



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

- 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)	4030661347158
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:	EN 60079-0
regulations	EN 60079-15
	EN 60079-31

Explosion protection zones	22 2
Explosion protection category	3D 3G
Explosion protection designation	<div> <div>Ex</div> <div>II 3G Ex nA IIC T6 Gc X</div> </div> <div> <div>Ex</div> <div>II 3D Ex tc IIIC T70°C Dc X</div> </div>
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	135 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
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Safety appraisal

Standards	EN ISO 13849-1 IEC 61508
Performance level, up to	e
Control category to EN13849	4
PFH-value	2.50 x 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
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Length of cable	2 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
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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)

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.

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.

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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.

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