



873P Analog Output
18mm
page 2



873P Discrete Output
30mm
page 2



Description

Bulletin 873P Ultrasonic Sensors are self-contained solid-state devices designed for noncontact sensing of solid and liquid objects. They are available in 18mm and 30mm barrel diameters that are constructed from PBT plastic and meet IP67 enclosure standards. The electronic circuitry is potted to protect against shock, vibration, and contamination.

These sensors are available with either analog or discrete output types and three different sensing ranges. Analog model selection includes 4–20 mA or 0–10V DC outputs. Discrete models have a normally open PNP output and a potentiometer for adjusting the sensing range to ignore background targets. Bulletin 873P ultrasonic sensors have full electrical protections including short circuit, overload, false pulse, transient noise and reverse polarity.

Specifications

	Discrete	Analog Current	Analog Voltage
Output Configuration	Normally Open, PNP	4 to 20mA	0 to 10V DC
Load Current	<500mA	—	—
Leakage Current	<0.5mA	—	—
Current Consumption	< 35mA		
Operating Voltage	18 to 30V DC		
Voltage Drop	< 3.5V DC	—	—
Repeatability	0.2%		
Hysteresis	2.5% typical	—	—
Linearity	—	± 0.3%	
Ultrasonic Frequency	130, 180, 300kHz		
Ultrasonic Beam Angle	8°		
Short Circuit Protection	Incorporated		
Overload Protection	Incorporated		
False Pulse Protection	Incorporated		
Transient Noise Protection	Incorporated		
Reverse Polarity Protection	Incorporated		
Approvals	cULus listed and CE marked for all applicable directives		
Housing Material	Plastic - PBT		
Enclosure Rating	IP67		
Connection	Micro quick-disconnect (18mm discrete models have 12 inch pigtail)		
Output LED	Yellow	—	—
Adjustment	Potentiometer	—	—
Operating Temperature	-15 to 70° C (5 to 158° F)		
Shock	30g, 11ms		
Vibration	55Hz, 1mm amplitude, 3 planes		

Features

- Sensing ranges from 100mm to 2500mm
- Analog output models (4–20mA, 0–10V DC)
- Discrete output models (normally open, PNP)
- Plastic barrel housing
- Adjustable sensing distance (discrete models)
- Short circuit, overload, false pulse, transient noise and reverse polarity protection
- Hold/Synchronize function to reduce crosstalk
- cULus listed and CE marked for all applicable directives

QD Cordsets and Accessories

Description	Page Number
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Cordsets	5-26 - 5-29 ①
Mounting Brackets	2-190 - 2-192 ①
Mounting Nuts	2-200 ①

① For information on cordsets and accessories see the *Sensors* catalog.

873P Analog or Discrete Output, Micro QD

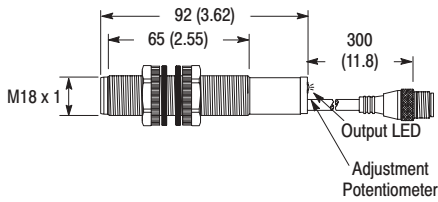
Plastic Barrel

Selection Guide

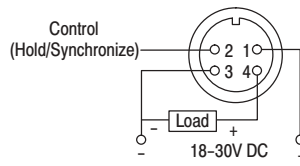
Barrel Diameter	Sensing Range—mm (inches)	Output Configuration	Switching Frequency (Hz)	Connection	Catalog Number
18	100 (3.94) to 600 (23.62)	Normally Open PNP	20	Micro QD Pigtail	873P-DBNP1-F4
	200 (7.87) to 1500 (59.06)		10		873P-DBNP2-F4
30	300 (11.81) to 2500 (98.43)		5		873P-DCNP1-D5
18	100 (3.94) to 600 (23.62)	4 to 20mA	—	Micro QD	873P-DBAC1-D4
	200 (7.87) to 1500 (59.06)				873P-DBAC2-D4
30	300 (11.81) to 2500 (98.43)				873P-DCAC1-D5
18	100 (3.94) to 600 (23.62)	0 to 10V DC	—	Micro QD	873P-DBAV1-D4
	200 (7.87) to 1500 (59.06)				873P-DBAV2-D4
30	300 (11.81) to 2500 (98.43)				873P-DCAV1-D5
Recommended standard QD cordset (-2 = 2m (6.5ft))					889D-F4AC-2

Dimensions—mm (inches)

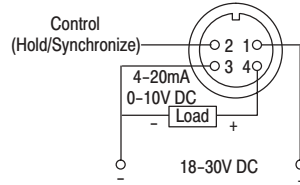
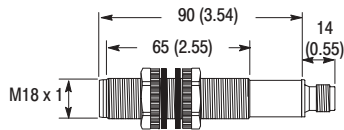
18mm Discrete



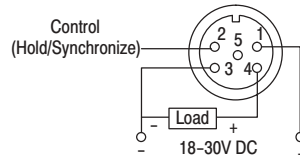
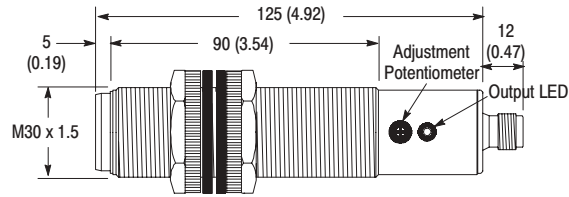
Wiring Diagrams



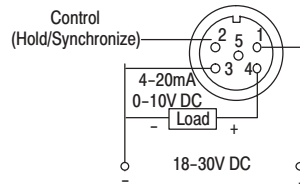
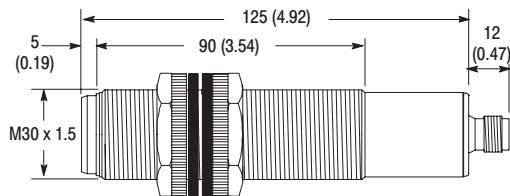
18mm Analog



30mm Discrete



30mm Analog



Bulletin 873P Analog or Discrete Output, Micro QD

Plastic Barrel

Control Pin

Normal Operation

For normal operation do not connect the control pin. Hold and synchronize features can be used for special applications.

