

## Proximity Sensors

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Sensors

# Round Proximity Sensors For All Applications

## All the features you expect

These proximity sensors provide benefits to our customers on everything from price to quality:

- **Super low prices compared to the competition.** This allows OEM-like pricing on single item purchases. In fact, some of our sensors are actually cheaper than competitors' cables.
- **2-wire designs on the most popular models.** This makes for easier and faster terminations (i.e., one less wire to terminate). Faster wiring time and fewer termination points (materials) result in lower system costs. This technology works with sinking or sourcing devices, eliminating the need for multiple sensors, since one sensor works both ways.
- **Most sensors are available in quick-disconnect cable versions.** Proximity sensors are subject to physical damage from machine overtravel, etc. and quick-disconnect sensors make for fast and easy replacement. Also, troubleshooting is much faster with quick-disconnect devices, as the user need only unscrew the connector and change out the sensor. This eliminates the need for disconnecting wires and cutting wire ties, and speeds up the replacement process with much less room for error.



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

Benefits	
<b>2-wire</b>	<ul style="list-style-type: none"> <li>• Will work with sinking or sourcing devices</li> <li>• Only 2 wires to terminate</li> </ul>
<b>3-wire</b>	<ul style="list-style-type: none"> <li>• Most popular output - familiar to most users</li> <li>• Must select between NPN and PNP outputs</li> </ul>
<b>4-wire</b>	<ul style="list-style-type: none"> <li>• Allows configurability in one device</li> <li>• May have both NPN/PNP selection or NO/NC selection. Allows user to stock one part for numerous applications.</li> </ul>

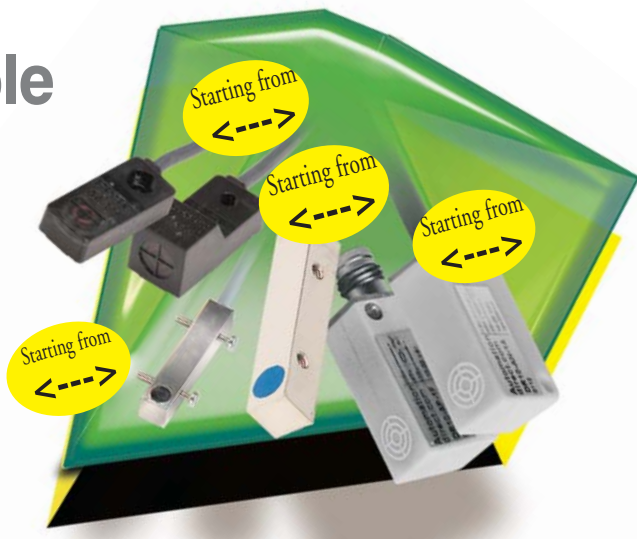
- **Shielded or unshielded sensors are available for mounting variations.** Shielded versions allow flush mounting, but limit the target detection range, while unshielded versions do not allow flush mounting, but offer greater sensing distance and area.
- **All sensors feature electrical protection for short circuit, reverse polarity, and transient noise.** Whether the sensor is initially wired wrong, or wired into a noisy environment, it will still operate properly.
- **A lifetime warranty means you can install your proximity sensor and be assured of its quality and endurance.**

## Sometimes a round proximity sensor will not fit a square hole

### Rectangular sensors are the answer

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.



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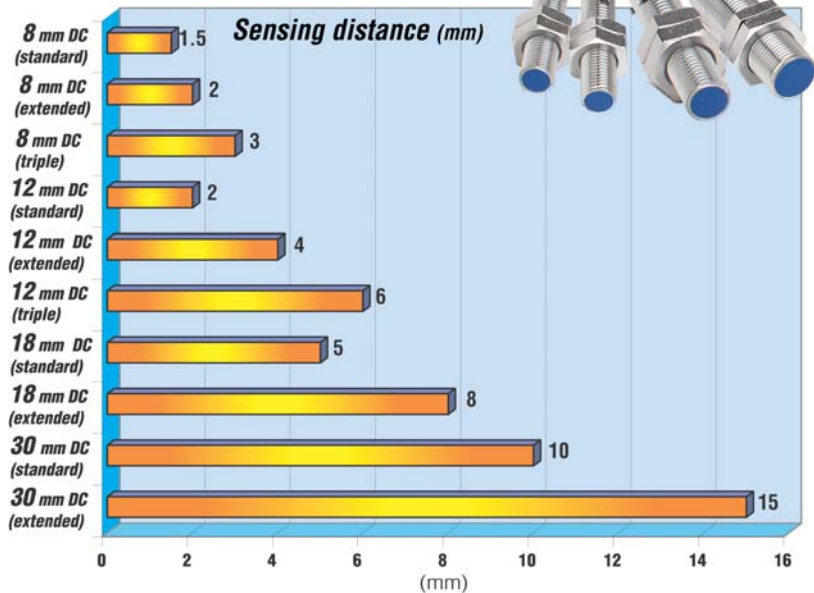
# Extended and Triple-sensing Distances for Tough-to-reach Applications

