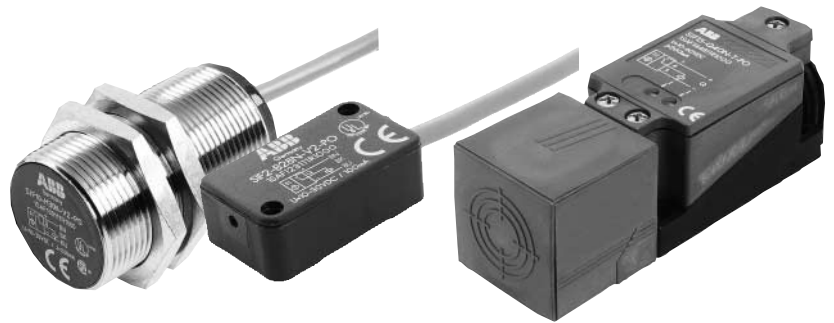




# ABB Proximity Sensors Capacitive



## General information

- Non-contact sensing
- Extremely long life
- High speed switching frequency
- Short circuit protection
- AC & DC models
- Nonmetallic objects (paper, cardboard, plastic, etc.)
- Fluids & metallic objects
- 10mm sensing range
- Objects may be sensed through glass or plastic
- Choice of quick disconnect or cable
- Stainless steel housing

## Capacitive Sensors

|                      |     |
|----------------------|-----|
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# Capacitive Sensors

## Description

### Applications

- Capacitive sensors detect an extremely wide variety of materials, primarily non metallic materials, at close range.
- They detect metallic and non-metallic objects
- They detect fluids in non-metallic containers
- They operate reliably in clean environments
- They can be adapted to a wide variety of conditions of the various object materials by adjustment
- They achieve maximum functionality at low switching frequency

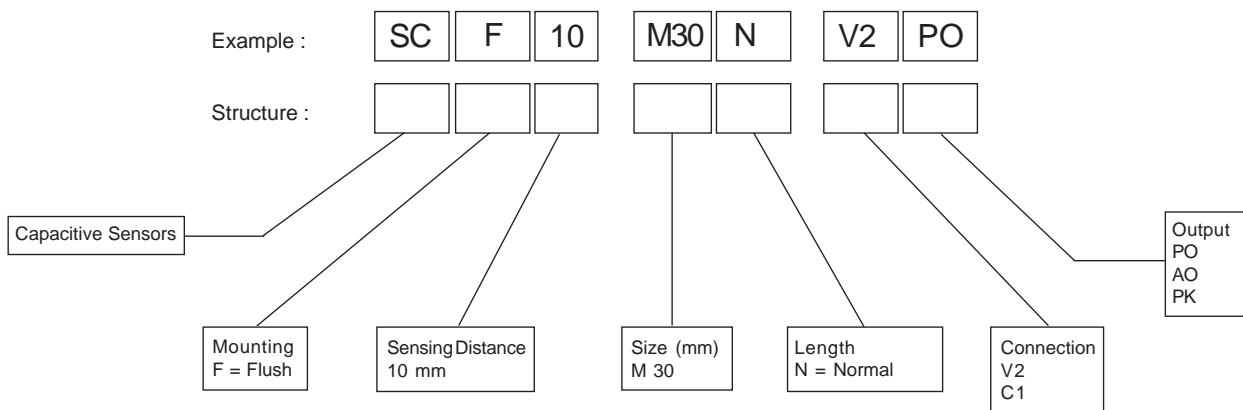
### Description

The Capacitive sensors are available in 1 housing :

Cylindrical Housing  
Ø 30 mm



### Part N° Structure



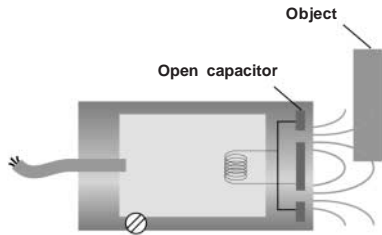
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## Capacitive Sensors Description

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### Basic Mode of Operation

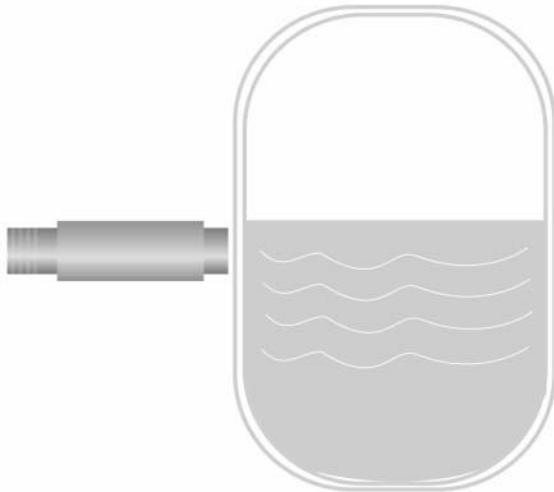
The heart of the capacitive sensor is an oscillator with open capacitor which generates an electrostatic field. The oscillator does not oscillate if there is no object in the vicinity.



