

Datasheet - CSS 11-300-D-M-ST

Safety sensors / CSS 300



- Thermoplastic enclosure
- Max. 31 sensors can be wired in series.
- 8-pole Connector M12,
- Ø M30
- High repeat accuracy of the switching points
- Max. length of the sensor chain 200 m
- 2 short-circuit proof PNP safety outputs
- Integral cross-short, wire-breakage and external voltage monitoring of the safety cables up to the control cabinet
-

(Minor differences between the printed image and the original product may exist!)

Ordering details

| | |
|--------------------------|-------------------|
| Product type description | CSS 11-300-D-M-ST |
| Article number | 101213904 |
| EAN Code | 4030661405650 |
| eCl@ss | 27-27-24-01 |

Approval


Approval



Classification

| | |
|------------------|--|
| Standards | EN ISO 13849-1, IEC 61508, IEC 60947-5-3 |
| PL | up e |
| Control category | bis 4 |
| PFH | 3.6 x 10 ⁻⁹ /h |
| SIL | bis 3 |
| Mission time | 20 Years |
| Classification | PDF-M |

Global Properties

| | |
|--|-------------------------------|
| Permanent light | CSS 300 |
| Standards | IEC 60947-5-3, EN ISO 13849-1 |
| Compliance with the Directives (Y/N)  | Yes |
| Suitable for safety functions (Y/N) | Yes |
| Function | Sensor for series wiring |
| Series-wiring | up to 31 components |
| Length of the sensor chain | max. 200 m |
| Active principle | inductive |
| Materials | |
| - Material of the housings | Plastic |
| - Material of the active surface | Plastic |
| Housing construction form | cylinder, thread |
| Weight | 245 |
| Diagnostic output (Y/N) | Yes |
| Reaction time | < 60 |
| Duration of risk | < 60 |
| Cascadable (Y/N) | Yes |
| Recommended actuator | CST 30S-1 |

Mechanical data

| | |
|--------------------------------------|------------------------------|
| mechanical installation conditions | not flush |
| Actuating planes | Actuation from top |
| Active area | front |
| Switch distance S_n | 11 mm |
| Ensured switch distance ON S_{ao} | 8 mm |
| Ensured switch distance OFF S_{ar} | 15 mm |
| hysteresis | < 2 mm |
| Repeat accuracy R_R | < 1 mm |
| resistance to shock | 30 g / 11 ms |
| Resistance to vibration | 10 ... 55 HZ, Amplitude 1 mm |

Ambient conditions

| | |
|---|----------------------------|
| Ambient temperature | |
| - Min. environmental temperature | -25 |
| - Max. environmental temperature | +65 |
| Storage and transport temperature | |
| - Min. Storage and transport temperature | -25 |
| - Max. Storage and transport temperature | +85 |
| Protection class | IP65, IP67 to IEC/EN 60529 |
| Protection rating | II |
| Air clearances and creepage distances To IEC/EN 60664-1 | |
| - Rated impulse withstand voltage U_{imp} | 0,8 kV |
| - Overvoltage category | III |
| - Degree of pollution | 3 |

Electromagnetic compatibility (EMC)

| | |
|-----------------------|------------------|
| EMC rating | to IEC 61000-6-2 |
| Interfering radiation | to IEC 61000-6-4 |

Electrical data

| | |
|--|---|
| Cross circuit/short circuit recognition possible (Y/N) | Yes |
| Voltage type | DC |
| Switch frequency | 3 |
| Rated insulation voltage U_i | 32 VAC/DC |
| Rated operating voltage U_e (stabilised PELV) | |
| - Min. Rated operating voltage | 20.4 VDC |
| - Max. Rated operating voltage | 26.4 VDC |
| Operating current I_e | 0,6 A |
| No-load current I_0 | 0,1 A |
| Required rated short-circuit current | 100 A |
| Device insulation (Circuit breaker) | 2 A |
| notice | The cable section of the interconnecting cable must be observed for both wiring variants! Cable length and cable section alter the voltage drop depending on the output current |

Electrical data - Safety inputs

| | |
|---------------|-----------|
| Safety inputs | X1 and X2 |
|---------------|-----------|