8 mm and 12 mm triple-sensing distance sensors

## 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

**STAINLESS STEEL**

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 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.

One-piece stainless steel body



Three-wire DC

12 mm

18 mm

30 mm

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

## AutomationDirect Lifetime Warranty

### Registration required

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 substituted, 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

This remedy shall apply to all WARRANTIES. 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:

Number of Years Since Date of Purchase by Original User	Percent of Original Purchase Price To Be Paid by AutomationDirect
10	50 percent
15	25 percent
20	10 percent
More than 20	5 percent

**REMEDIES OF PURCHASER'S AND VALUE ADDED RESELLERS SHALL BE LIMITED EXCLUSIVELY TO THE RIGHT OF REPLACEMENT, REPAIR OR REPAYMENT AS PROVIDED ABOVE AND DOES NOT INCLUDE ANY LABOR COST OR REPLACEMENT AT ORIGINAL USER'S SITE. AUTOMATIONDIRECT.COM SHALL NOT BE LIABLE FOR ANY CONSEQUENTIAL DAMAGES RESULTING FROM ANY BREACH OF ANY WARRANTY, EXPRESSED OR IMPLIED, APPLICABLE TO THE PRODUCT, INCLUDING WITHOUT LIMITATION, ANY DAMAGES RESULTING FROM PROPERTY DAMAGE, PERSONAL INJURY OR BUSINESS INTERRUPTION, EVEN IF NOTIFIED OF THE POSSIBILITY OF SUCH DAMAGES.**

Inductive proximity sensors warranty form may be obtained online at:

<http://www.automationdirect.com/static/specs/proxwarranty.pdf>

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# Proximity Sensor Lineup

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



**STAINLESS  
STEEL**

## Miniature (3, 4, 5 mm)

### PY & PD SERIES

Three-wire DC  
3 mm prox  
4 mm prox  
5 mm prox  
(quick-disconnect)

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Sensing distance:  
• Standard



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## 8 mm round

### AE SERIES

Three-wire DC with  
embedded cable,  
M8 or M12 quick-disconnect

Sensing distance:  
• Standard  
• Extended  
• Triple



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## 12 mm round

### AM SERIES

Two- and three-wire DC,  
embedded cable or M12  
quick-disconnect

Sensing distance:  
• Standard  
• Extended  
• Triple

## 18 mm round

### AK SERIES

Two- and three-wire DC,  
embedded cable or  
M12 quick-disconnect

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Sensing distance:  
• Standard  
• Extended



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## 30 mm round

### AT SERIES

Two- and three-wire DC,  
IP65 rating, embedded cable  
or M12 quick-disconnect

Sensing distance:  
• Standard  
• Extended



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## 5 mm x 5 mm rectangular

### CR5 SERIES

Three-wire DC, IP67 rating,  
embedded cable or M8 quick-  
disconnect

Sensing distance:  
• Standard  
• Extended

## 8 mm x 8 mm rectangular

### CR8 SERIES

Three-wire DC with  
embedded cable or M8  
quick-disconnect

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Sensing distance:  
• Standard  
• Extended  
• Triple



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## 10 mm x 16 mm rectangular

### DR10 SERIES

Three-wire DC with embedded  
cable or M12 quick-disconnect,  
IP67 rating

Sensing distance:  
• Standard  
• Extended



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## 12 mm x 27 mm rectangular

### APS4 SERIES

Three-wire DC with  
embedded cable, IP67 rating

Sensing distance: **Standard**

## Stainless steel triple sensing range

### PKW, PTW and PMW SERIES

Three-wire DC, one-piece  
body, virtually same sensing  
distance of all metals, Q/D  
version is IP67 rated, cable  
version is IP68 to 290 psi

