBUS/MPI 1 x SmartWire-DT
PLC licence inclusive	PLC licence inclusive	PLC licence inclusive	PLC licence inclusive
Yes	Yes	Yes	Yes
100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T	100Base-TX/10Base-T
Yes	no	Yes	no
no	Yes	no	Yes
24 V DC SELV (safety extra low voltage)	24 V DC SELV (safety extra low voltage)	24 V DC SELV (safety extra low voltage)	24 V DC SELV (safety extra low voltage)
Effective: 19.2-30.0 V DC (rated operating voltage -20%/+25%) Absolute with ripple: 18,0-31,2 V DC Battery powered: 18,0-31,2 V DC (rated operating voltage -25%/+30%) 35 V DC for a duration of < 100 ms			
≤ 10 ms from rated voltage (24 V DC) ≤ 5 ms from undervoltage (19.2 V DC)	≤ 10 ms from rated voltage (24 V DC) ≤ 5 ms from undervoltage (19.2 V DC)	≤ 10 ms from rated voltage (24 V DC) ≤ 5 ms from undervoltage (19.2 V DC)	≤ 10 ms from rated voltage (24 V DC) ≤ 5 ms from undervoltage (19.2 V DC)
12	12	12	12
Basic device USB Slave to USB Host: 2.5 Total: 9.5	Basic device USB Slave to USB Host: 2.5 Total: 9.5	Basic device USB Slave to USB Host: 2.5 Total: 9.5	Basic device USB Slave to USB Host: 2.5 Total: 9.5
14.5	14.5	14.5	14.5
Heat dissipation with power consumption for 24 V, 12 W for basic device + 2.5 W for USB module			
yes	yes	yes	yes
Yes (fuse not accessible)	Yes (fuse not accessible)	Yes (fuse not accessible)	Yes (fuse not accessible)
no potential isolation	no potential isolation	no potential isolation	no potential isolation

			XV-152-E6-57TVRC-10 166700	XV-152-E8-57TVRC-10 166701
General				
Housing material			Metal, anodized	Metal, anodized
Front type			Standard front with standard membrane (fully enclosed)	
Dimensions (W x H x D)		mm	212 x 198 x 54	212 x 198 x 54
flush mounted			Clearance: W x H x D ≥ 30 mm (1.18") Inclination from vertical: ±45° (if using natural convection)	
Weight		kg	1.25	1.25
Degree of protection (IEC/EN 60529, EN50178, VBG 4)			IP65 (at front), IP20 (at rear) Enclosure Type 4X (Indoor use only)	IP65 (at front), IP20 (at rear) Enclosure Type 4X (Indoor use only)
Approvals				
Approvals			cUL (UL508)	cUL (UL508)
Explosion protection (according to ATEX 94/9/EC)			II 3D Ex II T70°C IP5x: Zone 22, Category 3D	
Environmental conditions				
Temperature				
Operation	ϑ	°C	0 - +50	0 - +50
Storage / Transport	ϑ	°C	-20 - +60	-20 - +60
Relative humidity			IEC/EN 50178 10 - 95%, non-condensing	IEC/EN 50178 10 - 95%, non-condensing
Supply voltage U_{Aux}				
Rated operational voltage	U_{Aux}	V	24 V DC (-20/+25%)	24 V DC (-20/+25%)
Residual ripple on the input voltage		%	≦ 5	≦ 5
Protection against polarity reversal			Yes	Yes
Max. current	I_{max}	A	3	3
Note			If contactors with a total power consumption > 3 A are connected, a power feeder module EU5C-SWD-PF1/2 has to be used.	
Short-circuit rating			no, external fuse FAZ Z3	no, external fuse FAZ Z3
Potential isolation			No	No
Rated operating voltage of 24-V-DC slaves		V	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2
Supply voltage U_{Pow}				
Supply voltage	U_{Pow}	V	24 DC -20 % + 25 %	24 DC -20 % + 25 %
Input voltage ripple		%	≦ 5	≦ 5
Siemens MPI, (optional)			yes	yes
Rated current	I	A	0.7	0.7
Overload proof			yes	yes
Inrush current and duration		A	12.5 A/6 ms	12.5 A/6 ms
Heat dissipation at 24 V DC		W	1.0	1.0
Potential isolation between U_{Pow} and 15 V SmartWire-DT supply voltage			No	No
Bridging voltage dips		ms	10	10
Repetition rate		s	1	1
Status indication		LED	yes	yes
SmartWire-DT supply voltage				
Rated operating voltage	U_e	V	14,5 ± 3 %	14,5 ± 3 %
max. current	I_{max}	A	0.7	0.7
Note			If SmartWire-DT modules with a total power consumption > 0.7 A are connected, a power feeder module EU5C-SWD-PF2 has to be used.	
Short-circuit rating			Yes	Yes
Connection supply voltages				
Connection type			Push in terminals	Push in terminals
Solid		mm^2	0.2 - 1.5	0.2 - 1.5
Flexible with ferrule		mm^2	0.25 - 1.5 (AWG 24 - 16)	0.25 - 1.5 (AWG 24 - 16)
UL/CSA solid or stranded		AWG	24 - 16	24 - 16
SmartWire-DT network				
Station type			SmartWire-DT master	SmartWire-DT master
Number of SmartWire-DT slaves			99	99
Baud Rates		kBd	125, 250	125, 250
Address allocation			automatic	automatic
Status indication		LED	SmartWire-DT master LED: red/green Configurations LED: red/green	
Connections			Plug, 8-pole	Plug, 8-pole
Plug connectors			Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2

XV-152-E6-84TVRC-10 166702	**XV-152-E8-84TVRC-10** 166703	**XV-152-E6-10TVRC-10** 166704	**XV-152-E8-10TVRC-10** 166705
Metal, anodized	Metal, anodized	Metal, anodized	Metal, anodized
Standard front with standard membrane (fully enclosed)			
275 x 208 x 54	275 x 208 x 54	345 x 260 x 54	345 x 260 x 54
Clearance: W x H x D ≥ 30 mm (1.18") Inclination from vertical: ±45° (if using natural convection)			
2.1	2.1	3	3
IP65 (at front), IP20 (at rear) Enclosure Type 4X (Indoor use only)	IP65 (at front), IP20 (at rear) Enclosure Type 4X (Indoor use only)	IP65 (at front), IP20 (at rear) Enclosure Type 4X (Indoor use only)	IP65 (at front), IP20 (at rear) Enclosure Type 4X (Indoor use only)
cUL (UL508)	cUL (UL508)	cUL (UL508)	cUL (UL508)
II 3D Ex II T70°C IP5x: Zone 22, Category 3D			
0 - +50	0 - +50	0 - +50	0 - +50
-20 - +60	-20 - +60	-20 - +60	-20 - +60
IEC/EN 50178 10 - 95%, non-condensing	IEC/EN 50178 10 - 95%, non-condensing	IEC/EN 50178 10 - 95%, non-condensing	IEC/EN 50178 10 - 95%, non-condensing
24 V DC (-20/+25%)	24 V DC (-20/+25%)	24 V DC (-20/+25%)	24 V DC (-20/+25%)
≦ 5	≦ 5	≦ 5	≦ 5
Yes	Yes	Yes	Yes
3	3	3	3
If contactors with a total power consumption > 3 A are connected, a power feeder module EU5C-SWD-PF1/2 has to be used.			
no, external fuse FAZ Z3	no, external fuse FAZ Z3	no, external fuse FAZ Z3	no, external fuse FAZ Z3
No	No	No	No
typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2
24 DC -20 % + 25 %	24 DC -20 % + 25 %	24 DC -20 % + 25 %	24 DC -20 % + 25 %
≦ 5	≦ 5	≦ 5	≦ 5
yes	yes	yes	yes
0.7	0.7	0.7	0.7
yes	yes	yes	yes
12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms
1.0	1.0	1.0	1.0
No	No	No	No
10	10	10	10
1	1	1	1
yes	yes	yes	yes
14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %
0.7	0.7	0.7	0.7
If SmartWire-DT modules with a total power consumption > 0.7 A are connected, a power feeder module EU5C-SWD-PF2 has to be used.			
Yes	Yes	Yes	Yes
Push in terminals	Push in terminals	Push in terminals	Push in terminals
0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5
0.25 - 1.5 (AWG 24 - 16)	0.25 - 1.5 (AWG 24 - 16)	0.25 - 1.5 (AWG 24 - 16)	0.25 - 1.5 (AWG 24 - 16)
24 - 16	24 - 16	24 - 16	24 - 16
SmartWire-DT master	SmartWire-DT master	SmartWire-DT master	SmartWire-DT master
99	99	99	99
125, 250	125, 250	125, 250	125, 250
automatic	automatic	automatic	automatic
SmartWire-DT master LED: red/green Configurations LED: red/green			
Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole
Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2

			XV-303-70-BE0-A00-1C 179655	XV-303-70-CE0-A00-1C 179656	XV-303-70-BE2-A00-1C 179657
Display					
Display - Type			Color display, TFT, anti-glare	Color display, TFT, anti-glare	Color display, TFT, anti-glare
Screen diagonal		Inch	7, widescreen		
Resolution		Pixel	WSVGA, 1024 x 600		
Visible screen area		mm	153.6 x 90.0	153.6 x 90.0	153.6 x 90.0
Format			16:9	16:9	16:9
Number of colours			16 mil.	16 mil.	16 mil.
Contrast ratio (Normally)			Normally 850:1	Normally 850:1	Normally 850:1
Brightness		cd/m²	Normally 400	Normally 400	Normally 400
Back-lighting			LED, dimmable via software	LED, dimmable via software	LED, dimmable via software
Service life of back-lighting		h	Normally 50000	Normally 50000	Normally 50000
Operation					
Front type			Anti-glare tempered glass in plastic bezel		
Technology			Projected Capacitive Touch (PCT)		
Touch sensor			Multi-touch touch panel		
System					
Processor			ARM Cortex-A9 800 MHz	ARM Cortex-A9 800 MHz	ARM Cortex-A9 800 MHz
Internal memory			DRAM: 512 MB RAM Flash: 1GB SLC NVRAM: 128kB Retain		
External memory			SD card, Type: SDSC, SDHC		
Cooling			Fanless CPU and system cooling, natural convection-based passive cooling		
Back-up of real-time clock					
Battery (service life)			Zero maintenance	Zero maintenance	Zero maintenance
Backup (time at zero voltage)			Normally 10 years	Normally 10 years	Normally 10 years
Operating system			Windows Embedded Compact 7 Pro		
Engineering					
Visualisation software			GALILEO, XSOFT-CODESYS		
PLC-Programming software			XSOFT-CODESYS-2, XSOFT-CODESYS-3		
Target and web visualization			Yes	Yes	Yes
Interfaces, communication					
built-in interfaces			1 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 SmartWire-DT	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 SmartWire-DT	1 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
PLC-licence			PLC licence inclusive	PLC licence inclusive	PLC licence inclusive
Slots			for SD card: 1	for SD card: 1	for SD card: 1
SmartWire-DT master			Yes	Yes	Yes
Ethernet			10/100 Mbps	10/100 Mbps	10/100 Mbps
easyNet			-	-	-
MPI			no	no	Yes
Power supply					
Nominal voltage			24 V DC SELV (safety extra low voltage)		
permissible voltage			Effective: 19.2-30.0 V DC (rated operating voltage -20%/+25%) Absolute with ripple: 18,0-31,2 V DC Battery powered: 18,0-31,2 V DC (rated operating voltage -25%/+30%) 35 V DC for a duration of < 100 ms		
Voltage dips		ms	≤ 10 ms from rated voltage (24 V DC) ≤ 5 ms from undervoltage (19.2 V DC)		
Power consumption	$P_{max.}$	W	14.4	14.4	14.4
Note on power consumption			-	-	-
Heat dissipation		W	14.4	14.4	14.4
Note on heat dissipation			Current consumption at 24 V DC 11.9 W for basic device + 2.5 W for USB module		
Siemens MPI, (optional)			yes	yes	yes
Type of fuse			Yes (fuse not accessible)		
Potential isolation			no	no	no

XV-303-70-CE2-A00-1C 179658	**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
Color display, TFT, anti-glare	Color display, TFT, anti-glare	Color display, TFT, anti-glare	Color display, TFT, anti-glare	Color display, TFT, anti-glare
7, widescreen	10.1, widescreen			
WSVGA, 1024 x 600				
153.6 x 90.0	222.72 x 125.28	222.72 x 125.28	222.72 x 125.28	222.72 x 125.28
16:9	16:9	16:9	16:9	16:9
16 mil.	16 mil.	16 mil.	16 mil.	16 mil.
Normally 850:1	Normally 500:1	Normally 500:1	Normally 500:1	Normally 500:1
Normally 400	Normally 400	Normally 400	Normally 400	Normally 400
LED, dimmable via software	LED, dimmable via software	LED, dimmable via software	LED, dimmable via software	LED, dimmable via software
Normally 50000	Normally 50000	Normally 50000	Normally 50000	Normally 50000
Anti-glare tempered glass in plastic bezel				
Projected Capacitive Touch (PCT)				
Multi-touch touch panel				
ARM Cortex-A9 800 MHz	ARM Cortex-A9 800 MHz	ARM Cortex-A9 800 MHz	ARM Cortex-A9 800 MHz	ARM Cortex-A9 800 MHz
DRAM: 512 MB RAM Flash: 1GB SLC NVRAM: 128kB Retain				
SD card, Type: SDSC, SDHC				
Fanless CPU and system cooling, natural convection-based passive cooling				
Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance	Zero maintenance
Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years	Normally 10 years
Windows Embedded Compact 7 Pro				
GALILEO, XSOFT-CODESYS				
XSOFT-CODESYS-2, XSOFT-CODESYS-3				
Yes	Yes	Yes	Yes	Yes
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	1 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 SmartWire-DT	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 SmartWire-DT	1 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	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
PLC licence inclusive	PLC licence inclusive	PLC licence inclusive	PLC licence inclusive	PLC licence inclusive
for SD card: 1	for SD card: 1	for SD card: 1	for SD card: 1	for SD card: 1
Yes	Yes	Yes	Yes	Yes
10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps	10/100 Mbps
-	-	-	-	-
Yes	no	no	Yes	Yes
24 V DC SELV (safety extra low voltage)				
Effective: 19.2-30.0 V DC (rated operating voltage -20%/+25%) Absolute with ripple: 18,0-31,2 V DC Battery powered: 18,0-31,2 V DC (rated operating voltage -25%/+30%) 35 V DC for a duration of < 100 ms				
≤ 10 ms from rated voltage (24 V DC) ≤ 5 ms from undervoltage (19.2 V DC)				
14.4	18	18	18	18
-	-	-	-	-
14.4	18	18	18	18
Current consumption at 24 V DC 11.9 W for basic device + 2.5 W for USB module	Heat dissipation with power consumption for 24 V 12 W for basic device + 2.5 W for USB module			
yes	yes	yes	yes	yes
Yes (fuse not accessible)				
no	no	no	no	no

			XV-303-70-BE0-A00-1C 179655	XV-303-70-CE0-A00-1C 179656	XV-303-70-BE2-A00-1C 179657
General					
Housing material			Insulated material black	Insulated material black	Insulated material black
Front type			Anti-glare tempered glass in plastic bezel		
Dimensions (W x H x D)		mm	196 x 135 x 51	196 x 135 x 51	196 x 135 x 51
flush mounted			Clearance: W x H x D ≥ 30 mm (1.18") Inclination from vertical: ±45° (if using natural convection)		
Weight		kg	0.74	0.74	0.74
Degree of protection (IEC/EN 60529, EN50178, VBG 4)			IP65 (in the front as per EN 60529-1), IP20 (on rear as per EN 60529-1), NEMA 4X (in preparation)		
Approvals					
Approvals			cUL 61010-2-201		
Explosion protection (according to ATEX 94/9/EC)			-	-	-
shipping classification			DNV GL		
Environmental conditions					
Climatic environmental conditions					
Climatic proofing			Cold to EN 60068-2-1, Dry heat to IEC 60068-2-2, Damp heat as per EN 60068-2-3		
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080
Temperature					
Operation	ϑ	°C	0 - +50	0 - +50	0 - +50
Storage / Transport	ϑ	°C	-20 - +60	-20 - +60	-20 - +60
Relative humidity			10 - 95%, non-condensing		
Supply voltage U_{Aux}					
Rated operational voltage	U_{Aux}	V	24 V DC (-15/+20%)	24 V DC (-15/+20%)	24 V DC (-15/+20%)
Residual ripple on the input voltage		%	≦ 5	≦ 5	≦ 5
Protection against polarity reversal			Yes	Yes	Yes
Max. current	I_{max}	A	3	3	3
Note			If contactors with a total power consumption > 3 A are connected, a power feeder module EU5C-SWD-PF1/2 has to be used.		
Short-circuit rating			no, external fuse FAZ Z3		
Potential isolation			No	No	No
Rated operating voltage of 24-V-DC slaves		V	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2
Supply voltage U_{Pow}					
Supply voltage	U_{Pow}	V	24 DC -15 % + 20 %	24 DC -15 % + 20 %	24 DC -15 % + 20 %
Input voltage ripple		%	≦ 5	≦ 5	≦ 5
Siemens MPI, (optional)			yes	yes	yes
Rated current	I	A	0.7	0.7	0.7
Overload proof			yes	yes	yes
Inrush current and duration		A	12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms
Heat dissipation at 24 V DC		W	1.0	1.0	1.0
Potential isolation between U_{Pow} and 15 V SmartWire-DT supply voltage			No	No	No
Bridging voltage dips		ms	10	10	10
Repetition rate		s	1	1	1
Status indication		LED	yes	yes	yes
SmartWire-DT supply voltage					
Rated operating voltage	U_e	V	14.5 ± 3 %	14.5 ± 3 %	14.5 ± 3 %
max. current	I_{max}	A	0.7	0.7	0.7
Note			If SmartWire-DT modules with a total power consumption > 0.7 A are connected, a power feeder module EU5C-SWD-PF2 has to be used.		
Short-circuit rating			Yes	Yes	Yes
Connection supply voltages					
Connection type			Push in terminals	Push in terminals	Push in terminals
Solid		mm²	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5
Flexible with ferrule		mm²	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5
UL/CSA solid or stranded		AWG	24 - 16	24 - 16	24 - 16
SmartWire-DT network					
Station type			SmartWire-DT master	SmartWire-DT master	SmartWire-DT master
Number of SmartWire-DT slaves			99	99	99
Baud Rates		kBd	125, 250	125, 250	125, 250
Address allocation			automatic	automatic	automatic
Status indication		LED	SmartWire-DT master LED: red/green Configurations LED: red/green		
Connections			Plug, 8-pole	Plug, 8-pole	Plug, 8-pole
Plug connectors			Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2

XV-303-70-CE2-A00-1C 179658	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
Insulated material black	Insulated material black	Insulated material black	Insulated material black	Insulated material black
Anti-glare tempered glass in plastic bezel				
196 x 135 x 51	269 x 174 x 58	269 x 174 x 58	269 x 174 x 58	269 x 174 x 58
Clearance: W x H x D ≥ 30 mm (1.18") Inclination from vertical: ±45° (if using natural convection)				
0.74	1.13	1.13	1.13	1.13
IP65 (in the front as per EN 60529-1), IP20 (on rear as per EN 60529-1), NEMA 4X (in preparation)				
cUL 61010-2-201				
-	-	-	-	-
DNV GL				
Cold to EN 60068-2-1, Dry heat to IEC 60068-2-2, Damp heat as per EN 60068-2-3				
795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080
0 - +50	0 - +50	0 - +50	0 - +50	0 - +50
-20 - +60	-20 - +60	-20 - +60	-20 - +60	-20 - +60
10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing	10 - 95%, non-condensing
24 V DC (-15/+20%)	24 V DC (-15/+20%)	24 V DC (-15/+20%)	24 V DC (-15/+20%)	24 V DC (-15/+20%)
≦ 5	≦ 5	≦ 5	≦ 5	≦ 5
Yes	Yes	Yes	Yes	Yes
3	3	3	3	3
If contactors with a total power consumption > 3 A are connected, a power feeder module EU5C-SWD-PF1/2 has to be used.				
no, external fuse FAZ Z3				
No	No	No	No	No
typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2
24 DC -15 % + 20 %	24 DC -15 % + 20 %	24 DC -15 % + 20 %	24 DC -15 % + 20 %	24 DC -15 % + 20 %
≦ 5	≦ 5	≦ 5	≦ 5	≦ 5
yes	yes	yes	yes	yes
0.7	0.7	0.7	0.7	0.7
yes	yes	yes	yes	yes
12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms
1.0	1.0	1.0	1.0	1.0
No	No	No	No	No
10	10	10	10	10
1	1	1	1	1
yes	yes	yes	yes	yes
14.5 ± 3 %	14.5 ± 3 %	14.5 ± 3 %	14.5 ± 3 %	14.5 ± 3 %
0.7	0.7	0.7	0.7	0.7
If SmartWire-DT modules with a total power consumption > 0.7 A are connected, a power feeder module EU5C-SWD-PF2 has to be used.				
Yes	Yes	Yes	Yes	Yes
Push in terminals	Push in terminals	Push in terminals	Push in terminals	Push in terminals
0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5
0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5
24 - 16	24 - 16	24 - 16	24 - 16	24 - 16
SmartWire-DT master	SmartWire-DT master	SmartWire-DT master	SmartWire-DT master	SmartWire-DT master
99	99	99	99	99
125, 250	125, 250	125, 250	125, 250	125, 250
automatic	automatic	automatic	automatic	automatic
SmartWire-DT master LED: red/green Configurations LED: red/green				
Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole
Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2

