

Magnetic proximity switch Series CST-CSV

- Reed
- Hall effect

The magnetic proximity switches CST/CSV detect the position of the cylinder's magnetic piston. When the internal contact is actuated by a magnetic field, the sensors complete an electrical circuit and provide an output signal to actuate directly a solenoid valve or a PLC. A yellow LED diode shows when the internal magnetic contact is closed. The Reed switch has a "mechanical switching" element and is suitable for voltages, AC and DC, up to 110V, and has a shorter operational life than Hall effect type. The Hall effect sensor has a longer operational life but as it is constructed from semi-conductor material is only suitable for DC voltages up to 30V. The 2 types of proximity switches are both sealed in an epoxy resin and externally they are the same. These sensors are designed to fit into the grooves provided in the profile barrel of "compact" and "rodless" cylinders or on the surface of roundline and tie rod cylinders by using mounting bands or brackets.



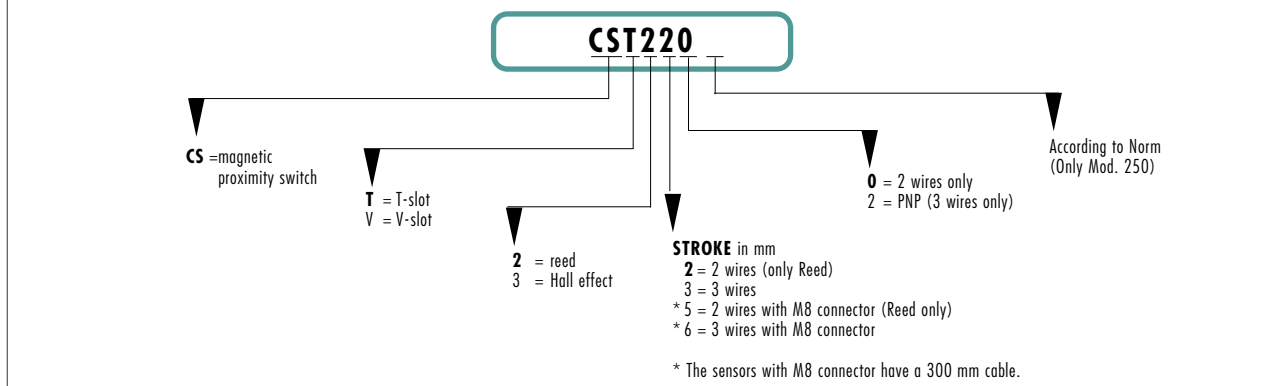
The reed version with 3 wires allows the connection of several sensors in series, as there is no voltage drop between the supply and the load (see connecting scheme on page 1.88). The voltage drop is 2.5V for the 2 wire version and 1V for Hall effect sensors. For electrical connections see page 1.88. For maximum loads see diagrams of fig.2 and 3.

- ▶ Designed to fit into the cylinder profile barrel
- ▶ 2 models (CST-CSV) are suitable for all Camozzi's cylinder range
- ▶ With or without M8 connector

GENERAL DATA

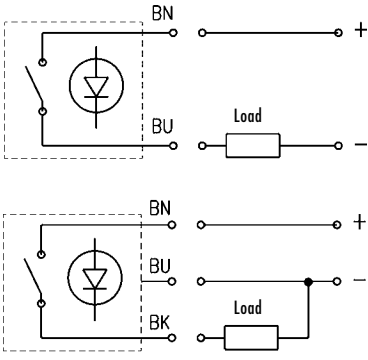
| | | | |
|-----------------------|---|----------------------------|--|
| Mod. | CST-220 CSV-220 | CST-232 CSV-232 | CST-332 CSV-332 |
| | CST-250 CSV-250 | CST-262 CSV-262 | CST-362 CSV-362 |
| Operation | Reed contact | | Hall effect |
| Output | -- | | PNP |
| Voltage | 10-110 V AC/DC | 5-30 V AC/DC | 10-27 V DC |
| Protection | IP 67 | | |
| Materials | Plastic body encapsulating epoxy resin, PVC, PUR sheathed cable | | |
| Mounting | Directly into the groove, or by means of adapters (only CST) | | |
| Signalling | By means of yellow diode Led | | |
| Electrical connection | cable 2x0,14 (2m) | cable 3x0,14 (2m) | |
| | connector M8 (0,3 m) | connector M8 (0,3 m) | |
| Max. current | 250 mA inductive | | |
| Max. load | 8 W, 10 VA | | 6 W |
| Protection | none | against polarity reversing | against polarity reversing against reverse spikes |
| Switching time | <1,8 ms | | <1 ms |
| Operating temperature | -10°C – 80°C | | |
| Type of contact | N.O. | | |
| Electrical duration | 10 ⁷ cycles | | 10 ⁹ cycles |

