Choose the best sensing solution Osisense

Object to be detected

- solid?
  - Yes
  - liquid or gas?
    - Yes
  - No
- No
  - contact with sensor is possible?
    - Yes
    - metallic?
      - Yes
      - distance object to sensor ≤ 50 mm?
        - Yes
        - No
        - No
    - No
  - No
- No
  - mass > 500 g
    - Yes
    - No
    - No
  - No
  - actuation speed < 1.5 m/s?
    - Yes
    - No
    - No
  - No
- No
  - Operating rate < 1 Hz?
    - Yes
    - No
    - No
  - No

Limit switches
Inductive proximity sensors
Ultrasonic sensors
Photo-electric sensors
Pressure switches

Sectors
- XC
- XS
- XX
- XU
- XM

- Machine tools
- Food & beverage
- Packaging
- Hoisting
- Conveying
- Assembly
- Wood industry
- Automotive industry
- Paper industry
- Mines and minerals
- Pumping and water treatment
- Railroad and embedded vehicles
- Lifts & Escalators
- Service industry & building

Recommended ☀
Possible ☁
Unsuitable ⛅

Telemecanique Sensors

Telemecanique Sensors

Telemecanique Sensors

Telemecanique Sensors
**XC Limit switches**

- Detection of all solid object by contact
- Intuitive and easy to install
- Dry contact and positive opening contact.
- Head could be blocked with external materials (chips, sawdust, ...)
- Slow actuation speed (<1.5m/s)
- Low operating rates due to mechanical contact (~1Hz) wear of contact.

**XS Proximity sensors**

- Detection of all metals (Fe, Al, Cu, ...) without contacts (no touch)
- High operating rates, fast response time and no wear, due to solid state technology for output
- Excellent resistance to industrial environments.
- Detects only metal objects
- Short sensing distance -> 60mm

**XS Ultrasonic sensors**

- Detection of an object is insensitive to the material.
- Very good resolution.
- Sensitive to increases or decreases in humidity.
- Sound-absorptive materials and oddly-shaped objects are difficult to detect.

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### 1 - Choose the body

1. Choose the body size according to the environment.
2. Choose the body size location to install and requested duty.
3. Choose the size of product and material of body.

#### Choice criteria

- Snaps, all types of snap mounts
- Roller lever
- Metal Architectural
- Plastic Architectural
- Cat whiskers

### 2 - Choose a head

1. Choose the output type according to the sensor output type.
2. Choose the output signal & function.

#### Choice criteria

- Discrete (NO, NC, NO+NC)...
- Analogue (0-10V, 4-20mA).

### 3 - Choose the contact

1. Choose the electrical connection according to facility standards or machine requirements...
2. Choose the electrical connection M12 connector or screw clamp.

#### Choice criteria

- Discrete: NO product becomes a NC product
- Sensitive to important changes of temperature, air flow, humidity
- Sound-absorptive materials and oddly-shaped objects are difficult to detect.

### 4 - Choose the electrical connection

1. Choose the electrical connection according to facility standards or machine requirements...
2. Choose the electrical connection M12 connector in hydraulic.

#### Choice criteria

- The classical choice
- Sensors suitable for flush mounting in metal: No clearance required
- Sensors suitable for flush mounting in metal: Slide clearance required.
- The maximum sensing distance according to the environment. Background suppression possible.

---

### Detection of any materials without contact (no touch)

- Detection of pointy object:
- Detection axis up to 8m.
- Sound could be reflected outside sensors receiver.

### Details

- Detection of pointy object:
- Detection axis up to 8m.
- Sound could be reflected outside sensors receiver.

---

**Electrical connections**

- Sensors with cable / sensors with terminals
- Follow the instruction sheet for electrical connection.
- Sensors with connector (Male on sensor)
- Could be directly mounted on sensor or remote connector.
- Easier Maintenance? Prefer sensors with connector or terminals.

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**Connector type**

- Different type of connector exist. They are function of, number of wires to connect, size of sensor, or terminals.

- M8
  - 3 or 4 pins in DC
  - 3/4 wires.

- M12
  - 4 or 5 pins in DC
  - DIN connector in hydraulic
Choose the body / the system and the sensing distance

1. Choose the family

Choose the fluid, fluid pressure and temperature according to the application.
- Electromechanical pressure switch with contact: Need to manage threshold with quick response time or need to measure a pressure
- Electronic pressure sensor solid state output and/or analogue: Need to manage threshold without constraint of response time

Choose the fluid, fluid pressure and temperature

2. Choose the output type

Choose the load compatibility (contactor, PLC...)
- DC3 wires 24V PNP, NPN, AC/DC 5 wires relay 24-240V...
- DC 24V
- AC/DC Relay 24...240V

3. Choose the electrical connection

Choose to facility standards or machine requirements...
- Cable, connector (M8, M12), screw clamp terminals (XUX).

4. Choose the hydraulic connection

Choose to facility standards or machine requirements...
- G1/4 male, G1/4 female...