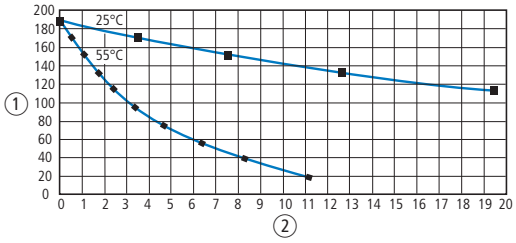
			XC-152-E3-11 167850	XC-152-E6-11 167851	XC-152-E8-11 167852
General					
Standards			EN 61131, UL 508	EN 61131, UL 508	EN 61131, UL 508
Approvals			CE, cULus	CE, cULus	CE, cULus
Ambient temperature		°C	0 - +55	0 - +55	0 - +55
Storage / Transport	ϑ	°C	-20 - +60	-20 - +60	-20 - +60
Degree of Protection			IP20	IP20	IP20
Battery (service life)			normally 10 years	normally 10 years	normally 10 years
Weight		kg	0.47	0.49	0.49
Power supply					
Supply voltage		V DC	24	24	24
Permissible range	U_e		20.4 - 28.8 V DC	20.4 - 28.8 V DC	20.4 - 28.8 V DC
Maximum power loss	P_v	W	8.5	8.5	8.5
Note on heat dissipation			Heat dissipation with power consumption for 24 V 6 W for basic device + 2.5 W for USB module		
CPU					
Processor			RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz	RISC CPU, 32 Bit, 400 MHz
Memory					
Program code/program data			64MB	64MB	64MB
Cycle time for 1 k of instructions (Bit, Byte)		ms	Normally 0.04	Normally 0.04	Normally 0.04
Interfaces					
Basic interfaces					
Ethernet					
Profile			FTP SMTP HTTP TCP UDP IP	FTP SMTP HTTP TCP UDP IP	FTP SMTP HTTP TCP UDP IP
Data transfer rate		MBit/s	100Base-TX 10Base-T	100Base-TX 10Base-T	100Base-TX 10Base-T
Potential isolation			500 $V_{r.m.s.}$	500 $V_{r.m.s.}$	500 $V_{r.m.s.}$
Programming interface			yes	yes	yes
Connections			RJ45	RJ45	RJ45
USB					
USB Host			USB 2.0	USB 2.0	USB 2.0
Potential isolation			None	None	None
USB device			USB 2.0	USB 2.0	USB 2.0
Potential isolation			None	None	None
additional interfaces					
PROFIBUS					
Profile			-	-	DP V1 MPI (Master)
Data transfer rate		kbit/s	-	-	max. 1500
Potential isolation			-	-	None
Module		Count	-	-	126
Connections			-	-	9-pin D-sub (socket)
CAN					
Profile			-	CANopen easyNet (Master/Device)	-
Data transfer rate		kbit/s	-	max. 1000	-
Potential isolation			-	None	-
Module		Count	-	127	-
Connections			-	9-pin D-sub (plug)	-
SmartWire-DT					
Profile			SmartWire-DT	SmartWire-DT	SmartWire-DT
Data transfer rate		kbit/s	max. 250	max. 250	max. 250
Potential isolation			None	None	None
Module		Count	99	99	99
Connections			Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2

			XC-152-E3-11 167850	XC-152-E6-11 167851	XC-152-E8-11 167852
Interfaces					
additional interfaces					
RS485					
Data transfer rate		kbit/s	-	max. 57.6	max. 57.6
Potential isolation			-	None	None
Connections			-	9-pin D-sub (plug)	9-pin D-sub (plug)
RS232					
Data transfer rate		kbit/s	max. 57.6	-	-
Potential isolation			None	-	-
Connections			9-pin D-sub (plug)	-	-
RTC (real-time clock)			yes	yes	yes

			EASY802-DC-SWD 152901	EASY806-DC-SWD 152902
General				
Standards			EN 55011, EN 55022, IEC/EN 61000-4, IEC 60068-2-6, IEC 60068-2-27	
Dimensions (W x H x D)		mm	35 x 110 x 125.5 (2 PE)	35 x 110 x 125.5 (2 PE)
Weight		kg	0.16	0.16
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories)	
Terminal capacities				
Solid		mm^2	0.2/1.5 (AWG 24 - 16)	0.2/1.5 (AWG 24 - 16)
Flexible with ferrule		mm^2	0.2/1.5 (AWG 24 - 16)	0.2/1.5 (AWG 24 - 16)
Standard screwdriver		mm	-	-
Max. tightening torque		Nm	-	-
Climatic environmental conditions				
Operating ambient temperature		°C	In accordance with IEC 60068-2-1, -25 - +55	In accordance with IEC 60068-2-1, -25 - +55
Condensation			Take appropriate measures to prevent condensation	Take appropriate measures to prevent condensation
Storage	ϑ	°C	In accordance with IEC 60068-2-1, -2, -14 -40 - +70	In accordance with IEC 60068-2-1, -2, -14 -40 - +70
relative humidity		%	in accordance with IEC 60068-2-30, IEC 60068-2-78 5 - 95	in accordance with IEC 60068-2-30, IEC 60068-2-78 5 - 95
Air pressure (operation)		hPa	795 - 1080	795 - 1080
Ambient conditions, mechanical				
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20
Vibrations	3,5 mm / 1 g	Hz	In accordance with IEC 60068-2-6 constant amplitude 0.15 mm: 10 - 57 constant acceleration 2 g: 57 - 150	In accordance with IEC 60068-2-6 constant amplitude 0.15 mm: 10 - 57 constant acceleration 2 g: 57 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	18	18
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3
Mounting position			Vertical or horizontal	Vertical or horizontal
Electromagnetic compatibility (EMC)				
Overvoltage category/pollution degree			III/2	III/2
Electrostatic discharge (ESD)				
applied standard			according to IEC EN 61000-4-2	according to IEC EN 61000-4-2
Air discharge		kV	8	8
Contact discharge		kV	6	6
Electromagnetic fields (RFI) to IEC EN 61000-4-3		V/m	0.8 - 1.0 GHz: 10 1.4 - 2 GHz: 3 2.0 - 2.7 GHz: 1	0.8 - 1.0 GHz: 10 1.4 - 2 GHz: 3 2.0 - 2.7 GHz: 1
Radio interference suppression			EN 55011 Class B	EN 55011 Class B
Burst		kV	according to IEC/EN 61000-4-4 Supply cables: 2 Signal cables: 2 SWD lines: 2	according to IEC/EN 61000-4-4 Supply cables: 2 Signal cables: 2 easyNet: 2 SWD lines: 2
power pulses (Surge)			according to IEC/EN 61000-4-5 1 kV (supply cables, symmetrical)	according to IEC/EN 61000-4-5 1 kV (supply cables, symmetrical)
Immunity to line-conducted interference to (IEC/EN 61000-4-6)		V	10	10
Insulation resistance				
Clearance in air and creepage distances			EN 50178, UL 508, CSA C22.2, No. 142	EN 50178, UL 508, CSA C22.2, No. 142
Insulation resistance			EN 50178	EN 50178
Back-up of real-time clock			1)	1)
Accuracy of real-time clock to inputs		s/day	typ. ± 2 (± 0.2 h/Year)	typ. ± 2 (± 0.2 h/Year)
			depending on ambient air temperature fluctuations of up to ± 5 s/day (± 0.5 h/year) are possible	

Note

1)



① Backup time (hours) with fully charged double layer capacitor

② Service life (years)

			EASY802-DC-SWD 152901	EASY806-DC-SWD 152902
Repetition accuracy of timing relays				
Accuracy of timing relays (of values)		%	± 0.02	± 0.02
Resolution				
Range "S"		ms	5	5
Range "M:S"		s	1	1
Range "H:M"		min	1	1
Retentive memory				
Write cycles of the retentive memory			10^{14} (read/write cycles)	10^{14} (read/write cycles)
Power supply				
Rated operational voltage	U_e	V	24 DC (-15/+20%)	24 DC (-15/+20%)
Permissible range	U_e		20.4 - 28.8 V DC	20.4 - 28.8 V DC
Residual ripple		%	≦ 5	≦ 5
Siemens MPI, (optional)			yes	yes
Frequency		Hz	-	-
Input current			normally 500 mA at U_e	normally 900 mA at U_e
Inrush current and length		A	12.5 for 6 ms	12.5 for 6 ms
Voltage dips		ms	≤ In accordance with IEC 61131-2 ≤ ≤ 10	≤ In accordance with IEC 61131-2 ≤ ≤ 10
Fuse		A	≧ 3 A (T) (e.g FAZ C3)	≧ 3 A (T) (e.g FAZ C3)
Potential isolation			-	-
Power loss	P	W	Normally 1	Normally 1
Heat dissipation at 24 V DC		W	-	-
Note on heat dissipation			Current consumption at 24 V DC	Current consumption at 24 V DC
Digital inputs 24 V DC				
Number			-	4
Inputs can be used as analog inputs			-	-
Status Display			-	LED
Potential isolation			-	from power supply: no between digital inputs: no from the outputs: no to COM interface: yes to easyNet: yes to AUX: yes to SmartWire-DT: no
Rated operational voltage	U_e	V DC	-	24
Input voltage		V DC	-	Signal 0: ≦ 5 (I1 - I4) Signal 1: ≧ 15 (I1 - I4)
Input current at signal 1		mA	-	I1 - I4: 3.9
Deceleration time		ms	-	20 (0 -> 1/1 -> 0, Debounce ON) normally 0.025 (0 -> 1/1 -> 0, Debounce OFF)
Cable length		m	-	100 (unshielded)
Frequency counter				
Number			-	4 (I1, I2, I3, I4)
Counter frequency		kHz	-	≦ 5
Pulse shape			-	Square
Pulse pause ratio			-	1:1
Cable length		m	-	≦ 20 (screened)
Incremental counter				
Number of counter inputs			-	2 (I1 + I2, I3 + I4)
Value range			-	-
Counter frequency		kHz	-	≦ 5
Pulse shape			-	Square
Counter inputs			-	-
Reference input			-	-
Input for reference switch			-	-
Counter inputs I1 and I2, I3 and I4			-	-
Signal offset			-	90°
Pulse pause ratio			-	1:1

			EASY802-DC-SWD 152901	EASY806-DC-SWD 152902
Rapid counter inputs				
Number			-	4 (I1, I2, I3, I4)
Value range			-	-
Cable length		m	-	≦ 20 (screened)
Counter frequency		kHz	-	< 5
Pulse shape			-	Square
Pulse pause ratio			-	1:1
Transistor outputs				
Number			-	2
Rated operational voltage	U_e	V DC	-	-
Permissible range	U_e		-	-
Residual ripple		%	-	-
Supply current		mA	-	-
Siemens MPI, (optional)			-	-
Potential isolation			-	from power supply: no From the inputs: yes: no to COM interface: yes to easyNet: yes to AUX: yes
Rated operational current at signal „1" DC per channel	I_e	A	-	max. 0.1
Lamp load without R_v per channel		W	-	1.2
Residual current on 0 signal per channel		mA	-	< 0.1
Max. output voltage		V	-	2.5 (signal 0 at external load < 10 MΩ) $U = U_e$ - 2 V (signal 1 at I_e = 0.1 A)
Short-circuit protection			-	Yes, electronic (Q1 - Q2)
Short-circuit tripping current for R_a ≦ 10 mΩ		A	-	0.15 - 0.35 per output depending on number of active channels and their load
Total short-circuit current		A	-	-
Peak short-circuit current		A	-	10 A/80 ms (on short-circuit) 10 A/20 ms (on attempted restart of device after 10s)
Thermal cutout			-	no
Max. operating frequency with constant resistive load		Operations/h	-	-
Parallel connection of outputs				
With resistive load, inductive load with external suppressor circuit, combination within a group			-	-
Number of outputs	max.		-	-
Max. total current		A	-	-
Output status indication			-	LED
Inductive load to EN 60947-5-1				
Without external suppressor circuit				
$T_{0.95}$ = 1 ms, R = 48 Ω, L = 16 mH				
Utilization factor		g	-	-
Duty factor		% DF	-	-
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)		Operations	-	-
DC-13, $T_{0.95}$ = 72 ms, R = 48 Ω, L = 1.15 H				
Utilization factor		g	-	-
Duty factor		% DF	-	-
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)		Operations	-	-
$T_{0.95}$ = 15 ms, R = 48 Ω, L = 0.24 H				
Utilization factor		g	-	-
Duty factor		% DF	-	-
Max. switching frequency f = 0.5 Hz (max. DF = 50 %)		Operations	-	-
With external suppressor circuit				
Utilization factor		g	-	-
Duty factor		% DF	-	-
Max. switching frequency, max. duty factor		Operations	-	-

			EASY802-DC-SWD 152901	EASY806-DC-SWD 152902
Supply voltage U_{Aux}				
Rated operational voltage	U_{Aux}	V	24 V DC (-15/+20%)	24 V DC (-15/+20%)
Permissible range			20.4 - 28.8 V DC	20.4 - 28.8 V DC
Output voltage SWD-OUT			U_e - 0.3 V	U_e - 0.3 V
Siemens MPI, (optional)			yes	yes
Residual ripple on the input voltage		%	≦ 5	≦ 5
Max. current	I_{max}	A	3 (IEC) 2 (UL)	3 (IEC) 2 (UL)
Short-circuit rating			no	no
Heat dissipation		W	Normally 1 W at 24 V DC	Normally 1 W at 24 V DC
Potential isolation			from power supply POW: yes to COM interface: yes to SmartWire-DT: yes	from power supply POW: yes From the inputs: yes from the outputs: yes to COM interface: yes to easyNet: yes to SmartWire-DT: yes
Power loss	P	W	1	1
SmartWire-DT supply voltage				
Rated operating voltage	U_e	V	14.5 ± 3 %	14.5 ± 3 %
max. current	I_{max}	A	0.4	0.7
Short-circuit rating			Yes	Yes
Potential isolation			from power supply POW: no to COM interface: yes to AUX: yes	from power supply POW: no From the inputs: yes: no from the outputs: no to COM interface: yes to easyNet: yes to AUX: yes
SmartWire-DT network				
Station type			Master	Master
Number of SmartWire-DT slaves			Max. 99	Max. 99
Baud Rates		kBd	125/250	125/250
Address allocation			Automatically (via Configuration button)	Automatically (via Configuration button)
Status indication		LED	SWD-LED: orange/green/red Config. LED: green/red	SWD-LED: orange/green/red Config. LED: green/red
Connections			Plug, 8-pole	Plug, 8-pole
Plug connectors			Blade terminal SWD4-8MF2	Blade terminal SWD4-8MF2
Bus termination			Integrated in the device SmartWire-DT line end with SWD4-RC8-10	Integrated in the device SmartWire-DT line end with SWD4-RC8-10
Network easyNet				
Module		Count	-	Max. 8
Data transfer rate/distance			-	1000 KBit/s, 6 m 500 KBit/s, 25 m 250 Kbit/s, 40 m 125 Kbit/s, 300 m 50 KBit/s, 300 m 20 KBit/s, 700 m 10 KBit/s, 1000 m Lengths from 40 m can be obtained only with cables with reinforced cross-section and terminal adapter.
Potential isolation			-	from power supply POW: yes From the inputs: yes from the outputs: yes to COM interface: yes to SmartWire-DT: yes to AUX: yes
Bus termination (first and last station)			-	yes
Terminal types			-	RJ45, 8-polig
Terminal capacity			-	up to 1000 m, < 16 mΩ/m: 1.5 (AWG: 16) up to 600 m, < 26 mΩ/m: 0.75 - 0.8 (AWG: 18) up to 600 m, < 26 mΩ/m: 0.5 - 0.6 (AWG: 20, 19) up to 400 m, < 40 mΩ/m: 0.34 - 0.5 (AWG: 22, 21, 20) up to 250 m, < 60 mΩ/m: 0.25 - 0.34 (AWG: 23, 22) up to 175 m, < 70 mΩ/m: 0.13 (AWG: 26) up to 40 m, < 140 mΩ/m: 1.5 (AWG: 16)

			EU5C-SWD-CAN 116307	EU5C-SWD-DP 116308	EU5C-SWD-EIP-MODTCP 153163	EU5C-SWD-PROFINET 170124	EU5C-SWD-POWERLINK 171797	EU5C-SWD-ETHERCAT 177354	EU5C-SWD-SERCOS 184982
General									
Standards			IEC/EN 61131-2 EN 50178			IEC/EN 61131-2			
Dimensions (W x H x D)		mm	35 x 90 x 127	35 x 90 x 127	35 x 90 x 124	35 x 90 x 124	35 x 90 x 124	35 x 90 x 124	35 x 90 x 124
Weight		kg	0.16	0.16	0.17	0.16	0.16	0.16	0.16
Mounting			Top-hat rail IEC/EN 60715, 35 mm or screw fixing using fixing brackets ZB4-101-GF1 (accessories)						
Mounting position			As required	As required	As required	As required	As required	As required	As required
Ambient conditions, mechanical									
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20	IP20	IP20	IP20	IP20
Vibrations (IEC/EN 61131-2:2008)									
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 9	5 - 9	5 - 9	5 - 9
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	9 - 150	9 - 150	9 - 150	9 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	9	9	9	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	1	1	1	1
Electromagnetic compatibility (EMC)									
Overvoltage category			II	II	II	II	II	II	II
Pollution degree			2	2	2	2	2	2	2
Electrostatic discharge (IEC/EN 61131-2:2008)									
Air discharge (Level 3)		kV	8	8	8	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)									
80 - 1000 MHz		V/m	10	10	10	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1	1	1	1
Radio interference suppression			EN 55011 Class A						
Burst (IEC/EN 61131-2:2008, Level 3)									
Supply cable		kV	2	2	2	2	2	2	2
Fieldbus cable									
Signal lines		kV	1	1	1	1	1	1	
SmartWire-DT cable									
SmartWire-DT cables		kV	1	1	1	1	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)									
Supply cable			0.5 kV	0.5 kV	0.5 kV	0.5 kV	0.5 kV	0.5 kV	0.5 kV
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10	10	10	10
Operating conditions									
Climatic environmental conditions									
Climatic proofing			In accordance with IEC 60068-2						
Ambient temperature									
Operation	ϑ	°C	-25 - +55	-25 - +55	-25 - +55	-25 - +55	-25 - +55	-25 - +55	-25 - +55
Storage	ϑ	°C	-40 - +70	-40 - +70	-40 - +70	-40 - +70	-40 - +70	-40 - +70	-40 - +70
Atmospheric conditions									
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	5 - 95	5 - 95	5 - 95	5 - 95	5 - 95
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Supply voltage U_{Aux}									
Rated operational voltage	U_{Aux}	V	24 V DC (-15/+20%)						
Residual ripple on the input voltage		%	≦ 5	≦ 5	≦ 5	≦ 5	≦ 5	≦ 5	≦ 5
Protection against polarity reversal			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Max. current	I_{max}	A	3	3	3	3	3	3	3
Short-circuit rating			no, external fuse FAZ Z3						
Power loss	P	W	Normally 1	Normally 1	Normally 1	Normally 1	Normally 1	Normally 1	Normally 1
Potential isolation			No	No	No	No	No	No	No
Rated operating voltage of 24-V-DC slaves		V	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2

