Proximity Sensors
XT Capacitive Sensors
12mm, 18mm, 30mm, 32mm and Limit Switch Style; AC and DC

Features
Capacitive proximity sensors are ideal for sensing non-metal objects or for level control of fluids and granular material. A special wall mounting bracket has been designed to replace thick or metal walls the sensor is not capable of penetrating. The actual sensing range varies widely depending on the target material and environmental conditions (humidity, dust, etc.).

An internal compensation electrode is incorporated to suppress the effects of material deposits on the sensor’s face. The threshold level is adjustable via a 20 turn potentiometer (except 12mm) located at the rear of the switch. This adjustment can be used to zero out the presence of a plastic tube allowing the switch to sense "through" a bulk material or liquid level.

Other features include: metal housing: nickel plated brass, plastic housing: PBT; can be flush mounted in metal (except XT4); LED indication for output in closed state; mounting nuts included for threaded models; mounting bracket included for non-threaded versions, well mounting brackets are optional; sensitivity adjustment tool included; UL & CSA; CE mark.

<table>
<thead>
<tr>
<th>Nominal Sensing Distance</th>
<th>AC or DC Output Mode</th>
<th>Circuit Type</th>
<th>Voltage Range</th>
<th>Operating Frequency</th>
<th>Catalog Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>12 mm diameter, 2m (6.6') cable, Non Adjustment</td>
<td></td>
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<tr>
<td>Flush Mountable – Threaded Metal Case</td>
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<tr>
<td>2 mm DC N.O. PNP 12 – 24 V 100 Hz</td>
<td>XT1M12PA372</td>
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<tr>
<td>2 mm DC N.C. PNP 12 – 24 V 100 Hz</td>
<td>XT1M12PB372</td>
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<tr>
<td>18 mm diameter, 2m (6.6') cable, with Sensitivity Adjustment</td>
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<tr>
<td>Flush Mountable – Threaded Metal Case</td>
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<tr>
<td>5 mm AC N.O. 2 wire 24 – 240 V 25 Hz</td>
<td>XT1M18FA262</td>
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<tr>
<td>5 mm AC N.C. 2 wire 24 – 240 V 25 Hz</td>
<td>XT1M18FB262</td>
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<tr>
<td>5 mm DC N.O. PNP 12 – 24 V 100 Hz</td>
<td>XT1M18PA372</td>
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<tr>
<td>5 mm DC N.C. PNP 12 – 24 V 100 Hz</td>
<td>XT1M18PB372</td>
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<tr>
<td>5 mm DC N.O. NPN 12 – 24 V 100 Hz</td>
<td>XT1M18NA372</td>
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<tr>
<td>30 mm diameter, 2m (6.6') cable, with Sensitivity Adjustment</td>
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<tr>
<td>Flush Mountable – Threaded Metal Case</td>
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<tr>
<td>10 mm AC N.O. or N.C. 2 wire 24 – 240 V 25 Hz</td>
<td>XT1M30FA262</td>
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<tr>
<td>10 mm AC N.C. 2 wire 24 – 240 V 25 Hz</td>
<td>XT1M30FB262</td>
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<tr>
<td>10 mm DC N.O. PNP 12 – 24 V 100 Hz</td>
<td>XT1M30PA372</td>
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<tr>
<td>10 mm DC N.C. PNP 12 – 24 V 100 Hz</td>
<td>XT1M30PB372</td>
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<tr>
<td>32 mm diameter, 2m (6.6') cable, with Sensitivity Adjustment</td>
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<tr>
<td>Flush Mountable – Smooth Plastic Case</td>
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<tr>
<td>15 mm AC N.O. or N.C. 2 wire 110 – 220 V 10 Hz</td>
<td>XT1L32FA262</td>
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<tr>
<td>15 mm AC N.C. 2 wire 110 – 220 V 10 Hz</td>
<td>XT1L32FB262</td>
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<tr>
<td>Non-Flush Mountable – Smooth Plastic Case</td>
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<tr>
<td>20 mm AC N.O. 2 wire 110 – 220 V 10 Hz</td>
<td>XT4L32FA262</td>
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</tr>
<tr>
<td>20 mm AC N.C. 2 wire 110 – 220 V 10 Hz</td>
<td>XT4L32FB262</td>
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</tr>
<tr>
<td>Limit Switch Style, 0.5” NPT, with Sensitivity Adjustment</td>
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<tr>
<td>Flush Mountable – Plastic Case</td>
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<tr>
<td>15 mm DC N.O. or N.C. PNP 12 – 24 V 100 Hz</td>
<td>XT7C40PA372</td>
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<tr>
<td>15 mm DC N.O. or N.C. NPN 12 – 24 V 100 Hz</td>
<td>XT7C40NC440</td>
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</tbody>
</table>

