Name Brand Quality at an AutomationDirect Price

Why buy a proximity sensor from AutomationDirect?

A sensor may only cost $14.00, but it may be responsible for millions of dollars worth of product for you or your customer. That is why AutomationDirect only works with world class manufacturing companies that have been in the industry for decades, and operate in hundreds of thousands of installations around the world. Our customers can rest easy knowing we work with the best.

All of our sensors are certified by CE to ensure the highest quality, and most are certified by UL and CSA. Here are a few examples of how serious we are when it comes to design and manufacturing quality:

• Every proximity sensor is tested five times during the manufacturing process to ensure out of the box operation.
• Most proximity and phototronic sensors are heat cycled from -25°C to 55°C for eight hours to eliminate startup failures.
• Every proximity sensor has a resistor that is laser trimmed to 0.001 inches to ensure repeatable and accurate detection and provide you better product stability.
• Our sensor suppliers manufacture the printed circuit board (PCB), populate the PCB with components, and assemble and test the product from start to finish to ensure the highest quality.

But actions speak louder than words. That’s why we back every sensor with a 30-day, money-back guarantee, and all proximity sensors carry a limited lifetime warranty. All this results in a return rate that is near zero.

What do 2-, 3- or 4-wire outputs mean to me?

2-wire
• Will work with sinking or sourcing devices
• Only 2 wires to terminate

3-wire
• Most popular output - familiar to most users
• Select between NPN and PNP outputs

4-wire
• Allows configurability in one device
• May have both NPN/PNP selection or NO/NC selection. Allows user to stock one part for numerous applications.

What do 2-, 3- or 4-wire outputs mean to me?

Benefits

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Sometimes a round proximity sensor will not fit a square hole

Rectangular sensors are the answer

How have you ever tried using a round sensor or short body sensor, and not been able to make it fit? We offer rectangular sensors to meet your needs. The same technology found in our standard round proximity sensor is put into a rectangular housing, including sensing distances, electrical protection and switching frequencies.

We currently offer the most popular formats available.
Extended and Triple-sensing Distances for Tough-to-reach Applications

Why extended distance?

In many applications, it might not be possible to mount a sensor close to the sensed object. In those cases, longer sensing distances are needed. For instance:

- Longer sensing distances may eliminate the need to buy more expensive high-temperature sensors. If a sensor is placed too close to a hot temperature source, the sensor will fail quicker and require more maintenance.
- Mounting the sensor further from the detection object may eliminate unneeded contact with the sensor, which will extend the life of the sensor.

Stainless Steel Triple-sensing Proximity Sensors

IP68 rated: to 290 psi or 669 ft. of water

With a unique sensing technology, this IP68 rated sensor (embedded cable version only) can be mounted under water up to 290 psi (or 669 feet of water). It will last a lifetime and pay for itself over and over again. This technology has many benefits:

One-piece stainless steel body

The sensing technology allows object detection through stainless steel material. The sensor can be located in the harshest conditions, including oil or water submersion up to 290 psi (20 bars).

Triple sensing

This sensor offers three times the sensing distance of any standard proximity sensor for tremendous flexibility in your design.

Virtually the same sensing distance for all metals

Sense iron, aluminum, brass, etc., all at the same sensor-rated distance. Have you ever chosen a sensor with 10 mm sensing distance and had to reduce it to 2 mm or less because you were sensing an aluminum object? With this sensor, you can design the installation to use the entire 10 mm sensing distance.

We sell good proximity sensors at great prices – and we back them up!

AutomationDirect Lifetime Warranty

For inductive proximity sensors sold to the Original User for the lifetime of the original application:

The following terms apply to the LIFETIME WARRANTY in addition to the General Terms:

1. This warranty is available only to AutomationDirect’s authorized Value Added Resellers and to the Original User. In the event the ownership of the product is transferred to a person, firm, or corporation other than the Original User, this WARRANTY shall terminate.

2. This WARRANTY is applicable only to the original installation of the product. In the event the machinery, equipment, or production line to which the product is connected, or on which it is installed, is disassembled, changed, moved or replaced, the WARRANTY shall terminate.

3. This WARRANTY shall be valid only if the product was purchased by the Original User from AutomationDirect, or from an authorized AutomationDirect Value Added Reseller, or was an integral part of a piece of machinery and equipment obtained by the Original User from an original equipment manufacturer, where the part was purchased by the original equipment manufacturer directly from AutomationDirect or from an authorized AutomationDirect Value Added Reseller.