Sensing distance: **Triple**  
• 12 mm prox  
• 18 mm prox  
• 30 mm prox



**STAINLESS  
STEEL**

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## Stainless steel round standard

**PKW and  
PMW SERIES**  
Four-wire DC with M12  
quick-disconnect, IP67 rating

Sensing distance: **Standard**  
• 12 mm prox  
• 18 mm prox



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## AC prox (12, 18, 30 mm)

### V SERIES

Two-wire AC with embedded  
cable or quick-disconnect,  
20-253 VAC input signals

Sensing distance: **Standard**

• 12 mm  
• 18 mm  
• 30 mm

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# Our Proximity Sensors - at a glance

## 30 mm capacitive

**CT SERIES**  
Three-wire DC with embedded cable

Sensing distance: **Standard**



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## Ultrasonic

**SU & TU SERIES**  
DC with discrete or analog output, embedded cable or quick-disconnect, IP67 rating

Sensing distance: **up to 2,500 mm**

- 18 mm
- 30 mm



**UHZ SERIES**  
DC, discrete output, through-beam pair, embedded cable

Sensing distance: **up to 300 mm**

- Rectangular



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## Short body round

**AE & AM SERIES**  
3-wire DC, embedded cable or quick-disconnect, IP67 rating

Sensing distance: **Extended**

- 8 mm
- 12 mm



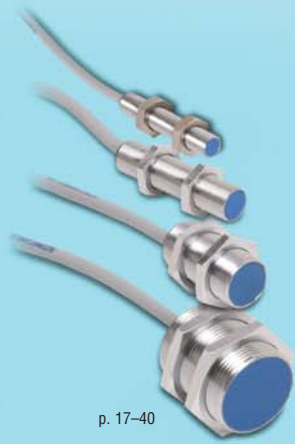
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## Proximity with analog output

**AE, AM, AK & AT ANALOG SERIES**  
DC with analog output (voltage/current), embedded cable or quick-disconnect, IP67 rating

Sensing distance: **Triple**

- 8 mm
- 12 mm
- 18 mm
- 30 mm



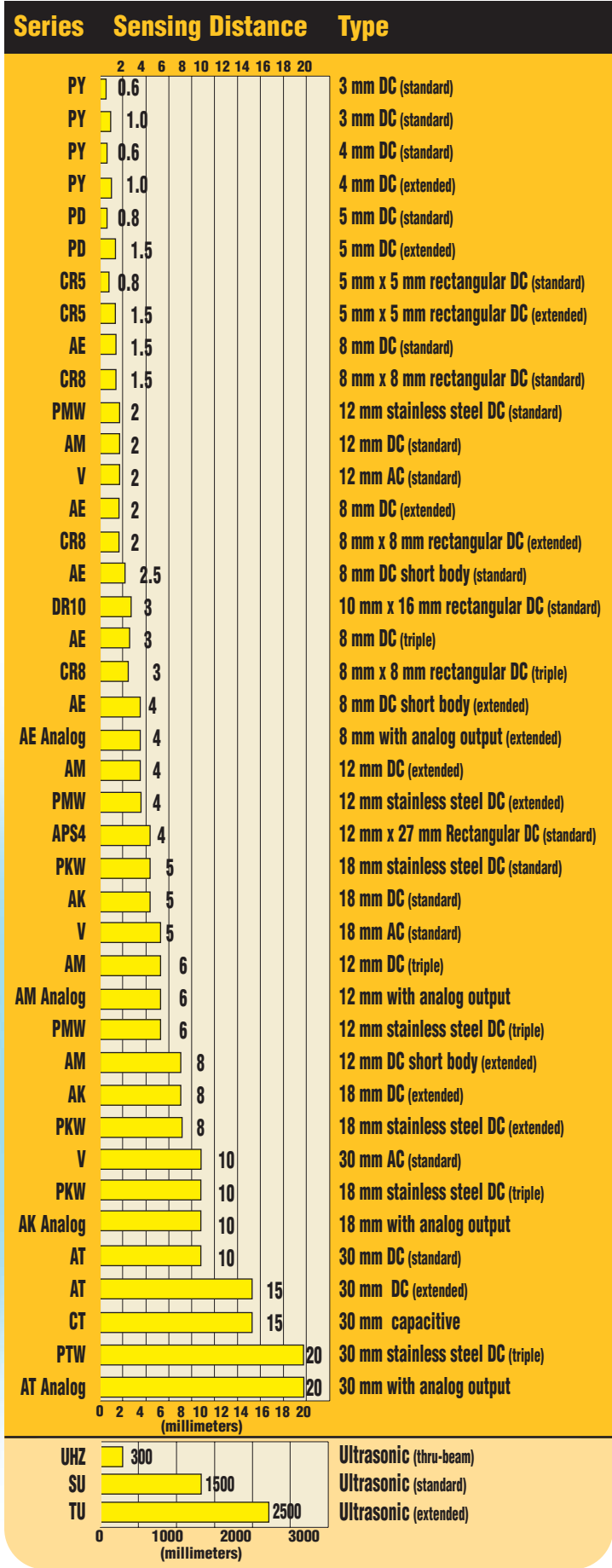
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## Q/D extension cables

