

Magnetic proximity switches Series CSM and CSN (Reed Switch Type)

Mod. CSM 2432-0

Mod. CSN 2032-0

The electrical proximity switch, models CSN 2032-0 and CSM 2432-0, consist of a Reed switch complete with an electronic protection circuit and a red led indicator, all encapsulated in an insulated sealed casing.

The model CSN 2032-0 is provided with a special bracket system which allows the operator to fix it directly onto the tie-rod by means of two screws which position it longitudinally relative to the cylinder axis and by means of a third screw which locks its rotational movement. The three terminals are indicated by the numbers 1, 2, 3 and enable the following connections to be made, as shown in Figure 1.

The model CSM 2432-0 is designed so that it can be fixed directly onto the tube by a non-magnetic stainless steel strip. The system also has a screw for adjusting the final position.

For dimensional reasons, the three outputs consist of a sealed cable, 2 meters long, with three differently colored wires—brown, blue and black. For connections please see the diagrams given on page 1.92.



GENERAL DATA

Mod.	CSN 2032-0	CSM 2432-0
Voltage	from 12 to 220V AC and DC	same
Protection	IP54 / IP65 with DIN 43650/PG9 connector	IP65 connector
Material	glass-reinforced nylon	same
Mounting	bracket for tie-rod, ø 6-10 mm	metal strip ø 18-29
Indicator	integrated red LED	same
Electrical connections	DIN 43650 connector, Mod. 122-800	cable 3 x 1 (length 2 m)
Max. current	1.5 A	same
Max. load	20 W DC - 30 VA AC	same
Actuating time	≤ 2 ms	same
Actuating tol.	± 1 mm	same
Operating time	-25°C – + 75°C	same
Type of contact	N.O. (normally open)	same

TECHNICAL DATA

CONNECTION

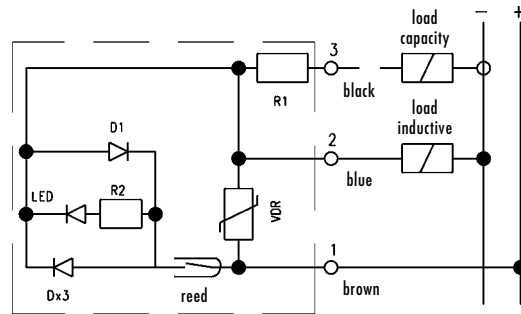
- a) for inductive loads = solenoid valves, electrical magnets, relay to connectors = terminals 1-2 (mod. CSN 2032-0) must be used to wires = brown-blue wires (mod. CSM 2432-0) must be used
- b) for capacitive loads = circuit with remaining tension (see PLC controls) to connectors = terminals 1-3 (mod. CSN 2032-0) must be used to wires = brown-black wires (mod. CSM 2432-0) must be used

Note: For connections with wires of approximately 10m, the connection shall be made as for a capacitive load.

MAXIMUM LOADS

For maximum loads see Fig. 1. Those loads are valid only for inductive loads. For capacitive loads, using clamp 3 (or black wire) load must not exceed 80 mA and loads must be given by PLC or, for electrical circuits, by microrelé or micro solenoid valves with ZW maximum consumption.

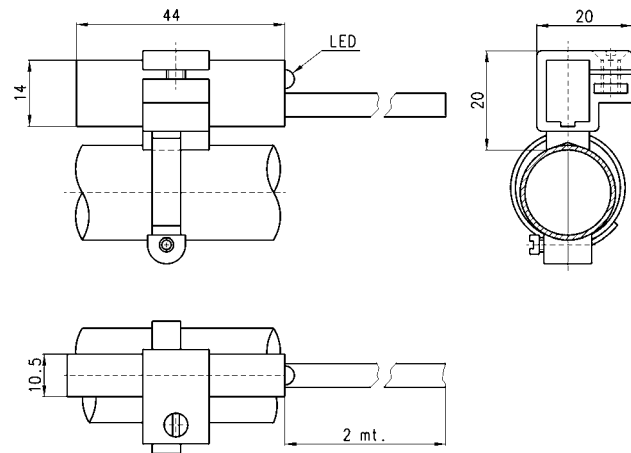
Note: When operating with direct current, clamp 1 must be always connected to the positive outlet (+). In cases where commands are given from the PLC and logic NPN CLAMP 1 must be connected to the inlet. In cases where command are given from the PLC and logic PNP, clamps 2 or 3 must be connected to the inlet.