Purchaser’s remedies

If an AutomationDirect Value Added Reseller desires to make a WARRANTY claim, the Value Added Reseller shall, if requested by AutomationDirect, ship the product to AutomationDirect’s facility in Cumming, GA postage or freight prepaid. If the Original User desires to make a WARRANTY Claim, they shall notify the authorized Value Added Reseller from whom it was purchased or, if purchased directly from AutomationDirect, shall notify AutomationDirect, and, if requested by AutomationDirect, ship the Product to AutomationDirect’s facility in Cumming, GA postage or freight prepaid. AutomationDirect shall, at its option, take any of the following two courses of action for any products which AutomationDirect determines are defective in materials or workmanship:

1. Repair or replace the product and ship the product to the Original User or to the authorized AutomationDirect Value Added Reseller, postage or freight prepaid; or
2. Repay to the Original User that price paid by the Original User, provided that if the claim is made under the lifetime warranty, and such product is not then being supplied by AutomationDirect, then the amount to be repaid by AutomationDirect to the Original User shall be reduced according to the following schedule:

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THIS WARRANTY IS IN LIEU OF ANY OTHER WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, NONINFRINGEMENT OF INFRINGEMENT OF ANY PATENT, COPYRIGHT OR OTHER INTELLECTUAL PROPERTY RIGHT OF ANY THIRD PARTY WITH RESPECT TO THE PRODUCT. AUTOMATIONDIRECT SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING ANY LABOR COST OR REPLACEMENT AT ORIGINAL USER’S SITE. AUTOMATIONDIRECT.COM SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION, EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.

Terms:

WARRANTY in addition to the General Terms of Sale.

For inductive proximity sensors sold to the Original User for the lifetime of the original application:

1. This warranty is available only to the Original User from an authorized Value Added Reseller, or purchased by the Original Equipment Manufacturer, where the part was an integral part of a piece of machinery or equipment obtained from an authorized Value Added Reseller, or was an integral part of a piece of machinery and equipment obtained from an authorized Value Added Reseller. If the Original User desires to make a WARRANTY Claim, they shall notify the Original Equipment Manufacturer from whom it was purchased or, if purchased directly from AutomationDirect, shall notify AutomationDirect, and, if requested by AutomationDirect, ship the Product to AutomationDirect’s facility in Cumming, GA postage or freight prepaid. AutomationDirect shall, at its option, take any of the following two courses of action for any products which AutomationDirect determines are defective in materials or workmanship:

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Proximity Sensors

Proximity sensors allow non-contact detection of objects. They are used in many industries, including manufacturing, robotics, semicon-ductor, etc. Inductive sensors detect metallic objects while capaci-
tive sensors detect all other materials. Ultrasonic sensors detect all materials by using sound wave reflections to determine presence.

Proximity Sensor Lineup

8 mm round
- N.O. and N.C., three-wire DC with embedded cable or M12 quick-disconnect
- V SERIES
  - N.O. and N.C., two- and three-wire AC/DC with embedded cable or quick-disconnect
  - Sensing distance:
    - Standard, from $12.00
    - Extended, from $21.00
    - Triple, from $56.00
    - Analog, from $133.00

12 mm round
- N.O. and N.C., two- and three-wire AC/DC with embedded cable or quick-disconnect
- V SERIES
  - Standard and extended
- Sensing distances:
  - 12 mm, from $39.50
  - 18 mm, from $92.00
  - 30 mm, from $190.00

18 mm round
- N.O. and N.C., three-wire AC/DC with embedded cable or quick-disconnect
- V SERIES
  - Sensing distances:
    - Standard, from $27.00
    - Extended, from $71.00
    - Triple, from $115.00
    - Analog, from $300.00

24 mm round
- N.O. and N.C., two- and three-wire AC/DC with embedded cable or quick-disconnect
- V SERIES
  - Sensing distances:
    - Standard, from $39.50
    - Extended, from $62.00

30 mm round
- N.O. and N.C., three-wire AC/DC with embedded cable or quick-disconnect
- V SERIES
  - Sensing distances:
    - Standard, from $15.50
    - Extended, from $27.00
    - Analog, from $57.00

40 mm x 40 mm rectangular
- Stainless steel round
  - PKW, PMW and PTW SERIES
    - Three-wire or four-wire DC, M12 quick-disconnect, IP67 rating, M12 quick-disconnect
    - 3-wire, from $42.50
    - 4-wire, from $95.50

Capacitive
- V SERIES
  - Capacitive sensors detect all other materials.
  - Ultrasonic sensors detect metallic objects while capacitive sensors detect all other materials. Ultrasonic sensors detect all materials by using sound wave reflections to determine presence.

For the latest prices, please check AutomationDirect.com.
How do I Choose the Right Proximity Sensor?

All applications have certain specific needs, but, in general, the following steps will help you choose the correct sensor for your application:

Step 1:
What is the sensing distance required?
The sensing distance is the distance between the tip of the sensor and the object to be sensed. The selection guide and the specifications table for each sensor family lists the sensing distances. Some things to keep in mind are:

A. In many applications, it is beneficial to place the sensor as far as possible from the sensing object due to temperature concerns. If a sensor is placed too close to a hot temperature source, the sensor will fail quicker and require more maintenance.