			EU5C-SWD-CAN 116307	EU5C-SWD-DP 116308	EU5C-SWD-EIP-MODTCP 153163	EU5C-SWD-PROFINET 170124	EU5C-SWD-POWERLINK 171797	EU5C-SWD-ETHERCAT 177354	EU5C-SWD-SERCOS 184982
Supply voltage U_{Pow}									
Supply voltage	U_{Pow}	V	24 V DC (-15/+20%)						
Input voltage ripple		%	≦ 5	≦ 5	≦ 5	≦ 5	≦ 5	≦ 5	≦ 5
Siemens MPI, (optional)			yes	yes	yes	yes	yes	yes	yes
Rated current	I	A	0.6	0.7	0.7	0.7	0.7	0.7	0.7
Overload proof			yes	yes	yes	yes	yes	yes	yes
Inrush current and duration		A	12.5 A/6 ms	12.5 A/6 ms	12.5 A/6 ms	44 A/2 ms	44 A/2 ms	44 A/2 ms	44 A/2 ms
Heat dissipation at 24 V DC		W	3.8	3.8	3.8	4.4	4.4	4.4	4.4
Potential isolation between U_{Pow} and 15 V SmartWire-DT supply voltage			No	No	No	No	No	No	No
Bridging voltage dips		ms	10	10	10	10	10	10	10
Repetition rate		s	1	1	1	1	1	1	1
Status indication		LED	yes	yes	yes	yes	yes	yes	yes
SmartWire-DT supply voltage									
Rated operating voltage	U_e	V	14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %	14,5 ± 3 %
max. current	I_{max}	A	0.7	0.7	0.7	0.7	0.7	0.7	0.7
			If SWD modules with a total current consumption > 0.7 A are connected, a power feeder module EU5C-SWD-PF2 has to be used.						
Short-circuit rating			Yes	Yes	Yes	Yes	Yes	Yes	Yes
Connection supply voltages									
Connection type			Push in terminals						
Solid		mm²	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5	0.2 - 1.5
Flexible with ferrule		mm²	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5
UL/CSA solid or stranded		AWG	24 - 16	24 - 16	24 - 16	24 - 16	24 - 16	24 - 16	24 - 16
SmartWire-DT network									
Station type			SmartWire-DT master						
Number of SmartWire-DT slaves			99	58	99	99	99	99	99
Baud Rates		kBd	125 250	125 250	125 250	125 250	125 250	125 250	125 250
Status indication		LED	SmartWire-DT master LED: red/green Configurations LED: red/green						
Connections			Plug, 8-pole						
Plug connectors			Blade terminal SWD4-8MF2						
Fieldbus interface									
Module type			CANopen® slave	PROFIBUS DP slave	Ethernet IP/ MODBUS-TCP Slave	PROFINET IO Device	Powerlink slave	EtherCAT slave	SERCOS slave
Protocol			CANopen®	PROFIBUS-DP	Ethernet IP/ MODBUS-TCP	PROFINET	Powerlink V2	EtherCAT	SERCOS III
Input data, max.		Byte	128	240	Ethernet-IP: 546 MODBUS-TCP: 800	800	800	800	280
Output data, max.		Byte	128	240	Ethernet-IP: 496 MODBUS-TCP: 642	642	642	642	272
Baud Rate									
Baud Rates			up to 1 MBit/s	up to 12 MBit/s	10/100 MBit/s	100 MBit/s	100 MBit/s	100 MBit/s	100 MBit/s
Baud rate setting									
Address allocation			automatic	automatic	automatic	-	-	-	-
Station address			2 … 32	2 … 125	IP	IP	IP	IP	IP
Address allocation									
Setting			viaDIP switch	viaDIP switch	viaDip switch/ DHCP/BOOTP	via PROFINET	via Powerlink	via EtherCAT	viaSERCOS III
Status display interface									
Status display fieldbus interface	Multi colour	LED	CAN	DP	MS, Link status	APL, SF, BF, LINK, RX/TX	APL, BS, BE, L/A	APL, RUN, ERR, L/A	APL, L/A
Terminating resistor									
Type or resistance			Switchable via DIP switches	Switchable via field bus connectors	-	-	-	-	-
Connection design for field bus			1 x SUB-D plug, 9-pole	1 x D-SUB socket, 9-pin	2 x RJ45 (2-channel switch)	2 x RJ45 (2-channel switch)	Two RJ45 (two-channel hub)	2 x RJ45 (2-channel switch)	2 x RJ45 (2-channel switch)
Potential isolation			Yes	Yes	Yes	Yes	Yes	Yes	Yes

			EU5E-SWD-8DX 116381	EU5E-SWD-4DX 144060	EU5E-SWD-4D2R 116383	EU5E-SWD-4D4D 116382	EU5E-SWD-X8D 144061
General							
Standards			IEC/EN 61131-2 IEC/EN 61131-2				
Dimensions (W x H x D)		mm	35 x 90 x 101				
Weight		kg	0.1	0.1	0.1	0.1	0.1
Mounting			Top-hat rail IEC/EN 60715, 35 mm				
Mounting position			As required				
Climatic environmental conditions							
Climatic proofing			Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3				
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Operating ambient temperature (IEC 60068-2)		°C	- 25 - +55	- 25 - +55	- 25 - +55	- 25 - +55	- 25 - +55
Storage / Transport	ϑ	°C	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70
Relative humidity							
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	5 - 95	5 - 95	5 - 95
Ambient conditions, mechanical							
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20	IP20	IP20
Vibrations (IEC/EN 61131-2:2008)							
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	9	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	0.3	0.3
Electromagnetic compatibility (EMC)							
Overvoltage category			II	II	II	II	II
Pollution degree			2	2	2	2	2
Electrostatic discharge (IEC/EN 61131-2:2008)							
Air discharge (Level 3)		kV	8	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)							
80 - 1000 MHz		V/m	10	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1	1
Radio interference suppression (SmartWire-DT)			EN 55011 Class A				
Burst (IEC/EN 61131-2:2008, Level 3)							
Supply cable		kV	2	2	2	2	2
Signal lines		kV	1	1	1	1	1
SmartWire-DT cables		kV	1	1	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)							
Surge power cables		kV	-	0.5	-	0.5	0.5
Surge I/O cables		kV	1	1	1	1	1
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10	10

			EU5E-SWD-8DX 116381	EU5E-SWD-4DX 144060	EU5E-SWD-4D2R 116383	EU5E-SWD-4D4D 116382	EU5E-SWD-X8D 144061
SmartWire-DT network							
Station type			SmartWire-DT slave				
Setting the baud rate			automatic				
Baud rate (data transfer speed)		kbps	maximum250				
Status SmartWire-DT		LED	Green				
Connection			Plug, 8-pole Connection plug: external device plug SWD4-8SF2-5				
SWD-IN			-	-	-	-	-
SWD-OUT			-	-	-	-	-
Current consumption (15 V SWD supply)	I_e	mA	16	33	45	33	43
Overload and short-circuit proof			-	-	-	-	-
Digital inputs							
Number of digital inputs/outputs			-	-	-	-	-
Quantity			8	-	4	4	-
Input current		mA	Normally 4 at 24 V DC	-	Normally 4 at 24 V DC	Normally 4 at 24 V DC	-
Voltage level to IEC/EN 61131-2			-	-	-	-	-
Limit value type 1			Low < 5V DC; High > 15V DC	-	Low < 5V DC; High > 15V DC	Low < 5V DC; High > 15V DC	-
Input delay			High->Low < 0.2 ms Low->High < 0.2 ms	-	High->Low < 0.2 ms Low->High < 0.2 ms	High->Low < 0.2 ms Low->High < 0.2 ms	-
Status display inputs		LED	yellow	-	yellow	yellow	-
Digital semi-conductor outputs							
Quantity			-	-	-	4	8
Output current		A	-	-	-	0.5	0.5
Short-circuit tripping current		A	-	-	-	max. 1.2 over 3 ms	
Lamp load	R_{LL}	W	-	-	-	≦ 3	≦ 3
Overload proof			-	-	-	yes, with diagnostics	yes, with diagnostics
Switching capacity			-	-	-	EN 60947-5-1 utilization category DC-13	
Status display outputs		LED	-	-	-	yellow	
Relay outputs							
Number			-	-	2	-	-
Contact type art			-	-	N/O contact	-	-
Operations							
Utilization category AC-1, 250 V, 4 A			-	-	> 5 x 10^4	-	-
Utilization category AC-15, 250 V, 3 A			-	-	> 5 x 10^4	-	-
Utilization category DC-13, 24 V, 1 A			-	-	> 2 x 10^5	-	-
Safe isolation according to EN 50178		V AC	-	-	230	-	-
Minimum load current		mA	-	-	100 mA , 12 V DC	-	-
Pick-up/drop-out time		ms	-	-	5/2.5	-	-
Bounce duration		ms	Normally -	Normally -	Normally 1.5	Normally -	Normally -
Short-circuit protection			-	-	external 4 A gL/gG	-	-
Status display for relay outputs		LED	-	-	yellow	-	-
Potential isolation							
Output to input			-	-	-	no	-
Output to output			-	-	Yes	-	-
Inputs for SmartWire-DT			Yes	Yes	Yes	Yes	-
Outputs to SmartWire-DT			-	Yes	Yes	Yes	Yes
Input to input			-	-	-	No	-

			EU5E-SWD-4AX 144062	EU5E-SWD-2A2A 144063	EU5E-SWD-4PT 144064	EU5E-SWD-4PT-2 172560
General						
Standards			IEC/EN 61131-2, IEC/EN 61131-2			
Dimensions (W x H x D)		mm	35 x 90 x 101	35 x 90 x 101	35 x 90 x 101	35 x 90 x 101
Weight		kg	0.1	0.1	0.1	0.1
Mounting			Top-hat rail IEC/EN 60715, 35 mm			
Mounting position			As required	As required	As required	As required
Climatic environmental conditions						
Climatic proofing			Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3			
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Operating ambient temperature (IEC 60068-2)		°C	- 25 - +55	- 25 - +55	- 25 - +55	- 25 - +55
Storage / Transport	ϑ	°C	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70
Relative humidity						
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	5 - 95	5 - 95
Ambient conditions, mechanical						
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20	IP20
Vibrations (IEC/EN 61131-2:2008)						
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	0.3
Electromagnetic compatibility (EMC)						
Overvoltage category			II	II	II	II
Pollution degree			2	2	2	2
Electrostatic discharge (IEC/EN 61131-2:2008)						
Air discharge (Level 3)		kV	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)						
80 - 1000 MHz		V/m	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1
Radio interference suppression (SmartWire-DT)			EN 55011 Class B	EN 55011 Class B	EN 55011 Class B	EN 55011 Class B
Burst (IEC/EN 61131-2:2008, Level 3)						
Supply cable		kV	2	2	2	2
Signal lines		kV	2	2	2	2
SmartWire-DT cables		kV	2	2	2	2
Surge (IEC/EN 61131-2:2008, Level 1)						
Surge power cables		kV	1	1	1	1
Surge I/O cables		kV	1	1	1	1
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10
SmartWire-DT network						
Station type			SmartWire-DT slave			
Setting the baud rate			automatic	automatic	automatic	automatic
Baud rate (data transfer speed)		kbps	maximum 250	maximum 250	maximum 250	maximum 250
Status SmartWire-DT		LED	Green	Green	Green	Green
Connection			Plug, 8-pole Connection plug: external device plug SWD4-8SF2-5			
SWD-IN			-	-	-	-
SWD-OUT			-	-	-	-
Current consumption (15 V SWD supply)	I_e	mA	22	22	22	22
Overload and short-circuit proof			-	-	-	-

		EU5E-SWD-4AX 144062	EU5E-SWD-2A2A 144063	EU5E-SWD-4PT 144064	EU5E-SWD-4PT-2 172560
Analog inputs					
Quantity		4 (2-wire connection, screened, length < 10 m)	2 (2-wire connection, screened, length < 10 m)	-	-
Parameter setting					
Input type		Voltage, current	Voltage, current	-	-
Averaging		adjustable	adjustable	-	-
Voltage					
Input voltage	V	0 - 10	0 - 10	-	-
Input impedance	kΩ	-	-	-	-
Max. current					
Input current	mA	0 - 20	0 - 20	-	-
Input impedance	Ω	< 250	< 250	-	-
Resolution	Bit	12	12	-	-
Conversion time	ms	20	20	-	-
Total error	%	± 1	± 1	-	-
Repetition accuracy	%	± 0.5	± 0.5	-	-
Dielectric strength	V	± 30	± 30	-	-
Analog outputs					
Quantity		-	2 (2-wire connection, screened)	-	-
Parameter setting					
Type		-	Voltage, current	-	-
Voltage					
Output voltage	V	-	0 -10	-	-
Max. output current	mA	-	10	-	-
Max. current					
Output current	mA	-	0 - 20	-	-
Load resistance	Ω	-	< 500	-	-
Overload and short-circuit proof		-	yes	-	-
Resolution	Bit	-	12	-	-
Conversion time	ms	-	20	-	-
Total error	%	-	± 1	-	-
Repetition accuracy	%	-	± 0.5	-	-
Temperature inputs					
Quantity		-	-	4 (2, 3-wire connection, screened, length < 10 m)	
Parameter setting					
Averaging		-	-	adjustable	adjustable
Temperature sensor		-	-	PT100, PT1000, Ni1000	PT100, PT1000, Ni1000
Temperature range	°C	-	-	PT100, PT1000: -50 - +200 Ni1000: -50 - +150	PT100, PT1000: -100 - +400 Ni1000: -50 - +200
Resolution	°C	-	-	0.1	0.1
Conversion time	ms	-	-	250	250
Display		-	-	°C, °F, raw value	°C, °F, raw value
Total error	%	-	-	± 1	± 1
Repetition accuracy	%	-	-	± 0.5	± 0.5
Potential isolation					
Output to input		-	no	-	-
Output to output		-	No	-	-
Inputs for SmartWire-DT		Yes	Yes	Yes	Yes
Outputs to SmartWire-DT		-	Yes	-	-
Input to input		No	No	No	No

			EU1E-SWD-1DX 174710	EU1E-SWD-2DX 174711	EU1E-SWD-2DD 174715	EU2E-SWD-2DX 174725
General						
Standards			IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2
Dimensions (W x H x D)		mm	85.6 x 56.9 x 20.1	85.6 x 56.9 x 20.1	85.6 x 56.9 x 20.1	98.0 x 56.9 x 20.1
Weight		kg	0.07	0.07	0.07	0.09
Mounting			DIN-rail, screw fixing (M4), mounting section (Clip M20)			
Mounting position			As required			
Climatic environmental conditions						
Climatic proofing			Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3			
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Operating ambient temperature (IEC 60068-2)		°C	- 25 - +70	- 25 - +70	- 25 - +70	- 25 - +70
Storage / Transport	ϑ	°C	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70
Ambient conditions, mechanical						
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP67	IP67	IP67	IP67
Vibrations (IEC/EN 61131-2:2008)						
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 30 g/11 ms		Impacts	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	0.3
Electromagnetic compatibility (EMC)						
Overvoltage category			II	II	II	II
Pollution degree			3	3	3	3
Electrostatic discharge (IEC/EN 61131-2:2008)						
Air discharge (Level 3)		kV	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)						
80 - 1000 MHz		V/m	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1
Radio interference suppression			EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A
Burst (IEC/EN 61131-2:2008, Level 3)						
Supply cable		kV	2	2	2	2
Signal lines		kV	1	1	1	1
SmartWire-DT cables		kV	1	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)						
Surge power cables		kV	0.5	0.5	0.5	0.5
Surge I/O cables		kV	1	1	1	1
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10

EU2E-SWD-4DX 174726	**EU2E-SWD-2DD** 174730	**EU2E-SWD-4DD** 174732	**EU2E-SWD-4DD-1** 180406	**EU1E-SWD-1CX** 174721	**EU1M-SWD-NOP** 174716
IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2
98.0 x 56.9 x 20.1	98.0 x 56.9 x 20.1	98.0 x 56.9 x 20.1	98.0 x 56.9 x 20.1	85.6 x 56.9 x 20.1	85.6 x 41.1 x 20.1
0.09	0.09	0.09	0.09	0.07	0.07
DIN-rail, screw fixing (M4), mounting section (Clip M20)					
As required	As required	As required	As required	As required	As required
Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3					
795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080
- 25 - +70	- 25 - +70	- 25 - +70	- 25 - +70	- 25 - +70	- 25 - +70
- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70
IP67	IP67	IP67	IP67	IP67	IP67
5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
9	9	9	9	9	9
50	50	50	50	50	50
0.3	0.3	0.3	0.3	0.3	0.3
II	II	II	II	II	II
3	3	3	3	3	3
8	8	8	8	8	8
4	4	4	4	4	4
10	10	10	10	10	10
3	3	3	3	3	3
1	1	1	1	1	1
EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A
2	2	2	2	2	2
1	1	1	1	1	1
1	1	1	1	1	1
0.5	0.5	0.5	0.5	0.5	0.5
1	1	1	1	1	1
10	10	10	10	10	10

			EU1E-SWD-1DX 174710	EU1E-SWD-2DX 174711	EU1E-SWD-2DD 174715	EU2E-SWD-2DX 174725
SmartWire-DT network						
Station type			SmartWire-DT slave			
Setting the baud rate			automatic	automatic	automatic	automatic
Baud rate (data transfer speed)		kbps	maximum 2000	maximum 2000	maximum 2000	maximum 2000
Status SmartWire-DT		LED	Green	Green	Green	Green
Connection			-	-	-	-
SWD-IN			M12 plug (A-coded), 5 pole			
SWD-OUT			M12 socket (A-coded), 5 pole			
Current consumption (24V, without sensor and without I/O supply)	I_e	mA	44	55	55	52
Sensor supply						
Max. current consumption per M12 I/O plug		mA	70	70	70	70
Overload and short-circuit proof			yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics
Digital inputs						
Number of digital inputs/outputs			-	2	2, configurable as input or output	2
Quantity			-	-	≦ 3	2
Input current		mA	-	-	Normally 4 at 24 V DC	Normally 4 at 24 V DC
Voltage level to IEC/EN 61131-2			-	-	-	-
Limit value type 1			-	-	Low < 5V DC; High > 15V DC	Low < 5V DC; High > 15V DC
Input delay			-	-	High->Low < 0.2 ms Low->High < 0.2 ms	High->Low < 0.2 ms Low->High < 0.2 ms
Status display inputs		LED	-	-	yellow	yellow
Digital semi-conductor outputs						
Quantity			-	-	2	-
Output current		A	-	-	0.5	-
Short-circuit tripping current		A	-	-	max. 1.2 over 3 ms	-
Lamp load	R_{LL}	W	≦ -	≦ -	≦ 3	≦ -
Overload proof			-	-	yes, with diagnostics	-
Switching capacity			-	-	EN 60947-5-1 utilization category DC-13	-
Status display outputs		LED	-	-	yellow	-
Zähler-Eingänge						
Quantity			-	-	-	-
Input rated voltage		V DC	-	-	-	-
Counter input frequency		kHz	-	-	-	-
Counter value		Bit	-	-	-	-
Funktion Inkrementalgeber						
Encoder inputs			-	-	-	-
Encoding			-	-	-	-
Frequency measurement		Hz	-	-	-	-
Funktion Einfachzähler						
Counter inputs			-	-	-	-
Encoding			-	-	-	-
Frequency measurement		Hz	-	-	-	-
Counter status indicator		LED	-	-	-	-
Potential isolation						
Output to output			-	-	No	-
Output to input			-	-	no	no
Inputs for SmartWire-DT			-	-	No	No
Outputs to SmartWire-DT			-	-	No	No
Input to input			-	-	No	-

EU2E-SWD-4DX 174726	**EU2E-SWD-2DD** 174730	**EU2E-SWD-4DD** 174732	**EU2E-SWD-4DD-1** 180406	**EU1E-SWD-1CX** 174721	**EU1M-SWD-NOP** 174716
SmartWire-DT slave					
automatic	automatic	automatic	automatic	automatic	automatic
maximum 2000	maximum 2000	maximum 2000	maximum2000	maximum 2000	maximum 2000
Green	Green	Green	Green	Green	Green
-	-	-	-	-	-
M12 plug (A-coded), 5 pole					
M12 socket (A-coded), 5 pole					
72	55	75	75	57	36
70	70	70	70	70	-
yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	-
4	2, configurable as input or output	4, configurable as input or output	4, configurable as input or output	-	-
4	2	4	4	-	-
Normally 4 at 24 V DC	Normally 4 at 24 V DC	Normally 4 at 24 V DC	Normally 4 at 24 V DC	-	-
-	-	-	-	-	-
Low < 5V DC; High > 15V DC	Low < 5V DC; High > 15V DC	Low < 5V DC; High > 15V DC	Low < 5V DC; High > 15V DC	-	-
High->Low < 0.2 ms Low->High < 0.2 ms	High->Low < 0.2 ms Low->High < 0.2 ms	High->Low < 0.2 ms Low->High < 0.2 ms	High->Low < 0.2 ms Low->High < 0.2 ms	-	-
yellow	yellow	yellow	yellow	-	-
-	2	4	4	-	-
-	0.5	0.5	0.5	-	-
-	max. 1.2 over 3 ms	max. 1.2 over 3 ms	max. 1.2 over 3 ms	-	-
≦ -	≦ 3	≦ 3	≦ 3	≦ -	≦ -
-	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	-	-
-	EN 60947-5-1 utilization category DC-13	EN 60947-5-1 utilization category DC-13	EN 60947-5-1 utilization category DC-13	-	-
-	yellow	yellow	yellow	-	-
-	-	-	-	1	-
-	-	-	-	24	-
-	-	-	-	Max.30	-
-	-	-	-	32	-
-	-	-	-	A,B,reference	-
-	-	-	-	X1, X2, X4	-
-	-	-	-	0-65535	-
-	-	-	-	Counter pulse, direction, reference mark	-
-	-	-	-	1.2-way	-
-	-	-	-	0-65535	-
-	-	-	-	yellow	-
-	No	No	No	-	-
-	no	no	no	-	-
No	No	No	No	No	-
-	No	No	No	-	-
No	No	No	No	-	-