Magnetic proximity switches Series CSM

- For cylinder Series:
 - 42 blocking bands to be ordered separately
 - 24-25 complete with blocking bands
 - 60 ø 32-100 blocking bands ordered separately (see Mod. S20)

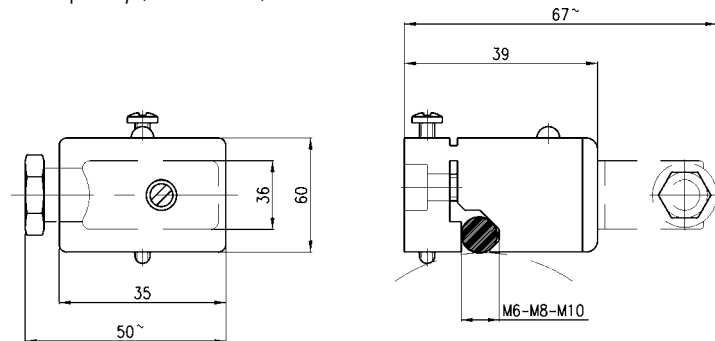
- Mod. **F/CSM-32** - ø 32 mm
- Mod. **F/CSM-40** - ø 40 mm
- Mod. **F/CSM-50** - ø 50 mm
- Mod. **F/CSM-63** - ø 63 mm



Mod.
CSM 2432-0

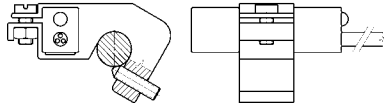
Magnetic proximity switches Series CSN

- For cylinders Series:
 - 40 ø 160 - 200 mm mounting bands to be ordered separately (See Mod. S21)
 - 41 ø 160 - 200 mm mounting bands to be ordered separately (See Mod. S53)
 - 60 ø 32 - 100 mm mounting bands to be ordered separately (See Mod. Sxx)
 - 60 ø 125 mm mounting bands to be ordered separately (See Mod. S21)
 - 70 ø 1 1/2", 2", 2 1/2", 3 1/4", 4", 5"



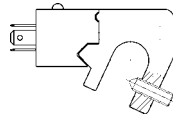
Mod.
CSN 2032-0

**Mounting brackets for sensors
Mod. CSM 2432-0 and CSN 2032-0**



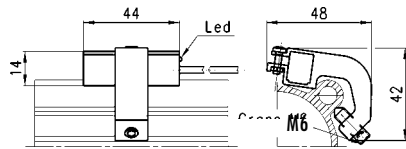
Only for proximity switches Mod. CSM 2432-0

Mod.	
S20	for cylinders ø32, 40, 50, 63, 80, 100 Series 60



Only for proximity switches Mod. CSN 2032-0

Mod.	
S21	for cylinders ø125, 160, 200 Series 40 and 60
S53	for cylinders ø160-200 Series 41



Only for proximity switches Mod. CSM 2432-0

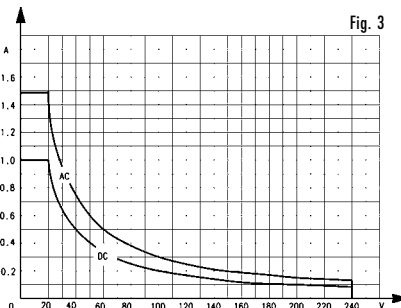
Mod.	
S22	for cylinders ø32, 40, 50, 63, 80, 100 Series 29

Maximum contact load

The maximum load (W) which the contacts are able to tolerate is that indicated in the section "General data", i.e.:

- 20 W for direct current
- 30 VA for alternating current

The effective load allowed depends on the operating voltage (minimum 12V, maximum 110) as shown in Fig. 3.