Electrical data - Safety outputs

| | |
|---|--|
| Safety outputs | Y1 and Y2 |
| Fuse rating | short-circuit proof |
| Design of control output | p-type |
| Number of secure semi-conductor outputs | 2 |
| Max. output current at secured output | 0,25 A |
| Rated operating voltage | min. ($U_e - 1$ V) |
| Residual current I_r | < 0,5 mA |
| Operating current I_e | max. 0,25 A |
| Minimum operating current I_m | 0,5 mA |
| Utilisation category | DC-12: 24 V / 0,25 A DC-13: 24 V / 0,25 A |
| Voltage drop U_d | < 1 V |

Electrical data - Diagnostic output

| | |
|--|--|
| Serial diagnostics (Y/N) | No |
| Fuse rating | short-circuit proof |
| Design of control output | p-type |
| Number of semi-conductor outputs with signaling function | 1 |
| Rated operating voltage | min. ($U_e - 5$ V) |
| Operating current I_e | max. 0,05 A |
| Voltage drop U_d | < 5 V |
| Utilisation category | DC-12: 24 V / 0,05 A DC-13: 24 V / 0,05 A |

LED switching conditions display

| | |
|--|-----|
| LED switching conditions display (Y/N) | Yes |
| Number of LED's | 2 |

ATEX

| | |
|---|------|
| Explosion protection categories for gases | None |
| Explosion protected category for dusts | None |

Dimensions

| | |
|--------------------------|------|
| Dimensions of the sensor | |
| - Length of sensor | 99.5 |
| - Diameter of sensor | M30 |

Pin assignment

| | |
|---------------------------|-----|
| 1 - A1 Ue | (1) |
| 2 - X1 Safety input 1 | (2) |
| 3 - A2 GND | (3) |
| 4 - Y1 Safety output 1 | (4) |
| 5 - OUT Diagnostic output | (5) |
| 6 - X2 Safety input 2 | (6) |
| 7 - Y2 Safety output 2 | (7) |
| 8 - IN without function | (8) |

notice

| | |
|---|---|
| Requirements for the safety monitoring module | The safety monitoring module must tolerate internal functional tests of the safety outputs for 250 μ s –1500 μ s. The 250 μ s switch-off time of the safety sensor additionally will be extended depending on the cable length and the capacity of the cable used. Typically, a switch-off time of 500 μ s is reached with a 100 m connecting cable. |
|---|---|

Included in delivery

| | |
|---------------------------------------|---------|
| Actuators must be ordered separately. | |
| Mounting accessories Nuts M 18 x 1 | 2 piece |

Indication legend

| | |
|-----------------------------------|-----------------------------|
| see drawing: Characteristic curve | |
| S | Switch distance |
| V | Axial offset |
| S _{on} | Switch-on distance |
| S _{off} | Switch-off distance |
| S _h | Hysteresis area |
| S _{ao} | Ensured switch distance ON |
| S _{ar} | Ensured switch distance OFF |

Ordering code

CSS 11-300-(1)-M-ST

(1)

| | |
|----|--------------------------|
| D | with Diagnostic output |
| SD | serial diagnostic output |