Sensitivity Adjustment
1 Sensitivity adjustment potentiometer and output state indicator (yellow LED)
2 Adjustment using screwdriver

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Specifications

Mechanical

- Standard Temperature Range: 
  -13°F to +158°F (-25°C to +70°C)

- Enclosure Rating: NEMA type 4, 4X, 6, 6P, 12, 13 (Except Smooth Case 4, 4X, 6, 12)

- Differential (±5%)
  - 90%

- Humidty (%% of Sr.)
  - 10%

Electrical

- AC Models (All)
  - Specifications:
    - Voltage Range: 24 – 240 V
    - Voltage Limit: 20 – 264 V
    - Voltage Drop (across switch) Closed State: 5.5 V
    - Minimum Load Current: Tubular 300 mA
      - Limit Switch 350 mA
    - Maximum Load Current: Tubular 450 mA
      - Limit Switch 400 mA
    - Current Consumption @ No Load: – 10 mA
    - Residual Leakage Current: 1.5 mA at 120V
    - On Delay Max: Tubular 50 ms
      - Limit Switch 20 ms
    - Off Delay Max: Tubular 50 ms
      - Limit Switch 30 ms
    - Power-up Delay Max: Tubular 300 ms
      - Limit Switch 150 ms
    - Protective Circuitry:
      - Electrostatic Discharges
        - IEC 60947-5-2 and NEMA ICS 5, Part 4
      - Radio Magnetic Fields
        - Fast Transients
        - IEC 60947-5-2 and NEMA ICS 5, Part 4

- DC Models
  - Specifications:
    - Voltage Range: 110 – 220 V
    - Voltage Limit: 90 – 250 V
    - Voltage Drop (across switch) Closed State: 9 V
    - Minimum Load Current: Tubular 250 mA
      - Limit Switch 200 mA
    - Maximum Load Current: Tubular 260 mA
      - Limit Switch 210 mA
    - Current Consumption @ No Load: – 10 mA
    - Residual Leakage Current: 7 mA
    - On Delay Max: Tubular 5 ms
      - Limit Switch 2 ms
    - Off Delay Max: Tubular 15 ms
      - Limit Switch 5 ms
    - Power-up Delay Max: Tubular 30 ms
      - Limit Switch 30 ms
    - Protective Circuitry:
      - Electrostatic Discharges
        - IEC 60947-5-2 and NEMA ICS 5, Part 4
      - Radio Magnetic Fields
        - Fast Transients
        - IEC 60947-5-2 and NEMA ICS 5, Part 4

NOTE: This product should not be used in an environment with dew or condensation.

The Usable Sensing Distance depends on the object material: Su = Sn x Fc

Material

- Acetone: 20, Fc = 0.8
- Air: 1, Fc = 0
- Alcohol: 24, Fc = 0.85
- Ammonia: 15-25, Fc = 0.75-0.85
- Cement (powder): 4, Fc = 0.35
- Cereals: 3-5, Fc = 0.3-0.4
- Damp wood: 10-30, Fc = 0.7-0.9
- Dry wood: 2-7, Fc = 0.2-0.6
- Ethylene glycol: 38, Fc = 0.95
- Epoxy resin: 4, Fc = 0.36
- Flour: 2.5-3, Fc = 0.2-0.5
- Glass: 3-10, Fc = 0.3-0.7
- Martile: 6-7, Fc = 0.5-0.6
- Mica: 6-7, Fc = 0.5-0.6
- Nylon: 4-5, Fc = 0.3-0.4
- Oil: 2.2, Fc = 0.2