Note: The graph in Figure 3 was obtained from practical test performed using a load consisting of our Series A and Series 6 solenoid valves, at an operating speed of one stroke per second. For higher operating speeds, you are advised to contact our technical department.

Useful information for correct use of the magnetic sensors

The magnetic sensors, models CSN 2032 and CSM 2432-0, consist of a reed switch which is enclosed in a glass bulb containing a rarified gas. The contacts, which are made of magnetic material (nickel-iron), are flexible and are coated, at the contact points with a high quality non-bowing material. Switching is effected by means of a suitable magnetic field and, in the case of the Series 40 cylinders (ISO 6431) or the Series 24 and 25 minicylinders (CETOP RP52-P), actuation is achieved by means of the permanent magnet inside the piston. The two sensors are of the normally open type and, therefore, when they are subject to the effect of the magnetic field, they close the circuit. The operating field of the sensors with respect to the magnetic piston is shown in Figure 2. The dimension b indicates the amplitude of the magnetic field or switching field during which the circuit is closed. The value H represents the operational hysteresis of the sensor with respect to the form and amplitude of the magnetic field. The operating field, as a result of hysteresis, is displaced by the dimension H in the opposite direction to the movement of the piston. The values b and H are shown in the table and are classified according to bore. This table also shows the minimum distance between two sensors which can indicate the minimum stroke of a cylinder, this value being obtained from the formula: $b + 2H = \text{mm}$ (minimum stroke of cylinder). The maximum speed permitted for each cylinder is a function of the value b and the response time of the various components connected after the sensor.

Maximum operating speed

The maximum speed for cylinder guided by magnetic sensors is calculated as follows:

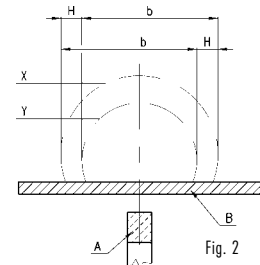
$$\frac{b}{t} = \text{speed}$$

where:

b = contact stroke in mm (see table)

t = total reaction time in milli seconds of electric control components connected after the sensor

Speed = maximum speed in m/second



DIMENSIONS

Series	cylinder bore	H hysteresis mm.	b contact stroke in mm.	minimum stroke of cylinder
24-25	16	1	10	12
24-25	20	1	11.5	13.5
24-25	25	0.6	12.5	14
60-42	32	1	13.5	15.5
60-42	40	1.2	14	16.5
60-42	50	1.2	17	19.5
60	63	1.2	18.5	21
60	80	1.2	18.5	21
60	100	1	21.5	21.5

TABLE SHOWING THE USE OF CAMOZZI MAGNETIC PROXIMITY SWITCHES

Series	Ø	CST support	CSV support	CSM 2432-0 support	CSN 2032-0 support	CSB-D-220 CSB-H-220 support	CSC-D-220 CSC-H-220 support
24-25	16	S-CST-02		direct mounting			
	20	S-CST-03		direct mounting			
	25	S-CST-04		direct mounting			
27	16	S-CST-02		direct mounting			
	20	S-CST-03		direct mounting			
	25	S-CST-04		direct mounting			
	32	S-CST-18		F/CSM - 32			
	40	S-CST-19		F/CSM - 40			
	50	S-CST-20		F/CSM - 50			
	63	S-CST-21		F/CSM - 63			
29	32	S-CST-16		S22			
	40	S-CST-16		S22			
	50	S-CST-16		S22			
	63	S-CST-16		S22			
	80	S-CST-17		S22			
31	100	S-CST-17		S22			
	12	direct mounting					
	16	direct mounting					
	20	direct mounting					
	25	direct mounting					
	32	direct mounting					
	40	direct mounting -					
	50	direct mounting					
40	63	direct mounting					
	80	direct mounting					
	100	direct mounting					
	160	not available			S21		
	200	not available			S21		
	250	S-CST-28					
41	160	S-CST-28					
	200	not available		not available	S53		
42	160	not available		not available	S53		
	200	not available		not available	S53		
	32	S-CST-18		F/CSM-32			
	40	S-CST-19		F/CSM-40			
50	50	S-CST-20		F/CSM-50			
	63	S-CST-21		F/CSM-63			
	16		direct mounting				
60	25		direct mounting				
	32	S-CST-01					
	40	S-CST-01					
	50	S-CST-01					
	63	S-CST-01					
	80	S-CST-01					
	32	S-CST-25		S20	direct mounting		
60+45N	40	S-CST-25		S20	direct mounting		
	50	S-CST-25		S20	direct mounting		
	63	S-CST-25		S20	direct mounting		
	80	S-CST-26		S20	direct mounting		
	100	S-CST-26		S20	direct mounting		
	125	S-CST-27					
	125	not available		not available	S21		
	32	S-CST-45N1					
60+45N	40	S-CST-45N1					
	50	S-CST-45N1					
	63	S-CST-45N1					
	80	S-CST-45N2					
	100	S-CST-45N2					

