



CSS 8-180-2P-Y-L

- 2 x Pre-wired cable 4-pole
- Thermoplastic enclosure
- Electronic contact-free, coded system
- 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

Data

Ordering data

| | |
|-------------------------------|------------------|
| Product type description | CSS 8-180-2P-Y-L |
| Article number (order number) | 101165294 |
| EAN (European Article Number) | 4030661208787 |
| eCl@ss number, version 12.0 | 27-27-46-01 |
| eCl@ss number, version 11.0 | 27-27-24-03 |
| eCl@ss number, version 9.0 | 27-27-24-03 |
| ETIM number, version 7.0 | EC001829 |
| ETIM number, version 6.0 | EC001829 |

Approvals - Standards

Certificates

TÜV
cULus
UKCA

General data

| | |
|---|---------------------------------------|
| Standards | EN IEC 60947-5-3 EN IEC 61508 |
| Working principle | inductive |
| Housing construction form | Cylinder, thread |
| Installation conditions (mechanical) | not flush |
| Sensor topology | Sensor for series wiring |
| Housing material | Glass-fibre, reinforced thermoplastic |
| Active area | Glass-fibre, reinforced thermoplastic |
| Material of the nuts | Glass-fibre, reinforced thermoplastic |
| Reaction time, maximum | 30 ms |
| Duration of risk, maximum | 30 ms |
| Gross weight | 167 g |

General data - Features

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|--|-----|
| Short circuit detection | Yes |
| Cross-circuit detection | Yes |
| Safety functions | Yes |
| Cascadable | Yes |
| Integral system diagnostics, status | Yes |
| Number of fail-safe digital outputs | 2 |
| Number of series-wiring of sensors | 16 |

Safety classification

| | |
|--|--|
| Standards | EN ISO 13849-1 EN IEC 60947-5-3 EN IEC 61508 |
| Performance Level, up to | e |
| Category | 4 |
| PFH value | 2.50×10^{-9} /h |
| Safety Integrity Level (SIL), suitable for applications in | 3 |
| Mission time | 20 Year(s) |

Mechanical data

Tightening torque of nuts, maximum 3 Nm

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

| | |
|---|--------|
| Switch distance, typical | 8 mm |
| Assured switching distance "ON" S_{ao} | 7 mm |
| Assured switching distance "OFF" S_{ar} | 10 mm |
| Hysteresis (Switching distance), maximum | 0.7 mm |
| Repeat accuracy R | 0.2 mm |

Mechanical data - Connection technique

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|----------------------------|--------|
| Termination | Cable |
| Terminal connector, Input | 4-pole |
| Terminal connector, Output | 4-pole |

Mechanical data - Dimensions

ISO thread of the sensor M18

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|--------------------|-------|
| width across flats | 24 BK |
| Length of sensor | 92 mm |

Ambient conditions

| | |
|-----------------------------------|------------------------------|
| Degree of protection | IP65 IP67 |
| Ambient temperature | -25 ... +60 °C |
| Storage and transport temperature | -25 ... +85 °C |
| Resistance to vibrations | 10 ... 55 Hz, amplitude 1 mm |
| Resistance to shock | 30 g / 11 ms |
| Protection class | II |

Ambient conditions - Insulation values

| | |
|--|--------|
| Rated insulation voltage U _i | 32 VDC |
| Rated impulse withstand voltage U _{imp} | 0.8 kV |
| Overvoltage category | III |
| Degree of pollution | 3 |

Electrical data

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|---|----------------------|
| Operating voltage | 24 VDC -15 % / +10 % |
| No-load supply current I ₀ , typical | 50 mA |
| Rated operating voltage | 24 VDC |
| Operating current | 1,000 mA |
| Switching frequency, approx. | 3 Hz |

Electrical data - Safety digital outputs

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|--|--------|
| Rated operating current (safety outputs) | 500 mA |
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| | |
|---|--------|
| Output current, (fail-safe output), maximum | 0.5 A |
| Design of control elements | p-type |
| Voltage drop U_d , maximum | 0.5 V |
| Leakage current I_r , maximum | 0.5 mA |
| Voltage, Utilisation category DC-12 | 24 VDC |
| Current, Utilisation category DC-12 | 0.5 A |
| Voltage, Utilisation category DC-13 | 24 VDC |
| Current, Utilisation category DC-13 | 0.5 A |

