

Proximity sensor, capacitive

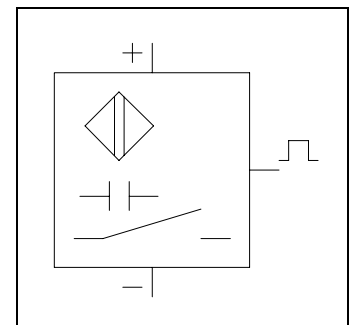
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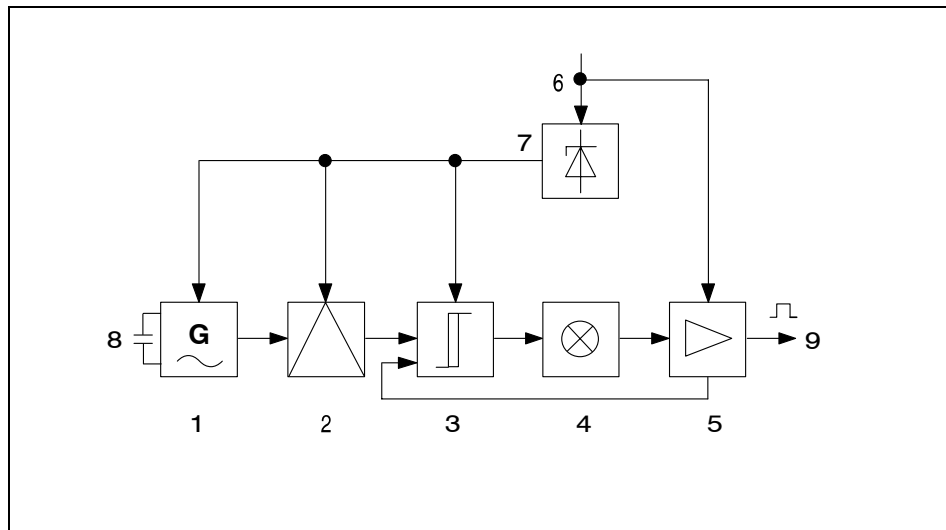
Description

Designation

Order no.



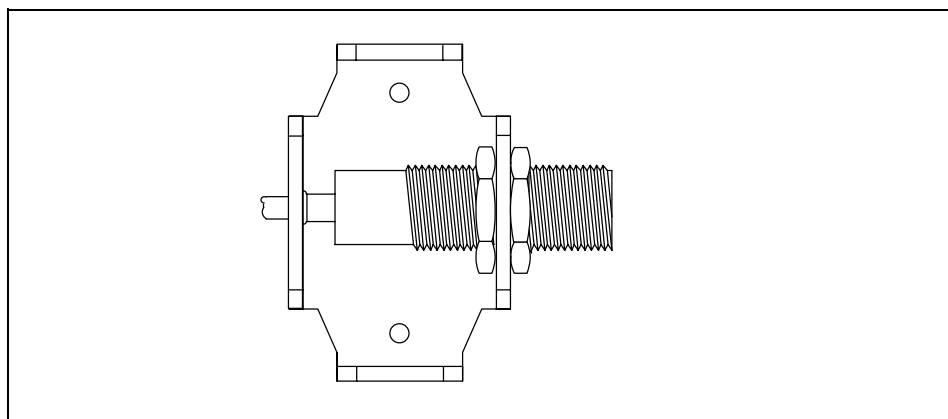
Symbol

Block circuit diagram

- 1 Oscillator
- 2 Demodulator
- 3 Triggering stage
- 4 Switching status indicator
- 5 Output stage with protective circuit
- 6 External voltage
- 7 Internal stabilised voltage
- 8 Condenser with active switching zone
- 9 Switching output

Design

The capacitive proximity sensor is fitted in a retaining bracket with two locating pins (see sketch). Electrical connection is established through a cable with 4 mm plugs.



The operational principle of a capacitive proximity sensor is based on the evaluation of the change in capacitance of a condenser in an RC resonant circuit.

Function

If any material is brought near to the proximity sensor, the capacitance of the condenser increases. This leads to a measurable change in the oscillatory behaviour of the RC resonant circuit. The change in capacitance depends substantially on the distance, the dimensions, and on the dielectric constant of the material in question.

The proximity sensor has a PNP output, i.e. upon activation, the switch connects the signal line to the positive potential. The switch is designed as normally open. The load is connected between the proximity sensor signal output and earth. A yellow light emitting diode (LED) indicates the switching status. The capacitive proximity sensor cannot be flush mounted.

The polarity of the applied voltage is critical for satisfactory operation. The cable terminals are colour coded.

Note**Operating voltage**

Positive pin brown (red plug)

Negative pin (0 V) blue

Load output black

The sensor is protected against incorrect polarity, overload and short circuit.

Technical data

Permissible operating voltage	10 to 55 V DC
Switching output	PNP, normally open
Nominal switching distance (adjustable)	2 to 8 mm
Hysteresis (ref. to nominal switching distance)	3 to 15 %
Maximum switching current	200 mA
Maximum switching frequency	300 Hz
Current consumption (non-activated at 55 V)	7 mA
Permissible ambient operating temperature	–20°C to +70°C
Degree of protection	IP 65
Protection against reversed polarity, short circuit	Yes
Material	Thermoplastic (housing)
Weight	0.20 kg
Connection	Cable with 4 mm plugs