Sensor types

- Opaque target accuracy ±1 mm
- Opaque and non shiny target accuracy ±10 mm medium range (up to 15m)
- Target with sufficient reflective properties short range (up to 2m) depend on target colour
- Same but short range independent of colour and/or with background suppression
- Very small target Limited available space High accuracy (< 1mm)

Sensing configurations

- Diffuse (proximity) mode
- Retroreflective mode
- Mode reflex

Output signals

- Discrete (NO, NC, NO+NC,...) according to the automation function to achieve
- Analog 3/4 wires

Electronic pressure switches

- Fixed or adjustable differential
- Surveillance or multimode

XM Pressure switches and transmitters

Detection of any industrial fluids with contact (air, water, hydraulics oils, corrosive fluids...) from -1 to 600 bars (-14.5 to 8000 Psi). Discrete or analog output to measure a pressure, control or monitor thresholds.

Follow the instruction sheet for electrical connection.
Applications

For more complex sensing needs, refer to www.schneider-electric.com, refer to Essential Guide of Detection or the Detection General Catalog for all information relative to sensors described below.

**XC for special applications**

<table>
<thead>
<tr>
<th>Feature</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>XC for special applications</td>
<td>The most comprehensive offer of specials limits switches dedicated to severe environment and heavy duty service. Mainly for hoisting handling, mining minerals metals and all others strong environmental constraints (foundry, welding automotive industries etc...)</td>
</tr>
<tr>
<td>Severe duty for hoisting and materials handling applications</td>
<td></td>
</tr>
<tr>
<td>Very well designed products for belt shift monitoring</td>
<td></td>
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<tr>
<td>Cross Limit Switch. Dedicated products for overhead cranes and block hoists for end of travel control.</td>
<td></td>
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<tr>
<td>Rotary Limit Switch</td>
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</table>

**Safety detection**

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<tr>
<td>Safety detection</td>
<td>One of the most comprehensive offering of industrial safety switches on the market, complemented by a range of safety light curtains and safety mats for all the dangerous machines of all industrials sectors. Example: packaging, handling, robotics, machines tools, presses, automotive sector</td>
</tr>
<tr>
<td>Detection of gates or covers opening</td>
<td>Guard switches with mechanical actuator</td>
</tr>
<tr>
<td>Rotary lever and spindle operated guards switches for hinges guards</td>
<td>Coded magnetic guard switches</td>
</tr>
<tr>
<td>Detection of operators in free access zone</td>
<td>Safety light curtains</td>
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<td>Safety mats</td>
<td></td>
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**XS for special applications**

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<tr>
<td>XS for special applications</td>
<td>One of the most comprehensive catalogue of inductive sensors for general purpose plus for assembly machines, robotics, machine-tools, machining, packaging, materials handling, conveying... and food and beverage industry</td>
</tr>
<tr>
<td>Rotation control, ferrous/non-ferrous discrimination, etc...</td>
<td>Plastic case sensors for double insulation and chemicals environment compliance</td>
</tr>
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<td>Miniature cylindrical format Plain 4 and 6.5mm or M5 for assembly applications...</td>
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<td>Miniature cylindrical format Plain 4 and 6.5mm or M5 for assembly applications...</td>
<td>Stainless steel and plastic bodies for dedicated food &amp; beverage applications</td>
</tr>
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<td>Stainless steel and plastic bodies for dedicated food &amp; beverage applications</td>
<td>Capacitive sensors XT range for detection of any object irrespective of material or conductivity</td>
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**XU for special applications**

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<tr>
<td>XU for special applications</td>
<td>An important choice of “applicative” products, mainly for dedicated offer for packaging, handling, assembly, conveying, food &amp; beverage, complete the general purpose offer.</td>
</tr>
<tr>
<td>Detection of transparencies materials</td>
<td>Mark readers, luminescence sensors, color sensors</td>
</tr>
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<td>Mark readers, luminescence sensors, color sensors</td>
<td>labels detection</td>
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<tr>
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<td>Aqueous liquid detection</td>
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<tr>
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<td>Laser technology sensors…</td>
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**XCC rotary encoders**

<table>
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</tr>
</thead>
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<tr>
<td>XCC rotary encoders</td>
<td>A range of innovate rotary encoders that are open to field BUS and makes it much more simple to parameter the resolution. Mainly for Industry, packaging, cutting machines, robots, cranes, materials handling, automatic dispensers, printing shops, continuous processes, conveyor systems...</td>
</tr>
<tr>
<td>Incremental encoders, single turn or multiturns absolutes encoders</td>
<td>Communicating absolute multiturn encoders</td>
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</tbody>
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**XG RFID inductive identification system**

<table>
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</thead>
<tbody>
<tr>
<td>XG RFID inductive identification system</td>
<td>With OsiSense XG, discover the RFID system, the most opened for a free choice of electronic tags and networks, and the simpler to install, connect and configure. Mainly for the conveying, material handling, logistic and building sectors... for various functions: flexible production workshops, traceability, access control...</td>
</tr>
<tr>
<td>Compact stations with integrated controller and antenna</td>
<td>13.56MHz electronic tags</td>
</tr>
<tr>
<td>13.56MHz electronic tags</td>
<td>Portable RFID terminal and network connection boxes</td>
</tr>
</tbody>
</table>

Schneider Electric Industries SAS
Head Office
35, rue Joseph Monier - CS 30323
F92500 Rueil-Malmaison Cedex
France
www.tesensors.com

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Due to evolution of standards and equipment, characteristics indicated in texts and images in this document are binding only after confirmation by our departments.

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