CODING EXAMPLE



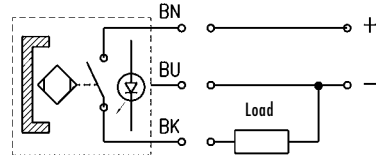
REED SENSOR

BN = brown
BU = blue
BK = black



HALL EFFECT SENSOR

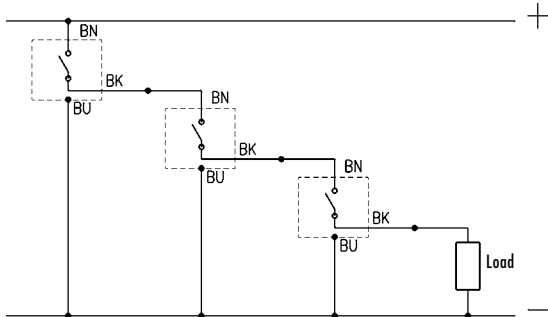
BN = brown
BU = blue
BK = black



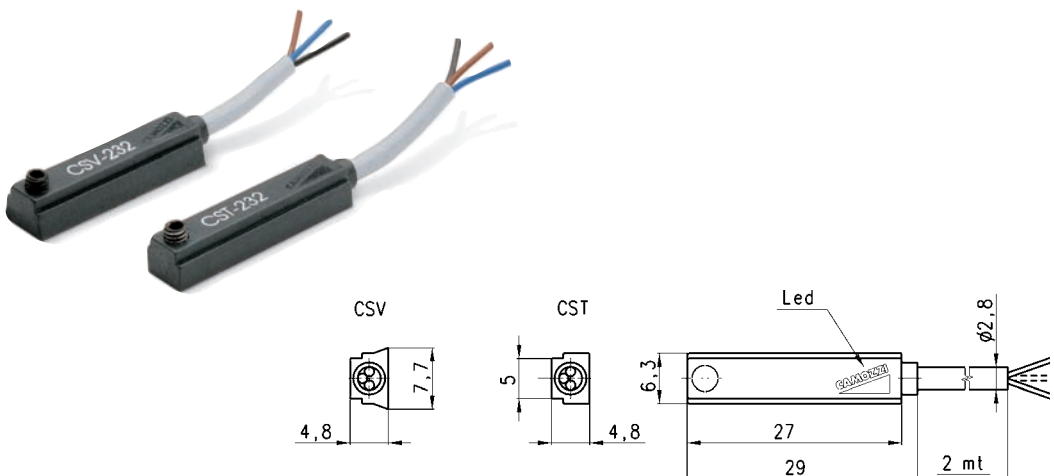
CONNECTING SCHEMES IN SERIES

The reed version with 3 wires allows the connection of several sensors in series, as there is no voltage drop between the supply and the load (see connecting scheme). This voltage drop is 2.5V for the 2 wire version and 1V for Hall effect sensors.