Documents

Operating instructions and Declaration of conformity (nl) 311 kB, 13.12.2016

Code: mrl_css30s_nl

Operating instructions and Declaration of conformity (pt) 321 kB, 17.03.2017

Code: mrl_css30s_pt

Operating instructions and Declaration of conformity (jp) 412 kB, 09.10.2017

Code: mrl_css30s_jp

Operating instructions and Declaration of conformity (de) 372 kB, 18.11.2016

Code: mrl_css30s_de

Operating instructions and Declaration of conformity (fr) 313 kB, 24.11.2016

Code: mrl_css30s_fr

Operating instructions and Declaration of conformity (en) 381 kB, 18.11.2016

Code: mrl_css30s_en

Operating instructions and Declaration of conformity (es) 314 kB, 22.11.2016

Code: mrl_css30s_es

Operating instructions and Declaration of conformity (it) 316 kB, 09.02.2017

Code: mrl_css30s_it

Operating instructions and Declaration of conformity (pl) 335 kB, 16.02.2017

Code: mrl_css30s_pl

BG-test certificate (de, en) 518 kB, 23.10.2014

Code: z_cssp04

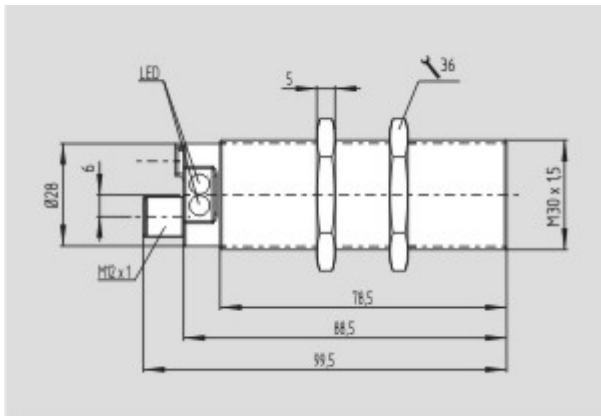
Brochure (de) 6 MB, 15.02.2018

Code: b_css_brosch09_de

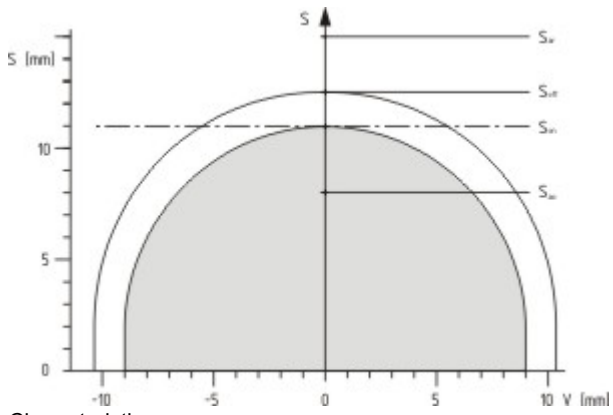
Brochure (en) 6 MB, 15.02.2018

Code: b_css_brosch09_en

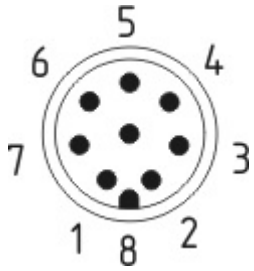
Images



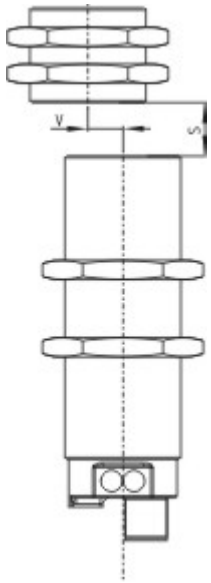
Dimensional drawing (basic component)



Characteristic curve



Contact arrangement



Operating principle

System components

Actuator



101193607 - CST 30S-1

- Stainless steel enclosure

Safety control modules

SRB031MC



- 1 Signalling output
- 3 safety contacts, STOP 1
- Drop-out delay can be set between 0,4 to 1,5 s
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- Fit for signal evaluation of outputs of safety magnetic switches



SRB 301LC/B

- Fit for signal evaluation of outputs of safety magnetic switches (to this end, integrated current and voltage limiters)
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- 3 safety contacts, STOP 0
- 1 Signalling output



SRB 301MC

- Fit for signal evaluation of outputs of safety magnetic switches
- 3 safety contacts, STOP 0
- 1 Signalling output
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks



SRB301ST

- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- Fit for signal evaluation of outputs of safety magnetic switches
- 3 safety contacts, STOP 0
- 1 Signalling output



SRB304ST

- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- Fit for signal evaluation of outputs of safety magnetic switches
- 3 safety contacts, STOP 0
- 4 Signalling outputs



SRB324ST

- Suitable for signal processing of potential-free outputs, e.g. emergency stop command devices, position switches and solenoid interlocks
- Suitable for signal processing of outputs connected to potentials (AOPDs), e.g. safety light grids/curtains
- 3 safety contacts, STOP 0;
- 2 safety contacts, STOP 1 (adjustable 1 ... 30 s)
- 4 Signalling outputs
- Optional: Short-circuit recognition, Manual reset with edge detection in fail-safe circuit, Automatic reset function

101170036 - AES 1135

- Monitoring of BNS range magnetic safety sensors



- 1 safety contact, STOP 0
- 2 Signalling outputs



101170049 - AES 1235

- Monitoring of BNS range magnetic safety sensors
- 2 safety contacts, STOP 0
- 2 Signalling outputs

Mounting accessories



101068520 - MOUNTING CLAMP H 30

- For a smooth fitting of the proximity switches with cylindric shape \varnothing 30 mm or thread M30

K.A. Schmersal GmbH & Co. KG, Mödinghofe 30, D-42279 Wuppertal

The data and values have been checked thoroughly. Technical modifications and errors excepted.

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