**CDP SERIES**  
Axial or right-angle connectors, M8 or M12 connector sizes, 1 m or 3 m lengths, IP67 rating



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# How do I Choose the Right 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 overshoot 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 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:

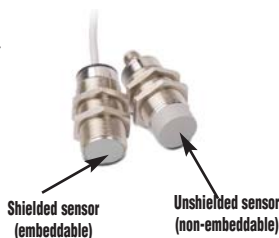
### How much space is available for mounting the sensor?

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 shielded or unshielded sensor needed?

Shielded and unshielded sensors are also referred to as embeddable and non-embeddable. Unshielded sensors allow longer sensing distances but shielded 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 environ-

mental 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.

## 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 or analog). Most PLC products will accept either output. If connecting to a solid state relay, a PNP output is needed.

Type	Guidelines
2-wire	<ul style="list-style-type: none"> <li>Will work with sinking or sourcing ... devices.</li> <li>Only 2 wires to terminate.</li> <li>Higher leakage current.</li> </ul>
3-wire	<ul style="list-style-type: none"> <li>Most popular output. Familiar to most users. (Must select between NPN and PNP outputs.)</li> </ul>
4-wire	<ul style="list-style-type: none"> <li>Allows configurability in one device. May have both NPN/PNP selection or NO/NC selection. Allows user to stock one part for numerous applications.</li> </ul>

## Step 6a:

### Do I need 2, 3, or 4-wire discrete outputs?

This is somewhat determined by what the sensor will be connected to. Some simple guidelines to use are:

Type	Guidelines
1-5mA	available on AM9, AK9 and AT9 series analog inductive sensors
4-20mA	available on AM9, AK9 and AT9 series analog inductive sensors
0-5VDC	available on AM9, AK9 and AT9 series analog inductive sensors
0-10VDC	available on AE9, AM9, AK9 and AT9 series analog inductive sensors and SU and TU ultrasonic sensors

## Step 6b:

### Do I need analog outputs?

This is determined by the sensor application and what the sensor will be connected to. Sensors with analog outputs produce an output signal approximately proportional to the target distance.

