Description

The 873M general purpose ultrasonic sensors are designed to detect solid or liquid targets by using sound waves. These sensors feature a compact 18 mm barrel that is only 40 mm long, with straight or right-angle sensing face options, providing enhanced flexibility for areas with limited space. Plus, the 873M offers higher-speed switching than other ultrasonic sensors in the portfolio and features an IP67 rating for harsh-duty environments.

The 873M sensing line is available with either analog or discrete outputs and two different sensing ranges. Analog models are offered with either a scalable 4…20 mA or 0…10V DC output. The discrete models feature complementary PNP outputs that can be set up as either a threshold or window. The outputs are selectable as normally open or normally closed. All models are taught remotely using pin two or an optional programming cable. These sensors have full electrical protections including short circuit, overload, false pulse, transient noise, and reverse polarity.

The 873M family is an excellent choice for applications including: roll diameter, height measurement, part counting, web tension, and level detection. Typical industries that could benefit from the 873M are packaging and assembly, material handling, and many manufacturing sites in general.

Features

• Sensing ranges from 30…800 mm depending on model
• Scalable analog output models (4…20 mA or 0…10V DC)
• Teachable discrete models (N.O./N.C.,PNP)
• Straight or right angle threaded 18 mm housing
• Bright LEDs to show output status
• Nickel-plated brass housing
• Remote teach using pin two or optional programming cable
• M12 connector, 4 pin QD

General Specifications

Certifications	CSA, cULus Listed, and CE Marked for all applicable directives
Electrical	
Operating Voltage	10…30V DC
Voltage Drop	<3V
Protection Type	Short circuit, reverse polarity, and overload
Output	
Sensing Distance Adjustability [mm (in.)]	50…300 or 70…800
Hysteresis	1% set operating distance
Environmental	
Housing Material	Brass, nickel-plated
Enclosure Type Rating	IP67
Sensitivity Adjustment	Remote teach or optional programming cable
Operating Temperature [C (F)]	-25…70° (-13…158°)
Temperature Drift	+/- 1.5% of full scale
Shock	30 g, 11 ms
Vibration	10…55 Hz, 1 mm amplitude, 3 planes
Connection Type	4-pin DC micro (M12)

Discrete Sensors

Electrical	
Output Current	200 mA
Current Consumption	<20 mA
Output	
Output Function	PNP - Discrete
Repeatability	<1%
Response Time	30 ms

Analog Sensors

Electrical	
Load Current	200 mA
Current Consumption	<20 mA
Output	
Repeatability	<=0.5% of full scale
Response Time	—

LED Indicator

Discrete Sensors

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	
Standard Mode	Target Present	Off	On	On
	Target Not Present		Off	

Analog Sensors

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)		Off	
Standard Mode	Target Present	Off	On	On
	Target Not Present		Off	

Ultrasonic Sensors
873M General Purpose
18 mm Cylindrical

Product Selection

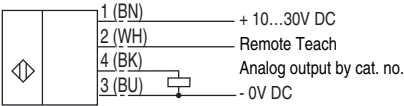| Sensing Distance [mm (in.)]	Sensing Direction	Switching Frequency [Hz]	Output Function	Output Type	Response Time	Cat. No.
30…300 (1.18…11.81)	Straight	13	PNP - Discrete	Complementary NO/NC	30 ms	873M-D18PO300-D4
	Right					873M-D18RPO300-D4
	Straight	N/A	Analog Current	4…20 mA	—	873M-D18AI300-D4
			Analog Voltage	0…10V DC		873M-D18AV300-D4
50…800 (1.96…31.49)	Straight	4	PNP - Discrete	Complementary NO/NC	100 ms	873M-D18PO800-D4
	Right					873M-D18RPO800-D4
	Straight	N/A	Analog Current	4…20 mA	—	873M-D18AI800-D4
			Analog Voltage	0…10V DC		873M-D18AV800-D4

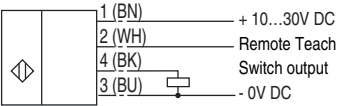## Cordsets and Accessories

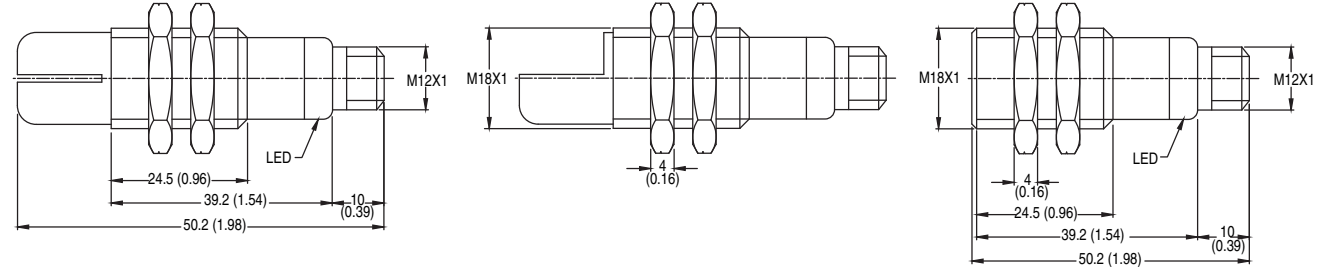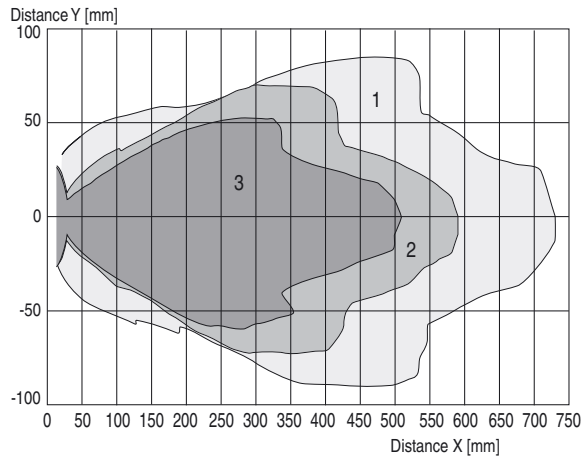| Description	Cat. No.
DC Micro QD Cordset, Straight, 4-pin, 2 m	889D-F4AC-2
Snap Clamp Mounting Bracket	871A-SCBP18
Swivel/Tilt Style Bracket	60-2649

