

Datasheet - CSS 15-30-2P+D-M-L

Safety sensors / CSS 30



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

- Metal enclosure
- Max. 16 sensors can be wired in series.
- Pre-wired cable, 7-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

Ordering details

Product type description	CSS 15-30-2P+D-M-L
Article number	101209841
EAN Code	4030661386805
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	2.5 x 10 ⁻⁹ /h
SIL	bis 3
Mission time	20 Years
Classification	PDF-M

Global Properties

Permanent light	CSS 30
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 16 components
Length of the sensor chain	max. 200 m
Active principle	inductive
Materials	
- Material of the housings	Brass, nickel-plated
- Material of the active surface	Plastic
Housing construction form	cylinder, thread
Weight	248
Diagnostic output (Y/N)	Yes
Reaction time	< 30
Duration of risk	≤ 30
Cascadable (Y/N)	Yes
Recommended actuator	CST 30-1, CST 34-S-3

Mechanical data

Design of electrical connection	Cable
Cable length	2
Conductors	0,25
AWG-Number	23
mechanical installation conditions	not flush
Actuating planes	Actuation from top
Active area	front
Switch distance S_n	12 mm / 15 mm
Actuator CST 30-1	15
Actuator CST 34-S-3	12
Ensured switch distance ON S_{ao}	10 mm / 12 mm
Actuator CST 30-1	12
Actuator CST 34-S-3	10
Ensured switch distance OFF S_{ar}	16 mm / 19 mm
Actuator CST 30-1	19
Actuator CST 34-S-3	16
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	+55
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	1.1 A
No-load current I_0	0,05 A
Required rated short-circuit current notice	100 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. ($U_e - 0,5$ V)
Residual current I_r	$\leq 0,5$ mA
Operating current I_e	max. 0,5 A
- Ambient temperature: -25 °C ... $+65$ °C	$\leq 0,2$ A
Minimum operating current I_m	0,5 mA
- Ambient temperature: -25 °C ... $+70$ °C	$\leq 0,1$ A
Utilisation category	DC-12: 24 V / 0,5 A DC-13: 24 V / 0,5 A
Voltage drop U_d	0,5 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. ($U_e - 4$ V)
Operating current I_e	max. 0.05 A

Voltage drop U_d	< 4 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	1

ATEX

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

Dimensions

Dimensions of the sensor	
- Length of sensor	101
- Diameter of sensor	M30

Pin assignment

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

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.
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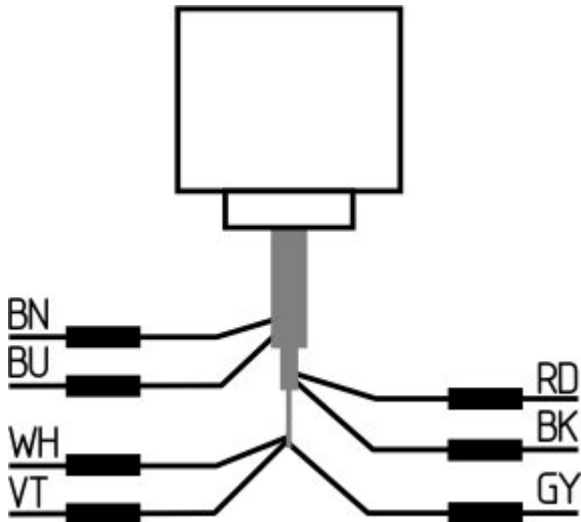
Included in delivery

Actuators must be ordered separately.	
Mounting accessories Nuts M30	2 piece






Indication legend

see drawing: Characteristic curve	
S	Switch distance
X	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

Diagram



Note Diagram

-  positive break NC contact
-  active
-  no active
-  Normally-open contact
-  Normally-closed contact

Documents

Operating instructions and Declaration of conformity (pt) 286 kB, 10.06.2016

Code: mrl_css30_pt

Operating instructions and Declaration of conformity (en) 277 kB, 09.10.2017

Code: mrl_css30_en

Operating instructions and Declaration of conformity (es) 280 kB, 10.06.2016

Code: mrl_css30_es

Operating instructions and Declaration of conformity (da) 268 kB, 17.08.2012

Code: mrl_css30_da

Operating instructions and Declaration of conformity (nl) 305 kB, 29.06.2018

Code: mrl_css30_nl

Operating instructions and Declaration of conformity (de) 265 kB, 09.10.2017

Code: mrl_css30_de

Operating instructions and Declaration of conformity (fr) 283 kB, 03.06.2016

Code: mrl_css30_fr

Operating instructions and Declaration of conformity (jp) 370 kB, 28.09.2017

Code: mrl_css30_jp

Operating instructions and Declaration of conformity (pl) 288 kB, 27.10.2016

Code: mrl_css30_pl

Operating instructions and Declaration of conformity (it) 280 kB, 10.06.2016

Code: mrl_css30_it

BG-test certificate (en) 118 kB, 10.12.2015

Code: z_cssp09

BG-test certificate (de) 132 kB, 20.11.2015

Code: z_cssp07

Brochure (de) 6 MB, 15.02.2018

Code: b_css_brosch09_de

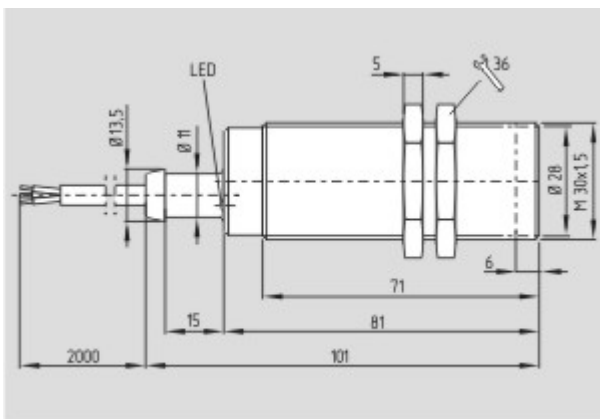
Brochure (en) 6 MB, 15.02.2018

Code: b_css_brosch09_en

EAC certification (ru) 747 kB, 05.10.2015

Code: q_6396p17_ru

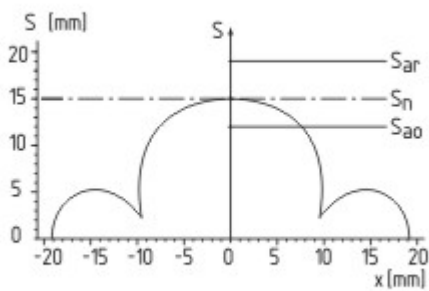
Images



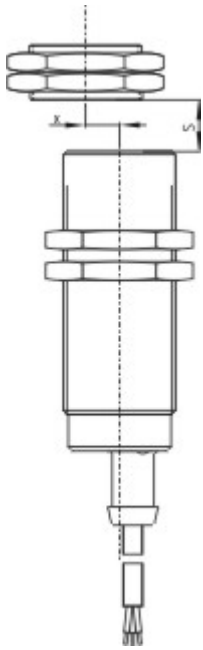
Dimensional drawing (basic component)



Family picture



Characteristic curve



Application

System components

Actuator



101209887 - CST 30-1

- Thermoplastic enclosure



101203434 - CST 34-S-3

- Front and lateral actuation of the sensor possible
- Small body

Mounting accessories



101068520 - MOUNTING CLAMP H 30

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

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

Generiert am 18.09.2018 - 07:43:26h Kasbase 3.3.0.F.64I