## Step 7:

### 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.

# Proximity Sensor Selection Guide



Specifications	PY Stainless Steel DC	PD Stainless Steel DC	AE Series DC	AM Series DC
<b>Description</b>	Miniature inductive prox sensors, 3mm and 4mm, DC, stainless steel	Miniature inductive proximity sensors, 5mm, DC, stainless steel	Inductive proximity sensors, 8mm, DC, metal, standard and short body lengths	Inductive proximity sensors, 12mm, DC, metal, standard and short body lengths
<b>Sensing Distances</b>	Standard distance: 0.6mm Extended distance: 1mm	Standard distance: 0.8mm Extended distance: 1.5mm	Standard distance: 0 to 1.5mm 0 to 2.5mm Extended distance: 0 to 2.0mm 0 to 4mm Triple distance: 0 to 3mm	Standard shielded: 0 to 2.0mm Standard unshielded: 0 to 4mm Extended shielded: 0 to 4mm Extended unshielded: 0 to 8mm Triple distance shielded: 6mm
<b>Output State</b>	N.O.	N.O.	N.O.	N.O.
<b>Logic Output</b>	NPN / PNP	NPN / PNP	NPN / PNP	NPN / PNP / Sink / Source
<b>Connection Type</b>	Axial cable	Axial cable / M8 connector	Axial cable /M8 / M12 connector	Axial cable / M12 connector
<b>Supply Voltage</b>	10-30VDC	10-30VDC	10-30VDC	10-30VDC
<b>Switching Frequency</b>	Standard distance: 5kHz Extended distance: 3kHz	Standard distance: 5kHz Extended distance: 3kHz	Standard shielded: 3kHz Unshielded: 2.5kHz Extended shielded/unshielded: 3kHz Triple shielded: 1kHz	Standard distance shielded/unshielded: 3 wire 2kHz, 2 wire: 1.5kHz Extended distance shielded/unshielded: 1kHz Triple distance shielded: 800Hz
<b>Protection Degree</b>	IEC-IP67	IEC-IP67	IEC-IP67	IEC-IP67
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Specifications	AK Series DC	AT Series DC	PMW Stainless Steel DC	PKW Stainless Steel DC
<b>Description</b>	Inductive proximity sensors, 18mm, DC, metal	Inductive proximity sensors, 30mm, DC, metal	Inductive proximity sensors, 12mm, stainless steel, DC	Inductive proximity sensors, 18mm, stainless steel, DC
<b>Sensing Distances</b>	Standard distance: shielded 5mm, unshielded 8mm Extended distance: shielded, 8mm, unshielded 12mm	Standard distance shielded: 10mm, Standard distance unshielded: 15mm Extended distance shielded: 15mm Extended distance unshielded: 20mm	Standard distance: 2mm Extended distance: 4mm Triple distance: 6mm	Standard distance: 5mm Extended distance: 8mm Triple distance: 10mm
<b>Output State</b>	N.O.	N.O.	N.O./ N.C.	N.O. / N.C.
<b>Logic Output</b>	NPN / PNP / Sink / Source	NPN / PNP / Sink / Source	NPN / PNP	NPN / PNP
<b>Connection Type</b>	Axial cable / M12 connector	Axial cable / M12 connector	Axial Cable / M12 connector	Axial cable / M12 connector
<b>Supply Voltage</b>	10-30VDC	10-30VDC	10-30VDC	10-30VDC
<b>Switching Frequency</b>	Standard distance shielded: 600Hz Standard distance unshielded, Extended distance shielded, unshielded: 300Hz	Standard distance shielded/unshielded: 2 wire: 150Hz, 3 wire 200Hz Extended distance shielded/unshielded: 2 wire and 3 wire: 150Hz	Standard distance/extended distance: 2kHz Triple distance: 400Hz	Standard/extended distance: 1kHz Triple distance: 200Hz
<b>Protection Degree</b>	IEC-IP67	IEC-IP67	Standard/extended distance: IEC-IP67/68 Triple distance: IEC-IP67 connector / IP68 (Cable)	Standard/extended distance: IEC-IP67/68 Triple distance: IEC-IP67 connector/IP68 (Cable)
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# Proximity Sensor Selection Guide



Specifications	PTW Stainless Steel DC	V Series AC	CR5 Rectangular DC	CR8 Rectangular DC
<b>Description</b>	Inductive proximity sensors, 30mm, DC, stainless steel	12mm/18mm/30mm inductive proximity sensor, AC, metal	5 x 5 rectangular inductive proximity sensors, DC, metal	8 x 8 rectangular inductive proximity sensors, DC, metal
<b>Sensing Distances</b>	20mm	M12 models shielded: 2mm / Unshielded: 4mm M18 models shielded: 5mm / Unshielded: 8mm M30 models shielded 10mm / Unshielded 15mm	Standard: 0.8mm Extended distance: 1.5mm	Standard distance shielded: 0 to 1.5mm Extended distance shielded: 0 to 2.0mm Triple distance shielded: 3mm
<b>Output State</b>	N.O.	N.O.	N.O.	N.O.
<b>Logic Output</b>	NPN / PNP	-	NPN / PNP	NPN / PNP
<b>Connection Type</b>	Axial Cable / M12 connector	Axial cable / M12 connector	Axial cable / M8 connector	Axial cable / M8 connector
<b>Supply Voltage</b>	10-30VDC	20-253VAC, 50/60Hz	10-30VDC	10-30VDC
<b>Switching Frequency</b>	100Hz	25Hz	Standard distance: 5kHz Extended distance: 3kHz	1kHz
<b>Protection Degree</b>	IEC-IP67 (connector/ IP68 cable)	IEC-IP67	IEC-IP67	IEC-IP67
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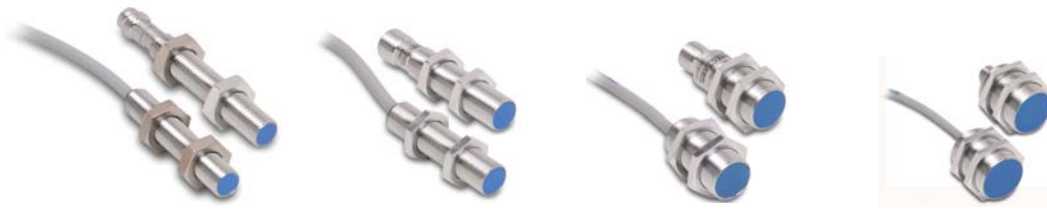


