

Datasheet - CSS 11-30S-D-M-ST

Safety sensors / CSS 30S



Preferred typ



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

- Stainless steel enclosure
- Max. 31 sensors can be wired in series.
- Connector M12, 8-pole
- 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
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Ordering details

Product type description	CSS 11-30S-D-M-ST
Article number	101204612
EAN Code	4030661381664
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 30S
Standards	IEC 60947-5-3, IEC 61508
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	Stainless steel
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
restistance 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 IP69K to DIN 40050-9
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) notice	2 A 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
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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 30S-(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

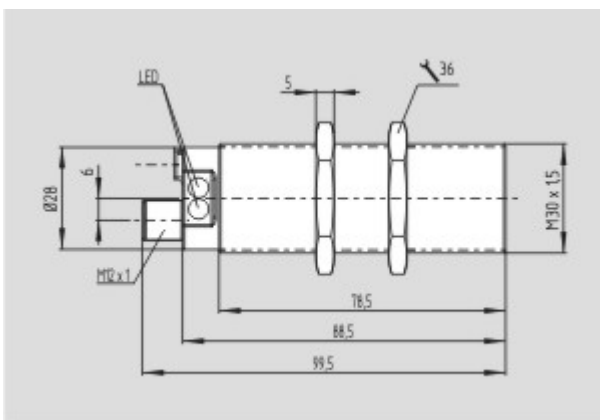
Brochure (de) 6 MB, 15.02.2018

Code: b_css_brosch09_de

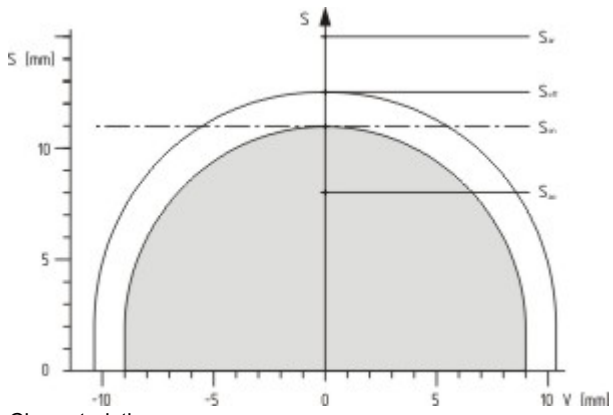
Brochure (en) 6 MB, 15.02.2018

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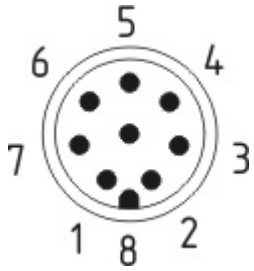
Images



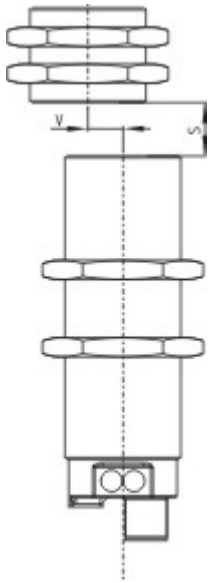
Dimensional drawing (basic component)



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, Möddinghofe 30, D-42279 Wuppertal

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

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