			EU1E-SWD-1AX-1 174717	EU1E-SWD-1AX-2 174718	EU1E-SWD-1XA-1 174719	EU1E-SWD-1XA-2 174720	EU2E-SWD-2PT 174733
General							
Standards			IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2
Dimensions (W x H x D)		mm	85.6 x 56.9 x 20.1	85.6 x 56.9 x 20.1	85.6 x 56.9 x 20.1	85.6 x 56.9 x 20.1	98.0 x 56.9 x 20.1
Weight		kg	0.07	0.07	0.07	0.07	0.09
Mounting			DIN-rail, screw fixing (M4), mounting section (Clip M20)				
Mounting position			As required	As required	As required	As required	As required
Climatic environmental conditions							
Climatic proofing			Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3				
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Operating ambient temperature (IEC 60068-2)		°C	- 25 - +70	- 25 - +70	- 25 - +70	- 25 - +70	- 25 - +70
Storage / Transport	ϑ	°C	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70
Ambient conditions, mechanical							
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP67	IP67	IP67	IP67	IP67
Vibrations (IEC/EN 61131-2:2008)							
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 30 g/11 ms		Impacts	9	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	0.3	0.3
Electromagnetic compatibility (EMC)							
Overvoltage category			II	II	II	II	II
Pollution degree			3	3	3	3	3
Electrostatic discharge (IEC/EN 61131-2:2008)							
Air discharge (Level 3)		kV	8	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)							
80 - 1000 MHz		V/m	10	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1	1
Radio interference suppression			EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A
Burst (IEC/EN 61131-2:2008, Level 3)							
Supply cable		kV	2	2	2	2	2
Signal lines		kV	1	1	1	1	1
SmartWire-DT cables		kV	1	1	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)							
Surge power cables		kV	0.5	0.5	0.5	0.5	0.5
Surge I/O cables		kV	1	1	1	1	1
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10	10
SmartWire-DT network							
Station type			SmartWire-DT slave				
Setting the baud rate			automatic	automatic	automatic	automatic	automatic
Baud rate (data transfer speed)		kbps	maximum 2000	maximum 2000	maximum 2000	maximum 2000	maximum 2000
Status SmartWire-DT		LED	Green	Green	Green	Green	Green
Connection			-	-	-	-	-
SWD-IN			M12 plug (A-coded), 5 pole				
SWD-OUT			M12 socket (A-coded), 5 pole				
Current consumption (24V, without sensor and without I/O supply)	I_e	mA	46	46	52	67	37

			EU1E-SWD-1AX-1 174717	EU1E-SWD-1AX-2 174718	EU1E-SWD-1XA-1 174719	EU1E-SWD-1XA-2 174720	EU2E-SWD-2PT 174733
SmartWire-DT network							
Sensor supply							
Max. current consumption per M12 I/O plug		mA	70	70	70	70	-
Overload and short-circuit proof			yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	-
Analog inputs							
Quantity			1 (2-wire connection, screened, length < 10 m)		-	-	-
Parameter setting							
Input type			Voltage	Current	-	-	-
Averaging			adjustable	adjustable	-	-	-
Voltage							
Input voltage		V	0 - 10	-	-	-	-
Input impedance		kΩ	13.3	-	-	-	-
Max. current							
Input current		mA	-	0 - 20	-	-	-
Input impedance		Ω	-	< 250	-	-	-
Resolution		Bit	12	12	-	-	-
Conversion time		ms	20	20	-	-	-
Total error		%	± 1	± 1	-	-	-
Repetition accuracy		%	± 0.5	± 0.5	-	-	-
Dielectric strength		V	± 30	± 30	-	-	-
Analog outputs							
Quantity			-	-	1 (2-wire connection, screened)		-
Parameter setting							
Type			-	-	Voltage	Current	-
Voltage							
Output voltage		V	-	-	0 -10	-	-
Max. output current		mA	-	-	10	-	-
Max. current							
Output current		mA	-	-	-	0 - 20	-
Load resistance		Ω	-	-	-	< 500	-
Overload and short-circuit proof			-	-	yes	yes	-
Resolution		Bit	-	-	12	12	-
Conversion time		ms	-	-	20	20	-
Total error		%	-	-	± 1	± 1	-
Repetition accuracy		%	-	-	± 0.5	± 0.5	-
Temperature inputs							
Quantity			-	-	-	-	2 (two-, three-wire connection, screened, length < 10 m)
Parameter setting							
Averaging			-	-	-	-	adjustable
Temperature sensor			-	-	-	-	PT100, PT1000, Ni1000
Temperature range		°C	-	-	-	-	PT100, PT1000: -100 - +400 Ni1000: -50 - +200
Resolution		°C	-	-	-	-	0.1
Conversion time		ms	-	-	-	-	250
Display			-	-	-	-	°C, °F, raw value
Total error		%	-	-	-	-	± 1
Repetition accuracy		%	-	-	-	-	± 0.5
Potential isolation							
Output to output			-	-	-	-	-
Output to input			-	-	-	-	-
Inputs for SmartWire-DT			No	No	-	-	No
Outputs to SmartWire-DT			-	-	No	No	-
Input to input			No	No	-	-	No

			EU6E-SWD-4DX 174735	EU6E-SWD-8DX 174736	EU6E-SWD-8DD 174742	EU6E-SWD-2D2D-1 183264
General						
Standards			IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2
Dimensions (W x H x D)		mm	60 x 157 x 34	60 x 157 x 34	60 x 157 x 34	60 x 157 x 34
Weight		kg	0.25	0.25	0.25	0.25
Mounting			Screw fixing (M4)			
Mounting position			As required	As required	As required	As required
Climatic environmental conditions						
Climatic proofing			Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3			
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Operating ambient temperature (IEC 60068-2)		°C	- 25 - +55	- 25 - +55	- 25 - +55	- 25 - +55
Storage / Transport	ϑ	°C	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70
Ambient conditions, mechanical						
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP67	IP67	IP67	IP67
Vibrations (IEC/EN 61131-2:2008)						
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 30 g/11 ms		Impacts	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	0.3
Electromagnetic compatibility (EMC)						
Overvoltage category			II	II	II	II
Pollution degree			3	3	3	3
Electrostatic discharge (IEC/EN 61131-2:2008)						
Air discharge (Level 3)		kV	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)						
80 - 1000 MHz		V/m	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1
Radio interference suppression			EN 55011 Class A			
Burst (IEC/EN 61131-2:2008, Level 3)						
Supply cable		kV	2	2	2	2
Signal lines		kV	1	1	1	1
SmartWire-DT cables		kV	1	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)						
Surge power cables		kV	0.5	0.5	0.5	0.5
Surge I/O cables		kV	1	1	1	1
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10
SmartWire-DT network						
Station type			SmartWire-DT slave			
Setting the baud rate			automatic	automatic	automatic	automatic
Baud rate (data transfer speed)		kbps	maximum2000	maximum2000	maximum2000	maximum2000
Status SmartWire-DT		LED	Green	Green	Green	Green
Connection			-	-	-	-
SWD-IN			M12 plug (A-coded), 5 pole			
SWD-OUT			M12 socket (A-coded), 5 pole			
Current consumption (24V, without sensor and without I/O supply)	I_e	mA	66	98	114	50
Sensor supply						
Max. current consumption per M12 I/O plug		mA	70	70	70	70
Overload and short-circuit proof			yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics

EU6E-SWD-4D4D-1 183266	**EU6E-SWD-4XD-1** 183268	**EU6E-SWD-8XD-1** 183270	**EU6E-SWD-2D2D-2** 183265	**EU6E-SWD-4D4D-2** 183267	**EU6E-SWD-4XD-2** 183269
IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2
60 x 157 x 34	60 x 157 x 34	60 x 157 x 34	60 x 157 x 34	60 x 157 x 34	60 x 157 x 34
0.25	0.25	0.25	0.25	0.25	0.25
Screw fixing (M4)					
As required	As required	As required	As required	As required	As required
Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3					
795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080
- 25 - +55	- 25 - +55	- 25 - +55	- 25 - +50	- 25 - +50	- 25 - +50
- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70
IP67	IP67	IP67	IP67	IP67	IP67
5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
9	9	9	9	9	9
50	50	50	50	50	50
0.3	0.3	0.3	0.3	0.3	0.3
II	II	II	II	II	II
3	3	3	3	3	3
8	8	8	8	8	8
4	4	4	4	4	4
10	10	10	10	10	10
3	3	3	3	3	3
1	1	1	1	1	1
EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A	EN 55011 Class A
2	2	2	2	2	2
1	1	1	1	1	1
1	1	1	1	1	1
0.5	0.5	0.5	0.5	0.5	0.5
1	1	1	1	1	1
10	10	10	10	10	10
SmartWire-DT slave					
automatic	automatic	automatic	automatic	automatic	automatic
maximum2000	maximum2000	maximum2000	maximum2000	maximum2000	maximum2000
Green	Green	Green	Green	Green	Green
-	-	-	-	-	-
M12 plug (A-coded), 5 pole					
M12 socket (A-coded), 5 pole					
66	54	74	50	66	54
70	70	70	70	70	70
yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics

			EU6E-SWD-4DX 174735	EU6E-SWD-8DX 174736	EU6E-SWD-8DD 174742	EU6E-SWD-2D2D-1 183264
Digital inputs						
Number of digital inputs/outputs			-	-	8, configurable as input or output	4
Quantity			4	8	4	2
Input current		mA	Normally 4 at 24 V DC	Normally 4 at 24 V DC	Normally 4 at 24 V DC	Normally 4 at 24 V DC
Voltage level to IEC/EN 61131-2			-	-	-	-
Limit value type 1			Low < 5V DC; High > 15V DC			
Input delay			High->Low < 0.2 ms Low->High < 0.2 ms			
Status display inputs		LED	yellow	yellow	yellow	yellow
Digital semi-conductor outputs						
Quantity			-	-	4	2
Output current		A	-	-	0.5	0.5
Short-circuit tripping current		A	-	-	max. 1.2 over 3 ms	max. 1.2 over 3 ms
Lamp load	R_{LL}	W	≦ -	≦ -	≦ 3	≦ 3
Overload proof			-	-	yes, with diagnostics	
Switching capacity			-	-	EN 60947-5-1 utilization category DC-13	
Status display outputs		LED	-	-	yellow	-
Potential isolation						
Output to output			-	-	No	-
Output to input			-	-	no	-
Inputs for SmartWire-DT			No	No	No	-
Outputs to SmartWire-DT			-	-	No	-
Input to input			No	No	No	-

EU6E-SWD-4D4D-1 183266	**EU6E-SWD-4XD-1** 183268	**EU6E-SWD-8XD-1** 183270	**EU6E-SWD-2D2D-2** 183265	**EU6E-SWD-4D4D-2** 183267	**EU6E-SWD-4XD-2** 183269
8	4	8	2	8	4
4	-	-	2	4	-
Normally 4 at 24 V DC	-	-	Normally 4 at 24 V DC	Normally 4 at 24 V DC	-
-	-	-	-	-	-
Low < 5V DC; High > 15V DC	-	-	Low < 5V DC; High > 15V DC	Low < 5V DC; High > 15V DC	-
High Low typ. < 0.2 ms Low High typ. < 0.2 ms	-	-	High Low typ. < 0.2 ms Low High typ. < 0.2 ms	High Low typ. < 0.2 ms Low High typ. < 0.2 ms	-
yellow	-	-	yellow	yellow	-
4	4	8	2	4	8
0.5	0.5	0.5	2	2	2
max. 1.2 over 3 ms	max. 1.2 over 3 ms	max. 1.2 over 3 ms	max. 1.2 over 3 ms	max. 1.2 over 3 ms	max. 1.2 over 3 ms
≦ 3	≦ 3	≦ 3	≦ 3	≦ 3	≦ 3
yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics	yes, with diagnostics
EN 60947-5-1 utilization category DC-13					
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-
-	-	-	-	-	-

			EU8E-SWD-16DX 174744	EU8E-SWD-16DD 174750	EU8E-SWD-4D4D-1 183272	EU8E-SWD-8D8D-1 183273	EU8E-SWD-8XD-1 183274	EU8E-SWD-16XD-1 183271
General								
Standards			IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2	IEC/EN 61131-2
Dimensions (W x H x D)		mm	60 x 210,3 x 34	60 x 210,3 x 34	60 x 210,3 x 34	60 x 210,3 x 34	60 x 210,3 x 34	60 x 210,3 x 34
Weight		kg	0.3	0.3	0.3	0.3	0.3	0.3
Mounting			Screw fixing (M4)					
Mounting position			As required	As required	As required	As required	As required	As required
Climatic environmental conditions								
Climatic proofing			Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3					
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080	795 - 1080
Operating ambient temperature (IEC 60068-2)		°C	- 25 - +55	- 25 - +55	- 25 - +55	- 25 - +55	- 25 - +55	- 25 - +55
Storage / Transport	ϑ	°C	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70	- 40+ 70
Ambient conditions, mechanical								
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP67	IP67	IP67	IP67	IP67	IP67
Vibrations (IEC/EN 61131-2:2008)								
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 30 g/11 ms		Impacts	9	9	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	0.3	0.3	0.3
Electromagnetic compatibility (EMC)								
Overvoltage category			II	II	II	II	II	II
Pollution degree			3	3	3	3	3	3
Electrostatic discharge (IEC/EN 61131-2:2008)								
Air discharge (Level 3)		kV	8	8	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)								
80 - 1000 MHz		V/m	10	10	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1	1	1
Radio interference suppression			EN 55011 Class A					
Burst (IEC/EN 61131-2:2008, Level 3)								
Supply cable		kV	2	2	2	2	2	2
Signal lines		kV	1	1	1	1	1	1
SmartWire-DT cables		kV	1	1	1	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)								
Surge power cables		kV	0.5	0.5	0.5	0.5	0.5	0.5
Surge I/O cables		kV	1	1	1	1	1	1
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10	10	10

			EU8E-SWD-16DX 174744	EU8E-SWD-16DD 174750	EU8E-SWD-4D4D-1 183272	EU8E-SWD-8D8D-1 183273	EU8E-SWD-8XD-1 183274	EU8E-SWD-16XD-1 183271
SmartWire-DT network								
Station type			SmartWire-DT slave					
Setting the baud rate			automatic	automatic	automatic	automatic	automatic	automatic
Baud rate (data transfer speed)		kbps	maximum2000	maximum2000	maximum2000	maximum2000	maximum2000	maximum2000
Status SmartWire-DT		LED	Green	Green	Green	Green	Green	Green
Connection								
SWD-IN			M12 plug (A-coded), 5 pole					
SWD-OUT			M12 socket (A-coded), 5 pole					
Current consumption (24V, without sensor and without I/O supply)	I_e	mA	231	231	79	119	79	119
Sensor supply								
Max. current consumption per M12 I/O plug		mA	70	70	70	70	70	70
Overload and short-circuit proof			yes, with diagnostics					
Digital inputs								
Number of digital inputs/outputs			16	16, configurable as input or output	8	16	8	16
Quantity			16	16	4	8	-	-
Input current		mA	Normally 4 at 24 V DC				-	-
Voltage level to IEC/EN 61131-2			-	-	-	-	-	-
Limit value type 1			Low < 5V DC;High > 15V DC				-	-
Input delay			High->Low < 0.2 ms Low->High < 0.2 ms				-	-
Status display inputs		LED	yellow	yellow	yellow	yellow	-	-
Digital semi-conductor outputs								
Quantity			-	≦ 6	4	8	8	16
Output current		A	-	0.5	0.5	0.5	0.5	0.5
Short-circuit tripping current		A	-	max. 1.2 over 3 ms	max. 1.2 over 3 ms	max. 1.2 over 3 ms	max. 1.2 over 3 ms	max. 1.2 over 3 ms
Lamp load	R_{LL}	W	-	≦ 3	≦ 3	≦ 3	≦ 3	≦ 3
Overload proof			-	yes, with diagnostics				
Switching capacity			-	EN 60947-5-1 utilization category DC-13				
Status display outputs		LED	-	yellow	yellow	yellow	yellow	yellow
Potential isolation								
Output to output			-	-	-	No	No	No
Output to input			-	no	yes	yes	-	-
Inputs for SmartWire-DT			No	No	No	No	-	-
Outputs to SmartWire-DT			-	No	Yes	Yes	Yes	Yes
Input to input			No	No	No	No	-	-

			M22-SWD-K11 174735	M22-SWD-KC11 174735	M22-SWD-LED… 115966-115969	M22-SWD-LEDC… 115997-116000	M22-SWD-K11LED… 115972-115975
General							
Standards			IEC/EN 61131-2 EN 50178				
Dimensions (W x H x D)		mm	12 x 42 x 39	12 x 45 x 37	10 x 42 x 45	10 x 45 x 42	12 x 42 x 45
Weight		g	10	10	10	10	10
Mounting position			As required	As required	As required	As required	As required
Ambient conditions, mechanical							
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20	IP20	IP20
Vibrations (IEC/EN 61131-2:2008)							
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	9	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	0.3	0.3
Electromagnetic compatibility (EMC)							
Overvoltage category			Not applicable				
Pollution degree			2	2	2	2	2
Electrostatic discharge (IEC/EN 61131-2:2008)							
Air discharge (Level 3)		kV	8	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)							
80 - 1000 MHz		V/m	10	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1	1
Radio interference suppression (SmartWire-DT)							
Radio interference suppression			EN 55011 Class A				
Burst (IEC/EN 61131-2:2008, Level 3)							
Supply cable		kV	2	2	2	2	2
SmartWire-DT cables		kV	1	1	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)							
Supply cables/CAN/DP bus cable							
Surge power cables		kV	-	-	-	-	-
Surge I/O cables		kV	-	-	-	-	-
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10	10
Climatic environmental conditions							
Operating ambient temperature (IEC 60068-2)		°C	- 30 - +70	- 30 - +55	- 30 - +70	- 30 - +55	- 30 - +70
Storage / Transport		°C	- 40 - + 80	- 40 - + 80	- 40 - + 80	- 40 - + 80	- 40 - + 80
Condensation			Take appropriate measures to prevent condensation				
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	9 - 95	9 - 95	9 - 95	9 - 95	9 - 95
SmartWire-DT network							
Station type			SmartWire-DT slave				
Number of SmartWire-DT slaves			-	-	-	-	-
Baud Rates		kBd	-	-	-	-	-
Address allocation			automatic	automatic	-	-	automatic
Status indication		LED	Green	Green	Green	Green	Green
Connections			Plug, 8-pole				
Plug connectors			SWD4-8SF2-5	M22-SWD-I…LP	SWD4-8SF2-5	M22-SWD-I…LP	SWD4-8SF2-5

M22-SWD-K11LEDC… 116003-116006	**M22-SWD-K22** 115965	**M22-SWD-KC22** 115996	**M22-SWD-K22LED…** 115978-115981	**M22-SWD-K22LEDC…** 116009-116012	**M22-SWD-INC** 179982	**M22-SWD-R** 179293
IEC/EN 61131-2 EN 50178					IEC/EN 61131-2	IEC/EN 61131-2
12 x 45 x 42	17 x 42 x 39	17 x 45 x 37	17 x 42 x 45	17 x 45 x 42	13 x 42 x 37	13 x 42 x 37
10	14	14	14	14		9
As required	As required	As required	As required	As required	As required	As required
IP20	IP20	IP20	IP20	IP20	IP20	IP20
5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
9	9	9	9	9	9	9
50	50	50	50	50	50	50
0.3	0.3	0.3	0.3	0.3	0.3	0.3
Not applicable						
2	2	2	2	2	2	2
8	8	8	8	8	8	8
4	4	4	4	4	4	4
10	10	10	10	10	10	10
3	3	3	3	3		3
1	1	1	1	1		1
EN 55011 Class A						
2	2	2	2	2		2
1	1	1	1	1	1	1
-	-	-	-	-	-	-
-	-	-	-	-	-	-
10	10	10	10	10		10
- 30 - +55	- 30 - +70	- 30 - +55	- 30 - +70	- 30 - +55		
- 40 - + 80	- 40 - + 80	- 40 - + 80	- 40 - + 80	- 40 - + 80		
Take appropriate measures to prevent condensation						
9 - 95	5 - 95	5 - 95	5 - 95	5 - 95	9 - 95	9 - 95
SmartWire-DT slave						
-	-	-	-	-	-	-
-	-	-	-	-	-	-
automatic	automatic	automatic	automatic	automatic	-	-
Green	Green	Green	Green	Green	Green	Green
Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole
M22-SWD-I…LP	SWD4-8SF2-5	M22-SWD-I…LP	SWD4-8SF2-5	M22-SWD-I…LP	SWD4-8SF2-5	SWD4-8SF2-5

		M22-R-SWD 179292	M22-SWD-R 179293	M22-INC-SWD 179981	M22-SWD-INC 179982
General					
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	-
Mounting position		As required	As required	As required	As required
Mechanical shock resistance	g	15 Shock duration 11 ms Sinusoidal according to IEC 60068-2-27	-	15 Shock duration 11 ms Sinusoidal according to IEC 60068-2-27	-
Operating ambient temperature min.	°C	-30	-30	-30	-30
Operating ambient temperature max.	°C	+70	+70	+70	+70

			SL4-SWD 171311	SL7-SWD 171459
General				
Standards			IEC/EN 60947-5-1	IEC/EN 60947-5-1
Climatic proofing			Damp heat, constant, to IEC 60068-2-78 Damp heat, cyclic, to IEC 60069-2-30	
Mounting position			for horizontal mounting	for horizontal mounting
Mechanical shock resistance		g	> 15 according to IEC 60068-2-27 Shock duration 11 ms Sinusoidal	> 15 according to IEC 60068-2-27 Shock duration 11 ms Sinusoidal
IEC degree of protection			IP66 IEC/EN 60529	IP66 IEC/EN 60529
Protection type UL			Type 4, 4X, 13	Type 4, 4X, 13
Cap colour				
			black Aluminum color tube	black Aluminum color tube
Ambient temperature		°C	-30 - +60	-30 - +60
Number of signal elements			Max. 5 with standard base Max. 10 with base for mounting on both sides	Max. 5 with standard base Max. 10 with base for mounting on both sides