Status indication

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

Pin assignment

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| PIN 1 | A1 Ue Brown |
| PIN 2 | Y2 safety output 2, X2 safety input 2: White |
| PIN 3 | A2 GND |
| PIN 4 | Y1 safety output 1, X1 safety input 1: Black |

Scope of delivery

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|--|--------------------------------------|
| Scope of delivery | Actuator must be ordered separately. |
| Scope of delivery of mounting material | 2x nuts M18 x 1 |

Accessory

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|----------------------------------|--|
| Recommendation (actuator) | CST 180-1 CST 180-2 |
| Recommended safety switchgear | PROTECT PSC1 SRB-E-301ST SRB-E-201LC |

Note

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|----------------|--|
| Note (General) | Evaluation requirements: dual-channel safety input, suitable for p-type sensors with NO function. The safety-monitoring module must tolerate internal functional tests of the sensors with cyclic switch-off of the sensor outputs for max. 0.25 ms. Short-circuit recognition by the evaluation is not necessary. |
|----------------|--|

Ordering code

Product type description:
CSS 8-180-(1)-(2)-(3)

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|-------------|--|
| (1) | |
| 2P | 2 short-circuit proof PNP safety outputs |
| 2P+D | 2 short-circuit proof PNP safety outputs and diagnostic output |
| (2) | |
| E | Individual sensor or end sensor in a series |
| Y | Series-wiring |
| M | Multifunction connection |
| (3) | |
| L | Cable |
| LST | Cable with connector |
| ST | Connector plug |

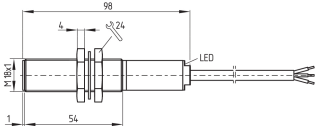
Pictures

Product picture (catalogue individual photo)



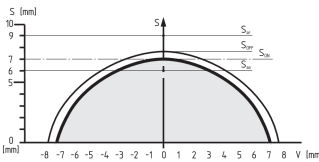
ID: kcs18f01
| 188.8 kB | .jpg | 352.778 x 164.747 mm - 1000 x 467 px - 72 dpi
| 15.4 kB | .png | 74.083 x 34.572 mm - 210 x 98 px - 72 dpi
| 26.2 kB | .jpg | 123.472 x 57.503 mm - 350 x 163 px - 72 dpi

Dimensional drawing basic component



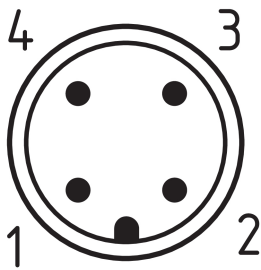
ID: 1css1g01
| 24.2 kB | .cdr |
| 4.9 kB | .png | 74.083 x 29.633 mm - 210 x 84 px - 72 dpi
| 54.5 kB | .jpg | 352.778 x 140.758 mm - 1000 x 399 px - 72 dpi

Characteristic curve



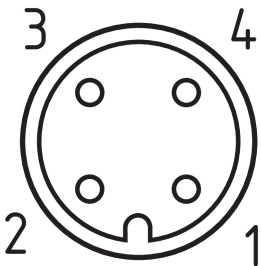
ID: kcss1d03
| 3.0 kB | .png | 74.083 x 35.278 mm - 210 x 100 px - 72 dpi
| 83.4 kB | .jpg | 352.778 x 168.275 mm - 1000 x 477 px - 72 dpi

Contact arrangement



ID: km12-k4c
| 4.2 kB | .png | 74.083 x 74.083 mm - 210 x 210 px - 72 dpi
| 113.3 kB | .jpg | 352.778 x 352.778 mm - 1000 x 1000 px - 72 dpi

Contact arrangement



ID: km12-k4b
| 16.9 kB | .cdr |
| 4.4 kB | .png | 74.083 x 74.083 mm - 210 x 210 px - 72 dpi
| 123.6 kB | .jpg | 352.778 x 352.778 mm - 1000 x 1000 px - 72 dpi

Wiring example



ID: kcs18f22

| 183.7 kB | .jpg | 352.778 x 178.858 mm - 1000 x 507 px - 72 dpi

Schmersal India Pvt. Ltd., Plot No - G-7/1, Ranjangaon MIDC, Tal. - Shirur, Dist.- Pune 412 220

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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