Specifications	DR10 Rectangular DC	APS4 Rectangular DC	CT Capacitive DC
<b>Description</b>	10 x 16 rectangular inductive prox sensor, DC, plastic	12 x 27 compact rectangular inductive prox, DC, plastic	30mm capacitive proximity sensors, DC, metal
<b>Sensing Distances</b>	Shielded: 3mm Unshielded: 6mm	4.0mm	Shielded: 2-15mm Unshielded: 2-20mm
<b>Output State</b>	N.O.	N.O.	N.O.
<b>Logic Output</b>	NPN/ PNP	NPN / PNP	NPN/ PNP
<b>Connection Type</b>	Axial cable/M8 connector	Axial cable	Axial cable
<b>Supply Voltage</b>	10-30VDC	10-30VDC	10-30VDC
<b>Switching Frequency</b>	3kHz	200Hz	100Hz
<b>Protection Degree Rating</b>	IEC-IP67	IEC-IP67	IEC-IP65
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## Cables and Accessories

Cables and accessories can be found starting on page 17-48.

# Proximity Sensor Selection Guide



Specifications	AE Analog Prox	AM Analog Prox	AK Analog Prox	AT Analog Prox
<b>Description</b>	Analog inductive proximity sensors, 8mm, metal	Analog inductive proximity sensors, 12mm, metal	Analog inductive proximity sensors, 18mm, metal	Analog inductive proximity sensors, 30mm, metal
<b>Sensing Distance</b>	4mm	6mm	10mm	20mm
<b>Output</b>	0-10VDC	0-5VDC, 1-5mA / 0-10VDC, 4-20mA	0-5VDC, 1-5mA / 0-10VDC, 4-20mA	0-5VDC, 1-5mA / 0-10VDC, 4-20mA
<b>Supply Voltage</b>	15-30VDC	10-30VDC / 15-30VDC	10-30VDC, 15-30VDC	10-30VDC / 15-30VDC
<b>Connection Type</b>	Axial cable / M8 connector	Axial cable / M12 connector	Axial cable / M12 connector	Axial cable / M12 connector
<b>Protection Degree</b>	IEC-IP67	IEC-IP67	IEC-IP67	IEC-IP67
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Specifications	SU Ultrasonic Sensor	TU Ultrasonic Sensor	UHZ Ultrasonic Sensor
<b>Description</b>	Ultrasonic Sensor, 18mm, plastic, DC and analog output models	Ultrasonic Sensor, 30mm, plastic, DC and analog output models	Ultrasonic Sensor, 30 mm x 20 mm, plastic, thru-beam models
<b>Sensing Distances</b>	100 to 600mm 200 to 1500mm	300 to 2500mm	300 mm
<b>Output</b>	DC models: PNP N.O. Analog models: 0-10VDC	DC models: PNP N.O. Analog models: 0-10VDC	PNP/NPN, N.O./N.C.
<b>Supply Voltage</b>	DC models: 15-30VDC Analog models: 18-30VDC	19-30VDC	18-30VDC
<b>Connection Type</b>	Axial cable/M12 connector	M12 connector	2 meter Axial cable
<b>Protection Degree</b>	IEC-IP67	IEC-IP67	IEC-IP67
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- Motors
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