			DIL-SWD-32-001 118560	DIL-SWD-32-002 118561	PKE-SWD-32 126895	PKE-SWD-SP 150614 172735 PKE-SWD-CP	NZM-XSWD-704 135530
General							
Standards			IEC/EN 61131-2 EN 50178 IEC/EN 60947			IEC/EN 61131-2 IEC/EN 61131-2	IEC/EN 61131-2 EN 50178
Dimensions (W x H x D)		mm	45 x 38 x 76	45 x 38 x 76	45 x 38 x 76	45 x 46.8 x 70.3 45 x 46.8 x 70.3	35 x 90 x 101
Weight		kg	0.04	0.04	0.04	0.02 0.04	0.1
Mounting			on DILM7…DILM38	on DILM7…DILM38	on DILM7…DILM32	at PKE12/32/65 at PKE32/65	Top-hat rail IEC/EN 60715, 35 mm
Mounting position			as DILM7 to DILM38	as DILM7 to DILM38	as DILM7 to DILM32	as PKE12/35/65 as PKE32/65	Vertical
Ambient conditions, mechanical							
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20	IP20	IP20
Vibrations (IEC/EN 61131-2:2008)							
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	9	9	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3	0.3	0.3
Electromagnetic compatibility (EMC)							
Overvoltage category			II	II	II	II	II
Pollution degree			2	2	2	2	2
Electrostatic discharge (IEC/EN 61131-2:2008)							
Air discharge (Level 3)		kV	8	8	8	8	8
Contact discharge (Level 2)		kV	4	4	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)							
80 - 1000 MHz		V/m	10	10	10	10	10
1.4 - 2 GHz		V/m	3	3	3	3	3
2 - 2.7 GHz		V/m	1	1	1	1	1
Radio interference suppression			EN 55011 Class A				
Burst (IEC/EN 61131-2:2008, Level 3)							
Signal lines		kV	1	1	1	1	1
SmartWire-DT cables		kV	1	1	1	1	1
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10	10	10
Climatic environmental conditions							
Operating ambient temperature (IEC 60068-2)		°C	-25 - +60	-25 - +60	-25 - +60	-25 - +60	-25 - +55
Condensation			Take appropriate measures to prevent condensation				
Storage / Transport	ϑ	°C	-	-	-30 - +70	-30 - +70	-
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	5 - 95	5 - 95	5 - 95

			DIL-SWD-32-001 118560	DIL-SWD-32-002 118561	PKE-SWD-32 126895	PKE-SWD-SP 150614 172735 PKE-SWD-CP	NZM-XSWD-704 135530
SmartWire-DT network							
Station type			SmartWire-DT slave				
Address allocation			automatic	automatic	automatic	automatic	automatic
Status SmartWire-DT		LED	green/orange	green/orange	green/orange	Green	Green
Connections			Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	Plug, 8-pole	-
Connection			External device plug SWD4-8SF2-5	External device plug SWD4-8SF2-5	External device plug SWD4-8SF2-5	External device plug SWD4-8SF2-5	Plug, 8-pole Connection plug: External device plug SWD4-8SF2-5
Current consumption							
15-V-SWD supply		mA	-	-	58	35	-
24-V-DC-SWD control voltage	U_{aux}		-	-	See the contactor's pick-up current and holding current (max. 0.5 A).	-	-
Operating mode							
Manual/automatic mode			-	-	yes	-	-
Setting			-	via Rotary switch	via Rotary switch	-	-
Connection auxiliary contact							
Number			2	2	-	-	-
Rated voltage	U_e	V DC	15	15	-	-	-
Input current at 1 signal, typical		mA	3	3	-	-	-
Potential isolation			No	No	-	-	-
Cable length		m	≦ 2.8	≦ 2.8	≦ 2.8	- -	≦ 2.8
Connection type			Push in terminals			-	Push in terminals
Terminal capacities							
Solid		mm²	0.2 - 1.5 (AWG 24 - 16)	0.2 - 1.5 (AWG 24 - 16)	0.2 - 1.5 (AWG 24 - 16)	-	0.2 - 1.5 (AWG 24 - 16)
Flexible with ferrule		mm²	0.25 - 1.5	0.25 - 1.5	0.25 - 1.5	-	0.25 - 1.5

			EMS-DO-T-2,4-SWD 170106	EMS-DO-T-9-SWD 170107	EMS-RO-T-2,4-SWD 170108
General					
Standards			IEC/EN 60947-4-2	IEC/EN 60947-4-2	IEC/EN 60947-4-2
Dimensions					
Width		mm	30	30	30
Height		mm	157	157	157
Depth		mm	124	124	124
Weight		kg	0.3	0.3	0.3
Mounting			Top-hat rail IEC/EN 60715, 35 mm		
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP20
Mounting position			Vertical	Vertical	Vertical
Lifespan, electrical	Operations		3×10^7	3×10^7	3×10^7
Max. switching frequency	Operations/h		7200 (pulse pause time 50:50)		
Terminal capacity					
Solid		mm^2	1 x (0.2 - 2.5) 1 x AWG20 - 14	1 x (0.2 - 2.5) 1 x AWG20 - 14	1 x (0.2 - 2.5) 1 x AWG20 - 14
flexible, with ferrule		mm^2	2 x (0,2 - 2,5) 1 x AWG24 - 14	2 x (0,2 - 2,5) 1 x AWG24 - 14	2 x (0,2 - 2,5) 1 x AWG24 - 14
Notes			Minimum length 10 mm.	Minimum length 10 mm.	Minimum length 10 mm.
flexible, with twin ferrule		mm^2	2 x (0,2 - 1,5) 2 x AWG24 - 16	2 x (0,2 - 1,5) 2 x AWG24 - 16	2 x (0,2 - 1,5) 2 x AWG24 - 16
Notes			Minimum length 10 mm.	Minimum length 10 mm.	Minimum length 10 mm.
Climatic environmental conditions					
Operating ambient temperature		°C	-5 - +60, in accordance with IEC 60068-2-1		
Storage	ϑ	°C	-40 - +80	-40 - +80	-40 - +80
Main conducting paths					
Rated impulse withstand voltage	U_{imp}	V AC	6000	6000	6000
Overvoltage category/pollution degree			III/2	III/2	III/2
Rated operational voltage	U_e	V	42 - 550	42 - 550	42 - 550
Rated operational current					
AC-51	I_e	A	0.15 - 2.40	1.20 - 9	0.15 - 2.40
AC-53a	I_e	A	0.15 - 2.4	1.20 - 7	0.15 - 2.4
Rated operational current at AC-53a	I_e	A	2.4	7	2.4
Heat dissipation	P_V	W	0.1 - 2	1 - 12	0.1 - 2
Static heat dissipation, non-current-dependent	P_{vs}	W	1	1	1
Basic insulation to IEC/EN60947-1					
Between supply, control, and switching voltages		V AC	-	500	-
Current measurement					
Setting range of overload releases	I_r	A_x	0,18 - 2,4	1,5 - 7 (AC-53a) 9 (AC-51)	0,18 - 2,4
Release class		CLASS	10	10 (Ir ≦ 4 A) 10A (Ir > 4 A)	10
Recovery time	t_W	min.	2 (manual startup) 20 (automatic restart)		
Balance monitoring					
Magnitude $I_{max} > I_{rated}$ $((I_{max} - I_{min})/I_{max})$		%	If ≧ 33, pick-up time of 120 s If ≧ 67, pick-up time of 1.8 s		
Magnitude $I_{max} < I_{rated}$ $((I_{max} - I_{min})/I_{rated})$		%	If ≧ 33, pick-up time of 120 s If ≧ 67, pick-up time of 1.8 s		
Stall protection					
Pick-up time I (L1) or I (L3)		A	33	60	33
Pick-up time		S	0.5	0.5	0.5
Short-circuit rating					
Type "1" coordination					
Short-circuit protective device			50 kA, 500 V AC: Fuse 16 A gG/gL 50 kA, 500 V AC: fuse 30 A CCMR 50 kA, 415 V AC: PKM0-4 15 kA, 415 V AC: PKM0-6,3 2.5 kA, 400 V AC: FAZ-B16/3		

EMS-RO-T-9-SWD 170109	EMS-DOS-T-2,4-SWD 170110	EMS-DOS-T-9-SWD 170111	EMS-ROS-T-2,4-SWD 170112	EMS-ROS-T-9-SWD 169790
IEC/EN 60947-4-2	IEC/EN 60947-4-2	IEC/EN 60947-4-2	IEC/EN 60947-4-2	IEC/EN 60947-4-2
30	30	30	30	30
157	157	157	157	157
124	124	124	124	124
0.3	0.3	0.3	0.3	0.3
Top-hat rail IEC/EN 60715, 35 mm				
IP20	IP20	IP20	IP20	IP20
Vertical	Vertical	Vertical	Vertical	Vertical
3×10^7	3×10^7	3×10^7	3×10^7	3×10^7
7200 (pulse pause time 50:50)				
1 x (0.2 - 2.5) 1 x AWG20 - 14	1 x (0.2 - 2.5) 1 x AWG20 - 14	1 x (0.2 - 2.5) 1 x AWG20 - 14	1 x (0.2 - 2.5) 1 x AWG20 - 14	1 x (0.2 - 2.5) 1 x AWG20 - 14
2 x (0,2 - 2,5) 1 x AWG24 - 14	2 x (0,2 - 2,5) 1 x AWG24 - 14	2 x (0,2 - 2,5) 1 x AWG24 - 14	2 x (0,2 - 2,5) 1 x AWG24 - 14	2 x (0,2 - 2,5) 1 x AWG24 - 14
Minimum length 10 mm.	Minimum length 10 mm.	Minimum length 10 mm.	Minimum length 10 mm.	Minimum length 10 mm.
2 x (0,2 - 1,5) 2 x AWG24 - 16	2 x (0,2 - 1,5) 2 x AWG24 - 16	2 x (0,2 - 1,5) 2 x AWG24 - 16	2 x (0,2 - 1,5) 2 x AWG24 - 16	2 x (0,2 - 1,5) 2 x AWG24 - 16
Minimum length 10 mm.	Minimum length 10 mm.	Minimum length 10 mm.	Minimum length 10 mm.	Minimum length 10 mm.
-5 - +60, in accordance with IEC 60068-2-1				
-40 - +80	-40 - +80	-40 - +80	-40 - +80	-40 - +80
6000	6000	6000	6000	6000
III/2	III/2	III/2	III/2	III/2
42 - 550	42 - 550	42 - 550	42 - 550	42 - 550
1.20 - 9	0.15 - 2.40	1.20 - 9	0.15 - 2.40	1.20 - 9
1.20 - 7	0.15 - 2.4	1.20 - 7	0.15 - 2.4	1.20 - 7
7	2.4	7	2.4	7
1 - 12	0.1 - 2	1 - 12	0.1 - 2	1 - 12
1	1	1	1	1
-	500	-	-	-
1,5 - 7 (AC-53a) 9 (AC-51)	0,18 - 2,4	1,5 - 7 (AC-53a) 9 (AC-51)	0,18 - 2,4	1,5 - 7 (AC-53a) 9 (AC-51)
10 (Ir ≦ 4 A) 10A (Ir > 4 A)	10	10 (Ir ≦ 4 A) 10A (Ir > 4 A)	10	10 (Ir ≦ 4 A) 10A (Ir > 4 A)
2 (manual startup) 20 (automatic restart)				
If ≧ 33, pick-up time of 120 s If ≧ 67, pick-up time of 1.8 s				
If ≧ 33, pick-up time of 120 s If ≧ 67, pick-up time of 1.8 s				
60	33	60	33	60
0.5	0.5	0.5	0.5	0.5
50 kA, 500 V AC: Fuse 16 A gG/gL 50 kA, 500 V AC: fuse 30 A CCMR 50 kA, 415 V AC: PKM0-4 15 kA, 415 V AC: PKM0-6,3 2.5 kA, 400 V AC: FAZ-B16/3				

			EMS-DO-T-2,4-SWD 170106	EMS-DO-T-9-SWD 170107	EMS-RO-T-2,4-SWD 170108
Electromagnetic compatibility (EMC)					
Electrostatic discharge (ESD)					
applied standard			IEC EN 61000-4-2, Level 3	IEC EN 61000-4-2, Level 3	IEC EN 61000-4-2, Level 3
Air discharge		kV	8	8	8
Contact discharge		kV	6	6	6
Electromagnetic fields (RFI)					
applied standard			IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3
		V/m	800 - 1000 MHz: 10 1.4 - 2 GHz: 10 2.0 - 2.7 GHz: 3		
Radio interference suppression			EN 55011, Class A (emitted interference, line-conducted) EN 61000-6-3, Class A (emitted interference, radiated)		
Burst		kV	2 IEC/EN 61000-4-4, level 3	2 IEC/EN 61000-4-4, level 3	2 IEC/EN 61000-4-4, level 3
power pulses (Surge)			1 kV (symmetrical) 2 kV (asymmetrical) according to IEC/EN 61000-4-5		
Immunity to line-conducted interference to (IEC/EN 61000-4-6)		V	10	10	10

EMS-RO-T-9-SWD 170109	**EMS-DOS-T-2,4-SWD** 170110	**EMS-DOS-T-9-SWD** 170111	**EMS-ROS-T-2,4-SWD** 170112	**EMS-ROS-T-9-SWD** 169790
IEC EN 61000-4-2, Level 3	IEC EN 61000-4-2, Level 3	IEC EN 61000-4-2, Level 3	IEC EN 61000-4-2, Level 3	IEC EN 61000-4-2, Level 3
8	8	8	8	8
6	6	6	6	6
IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3	IEC/EN 61000-4-3
800 - 1000 MHz: 10 1.4 - 2 GHz: 10 2.0 - 2.7 GHz: 3				
EN 55011, Class A (emitted interference, line-conducted) EN 61000-6-3, Class A (emitted interference, radiated)				
2 IEC/EN 61000-4-4, level 3	2 IEC/EN 61000-4-4, level 3	2 IEC/EN 61000-4-4, level 3	2 IEC/EN 61000-4-4, level 3	2 IEC/EN 61000-4-4, level 3
1 kV (symmetrical) 2 kV (asymmetrical) according to IEC/EN 61000-4-5				
10	10	10	10	10

			DS7-34DSX…			
			…004N0-D	…007N0-D	…009N0-D	…012N0-D
			134943	134945	134946	134947
General						
Standards			IEC/EN 60947-4-2 UL 508 CSA22.2-14	IEC/EN 60947-4-2 UL 508 CSA22.2-14	IEC/EN 60947-4-2 UL 508 CSA22.2-14	IEC/EN 60947-4-2 UL 508 CSA22.2-14
Ambient temperature						
Operation	ϑ	°C	-5 - +40 higher than 40 °C with 2 % derating per Kelvin temperature rise, max. +60 °C			
Storage / Transport	ϑ	°C	-25 - +60	-25 - +60	-25 - +60	-25 - +60
Altitude		m	0 - 1000 m, above that 1 % derating per 100 m , up to 2000 m			
Mounting position			Vertical	Vertical	Vertical	Vertical
Degree of protection			IP20	IP20	IP20	IP20
Protection against direct contact			Finger- and back-of-hand proof			
Overvoltage category/pollution degree			II/2	II/2	II/2	II/2
Shock resistance			8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms
Vibration resistance to EN 60721-3-2			2M2	2M2	2M2	2M2
Radio interference level (IEC/EN 55011)			B	B	B	B
Static heat dissipation, non-current-dependent	P_{vs}	W	0.2	0.35	0.45	0.6
Weight		kg	0.41	0.41	0.41	0.41
Main conducting paths						
Rated operating voltage	U_e	V AC	200 - 480	200 - 480	200 - 480	200 - 480
Supply frequency	f_{LN}	Hz	50/60	50/60	50/60	50/60
Assigned motor rating (Standard connection, In-Line)						
at 230 V, 50 Hz	P	kW	0.75	1.5	2.2	3
at 400 V, 50 Hz	P	kW	1.5	3	4	5.5
at 200 V, 60 Hz	P	HP	0.75	2	2	3
at 230 V, 60 Hz	P	HP	1	2	3	3
at 460 V, 60 Hz	P	HP	2	5	5	10
Overload cycle to IEC/EN 60947-4-2						
AC-53a (without bypass)			4 A: AC-53a: 3 - 5: 75 - 10	7 A: AC-53a: 3 - 5: 75 - 10	9 A: AC-53a: 3 - 5: 75 - 10	12 A: AC-53a: 3 - 5: 75 - 10
AC-53b (with bypass) Internal bypass contacts			✓	✓	✓	✓
Short-circuit rating						
Type "1" coordination			PKM0-4 (+ CL-PKZ0)	PKM0-10 (+ CL-PKZ0)	PKM0-10 (+ CL-PKZ0)	PKM0-12 (+ CL-PKZ0)
Type „2" coordination (additional with the fuses for coordination type „1")			3 x 170M1359	3 x 170M1361	3 x 170M1362	3 x 170M1362
Fuse base (number x part no.)			3 x 170H1007	3 x 170H1007	3 x 170H1007	3 x 170H1007
Terminal capacities						
Cable lengths						
Solid		mm²	1 x (0.75 - 4) 2 x (0.75 - 2.5)	1 x (0.75 - 4) 2 x (0.75 - 2.5)	1 x (0.75 - 4) 2 x (0.75 - 2.5)	1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule		mm²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Flexible with cable lug		mm²	-	-	-	-
Stranded		mm²	-	-	-	-
Stranded with cable lug		mm²	-	-	-	-
Solid or stranded		AWG	18 - 10	18 - 10	18 - 10	18 - 10
Copper band		MM				
Tightening torque		Nm	1.2	1.2	1.2	1.2
Screwdriver (PZ: Pozidriv)		mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm
Control cables						
Solid		mm²	1 x (0.75 - 4) 2 x (0.75 - 2.5)	1 x (0.75 - 4) 2 x (0.75 - 2.5)	1 x (0.75 - 4) 2 x (0.75 - 2.5)	1 x (0.75 - 4) 2 x (0.75 - 2.5)
Flexible with ferrule		mm²	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)
Stranded		mm²	-	-	-	-
Solid or stranded		AWG	18 - 10	18 - 10	18 - 10	18 - 10
Tightening torque		Nm	1.2	1.2	1.2	1.2
Screwdriver		mm	0,8 x 5,5 1 x 6	0,8 x 5,5 1 x 6	0,8 x 5,5 1 x 6	0,8 x 5,5 1 x 6

