

Magnetic proximity switches Series CSM and CSN

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 consisting 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 and 3 and enable the following connections to be made, as shown in Figure 1.

The model CSM 2432-0 is the same as in the model CSN 2032-0, the sealed casing 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 metres long, with three differently coloured wires-brown, blue and black-which can be connected as follows (see Figure 1).



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, dia. 6-10	metal strip dia. 18-29
Indicator	integrated red LED	same
Electr. 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.	± 1mm	same
Operating time	-25°C ÷ + 75°C	same
Type of contact	N.O. (normally open)	same

TECHNICAL DATA

CONNECTION

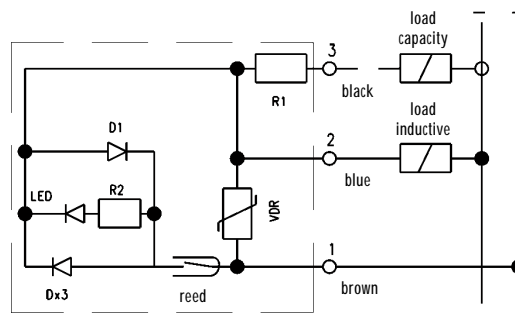
- a) for inductive loads = solenoid valves, electrical magnets, relay to connectors = terminals 1-2 (mod. CSN 2032-0) must be used to wires = brown-blue wires (mod. CSM 2432-0) must be used
- b) for capacitive loads = circuit with remaining tension (see PLC controls) to connectors = terminals 1-3 (mod.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

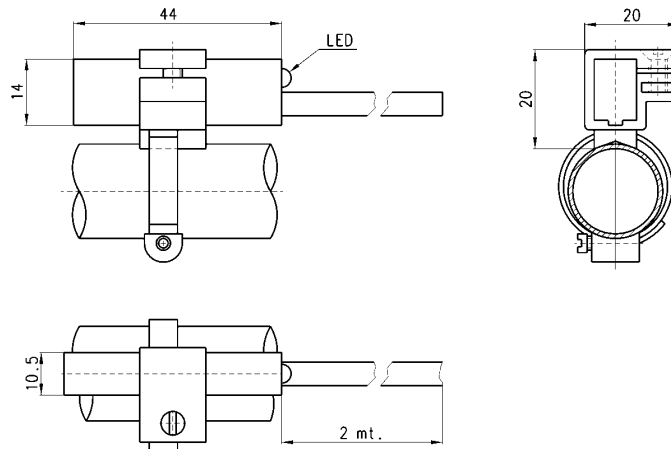


Magnetic proximity switches Series CSM

For cylinders series 24-25 complete with blocking bands
 For cylinders series 29-40-41 $\varnothing 32 \div 100$ blocking bands to be ordered separately

For cylinders series 42 blocking bands to be ordered separately:

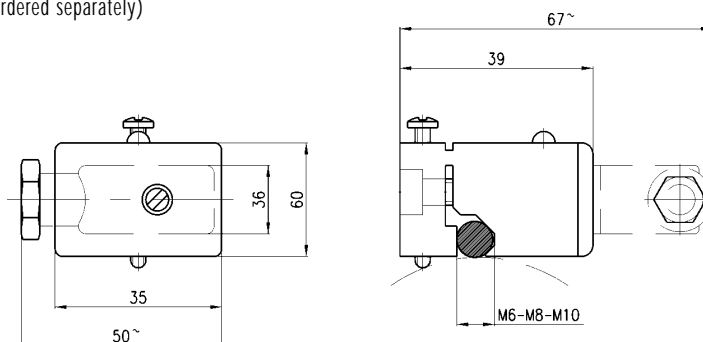
- Mod. F/CSM-32 - $\varnothing 32$
- Mod. F/CSM-40 - $\varnothing 40$
- Mod. F/CSM-50 - $\varnothing 50$
- Mod. F/CSM-63 - $\varnothing 63$



Mod.
CSM 2432-0

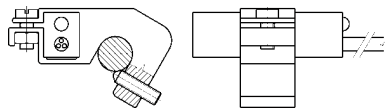
Magnetic proximity switches Series CSN

For cylinders Series 40 $\varnothing 32 \div 100$
 For cylinders Series 40 $\varnothing 125 \div 200$ (mounting bands to be ordered separately)
 For cylinders Series 41 $\varnothing 125 \div 200$ (mounting bands to be ordered separately)



Mod.
CSN 2432-0

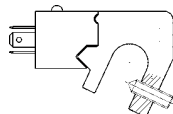
Mounting brackets for sensors
Mod. CSM-2432-0 and Mod CSN-2032-0



Only for proximity switches Mod. CSM 2432-0

Mod.

S20 for cylinders ø32-40-50-63-80-100 Series 40



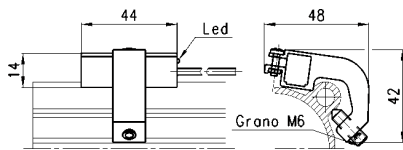
Only for proximity switches Mod. CSN 2032-0

Mod.

S21 for cylinders ø125-160-200 Series 40

S52 for cylinders ø125 Series 41

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 e 41

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.

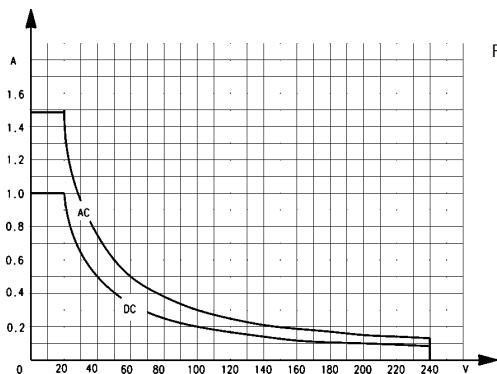


Fig. 3

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 2023 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-arching 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 movement 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 a cylinders 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

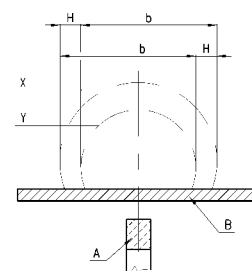


Fig. 2

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
40-41-42	32	1	13.5	15.5
40-41-42	40	1.2	14	16.5
40-41-42	50	1.2	17	19.5
40-41	63	1.2	18.5	21
40-41	80	1.2	18.5	21
40-41	100	1	21.5	21.5