Wiring Diagrams

All Analog Sensors


```
1 (BN) ———— + 10…30V DC
2 (WH) ———— Remote Teach
4 (BK) ———— Analog output by cat. no.
3 (BU) ———— - 0V DC
```

All Discrete Sensors


```
1 (BN) ———— + 10…30V DC
2 (WH) ———— Remote Teach
4 (BK) ———— Switch output
3 (BU) ———— - 0V DC
```

Approximate Dimensions [mm (in.)](1)

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

M18X1
4 (0.16)

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

Typical Response Curves

300 mm Analog

300mm analog

Distance Y [mm]

Distance X [mm]

Curve 1: flat surface 100 mm x 100 mm
Curve 2: flat surface 10 mm x 10 mm
Curve 3: round bar, Ø 25 mm

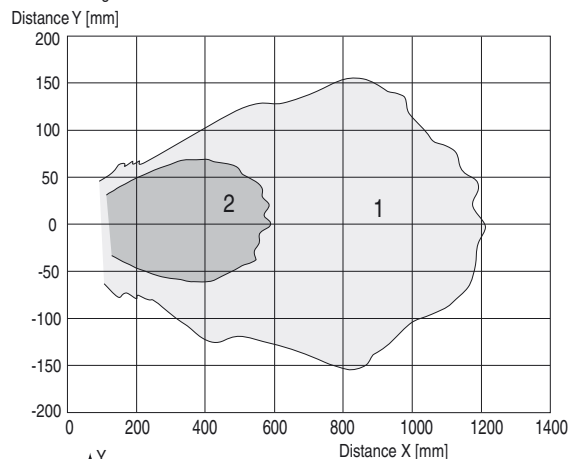**300 mm Discrete**

300mm Discrete

Distance Y [mm]

Distance X [mm]

Curve 1: flat surface 100 mm x 100 mm
Curve 2: flat surface 10 mm x 10 mm
Curve 3: round bar, Ø 25 mm

800 mm Analog

800mm analog

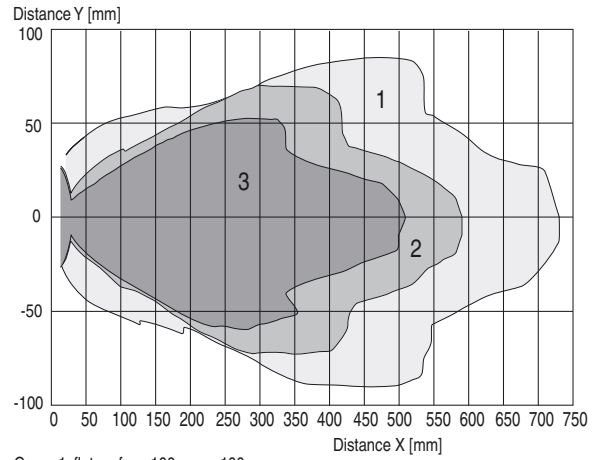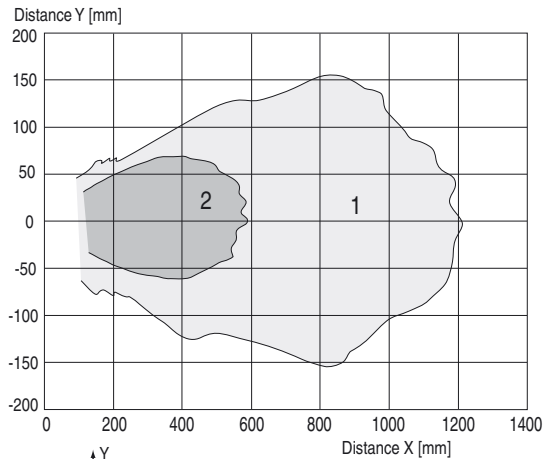Distance Y [mm]

Distance X [mm]

Curve 1: flat surface 100 mm x 100 mm
Curve 2: round bar, Ø 25 mm

800 mm Discrete

800mm discrete

Distance Y [mm]

Distance X [mm]

Curve 1: flat surface 100 mm x 100 mm
Curve 2: round bar, Ø 25 mm

3-Ultrasonic Sensors

Allen-Bradley