Installation Instructions
Ultrasonic Discrete Sensors

IMPORTANT: SAVE THESE INSTRUCTIONS FOR FUTURE USE.

| **IMPORTANT** | Solid-state devices can be susceptible to radio frequency (RF) interference depending on the power and the frequency of the transmitting source. If RF transmitting equipment is to be used in the vicinity of the solid-state devices, thorough testing should be performed to assure that transmitter operation is restricted to a safe operating distance from the sensor equipment and its wiring. |

| **ATTENTION** ⚠ | If a hazardous condition can result from unintended operation of this device, access to the sensing area should be guarded. |

Models to be covered:

873M-D18PO300-D4
873M-D18RPO300-D4
873M-D18PO800-D4
873M-D18RPO800-D4

Discrete Output Mode

- Discrete sensors feature normally-open/normally-closed PNP outputs.
- Includes two teachable set points and multiple output functions.
- The upper and lower sensing range can be scaled to a distance-fixed window.
- The sensor is taught using an easy four-step remote teach process or an optional programming cord.

Specifications

General	300 mm Models	800 mm Models
Sensing range [mm (in.)]	30…300 (1.18…11.81)	50…800 (1.96…31.49)
Adjustment range [mm (in.)]	50…300 (1.96…11.81)	70…800 (2.75…31.49)
Blind Zone [mm (in.)]	0…30 (0…1.18)	0…50 (0…0.96)
Standard target [mm (in.)]	100 x 100 (3.93 x 3.93)	
Frequency	Approx. 390 kHz	Approx. 255 kHz
Response delay	Approx. 30 ms	Approx. 100 ms
Operating temperature [C (F)]	-25…70° (-13…158°)	
Storage temperature [C (F)]	-40…85° (-40…185°)	
Electrical		
Operating voltage	10…30V DC	
Output current	200 mA	
Current consumption	≤20 mA	
Protection type	Short-circuit, reverse polarity, overload	
Voltage drop	<3V	
Output		
Output type	Discrete-PNP with N.O./N.C.	
Output Rating	200 mA max.	
Repeatability	<1%	
Switching frequency	<13 Hz	<4 Hz
Hysteresis	1% of the set operating distance	
Sensitivity adjustment	Remote teach/optional programming cable	
Environmental		
Enclosure type rating	IP67	
Shock	30 g, 11 ms	
Housing material	Brass, nickel-plated	
Connection	Micro-quick disconnect	
Certifications	cULus Listed and CE Marked for all applicable directives	

LED Displays

Operating Mode	Red LED	Yellow LED	Green LED
Teach Mode			
Target detected	One flash	Continuous flash	Off
No target detected	Flashes	Off	
Target marginal (invalid teach)	Flashes	Off	
Standard Mode			
Target present	Off	On	On
Target not present	Off	Off	On

Adjusting Switching Points

Pertaining to the 873M, there are five modes of operation in detecting a target object in discrete mode.

Window Mode, N.O: Two set points are taught in defined sensing range creating a sensing window. Once a target object passes through the window, the output triggers on.

Window Mode, N.C.: Two set points are taught in the defined sensing range creating a sensing window. Output is initially ON. Once a target object passes through the window, the output triggers off.

One set point, N.O.: One set point is taught within a defined sensing range of the sensor with the output off. When a target passes between the sensor and the taught set point, the output triggers and turns on.

One set point, N.C: One set point is taught within a defined sensing range of the sensor while the output is on. When a target passes between the sensor and the taught set point, output triggers and turns off.

Object Presence Mode: Also known as resetting to factory defaults settings. Once the sensor is taught, all set points are removed and the sensor returns to the factory default specified range depending on the catalog number. Any object will be detected within a specified sensing range [50…300 or 70…800 mm (1.96…11.81 or 2.75…31.49 in.)]