DS7-34DSX...										
...016N0-D	...024N0-D	...032N0-D	...041N0-D	...055N0-D	...070N0-D	...081N0-D	...100N0-D	...135N0-D	...160N0-D	...200N0-D
134948	134949	134950	134952	134953	134954	134955	134956	134957	134958	134959
IEC/EN 60947-4-2 UL 508 CSA22.2-14										
-5 - +40 higher than 40 °C with 2 % derating per Kelvin temperature rise, max. +60 °C										
-25 - +60	-25 - +60	-25 - +60	-25 - +60	-25 - +60	-25 - +60	-25 - +60	-25 - +60	-25 - +60	-25 - +60	-25 - +60
0 - 1000 m, above that 1 % derating per 100 m , up to 2000 m										
Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical	Vertical
IP20	IP20	IP20	IP20 (terminals IP00)							
Finger- and back-of-hand proof										
II/2	II/2	II/2	II/2	II/2	II/2	II/2	II/2	II/2	II/2	II/2
8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms	8 g/11 ms
2M2	2M2	2M2	2M2	2M2	2M2	2M2	2M2	2M2	2M2	2M2
B	B	B	B	B	B	B	B	B	B	B
0.8	1.1	1.5	7	10	13	18	25	24	30	42
0.46	0.46	0.46	1.8	1.8	1.8	1.8	1.8	3.7	3.7	3.7
200 - 480	200 - 480	200 - 480	200 - 480	200 - 480	200 - 480	200 - 480	200 - 480	200 - 480	200 - 480	200 - 480
50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60	50/60
4	5.5	7.5	11	15	15	22	30	30	45	55
7.5	11	15	22	30	37	45	55	75	90	110
5	7.5	10	10	15	20	25	30	40	50	60
5	7.5	10	15	20	25	30	30	50	60	75
10	15	25	30	40	50	60	75	100	125	150
16 A: AC-53a: 3 - 5: 75 - 10	24 A: AC-53a: 3 - 5: 75 - 10	32 A: AC-53a: 3 - 5: 75 - 10	41 A: AC-53a: 3 - 5: 75 - 10	55 A: AC-53a: 3 - 5: 75 - 10	68 A: AC-53a: 3 - 5: 75 - 10	81 A: AC-53a: 3 - 5: 75 - 10	99 A: AC-53a: 3 - 5: 75 - 10	135 A: AC-53a: 3 - 5: 75 - 10	160 A: AC-53a: 3 - 5: 75 - 10	200 A: AC-53a: 3 - 5: 75 - 10
✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓
PKM0-16 (+ CL-PKZ0)	PKM0-25 (+ CL-PKZ0)	PKM0-32 (+ CL-PKZ0)	NZMN1-M50/ PKZM4-49	NZMN1-M63/ PKZM4-57	NZMN1-M80	NZMN1- M100	NZMN1- M100	NZMN2- M160	NZMN2- M200	NZMN2- M200
3 x 170M1364	3 x 170M1365	3 x 170M1366	3 x 170M3013	3 x 170M3013	3 x 170M4008	3 x 170M4008	3 x 170M4008	3 x 170M4010	3 x 170M5008	3 x 170M5008
3 x 170H1007	3 x 170H1007	3 x 170H1007	3 x 170H3004	3 x 170H3004	3 x 170H3004	3 x 170H3004	3 x 170H3004	3 x 170H3004	3 x 170H3004	3 x 170H3004
1 x (0.75 - 16) 2 x (0.75 - 10)	1 x (0.75 - 16) 2 x (0.75 - 10)	1 x (0.75 - 16) 2 x (0.75 - 10)	1 x (25 - 70) 2 x (6 - 25)	1 x (25 - 70) 2 x (6 - 25)	1 x (25 - 70) 2 x (6 - 25)	1 x (25 - 70) 2 x (6 - 25)	1 x (25 - 70) 2 x (6 - 25)	1 x (4 - 185) 2 x (4 - 70)	1 x (4 - 185) 2 x (4 - 70)	1 x (4 - 185) 2 x (4 - 70)
1 x (0.75 - 16) 2 x (0.75 - 10)	1 x (0.75 - 16) 2 x (0.75 - 10)	1 x (0.75 - 16) 2 x (0.75 - 10)	-	-	-	-	-	-	-	-
-	-	-	-	-	-	-	-	-	-	-
1 x 16	1 x 16	1 x 16	1 x (25 - 70) 2 x (6 - 25)	1 x (25 - 70) 2 x (6 - 25)	1 x (25 - 70) 2 x (6 - 25)	1 x (25 - 70) 2 x (6 - 25)	1 x (25 - 70) 2 x (6 - 25)	1 x (4 - 185) 2 x (4 - 70)	1 x (4 - 185) 2 x (4 - 70)	1 x (4 - 185) 2 x (4 - 70)
-	-	-	-	-	-	-	-	-	-	-
18 - 6	18 - 6	18 - 6	1 x (12 - 2/0)	1 x (12 - 2/0)	1 x (12 - 2/0)	1 x (12 - 2/0)	1 x (12 - 2/0)	1 x (12 - 350 kcmil) 2 x (12 - 00)		
			2 x 9 x 0.89 x 9 x 0.8					2 x 9 x 0.810 x 16 x 0.8		
3.2	3.2	3.2	6 (≤ 10 mm²); 9 (> 10 mm²)					5 (≤ 10 mm²); 14 (> 10 mm²)		
PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm	PZ2; 1 x 6 mm
1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.75 - 4) 2 x (0.75 - 4)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)	1 x (0.5 - 2.5) 2 x (0.5 - 1.0)
1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.75 - 2.5) 2 x (0.75 - 2.5)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)	1 x (0.5 - 1.5) 2 x (0.5 - 0.75)
-	-	-	1 x (0.5 - 1.5) 2 x (0.5 - 1.0)	1 x (0.5 - 1.5) 2 x (0.5 - 1.0)	1 x (0.5 - 1.5) 2 x (0.5 - 1.0)	1 x (0.5 - 1.5) 2 x (0.5 - 1.0)	1 x (0.5 - 1.5) 2 x (0.5 - 1.0)	1 x (0.5 - 1.5) 2 x (0.5 - 1.0)	1 x (0.5 - 1.5) 2 x (0.5 - 1.0)	1 x (0.5 - 1.5) 2 x (0.5 - 1.0)
18 - 14	18 - 14	18 - 14	1 x (21 - 14) 2 x (21 - 18)	1 x (21 - 14) 2 x (21 - 18)	1 x (21 - 14) 2 x (21 - 18)	1 x (21 - 14) 2 x (21 - 18)	1 x (21 - 14) 2 x (21 - 18)	1 x (21 - 14) 2 x (21 - 18)	1 x (21 - 14) 2 x (21 - 18)	1 x (21 - 14) 2 x (21 - 18)
1.2	1.2	1.2	0.4	0.4	0.4	0.4	0.4	0.4	0.4	0.4
0,6 x 5,5 1 x 6	0,6 x 5,5 1 x 6	0,6 x 5,5 1 x 6	0,6 x 3,5	0,6 x 3,5	0,6 x 3,5	0,6 x 3,5	0,6 x 3,5	0,6 x 3,5	0,6 x 3,5	0,6 x 3,5

			DS7-34DSX…			
			…004N0-D	…007N0-D	…009N0-D	…012N0-D
			134943	134945	134946	134947
Control circuit						
Digital inputs						
Control voltage						
DC-operated		V DC	24 V DC +10 %/- 15 % oder über SWD			
Current consumption 24 V						
External 24 V		mA	1.6	1.6	1.6	1.6
Pick-up voltage						
DC-operated		V DC	17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27
Drop-out voltage						
DC operated		V DC	0 - 3	0 - 3	0 - 3	0 - 3
Pick-up time						
DC operated		ms	250	250	250	250
Drop-out time						
DC operated		ms	350	350	350	350
Regulator supply						
Voltage	U_s	V	24 V DC +10 %/- 15 %			
Current consumption	I_e	mA	50	50	50	50
Current consumption at peak performance (close bypass) at 24 V DC	I_{Peak}	A/ms	-	-	-	-
Notes			External supply voltage			
Built-in interfaces			SmartWire-DT	SmartWire-DT	SmartWire-DT	SmartWire-DT

Notes

Rated impulse withstand voltage:
- 1.2 µs/50 µs (rise time/fall time of the pulse to IEC/EN 60947-2 or -3)
- Applies for control circuit/power section/enclosure

DS7-34DSX…										
…016N0-D	**…024N0-D**	**…032N0-D**	**…041N0-D**	**…055N0-D**	**…070N0-D**	**…081N0-D**	**…100N0-D**	**…135N0-D**	**…160N0-D**	**…200N0-D**
134948	134949	134950	134952	134953	134954	134955	134956	134957	134958	134959
24 V DC +10 %/- 15 % oder über SWD										
1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6	1.6
17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27	17.3 - 27
0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3	0 - 3
250	250	250	250	250	250	250	250	250	250	250
350	350	350	350	350	350	350	350	350	350	350
24 V DC +10 %/- 15 %										
50	50	50	50	50	50	50	50	50	50	50
-	-	-	0,6/50	0,6/50	0,6/50	0,6/50	0,6/50	0,6/50	0,6/50	0,6/50
External supply voltage										
SmartWire-DT										

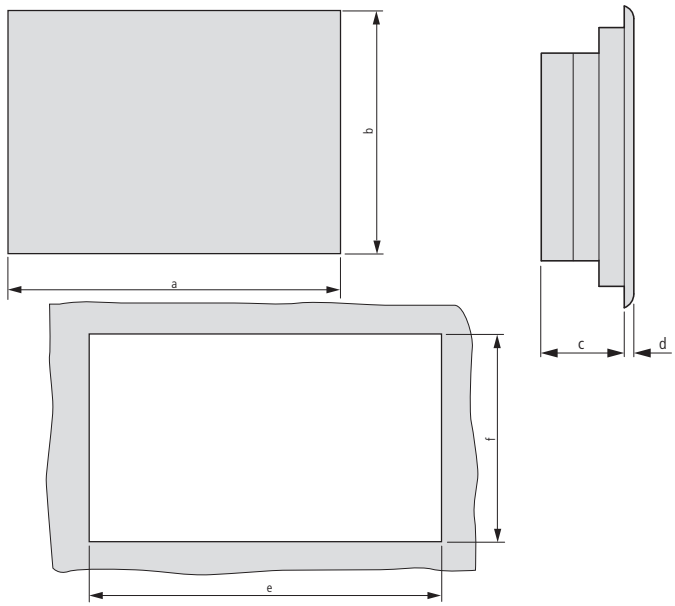
Rated impulse withstand voltage:
- 1.2 µs/50 µs (rise time/fall time of the pulse to IEC/EN 60947-2 or -3)
- Applies for control circuit/power section/enclosure

			EU5C-SWD-PF1-1 116309	EU5C-SWD-PF2-1 116380	EU1S-SWD-PF1-2 174724
General					
Standards			IEC/EN 61131-2 EN 50178	IEC/EN 61131-2 EN 50178	IEC/EN 61131-2, EN50178, IEC/EN 60529
Dimensions (W x H x D)		mm	35 x 90 x 124	35 x 90 x 124	85.6 x 20.1 x 56.9
Weight		kg	0.11	0.17	0.1
Weight		g	-	-	-
Mounting			Top-hat rail IEC/EN 60715, 35 mm	Top-hat rail IEC/EN 60715, 35 mm	DIN-rail, screw fixing (M4), mounting section (Clip M20)
Mounting position			As required	As required	As required
Ambient conditions, mechanical					
Protection type (IEC/EN 60529, EN50178, VBG 4)			IP20	IP20	IP67
Vibrations (IEC/EN 61131-2:2008)					
Constant amplitude 3,5 mm		Hz	5 - 8.4	5 - 8.4	5 - 8.4
Constant acceleration 1 g		Hz	8.4 - 150	8.4 - 150	8.4 - 150
Mechanical shock resistance (IEC/EN 60068-2-27) semi-sinusoidal 15 g/11 ms		Impacts	9	9	9
Drop to IEC/EN 60068-2-31	Drop height	mm	50	50	50
Free fall, packaged (IEC/EN 60068-2-32)		m	0.3	0.3	0.3
Electromagnetic compatibility (EMC)					
Overvoltage category			II	II	II
Pollution degree			2	2	3
Electrostatic discharge (IEC/EN 61131-2:2008)					
Air discharge (Level 3)		kV	8	8	8
Contact discharge (Level 2)		kV	4	4	4
Electromagnetic fields (IEC/EN 61131-2:2008)					
80 - 1000 MHz		V/m	10	10	10
1.4 - 2 GHz		V/m	3	3	3
2 - 2.7 GHz		V/m	1	1	1
Radio interference suppression (SmartWire-DT)					
Radio interference suppression			Class A	Class A	Class A
Burst (IEC/EN 61131-2:2008, Level 3)					
Supply cable		kV	2	2	2
CAN/DP bus cable					
Signal lines		kV	-	-	1
SmartWire-DT cable					
SmartWire-DT cables		kV	1	1	1
Surge (IEC/EN 61131-2:2008, Level 1)					
Supply cable		kV	0.5	0.5	0.5
Radiated RFI (IEC/EN 61131-2:2008, Level 3)		V	10	10	10
Climatic environmental conditions					
Climatic proofing			Dry heat to IEC 60068-2-2 Damp heat as per EN 60068-2-3		
Air pressure (operation)		hPa	795 - 1080	795 - 1080	795 - 1080
Operating ambient temperature (IEC 60068-2)		°C	- 25 - +55	- 25 - +55	- 25 - +70
Storage / Transport		°C	- 40 - + 70	- 40 - + 70	- 40 - + 70
Relative humidity					
Condensation			Take appropriate measures to prevent condensation		
relative humidity		%	-	-	-
Relative humidity, non-condensing (IEC/EN 60068-2-30)		%	5 - 95	5 - 95	-
Supply voltage U_{Aux}					
Rated operational voltage	U_{Aux}	V	24 V DC (-15/+20%)	24 V DC (-15/+20%)	24 V DC (-15/+20%)
Residual ripple on the input voltage		%	≦ 5	≦ 5	5
Protection against polarity reversal			Yes	Yes	Yes
Max. current	I_{max}	A	3	3	4
Short-circuit rating			no, external fuse FAZ Z3		no, external fuse FAZ Z3
Power loss	P	W	Normally 1	Normally 2.7	Normally 1
Potential isolation			No	No	No
Rated operating voltage of 24-V-DC slaves		V	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2	typ. U_{Aux} - 0.2

			EU5C-SWD-PF1-1 116309	EU5C-SWD-PF2-1 116380	EU1S-SWD-PF1-2 174724
Supply voltage U_{Pow}					
Supply voltage	U_{Pow}	V	-	24 DC -15 % + 20 %	-
Input voltage ripple		%	-	≦ 5	-
Siemens MPI, (optional)			yes	yes	-
Rated current	I	A	-	0.7	-
Overload proof			-	yes	-
Inrush current and duration		A	-	12.5 A/6 ms	-
Heat dissipation at 24 V DC		W	-	3.8	-
Potential isolation between U_{Pow} and 15 V SmartWire-DT supply voltage			-	Yes	-
Bridging voltage dips		ms	-	10	-
Repetition rate		s	-	1	-
Status indication		LED	-	yes	-
SmartWire-DT supply voltage					
Rated operating voltage	U_e	V	-	14,5 ± 3 %	-
max. current	I_{max}	A	-	0.7	-
Short-circuit rating			-	Yes	-
Connection supply voltages					
Connection type			Push in terminals	Push in terminals	5-pin M12 socket (A-keyed)
Solid		mm^2	0.2 - 1.5	0.2 - 1.5	-
Flexible with ferrule		mm^2	0.25 - 1.5	0.25 - 1.5	-
UL/CSA solid or stranded		AWG	24 - 16	24 - 16	-
SmartWire-DT network					
Station type			-	-	-
Number of SmartWire-DT slaves			-	-	-
Baud Rates		kBd	-	-	-
Address allocation			-	-	-
Status indication		LED	-	-	-
Connections			2 x plug, 8-pole	2 x plug, 8-pole	Socket, plug M12 (A-keyed), 5 pole
Plug connectors			2 blade terminals SWD4-8MF2		SWD4-SM5-67 SWD4-SF5-67

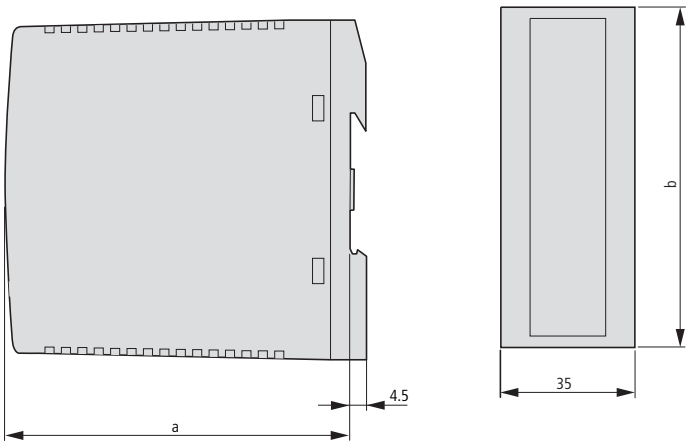
Dimensions

Touch display (HMI-PLC)



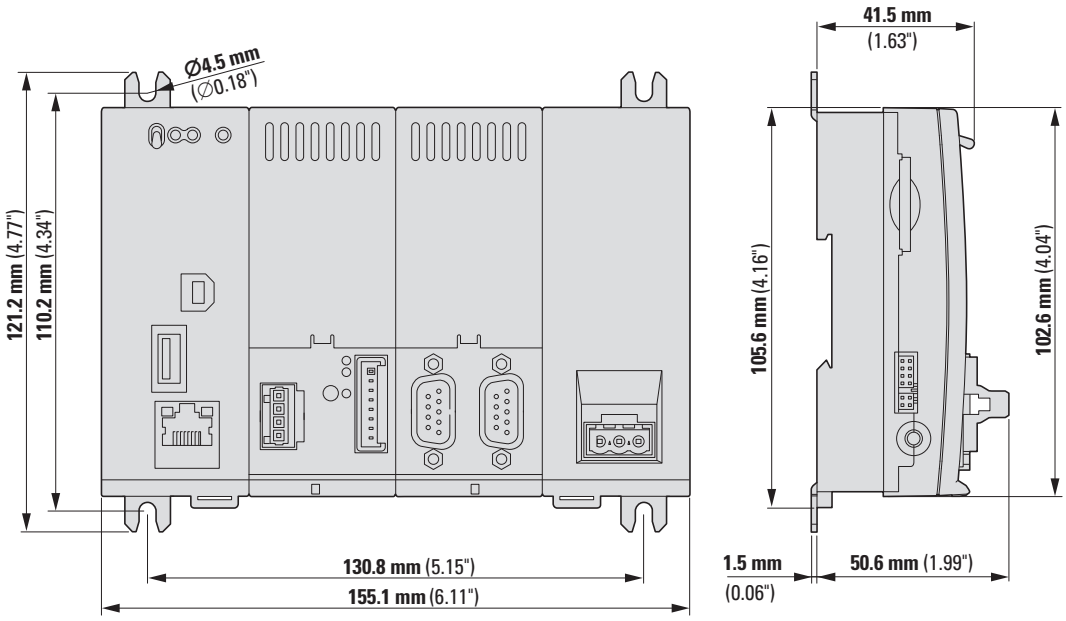
Part no.	a	b	c	d	e	f
XV-102-…-35...	136	100	25	5	123	87
NZM-…-MDISP35-SWD	136	100	25	5	132	87
XV-102-…-57...	170	130	34	5	157	117
XV-102-…-70...	210	135	33	5	197	122
NZM-…-MDISP70-SWD	210	135	33	5	197	122
XV-152-…-57…	212	156	47.5	5	198	142
XV-152-…-84…	275	208	47.5	5	261	194
XV-152-…-10…	345	260	49	5	329	238
XV-303-70-…	196	135	43.1	7	183	122
XV-303-10-…	269	174	50.1	7	255.5	160.5
XV-303-15-…	404	255	50.1	7,5	388	239

Gateways, easy800, Power feeder module, Input/output modules (IP20)



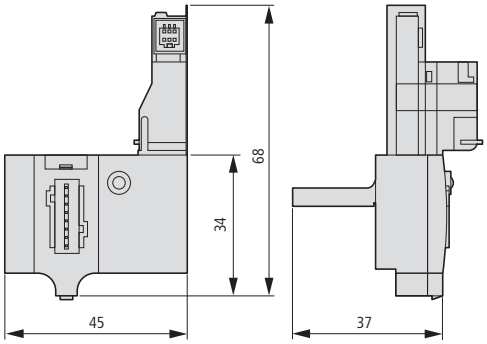
	a	b
EU5C-SWD-DP	127	90
EU5C-SWD-CAN	122	90
EU5E-SWD-...	97	90
EU5C-SWD-PF...	120	90
EU5C-SWD-EIP-MODTCP...	124	90
EU5C-SWD-PROFINET	120	90
EU5C-SWD-ETHERCAT	120	90
EU5C-SWD-POWERLINK	120	90
EU5C-SWD-SERCOS	120	90
NZM-XSWD-704...	97	90
EASY8…DC-SWD	120	100

XC compact PLCs

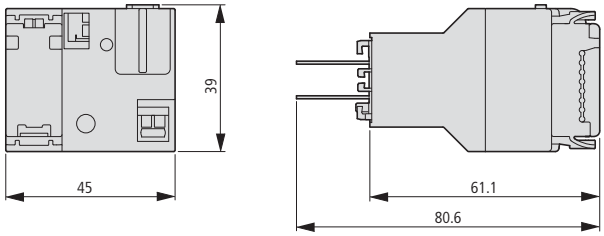


SWD PKE modules

PKE-SWD-SP, PKE-SWD-CP

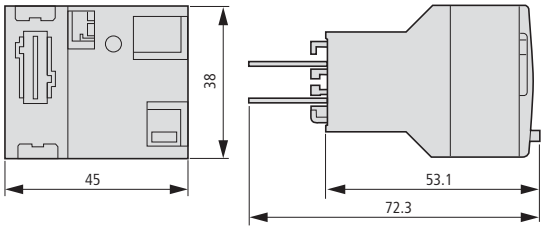


PKE-SWD-32



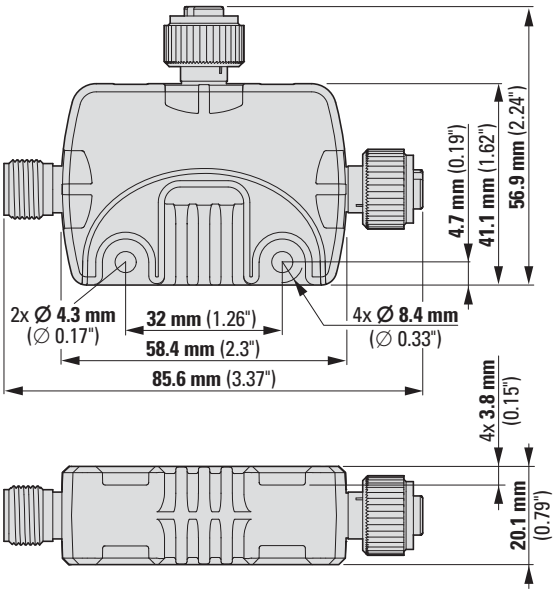
SWD contactor modules

DIL-SWD-32-001
DIL-SWD-32-002

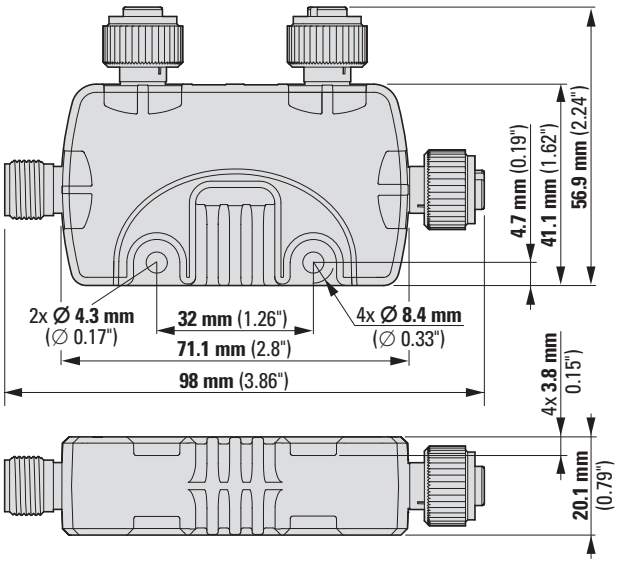


Input/output modules (IP67) T-Connector

EU1E-SWD-...