BN = brown
BU = blue
BK = black



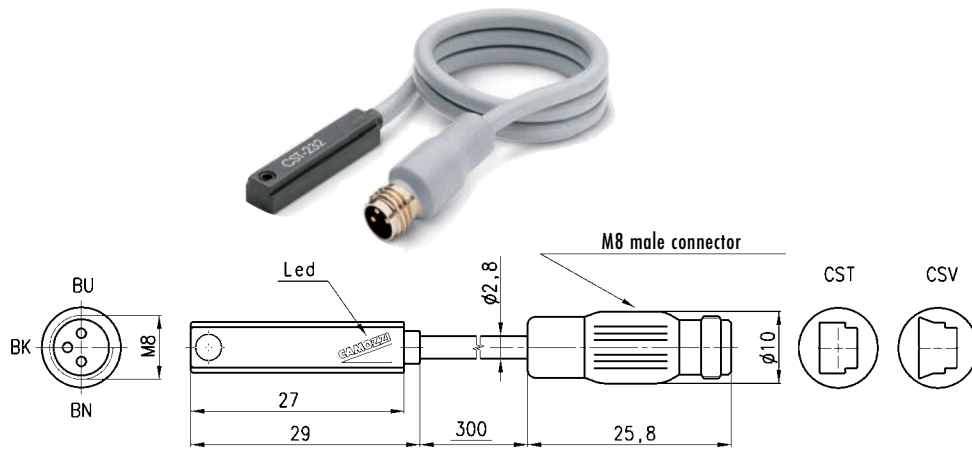
Magnetic proximity switch Series CST



| |
|------------------|
| Mod. |
| CST - 220 |
| CSV - 220 |
| CST - 232 |
| CSV - 232 |
| CST - 332 |
| CSV - 332 |

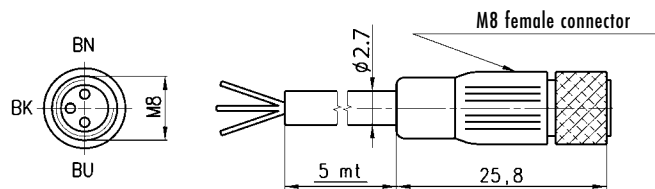
Connector Series CST

| |
|-------------------|
| Mod. |
| CST - 250N |
| CSV - 250N |
| CST - 262 |
| CSV - 262 |
| CST - 362 |
| CSV - 362 |



Connector Mod. CS-5

In case of the use of sensors with two wires with connector M8 (CST-250N and CSV-250N) connect the brown wire to the input (+) and the black one to the load.

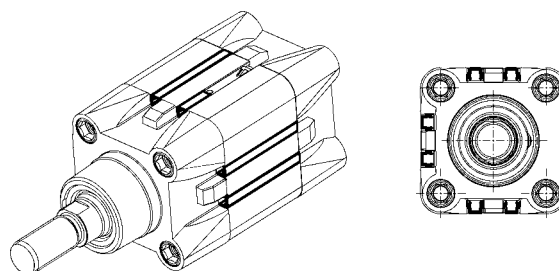


| |
|-------------|
| Mod. |
| CS-5 |

Slot cover profile Mod. S-CST-500

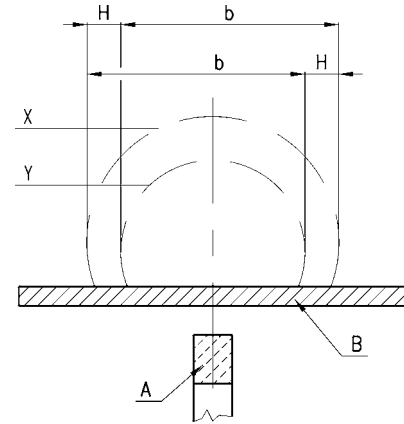
Slot cover profile for cylinders Series:
- 61

Supplied with:
500 mm tube



Useful information for correct use of the magnetic sensors

The magnetic sensors 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-arcing material. Switching is effected by means of a suitable magnetic field and 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 of the piston. The values b and H are shown in the table and are classified according to bore. 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 cylinder guided by magnetic sensors is calculated as follows:

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

where:

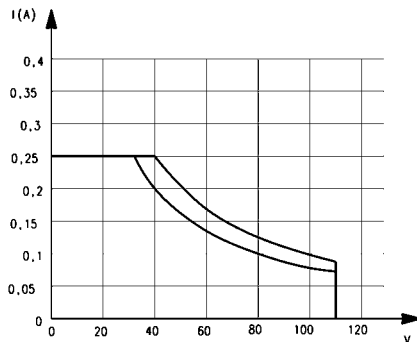
b = contact stroke in mm (see table)

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

Speed = maximum speed in m/second

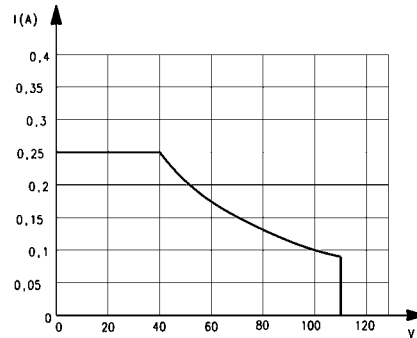
Maximum load of magnetic proximity switch (Reed)