Greater distance may be achieved with extended and triple range sensors. In many applications, a sensor may not be mountable close to the sensed object. In this case, longer sensing distances are needed. Extended sensing distance sensors are offered in 8mm to 30mm diameters, and triple sensing distance sensors in 8mm and 12mm formats.

In many cases, using an extended distance sensor to get the sensor farther away from the detected object can be beneficial to the life of the sensor. For example, without an extended distance sensor you may not be able to place the sensor close enough to the detectable object, or you may need to buy more expensive high temperature sensors.

Another example would be a mechanical overshot situation, where mounting the sensor farther from the detection object may eliminate unneeded contact with the sensor, thereby extending the life of the sensor.

These are just a few examples, but the benefits of using extended distance sensors are obvious in many applications. Think of how extended distance sensors could save you time and money in your application.

B. The material being sensed (i.e. brass, copper, aluminum, steel, etc.) makes a difference in the type of sensor needed.

Note: If you are sensing a non-metallic object, you must use a capacitive or ultrasonic sensor.

The sensing distances specified in this catalog were calculated using FE360 material. Many materials are more difficult to sense and require a shorter distance from the sensor tip to the object sensed.

If sensing a material that is difficult to sense, you may consider using our unique stainless steel sensing technology. This will measure virtually all materials at the specified sensing distances.

Step 2:
How much space is available for mounting the sensor?
Have you ever tried using a round sensor or short body version, and not been able to make it fit? Our rectangular sensors can meet your needs. The same technology used in a standard round proximity sensor is enclosed in a rectangular housing. This technology includes sensing distances, electrical protection and switching frequencies similar to round sensors.

Step 3:
Is a flush, semi-flush or non-flush sensor needed? Flush, semi-flush and non-flush sensors are also referred to as embeddable and non-embeddable. Non-flush sensors allow longer sensing distances but flush sensors allow flush mounting.

Step 4:
Consider environmental placement concerns. Will the sensor be placed underwater, in a high-temperature environment, continually splashed with oil, etc.? This will determine the type of sensor you may use. In the selection table and in the specification tables for each sensor family, we list the environmental protection degree ratings. Most of our sensors are rated IEC-IP67 and others are rated IP65 or IP68.

These ratings are defined as:

- **IP65**: Protection from live or moving parts, dust, and protection from water jets from any direction.
- **IP67**: Protection from live or moving parts, dust, and protection from immersion in water.
- **IP68**: Protection from live or moving parts, dust, and protection from submersion in water under pressure.
- **P69K**: Protection against high-pressure/steam-jet cleaning.

Step 5:
What is the sensor output connected to?
Note: If using AC sensors, please skip this step.

The type of output required must be determined (i.e., NPN, PNP). Most PLC products will accept either output. If connecting to a solid state relay, a PNP output is needed.

<table>
<thead>
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<td>• Higher leakage current.</td>
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<td>3-wire</td>
<td>• Most popular output. Familiar to most users. (Must select between NPN and PNP outputs.)</td>
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<td>4-wire</td>
<td>• Allows configurability in one device. May have both NPN/PNP selection or NO/NC selection. Allows user to stock one part for numerous applications.</td>
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Step 6:
Determine output connection type.
Do you want an axial cable factory attached to the sensor (pigtail) or a quick-disconnect cable?

There are many advantages to using a quick-disconnect cable, such as easier maintenance and replacement. All proximity sensors will fail in time and using a Q/D (quick-disconnect) cable allows for simple replacement. Factory attached axial cables come in a 2 meter length. CD08/CD12 Q/D cables come in 2 meter, 5 meter, and 7 meter lengths. Extension cables are available in 1 meter and 3 meter lengths to extend the length of the standard Q/D cables.

Q/D cables are offered in PVC and PUR jackets for meeting the requirements of all applications. Axial cables typically come with a PVC jacket. PVC is a general purpose insulation while PUR provides excellent oxidation, oil and ozone resistance. PUR is beneficial if the cable is exposed to oils or placed in direct sunlight.

There are also advantages to a factory attached axial cable:

Cost: The cable is integrated into the sensor and included in the price. Q/D cables must be purchased separately.

Environmental impact: Since the cable is sealed into the sensor, there is less chance of oil, water or dust penetration into the sensor, which could cause failure.

Step 7:
Choose discrete outputs?
These are just a few examples, but the benefits of using extended distance sensors are obvious in many applications. Think of how extended distance sensors could save you time and money in your application.

- **2-wire**: Allows configurability in one device.
- **3-wire**: Most popular output. Familiar to most users. (Must select between NPN and PNP outputs.)
- **4-wire**: Allows configurability in one device. May have both NPN/PNP selection or NO/NC selection. Allows user to stock one part for numerous applications.