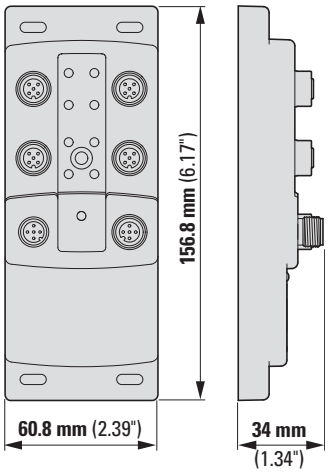


EU2E-SWD-...

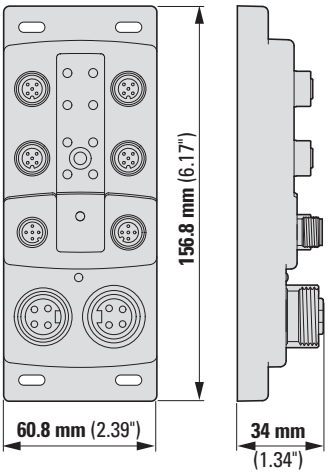


Input/output modules (IP67) Block module

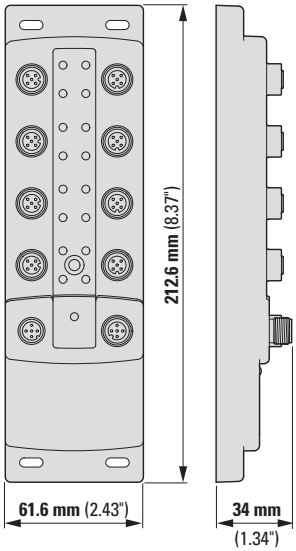
EU6E-SWD-...



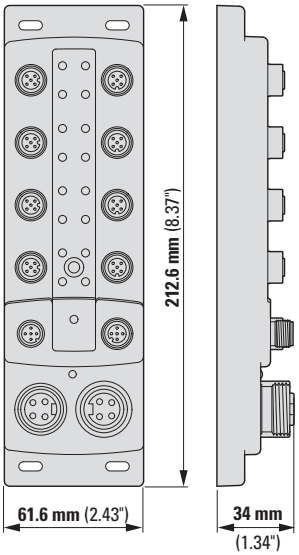
EU6E-SWD-... with supply



EU8E-SWD-...



EU8E-SWD-... with supply

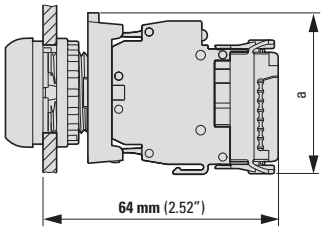


RMQ connections

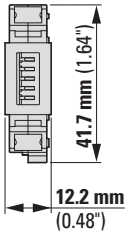
M22-SWD-K11...
M22-SWD-K22...

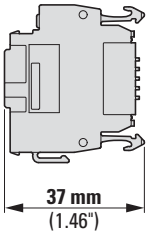
M22-SWD-K11LED...
M22-SWD-K22LED...
M22-SWD-LED-...

M22-SWD-INC
M22-SWD-R



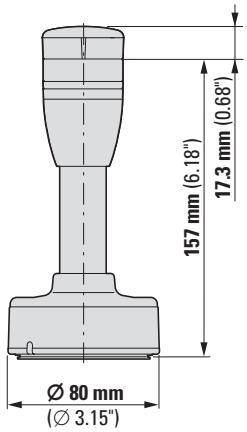
	a
M22-A	44
M22-SWD-A4	48

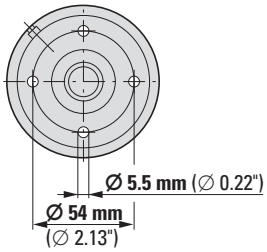




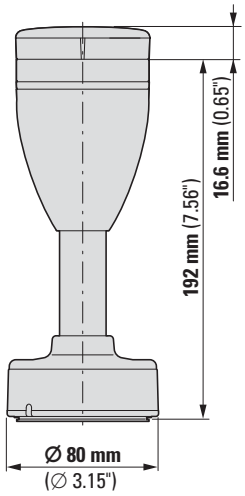
Signal towers Basic modules

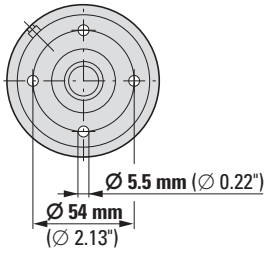
SL4-SWD





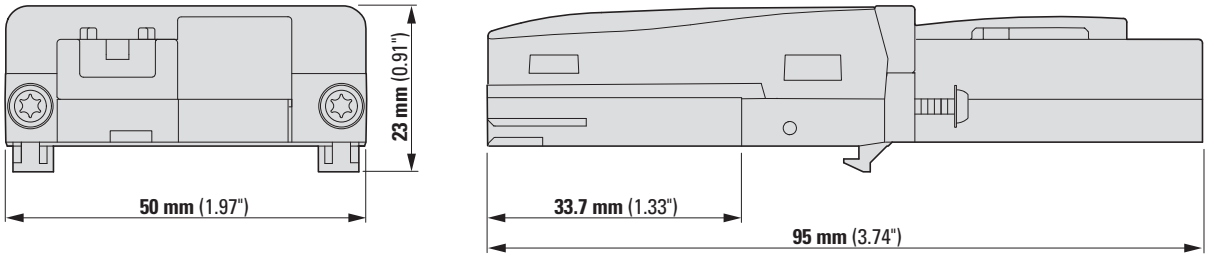
SL7-SWD



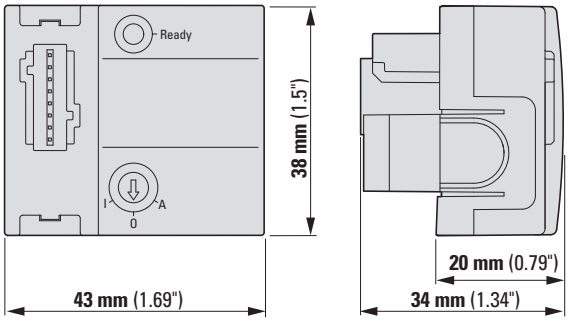


SWD function element Fieldbus connection (optional)

DX-NET-SWD1

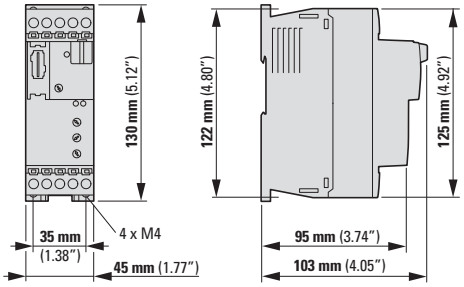


DX-NET-SWD3

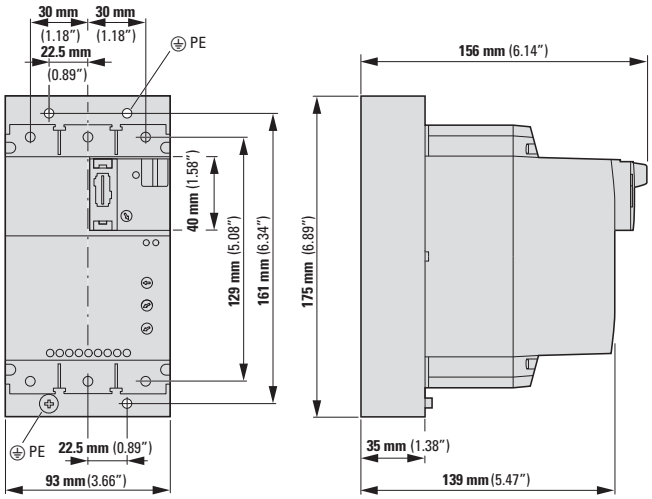


Soft starters

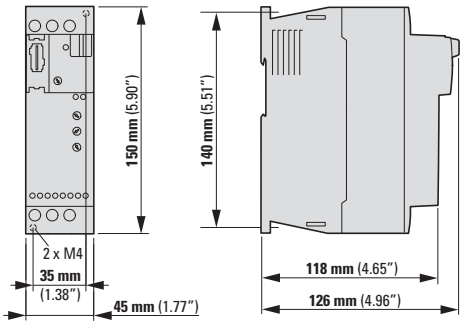
DS7-34DSX004N0-D
DS7-34DSX007N0-D
DS7-34DSX009N0-D
DS7-34DSX012N0-D



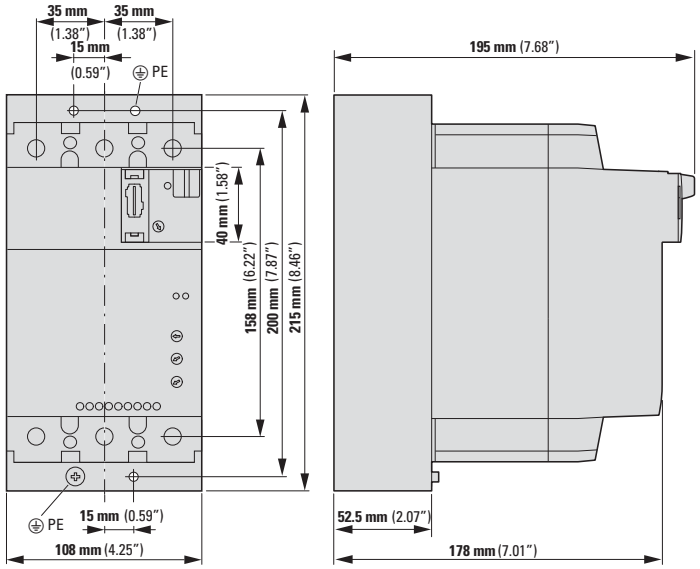
DS7-34DSX041N0-D
DS7-34DSX055N0-D
DS7-34DSX070N0-D
DS7-34DSX081N0-D
DS7-34DSX100N0-D



DS7-34DSX016N0-D
DS7-34DSX024N0-D
DS7-34DSX032N0-D

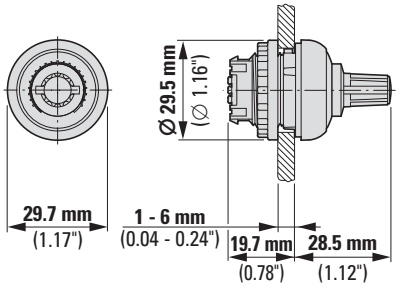


DS7-34DSX135N0-D
DS7-34DSX160N0-D
DS7-34DSX200N0-D



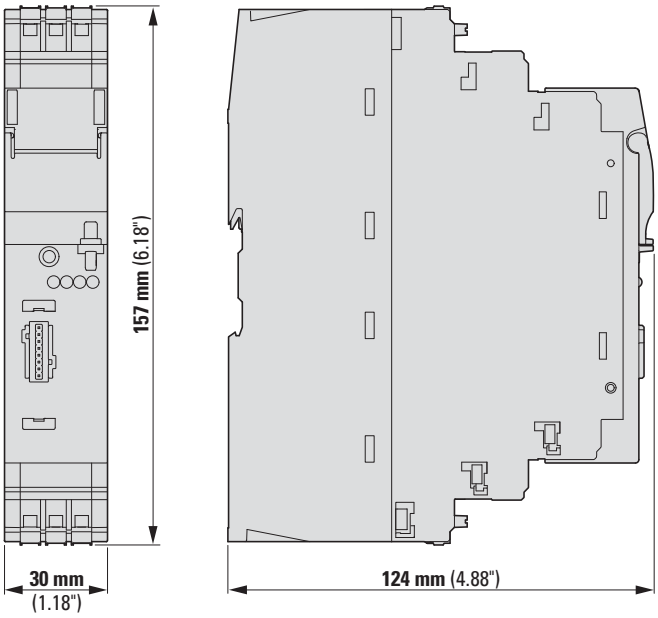
Potentiometer

M22-R-SWD

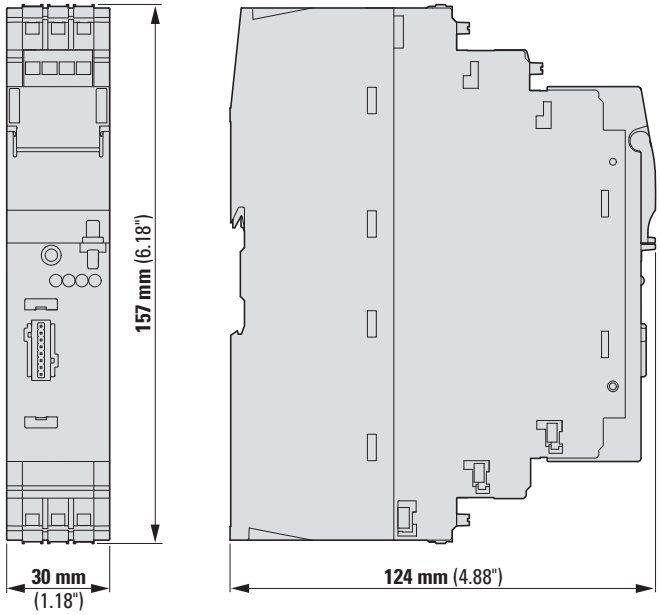


Electronic motor starter

EMS-DO-T-2,4-SWD
EMS-DO-T-9-SWD

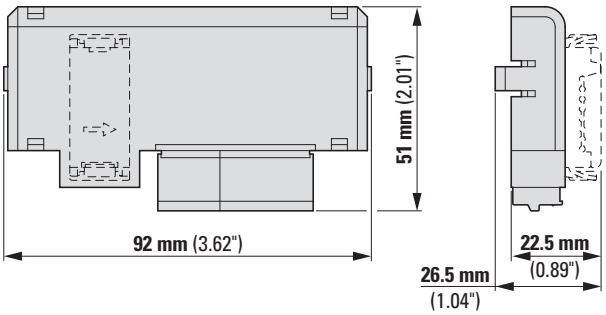


EMS-DOS-T-2,4-SWD
EMS-DOS-T-9-SWD



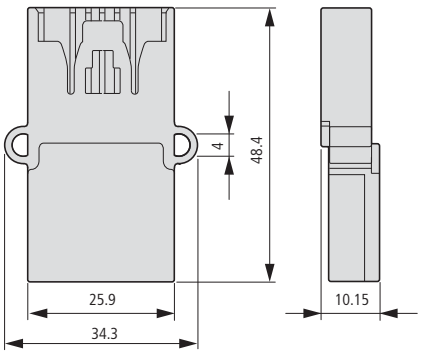
SWD-XNH module (NH fuse switch-disconnector)

XNH-SWD-2DX-...



Bus termination

SWD4-RC8-10



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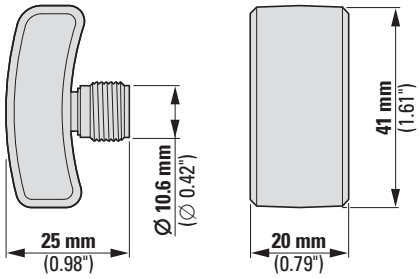
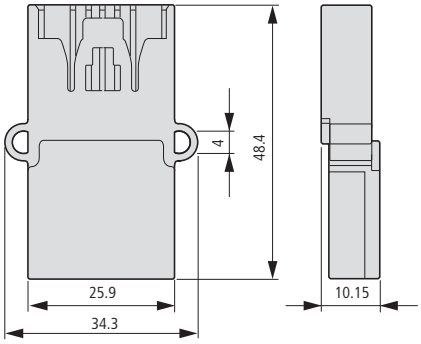


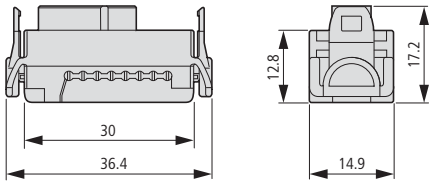
Coupling

SWD4-8SFF2-5

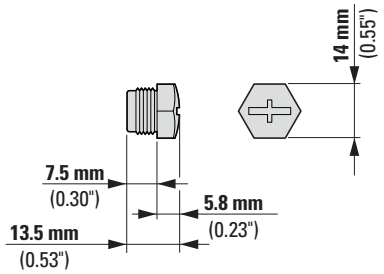


SWD plug connector and plug-in connection

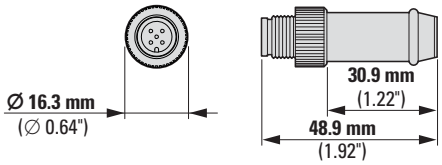
SWD4-8SF2-5



SWD4-PCAP-F



SWD4-ACAP-10



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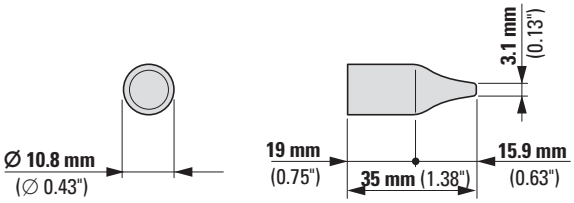
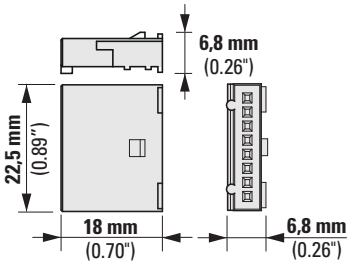
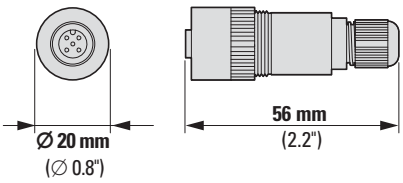


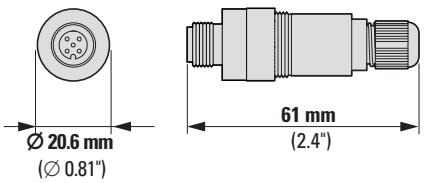
SWD4-8MF2



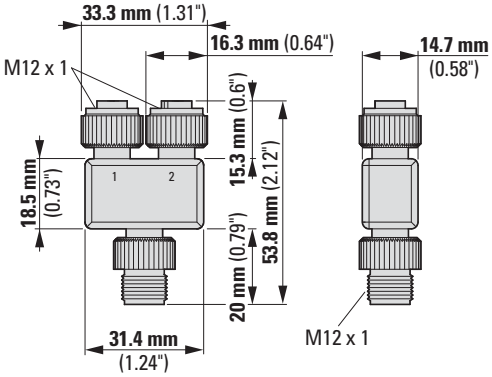
SWD4-SF5-67



SWD4-SM5-67



SWD4-SP-41..