Fig. 2



- Inductive / capacitive loads
8W DC - 10VA AC;
max. current = 250 mA;
 - Resistive loads
10W/VA, 500mA AC/DC
- Mod.
CST/CSV-232
CST/CSV-262

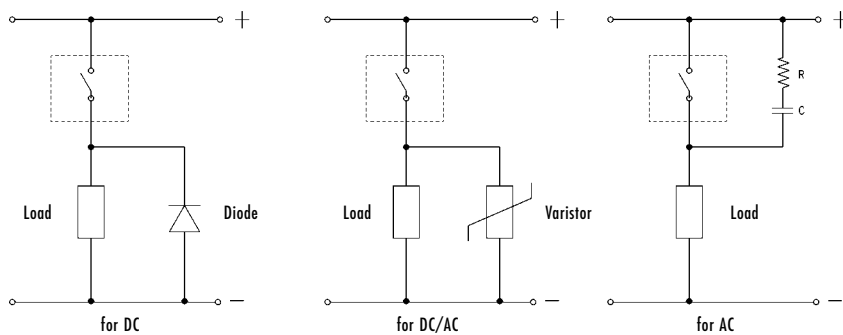
Fig. 3



- Inductive / capacitive loads
8W DC - 10VA AC
The effective load in amps is a function of the operating voltage indicated in fig. 1
 - Resistive loads
10W/VA DC/AC, 250 mA
The effective load in amps is a function of the operating voltage indicated in fig. 2
- Mod.
CST/CSV-220
CST/CSV-250N

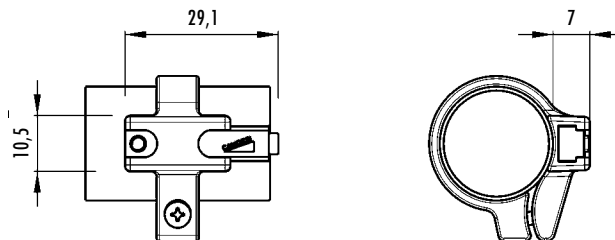
Electric circuit with protection against the voltage spikes

There is no protection on the Reed sensors on the inductive load, therefore it is advisable to use an electric circuit with protection against the voltage spikes. See the figure beside for 3 examples.

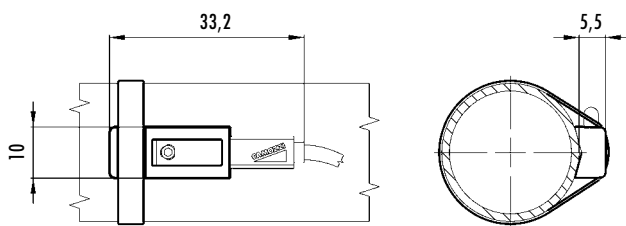


Mounting bands for sensors Series CST

S-CST-02...04, S-CST-18...21



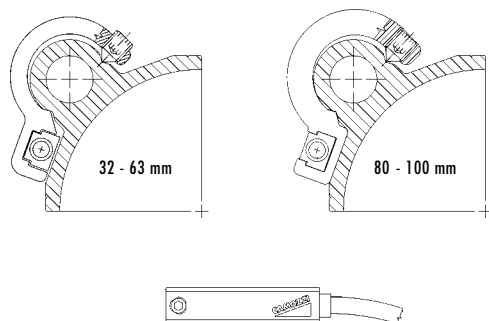
S-CST-05...12



Mod.