- Paper: 2.4, Fc = 0.2-0.3
- Paraffin: 2.2-2.5, Fc = 0.2
- Petrol: 2.2, Fc = 0.2
- Plexiglass: 3.2, Fc = 0.3
- Polyester resin: 2.8-8, Fc = 0.2-0.6
- Polystyrene: 3, Fc = 0.3
- Porcelain: 5-7, Fc = 0.4-0.5
- Powered Milk: 3.5-4, Fc = 0.3-0.4
- Rubber: 2.5-3, Fc = 0.3
- Salt: 6, Fc = 0.5
- Sand: 3-5, Fc = 0.3-0.4
- Sugar: 3, Fc = 0.3
- Teflon: 2, Fc = 0.2
- Vaseline: 2-3, Fc = 0.2-0.3
- Water: 80, Fc = 1

Accessories

- Size: 18mm
  - Description: Plastic mounting nuts
  - Catalog Number: XSZE218
- Size: 18mm
  - Description: Metal mounting nuts
  - Catalog Number: XSZET18
- Size: 18mm
  - Description: Plastic mounting bracket
  - Catalog Number: 9006PA18
- Size: 30mm
  - Description: Plastic mounting nuts
  - Catalog Number: XSZE230
- Size: 30mm
  - Description: Metal mounting nuts
  - Catalog Number: XSZET30
- Size: 30mm
  - Description: Plastic mounting bracket
  - Catalog Number: 9006PA30
- Size: 30mm
  - Description: Well mounting bracket
  - Catalog Number: XTAZ30
- Size: 32mm
  - Description: Well mounting bracket
  - Catalog Number: XTAZ32
- Size: 32mm
  - Description: Surface mounting bracket
  - Catalog Number: XUZB32
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Minimum Mounting Clearances

<table>
<thead>
<tr>
<th>Minimum Mounting Clearances</th>
<th>Side by Side (mm/in)</th>
<th>Face to Face (mm/in)</th>
<th>Facing a Metal Object (mm/in)</th>
<th>Mounted in Metal (mm/in)</th>
</tr>
</thead>
<tbody>
<tr>
<td>XT1 Flush Mountable</td>
<td>18 mm</td>
<td>e: 0</td>
<td>e: 30/1.18</td>
<td>d: 18/0.71, h: 0</td>
</tr>
<tr>
<td></td>
<td>30 mm</td>
<td>e: 0</td>
<td>e: 60/2.36</td>
<td>d: 30/1.18, h: 0</td>
</tr>
<tr>
<td></td>
<td>32 mm</td>
<td>e: 0</td>
<td>e: 100/3.94</td>
<td>d: 32/1.26, h: 0, x: 2/0.77</td>
</tr>
<tr>
<td>XT4 Non-Flush Mountable</td>
<td>18 mm</td>
<td>e: 40/1.57</td>
<td>e: 50/1.97</td>
<td>d: 18/0.71, h: 0</td>
</tr>
<tr>
<td></td>
<td>30 mm</td>
<td>e: 60/2.36</td>
<td>e: 80/3.15</td>
<td>d: 90/3.54, h: 20/0.79</td>
</tr>
<tr>
<td></td>
<td>32 mm</td>
<td>e: 60/2.36</td>
<td>e: 100/3.94</td>
<td>d: 96/3.78, h: 25/0.98</td>
</tr>
<tr>
<td>XT7 Limit Switch Style</td>
<td>e: 40/1.57</td>
<td>e: 120/4.72</td>
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</tbody>
</table>

To avoid influence of the immediate surroundings it maybe necessary to reduce the sensitivity when flush mounting the sensor.

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Dimensions (mm/in.)

<table>
<thead>
<tr>
<th>XT1/4</th>
<th>XT7</th>
</tr>
</thead>
<tbody>
<tr>
<td>a = Overall</td>
<td>b = Threaded Section</td>
</tr>
</tbody>
</table>

Accessories Dimensions (mm/in.)

XUZB32

9006PA

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