Window Mode, N.O.:

1. Place the target at the desired near-set point.
2. Using the white wire, connect to **(0V DC (-))** or press A1 on the optional programming cable.
3. Set the target to desired far-set point.
4. Using the white wire, connect to **(10…30V DC (+))** or press A2 on optional programming cable.

Window Mode, N.C.:

1. Place the target at the desired near-set point.
2. Using the white wire, connect to **(10…30V DC (+))** or press A2 on the optional programming cable.
3. Set the target to desired far set point.
4. Using white wire, connect to **(0V DC (-))** or press A1 on optional programming cable.

One Set Point, N.O:

1. Place target at desired set point.
2. Using white wire, connect to **(10…30V DC (+))** or press A2 on optional programming cable.
3. Cover sensor head with hand or remove all objects from sensing field.
4. Using the white wire, connect to **(0V DC (-))** or press A1 on the optional programming cable.
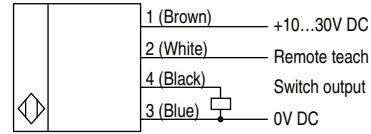
One Set Point, N.C:

1. Place target at desired set point.
2. Using the white wire, connect to **(0V DC (-))** or press A1 on the optional programming cable.
3. Cover sensor head with hand or remove all objects from sensing field.
4. Using the white wire, connect to **(10…30V DC (+))** or press A2 on the optional programming cable.
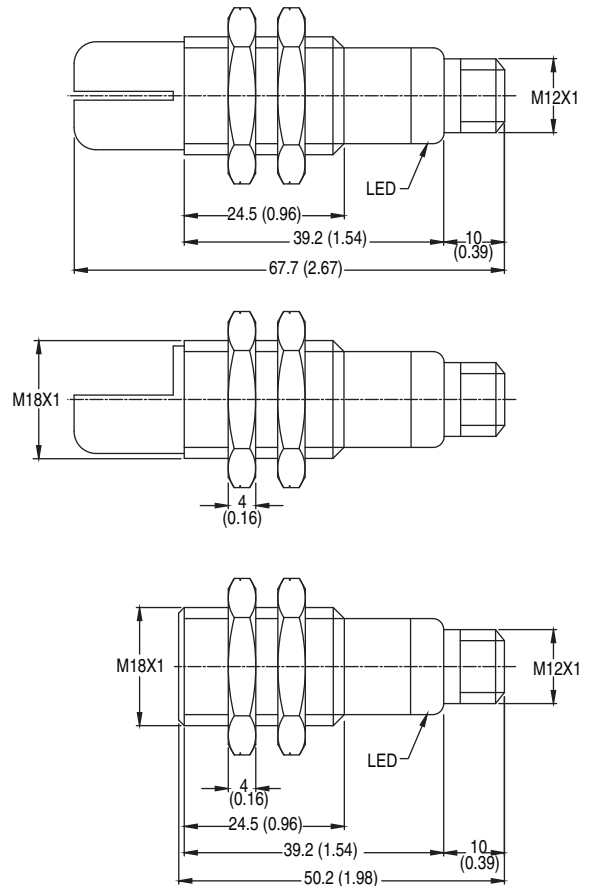
Object Presence Mode (Factory Default Mode):

1. Cover sensor head with hand or remove all objects from sensing field.
2. Using the white wire, connect to **(0V DC (-))** or press A1 on the optional programming cable.
3. Using the white wire, connect to **(10…30V DC (+))** or press A2 on the optional programming cable.

Wiring

1 (Brown)	+10...30V DC
2 (White)	Remote teach
4 (Black)	Switch output
3 (Blue)	0V DC

Dimensions [mm (in.)]

M12X1
LED
24.5 (0.96)
39.2 (1.54)
10 (0.39)
67.7 (2.67)

M18X1
4 (0.16)

M18X1
M12X1
LED
4 (0.16)
24.5 (0.96)
39.2 (1.54)
10 (0.39)
50.2 (1.98)