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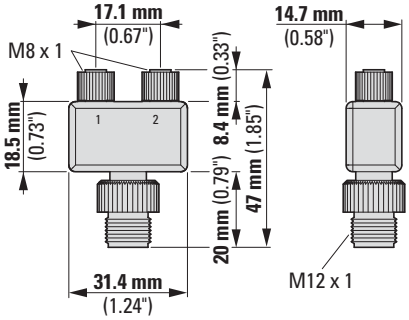
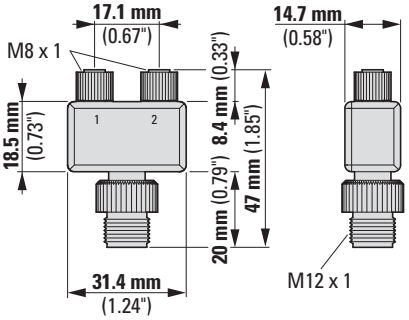
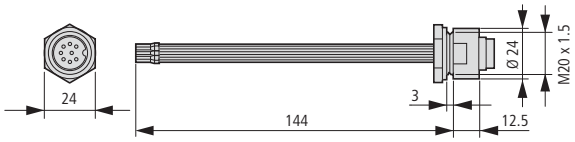


SWD4-SP-3084

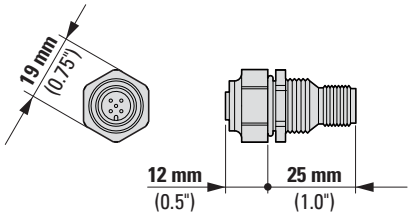


Housing bushing plug

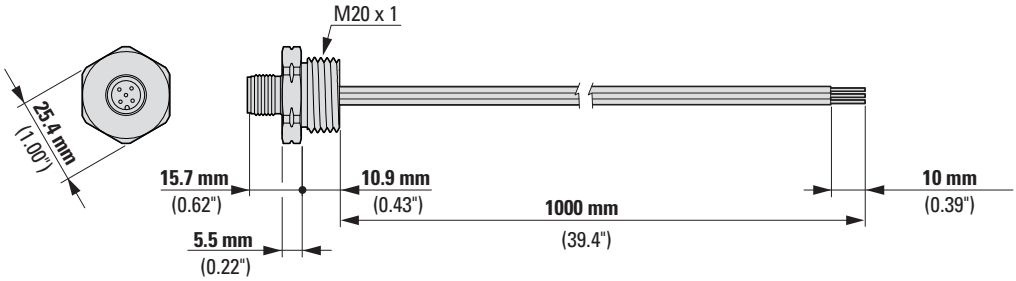
SWD4-SM8-20



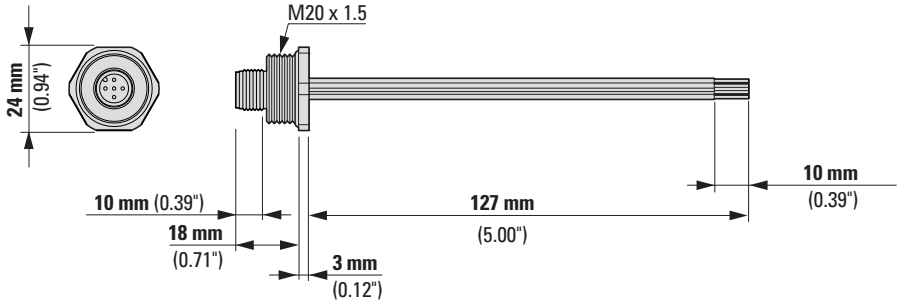
SWD4-SML5-12



SWD4-PRM5-1-S

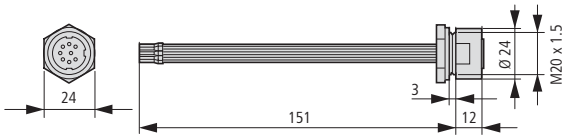


SWD4-PRM5-2-S



Housing bushing socket

SWD4-SF8-20



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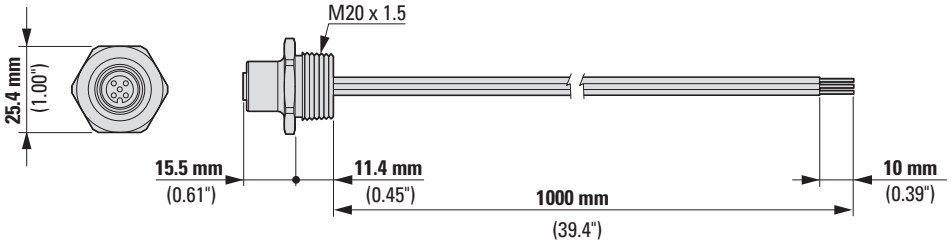

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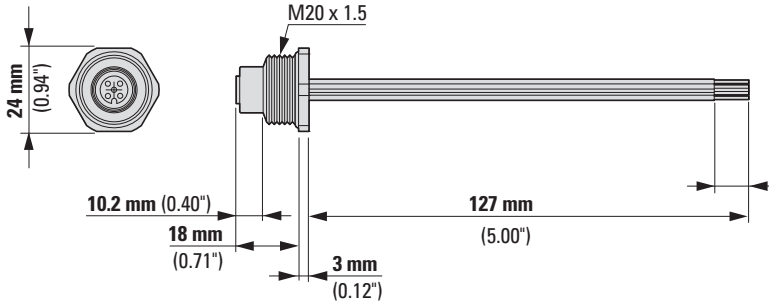
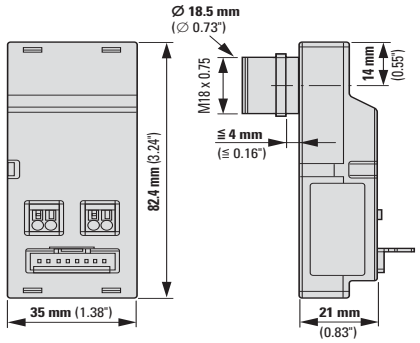


Switch cabinet bushing Plug

SWD4-SML8-20



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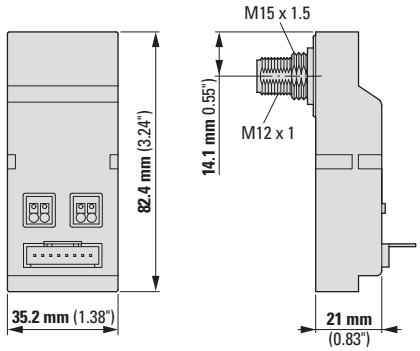
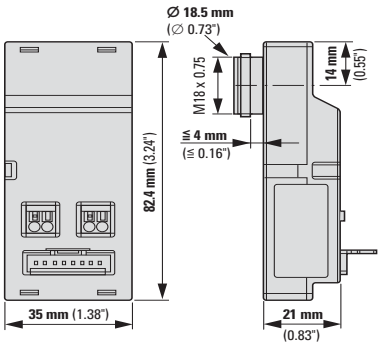


Switch cabinet bushing Socket

SWD4-SFL8-20



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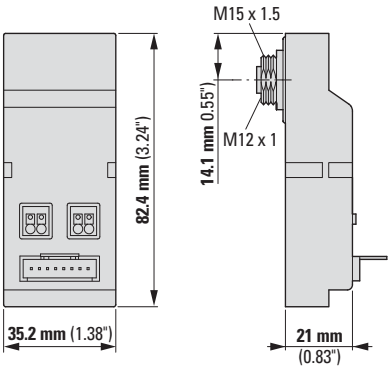
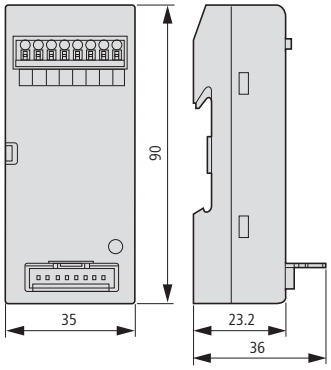


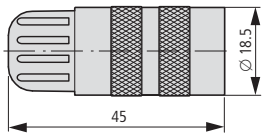
Component adapter flat cable (plug) on round cable (terminal)

SWD4-8FRF-10



Plug connectors for SmartWire-DT round cables, flat

SWD4-SF8-67



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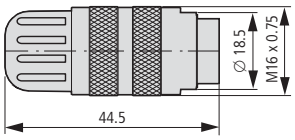
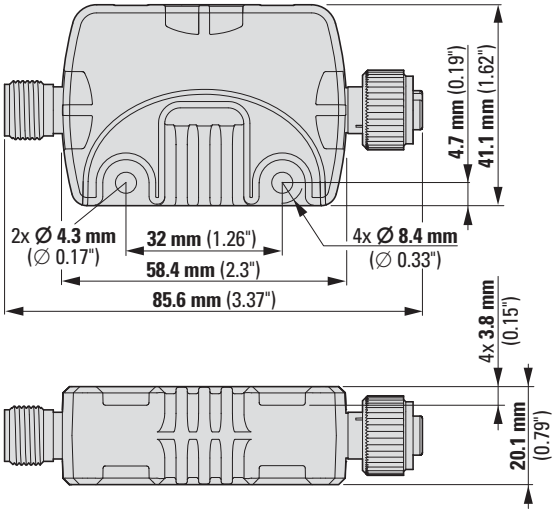


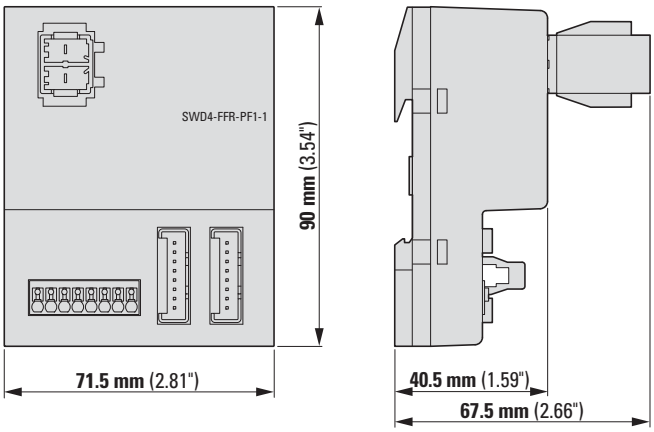
Universal module

EU1M-SWD-NOP

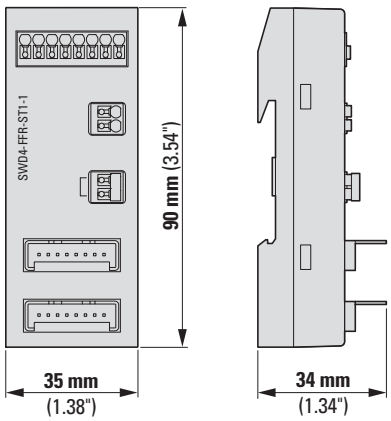


Cable adapters

SWD4-FFR-PF1-1

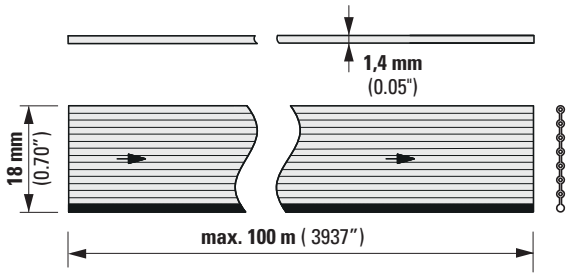


SWD4-FFR-ST1-1

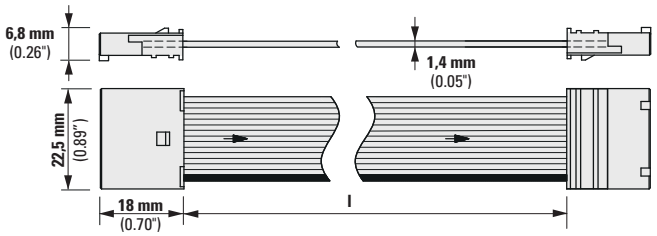


SWD Connection cables

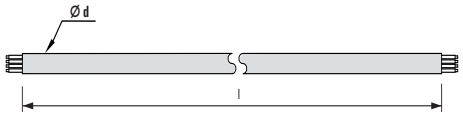
SWD4 flat cable



SWD4-...LF8-24-2S

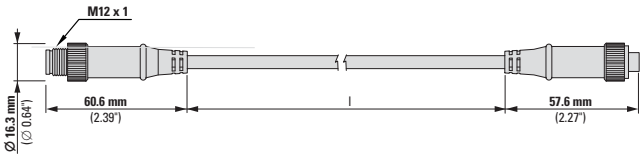


SWD4 round cable

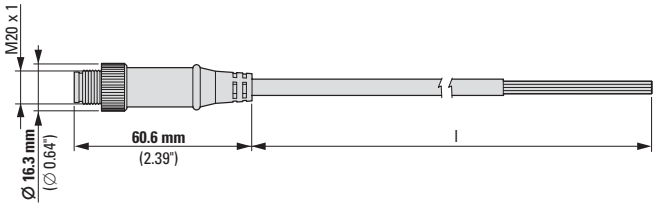


	d	l
SWD4-FFR-ST1-1	8,2	50
SWD4-FFR-ST1-1	8,2	250
SWD4-250LR5	5,6	250

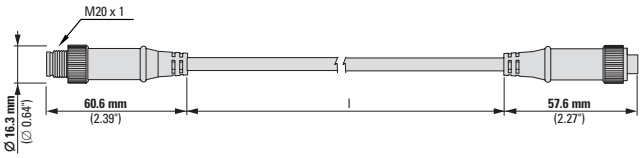
SWD4 round cable M12
SWD4-...LR5-2S



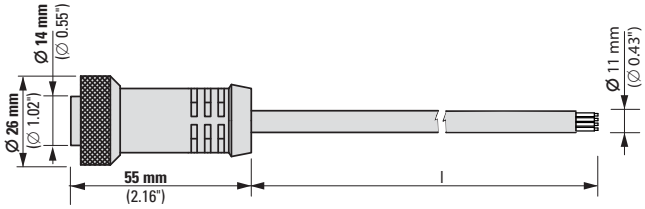
M12 I/O round cable
SWD4-...LR5-S



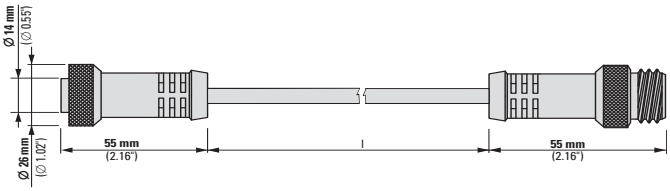
SWD4-...LR5-2S



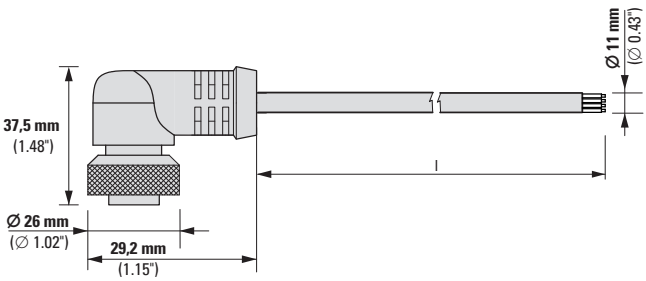
M22 supply cable
SWD4-...LPR4P-S



SWD4-...LPR4P-2S



SWD4-...LPR4P-R



SmartWire-DT in system applications.

Putting power into potato-sorting

SmartWire-DT helps to increase productivity and uptime and simplify maintenance for end users, reducing engineering time and increasing flexibility when designing, installing and commissioning plant.

Background: German company Schaltanlagenbau Gormanns GmbH was responsible for the electrical power supply and drives in a fully automated potato sorting plant that was part of an extensive new building project.

Challenge: The plant, designed to process 120 tons of potatoes per hour, had to be up and running on time for harvesting season and needed to be simple to operate. The project required the installation of 250 drives for conveyor belts, pumps, fans and machines as well as 50 command points.

Solution: Eaton's SmartWire-DT intelligent wiring system meant project completion in just four months, with wiring reduced to an eighth of a conventional wiring solution. Cross wiring was reduced from 1km to 50m, and the cabling required for the control circuit devices on the machines reduced by around 40%.

Results

"I was sceptical about whether SmartWire-DT could do what it promised," says Sebastian Gormanns, Managing Director at Schaltanlagenbau Gormanns GmbH. "I have seldom seen anything so simple. Instead of the two weeks required for commissioning our previous sorting plant project, we only needed 1.5 days with this project. And when a problem comes up, we can explore the system remotely, diagnose and correct it."

Tapping into efficiency

Background: Acque del Basso Livenza S.p.A. runs one of the largest purification plants in Italy, serving over 140,000 customers in nineteen municipalities. The company has always been committed to offering its customers a high standard of service efficiency and quality, as well as facing the challenges posed by recent liberalization of water supply services and the resulting competition.

Challenge: The plant is entirely automated and operates in a continuous cycle. So whenever one of the motors or pumps in a plant malfunctions, off-site technicians need to be notified of the event and need to be on call 24 hours a day. Problems reduce overall plant productivity and involve considerable personnel management costs.

Solution: Using SmartWire-DT, the company can remotely control each single piece of machinery in the plant. A remote connection via VNC enables technicians to monitor in real-time the amount of current absorbed by each motor and, in the event of overload or a technical stop, immediately re-energise the motor simply by tapping the screen of a tablet or smartphone.

Results

The new system has radically changed plant management for the company in terms of efficiency, productivity and personnel management costs.

Breaking new ground

Background: Austrian contractor Keckeis was engaged to upgrade a crusher and screening plant operating in harsh conditions that undermined optimal productivity.

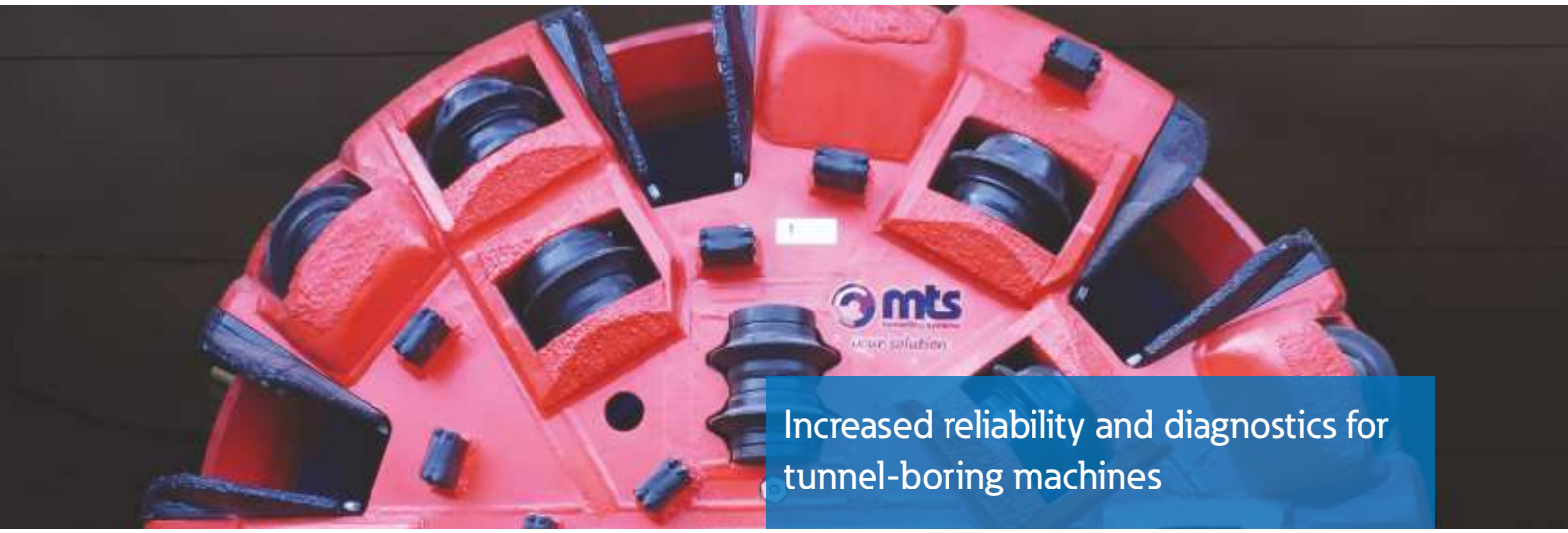
Challenge: When starting iced-up elevating conveyors in cold temperatures, frozen water in the belt pockets can cause motor currents to overload, shutting down the conveyor and requiring a restart.

Solution: After upgrading the sand and gravel plant with SmartWire-DT, the iced up belt can be automated to 'run warm' until the operating current has dropped to 'idle running', and only then is material conveying enabled. Accidental material conveying and excessive warm running are prevented. A far greater benefit is the controlled operation of the plant close to its maximum output limit for optimized and safe plant operation.

Results

"Using SmartWire-DT in combination with Eaton's PKE electronic motor protection has not only paid for itself very quickly in terms of investment but also in terms in system availability. As well as the neat and extremely fast wiring of SmartWire-DT, its space-saving design was ideal for the limited space available in the control room," says Manfred Keckeis, general manager at Keckeis Elektrotechnik.

SmartWire-DT in machine applications.



Increased reliability and diagnostics for tunnel-boring machines

SmartWire-DT can help to reduce installation cost by up to 85%, increase commercial flexibility and machine availability whilst providing MOEMs and customers with rich data from their machines, leading to intelligent decision-making that maximizes the potential from Industrie 4.0.

Background: German company mts Perforator develops and manufactures tunnel-boring machines for trenchless pipe jacking of supply and disposal tunnels, as deep as 40m below the ground.

Challenge: In remote underground environments, where precision and reliability of operation are vital, conventional point-to-point control wiring of components such as switching devices, sensors and actuators carries the risk of errors and malfunctions.

Solution: Using SmartWire-DT, mts benefits from a considerably faster assembly, fewer errors and less risk of manipulation, along with detailed remote diagnostic functions. The combination of PKE and SmartWire-DT delivers enhanced drive monitoring, with process-relevant data monitored continuously and analyzed without costly analog I/O technology.

Results

The company is able to monitor the current states of the 50 tunnelling machines presently in operation worldwide. It can quickly carry out remote diagnostics in the event of a fault, provide a solution and ensure improved system availability for end customers. “Eaton’s smart devices enable us to implement detailed data access worldwide down to the field level,” says Norbert Simdon, working in electronic support at mts.

Build it in.

Cleaner wiring solution

Background: US-based Renegade Parts Washers manufactures heavy-duty parts washing machines for numerous applications. Founded in 1996, the company has grown from offering a single solution to now having the capability to manufacture customized solutions built to their customers' specifications.

Challenge: Customers depend on a solution that will quickly and efficiently clean a high volume of parts and demand the shortest lead time between production and final end-user installation. With the increasing complexity of its machines, Renegade was looking for ways to optimize its production processes.

Solution: A machine control system based on the SmartWire-DT communication system cut wiring time, improved flexibility, and supported the implementation of advanced diagnostic features. This meant simpler machines at a lower cost and with added functionality. Extension up to 600m outside the control panel also allowed the connection of sensors and other machine-mounted devices.

Results

"SmartWire-DT has transformed our control systems," says Dave Barney, owner of Renegade Parts Washers. "It has allowed us to cut our wiring times while improving the flexibility of our systems and adding advanced diagnostic facilities that are a big selling point when we talk to our customers. We'll certainly be using SmartWire-DT on all of the automated machines we build in the future."

Packed with benefits

Background: Macchi SpA is a leading Italian manufacturer of plastics processing equipment. The company produces plastic stretch-wrap film widely used for packaging in almost every industry, typically for wrapping pallets loaded with products.

Challenge: Macchi needed to develop a control system for the extruders, coil winders and cutters on a sophisticated new film-manufacturing machine that helps to cut end user costs and delivers significant environmental advantages through using less film.

Solution: SmartWire-DT wiring technology brings important benefits, including a smaller control cabinet, reduced wiring complexity and easier testing. Significant time savings in the manufacture, testing and commissioning of the machine were achieved, and the flexibility of the SmartWire-DT system makes it easy to incorporate future upgrades and modifications.

Results

"The project has been a great success," says Mauro Andreoli, Sales Manager at Macchi. "We expect to be using SmartWire-DT technology again in the very near future, and consider it to be a big and very important step forward in control system technology."

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