



EX-CSS 8-180-2P+D-M-L-3G/D 5,0M



- Pre-wired cable 7-pole
- Comfortable diagnostics through sensor LED and electronic signalling output
- Ex certified
- Thermoplastic enclosure
- Electronic contact-free, coded system
- Ø M18
- Misaligned actuation possible
- High repeat accuracy of the switching points
- Max. length of the sensor chain 200 m
- Early warning when operating near the limit of the sensor's hysteresis range
- Self-monitoring series-wiring of 16 sensors
- 2 short-circuit proof PNP safety outputs
- Explosion protection for ATEX Zones 2 and 22

Data

Ordering data

EAN (European Article Number)	4030661349039
eCl@ss number, Version 9.0	27-27-24-02
eCl@ss number, Version 11.0	27-27-24-02
ETIM number, version 6.0	EC002544
ETIM number, version 7.0	EC002544

Explosion protection

Explosion protection: regulations	EN 60079-0 EN 60079-15 EN 60079-31
Explosion protection zones	22 2
Explosion protection category	3D 3G
Explosion protection designation	 II 3G Ex nA IIC T6 Gc X  II 3D Ex tc IIIC T70°C Dc X
Manufacturer declaration	ATEX Zone 2 and 22

General data

Active principle	inductive
Housing construction form	Cylinder, thread
Installation conditions (mechanical)	not flush
Sensor topology	Sensor for series wiring
Enclosure material	Glass-fibre, reinforced thermoplastic
Active area	Glass-fibre, reinforced thermoplastic
Material of the nuts	Glass-fibre, reinforced thermoplastic
Gross weight	340 g
Reaction time, maximum	30 ms
Duration of risk, maximum	30 ms

General data - Features

Short circuit detection	Yes
Short-circuit recognition	Yes
Safety functions	Yes
Integral System Diagnostics, status	Yes
Number of semi-conductor outputs with signaling function	1

Number of fail-safe digital outputs	2
Number of Series-wiring of sensors	16

Safety appraisal

Standards	EN ISO 13849-1 IEC 61508
Performance level, up to	e
Control category to EN13849	4
PFH-value	2.50×10^{-9} /h
Safety Integrity Level (SIL), suitable for applications in	3
Mission Time	20 Year(s)

Mechanical data

Hysteresis (Switch distance), maximum	0.7 mm
Repeat accuracy R R	0.2 mm
Impact energy, maximum	2 J
Tightening torque of nuts, maximum	3 Nm

Mechanical data - Switching distances according IEC 60947-5-3

Switch distance	8 mm
Ensured switch distance "ON" S_{ao}	7 mm
Ensured switch distance "OFF" S_{ar}	10 mm

Mechanical data - Connection technique

Terminal Connector	Cable
Length of cable	5 m
Terminal connector, Output	7-pole
Wire cross-section	0.25 mm ²
Wire cross-section	23 AWG

Mechanical data - Dimensions

ISO thread of the sensor	M18
width across flats	24 BK
Length of sensor	92 mm

Ambient conditions

Degree of protection	IP65 IP67
Ambient temperature, minimum	-25 °C
Ambient temperature, maximum	+40 °C
Storage and transport temperature, minimum	-25 °C
Storage and transport temperature, maximum	+85 °C
Resistance to vibrations to EN 60068-2-6	10 ... 55 Hz, amplitude 1 mm
Resistance to shock	30 g / 11 ms
Protection rating	II

Ambient conditions - Insulation value

Rated insulation voltage U _i	32 VDC
Rated impulse withstand voltage U _{imp}	0.8 kV

Overvoltage category	III
Degree of pollution to VDE 0100	3

Electrical data

Voltage type	DC (direct current)
Operating voltage, minimum	20.4 VDC
Operating voltage, maximum	26.4 VDC
No-load supply current I_0	50 mA
Rated operating voltage	24 VDC
Operating current	1,000 mA 500 mA
Switching frequency, approx.	3 Hz

Electrical data - Fail-safe digital outputs

Versions	p-type
Voltage drop U_d , maximum	0.5 V
Current leakage I_r	0.5 mA
Voltage, Utilisation category DC12	24 VDC
Current, Utilisation category DC12	0.5 A
Voltage, Utilisation category DC13	24 VDC
Current, Utilisation category DC13	0.5 A

Electrical data - Digital Output

Versions	p-type
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Electrical data - Diagnostic output

Voltage drop U_d , maximum	4 V
Voltage, Utilisation category DC12	24 VDC
Current, Utilisation category DC12	0.05 A
Voltage, Utilisation category DC13	24 VDC
Current, Utilisation category DC13	0.05 A

Status indication

Note (LED switching conditions display)	Multi-coloured LED: Green, Red, Yellow
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Pin assignment

PIN 1	A1 Ue Brown
PIN 2	Y2 Safety output 2 red
PIN 3	A2 GND Blue
PIN 4	Y1 Safety output 1 Black
PIN 5	X1 Safety input 1 violet
PIN 6	X2 Safety input 2 White
PIN 7	Signalling output Grey

Scope of delivery

Included in delivery	Actuators must be ordered separately.
Delivery scope of Mounting material	2x nuts M18 x 1

Accessory

Recommendation (actuator)	CST 180-1 CST 180-2
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Notes

Note (General)	<p>Series-wiring of sensors: 16 safety sensors can be switched in series with self-monitoring. In this case, the dual-channel output of a sensor is switched to/inserted into the input of the next sensor. This does not affect the category 4 in accordance with EN ISO 13849-1.</p> <p>The voltage drop over a long sensor chain should be taken into account when planning cable routing. Operating voltage, cross-section and length of the cable, temperature, number of sensors connected, but also the input load of the control monitor all affect the voltage drop over the sensor chain.</p>
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The details and data referred to have been carefully checked. Images may diverge from original. Further technical data can be found in the manual. Technical amendments and errors possible.

Generated on: 11/9/2021, 9:47 AM