


18, 30 & 40mm Diameter Capacitive



FEATURES

- Sensing of metallic and non-metallic objects
- Adjustable operating distance
- DC & AC/DC power supply versions
- Cylindrical threaded metal or plastic casing.
- Protection degree IP65 & IP 67
- Protection against reverse polarity, load short circuit and inductive electrical noises
- LED indication of the output logic status
- Cable and connector versions
- Protective housing available for mounting into containers
-  Compliant to the EMC directive

DESCRIPTION

Capacitive sensors are used to detect metallic and non-metallic objects (liquid, plastic, wooden materials and so on). They are housed in metallic or plastic, cylindrical threaded casing for 18, 30 and 40 mm diameters. These sensors offer dust and water tightness as well as high shock and vibration resistance. All models feature LED indication of the output status and protection against load short circuit. A screw placed on the back side of the sensor allows regulation of the operating distance. This sensitivity regulation is useful in applications, such as detection of full containers and non-detection of empty containers.

OPERATING PRINCIPLE

Capacitive proximity sensors use the variation of the parasitic capacity that develops between the sensor and the object being detected. When the object is at a preset distance from the sensitive side of the

sensor, an electronic circuit inside the sensor begins to oscillate. The rise or the fall of such oscillation is identified by a threshold circuit that drives an amplifier for the operation of an external load. The operating distance of the sensor depends on the actuator shape and size and is strictly linked to the nature of the material (Table 1.).

Capacitive sensors	
Metal	~ 1 x Sn
Water	~ 1 x Sn
Plastic	~ 0.5 x Sn
Glass	~ 0.5 x Sn
Wood	~ 0.4 x Sn

Table 1. Sensitivity with different materials present. Sn = operating distance.

DC Capacitive		MODEL						
Output Function	NPN, NO	S771						
	PNP, NO	S773						
	NPN, NO+NC		S3374	S3360	S3378	S3370	S3376	S3372
	PNP, NO+NC		S3375	S3361	S3379	S3371	S3377	S3373
Operating Distance mm	3 - 8	0 - 5	0 - 10	0-20	0 - 25		0 - 35	
External Diameter	M 18 x 1			M 30 x 1.5			M 40 x 1.5	
Power Supply	10 - 30 Vdc			10 - 55 Vdc				
Switching Current	150 mA	200 mA		300 mA			200 mA	
Power Drain	< 5 mA	≤ 10 mA		≤ 10 mA			< 10 mA	
Voltage Drop (On State)	< 3 V	< 1.8 V		< 1.8				
Short Circuit Protection	Yes							
Operating Frequency (max)	200 Hz	10 Hz		10 Hz				
Case	Nickel Plated Brass		Plastic	Ni Plated Brass	Plastic			
Dimensions mm	Fig. 1	Fig. 2	Fig. 3	Fig. 4	Fig. 6	Fig. 7	Fig. 8	
Flush Mounting	Yes		No	Yes	No			
Protection Degree	IP 65				IP 67	IP 65	IP 67	
Operating Temperature	-10 to +60° C	-20 to +70° C		-20 to +70° C				
Output Connection	Cable PVC, L = 2 m					Connector C2	Cable PVC, 2	
Protective housing # **	—			—	S3386	S3387	Upon request	

* Mating connector with screw terminals included, ** Optional protective housing available

Capacitive

2 wire AC/DC advantages

- Reduces stock
- Easier installation
- Not polarity sensitive
- Compatible with PLC units
- Separate power supply not required

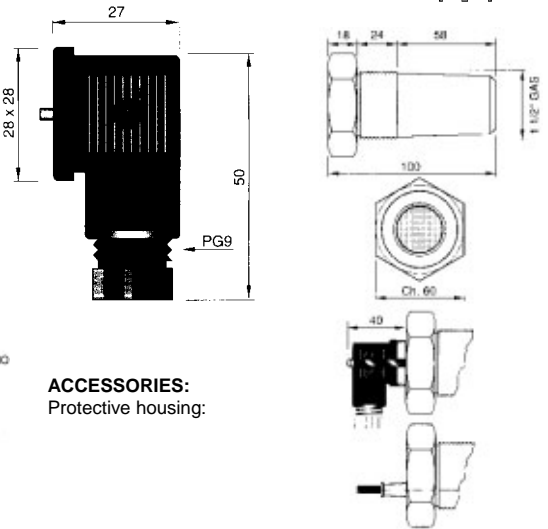
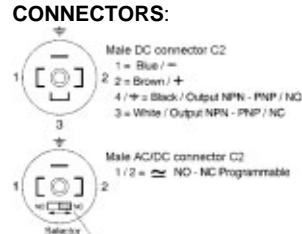
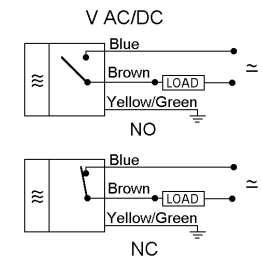
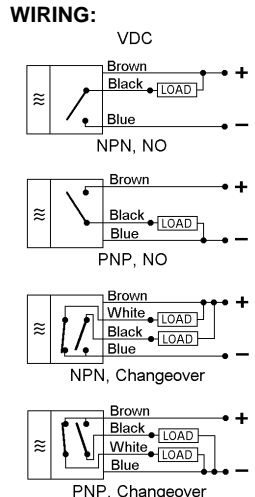
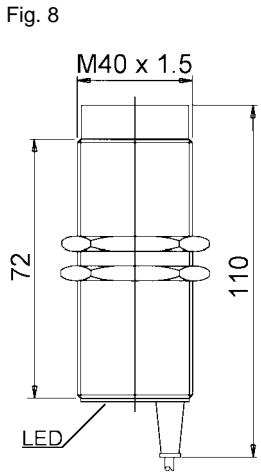
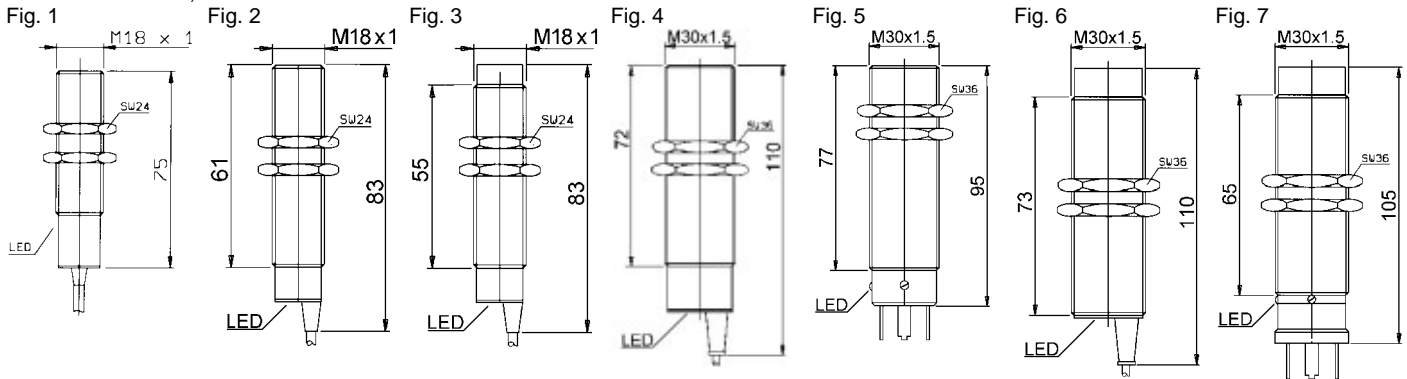
2 wire AC/DC considerations:

- The min. current required for the load (Example: Switching of a relay) is \geq the min. switching current of the sensor.
- That the leakage current is not sufficient to cause activation of high impedance inputs and low enough to release low consumption relays.
- Attention is giving to the "on state" voltage drop when there is a low supply voltage.

AC/DC Capacitive		MODEL				
Output Function	NO				S3382	
	NC				S3383	
	NO/NC select	S3384A	S3380	S3381A	S3381	
Operating Distance mm		0 - 20		0 - 25		0 - 35
External Diameter		M 30 x 1.5			M 40 x 1.5	
Power Supply		20 - 250 V ac/dc				
Max. Switching Current		500 mA				
Min. Switching Current		10 mA				
Leakage Current		≤ 2 mA				
Voltage Drop (On State)		< 6				
Short Circuit Protection		Yes (Up to 50V in dc)				
Operating Frequency (max)		10 Hz				
Case		Nickel Plated Brass			Plastic	
Dimensions		Fig. 4	Fig. 5	Fig. 6	Fig. 7	Fig. 8
Flush Mounting		Yes			No	
Protection Degree		IP 65				IP 67
Operating Temperature		-20 to +70° C				
Output Connection		Cable PVC 3x0.50mm ²	Connector Type C2 *	Cable PVC 3x0.50mm ²	Connector Type C2 *	Cable PVC 3x0.50mm ²
Protective housing # **		—	—	S3386	S3387	Upon request

* Mating connector with screw terminals included, ** Optional protective housing available

DIMENSIONS: mm, 1 mm = .03937"



Protective Housing for Capacitive Sensors

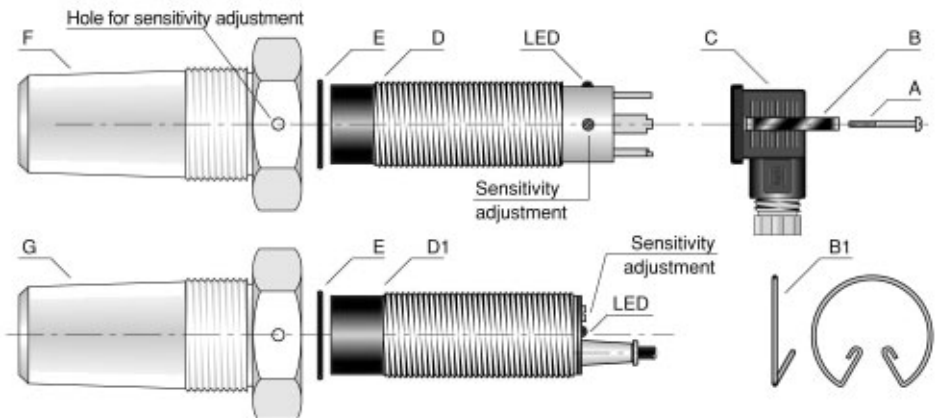
This housing is a waterproof protective cover for select capacitive sensors. This housing is made of a non toxic material (POM) and has a 1 1/2" GAS thread that allows for its installation by using a standard fitting. This type of installation permits a sensor to be rapidly removed for testing without the loss of material from the container and protects the sensor from abrasion. Furthermore, the use of the housing eliminates to a large degree variation in the sensitivity of the sensor due to deposits of material. It is also available for the 40 mm diameter capacitive sensors.



INSTALLATION PROCEDURE: HOUSING + SENSOR

LEGEND :

- A - Screw
- B - Fixing spring connector type
- B1 - Fixing spring cable type
- C - Connector
- D - Capacitive sensor with connector
- D1 - Capacitive sensor with cable
- E - Packing ring
- F - CP-CONN housing
- G - CP-CABLE housing



There are two types of housing available depending on the type of spring used S3387 for sensors with C2 type connector or S3386 for sensors with cable or C type connector. The protective housing is supplied with complete accessories for mounting.