If the metallic or non-metallic object to be detected approaches, the capacitance increases and oscillation starts. A trigger circuit detects this change and trips the output signal.

Since different materials influence the electrostatic field differently, the capacitive sensors should be adjusted accordingly during installation in order to achieve optimum operability.

One typical application of capacitive sensors is the detection of fluids in non-metallic containers, e.g. in plastic tanks. Sensors adjustment suppresses any influences resulting from the tank wall.



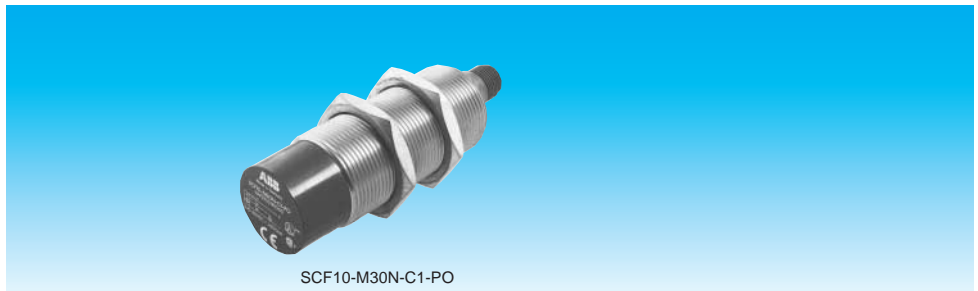
# Capacitive Sensors

## Cylindrical $\varnothing 30$ mm

### Technical Data

#### Size

M30x1.5



SCF10-M30N-C1-PO

| Operating dist. $S_n$ , mounting |                 | 10 mm embeddable     | 10 mm embeddable | 10 mm embeddable     |  |
|----------------------------------|-----------------|----------------------|------------------|----------------------|--|
| <b>PNP</b>                       | Normally open   | SCF10-M30N-V2-PO     | SCF10-M30N-C1-PO |                      |  |
|                                  | Normally closed |                      |                  |                      |  |
|                                  | NO/NC           | SCF10-M30N-V2-PK     | SCF10-M30N-C1-PK |                      |  |
| <b>NPN</b>                       | Normally open   |                      |                  |                      |  |
|                                  | NO/NC           |                      |                  |                      |  |
| <b>DC 2-wire</b>                 | Normally open   |                      |                  |                      |  |
| <b>AC</b>                        | Normally open   |                      |                  | SCF10-M30N-V2-AO     |  |
|                                  | Normally closed |                      |                  |                      |  |
|                                  | NO/NC           |                      |                  |                      |  |
| Assured operat. dist. $S_a$      | [mm]            | 0 ... 10             | 0 ... 10         | 0 ... 10             |  |
| Reduction factor                 | $r_{V2A}$       | -                    | -                | -                    |  |
|                                  | $r_{AL}$        | -                    | -                | -                    |  |
|                                  | $r_{Cu}$        | -                    | -                | -                    |  |
| Operating voltage                | [V]             |                      | 10 ... 60        | 10 ... 60 20 ... 253 |  |
| Operating current                | [mA]            |                      | 0 ... 200        | 0 ... 200 5 ... 200  |  |
| Switching frequency              | [Hz]            | 10                   | 10               | 10                   |  |
| No load supply current           | [mA]            | 20                   | 20               | -                    |  |
| Voltage drop $U_d$               | [V]             | 2.8                  | 2.8              | 8                    |  |
| Short polarity protection        |                 | pulsing              | pulsing          | no                   |  |
| Reverse polarity protection      |                 | yes                  | yes              | yes                  |  |
| Indication                       | Output          | LED yellow           | LED yellow       | LED yellow           |  |
|                                  | Voltage         | -                    | -                | -                    |  |
| Operating temperature            | [°C]            | -25 ... 70           | -25 ... 70       | -25 ... 70           |  |
| In compliance with               |                 | EN 60947-5-2         | EN 60947-5-2     | EN 60947-5-2         |  |
| Protection to DIN 40050          |                 | IP 65                | IP 65            | IP 65                |  |
| Connection                       |                 | 2 m, PVC-cable       | Connector M12    | 2 m, PVC-cable       |  |
| Conductor cross section          |                 | 0.75 mm <sup>2</sup> | -                | 0.75 mm <sup>2</sup> |  |
| Housing material                 |                 | Highgrade steel      | Highgrade steel  | Highgrade steel      |  |
| Sensing face                     |                 | PBT (Crastin)        | PBT (Crastin)    | PBT (Crastin)        |  |
| Drawing No.                      |                 | LS100018             | LS100019         | LS100018             |  |

#### Wiring diagrams