TABLE SHOWING THE USE OF CAMOZZI MAGNETIC PROXIMITY SWITCHES

Series	Ø	CST support	CSV support	CSM 2432-0 support	CSN 2032-0 support	CSB-D-220 CSB-H-220 support	CSC-D-220 CSC-H-220 support
61	32	direct mounting					
	40	direct mounting					
	50	direct mounting					
	63	direct mounting					
	80	direct mounting					
	100	direct mounting					
	125	direct mounting					
70	1.5	S-CST-25			direct mounting		
	2	S-CST-25			direct mounting		
	2.5	S-CST-25			direct mounting		
	3.25	S-CST-26			direct mounting		
	4.00	S-CST-26			direct mounting		
	5.00	S-CST-26-0501			direct mounting		
90	32	S-CST-06		F/CSM-32			
	40	S-CST-07		F/CSM-40			
	50	S-CST-08		F/CSM-50			
	63	S-CST-09		F/CSM-63			
	80	S-CST-10					
	100	S-CST-11					
	125	S-CST-12					
92	32	S-CST-06		F/CSM-32			
	40	S-CST-07		F/CSM-40			
	50	S-CST-08		F/CSM-50			
	63	S-CST-09		F/CSM-63			
94	16	S-CST-05		direct mounting			
	20	S-CST-05		direct mounting			
	25	S-CST-05		direct mounting			
95	25	S-CST-05		direct mounting			
CGA	10					direct mounting	
	16					direct mounting	
	20					direct mounting	
	25					direct mounting	
	32					direct mounting	
CGB	16					direct mounting	
	20					direct mounting	
	25					direct mounting	
	32					direct mounting	
CGC	50					direct mounting	
	64					direct mounting	
	80					direct mounting	
	100					direct mounting	
	125					direct mounting	
CGL	10						direct mounting
	16						direct mounting
	20						direct mounting
	25						direct mounting
	32					direct mounting	direct mounting
CGP	10					direct mounting	
	16					direct mounting	
	20					direct mounting	
	25					direct mounting	
	32					direct mounting	

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Series	Ø	CST	CSV	CSM 2432-0	CSN 2032-0	CSB-D-220 CSB-H-220	CSC-D-220 CSC-H-220
		support	support	support	support	support	support
CGS	16					direct mounting	
	20					direct mounting	
	25					direct mounting	
	32					direct mounting	
QC	20	direct mounting					
	25	direct mounting					
	32	direct mounting					
	40	direct mounting					
	50	direct mounting					
	63	direct mounting					
QP-QPR	80	direct mounting					
	12		direct mounting				
	16		direct mounting				
	20	S-CST-01					
	25	S-CST-01					
	32	S-CST-01					
	40	S-CST-01					
	50	S-CST-01					
QCBF	63	S-CST-01					
	80	S-CST-01					
	100	S-CST-01					
	20	direct mounting					
QCTF	25	direct mounting					
	32	direct mounting					
	40	direct mounting					