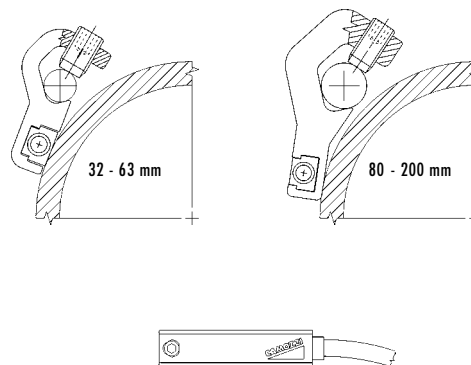
| | |
|-----------------|-----------------------------------|
| S-CST-02 | for cylinders ø16 Series 24-25 |
| S-CST-03 | for cylinders ø20 Series 24-25 |
| S-CST-04 | for cylinders ø25 Series 24-25 |
| S-CST-05 | for cylinders ø16-25 Series 94-95 |
| S-CST-06 | for cylinders ø32 Series 90-92 |
| S-CST-07 | for cylinders ø40 Series 90-92 |
| S-CST-08 | for cylinders ø50 Series 90-92 |
| S-CST-09 | for cylinders ø63 Series 90-92 |
| S-CST-10 | for cylinders ø80 Series 90 |
| S-CST-11 | for cylinders ø100 Series 90 |
| S-CST-12 | for cylinders ø125 Series 90 |
| S-CST-18 | for cylinders ø32 Series 27-42 |
| S-CST-19 | for cylinders ø40 Series 27-42 |
| S-CST-20 | for cylinders ø50 Series 27-42 |
| S-CST-21 | for cylinders ø63 Series 27-42 |

Profile barrel mounting brackets Series CST



| | |
|-----------------|------------------------------------|
| Mod. | |
| S-CST-16 | for cylinders ø32-63 mm Series 41 |
| S-CST-17 | for cylinders ø80-100 mm Series 41 |

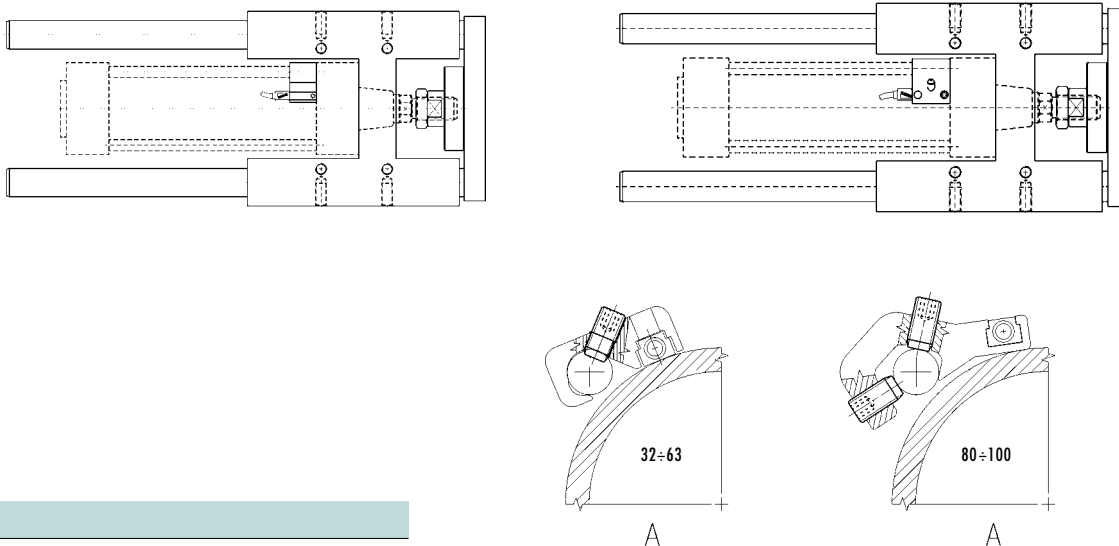
Tie rod mounting brackets Series CST



| | | |
|----------------------|---------------------------|---|
| Mod. | | |
| S-CST-25 | for cylinders ø32-63 mm | Series 60 Series 70 (1 1/2", 2", 2 1/2") |
| S-CST-26 | for cylinders ø80-100 mm | Series 60 Series 70 (3 1/4", 4") |
| S-CST-26-US01 | for cylinders | Series 70 (5") |
| S-CST-27 | for cylinders ø125 mm | Series 60 |
| S-CST-28 | for cylinders ø160-200 mm | Series 40 |

Adaptors for sensors Series CST

For cylinders Series 60 used with 45NHT or 45NHB.



| | |
|-------------------|---------------------------------|
| Mod. | |
| S-CST-45N1 | for cylinders Series 60 ø32-63 |
| S-CST-45N2 | for cylinders Series 60 ø80-100 |