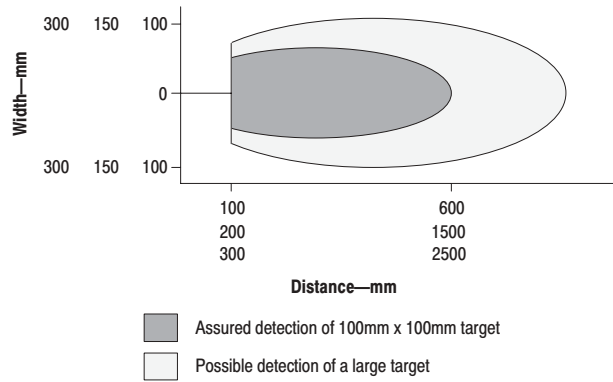
Hold

To inhibit sensor operation and hold the output to its present state connect the control pin (2) to 0V DC. The sensor will not transmit or receive ultrasonic pulses until this voltage is removed from the control pin. Switching output models will be latched and analog output models will hold their value during this period.

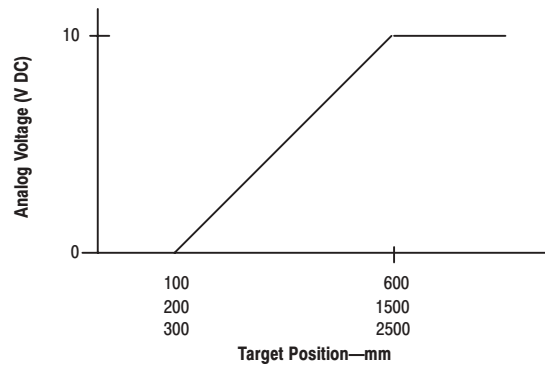
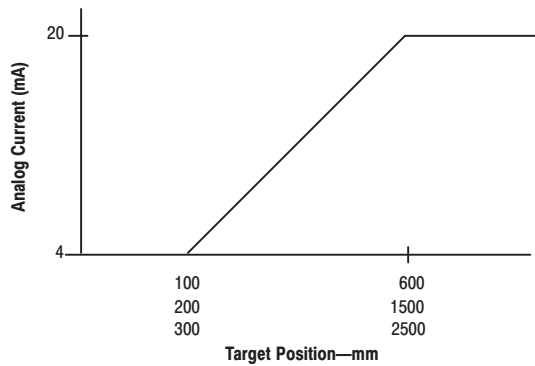
Synchronize

To synchronize the transmission of ultrasonic pulses between several sensors connect the control pins together. This feature reduces the potential for sensor crosstalk between models that are mounted in close proximity to one another.

Beam Pattern



Analog Output



Bulletin 873P Programmable

Plastic Barrel



873P DC Programmable
30mm
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Description

Bulletin 873P Programmable Ultrasonic Sensors are self-contained solid-state devices designed for noncontact sensing of solid and liquid objects. They are available with a 30mm barrel diameter that is constructed from PBT plastic and meets IP67 enclosure standards. The electronic circuitry is potted to protect against shock, vibration, and contamination.

These sensors have two programmable setpoints with sourcing (PNP) outputs that can be configured for either normally open or normally closed operation. They also feature a 4–20mA or 0–10V DC analog output. The slope of the analog output is scaled between the limits of the setpoint values. Programming of the setpoints and the output configuration is done using the setup pushbutton on the rear of the housing.

In addition, these devices have full electrical protections including short circuit, overload, false pulse, transient noise and reverse polarity. Bulletin 873P programmable ultrasonic sensors are ideal for applications such as level control, diameter measurement, distance measurement, slope control, and presence detection.

Specifications

Output Configuration	Two discrete PNP (Programmable N.O./N.C.) Analog Current: 4–20mA Analog Voltage: 0–10V DC
Load Current	<100mA (Open collector)
Leakage Current	<0.5mA
Current Consumption	<45mA
Operating Voltage	19 to 30V DC
Voltage Drop	<5V DC
Repeatability	0.4%
Hysteresis	1% typical
Linearity	±0.5%
Ultrasonic Frequency	130, 200kHz
Ultrasonic Beam Angle	8°
Short Circuit Protection	Incorporated
Overload Protection	Incorporated
False Pulse Protection	Incorporated
Transient Noise Protection	Incorporated
Reverse Polarity Protection	Incorporated
Approvals	cULus listed and CE marked for all applicable directives
Housing Material	Plastic - PBT
Enclosure Rating	IP67
Connection	Micro quick-disconnect
LED	Yellow: (2) P1, P2 output; Green: Alignment/echo
Program	Via setup pushbutton
Operating Temperature	-15 to 70°C (5 to 158°F)
Shock	30g, 11ms
Vibration	55Hz, 1 amplitude, 3 planes

Features

- Sensing ranges from 150mm to 3500mm
- Programmable models include 2 discrete and 1 analog output
- Discrete outputs can be programmed for normally open or normally closed operation
- Programmable set point adjustment via pushbutton
- Short circuit, overload, false pulse, transient noise and reverse polarity protection
- cULus listed and CE marked for all applicable directives

QD Cordsets and Accessories

Description	Page Number
Beam Deflectors	6
Cordsets	5-26 - 5-27 ❶
Mounting Brackets	2-190 - 2-192 ❶
Mounting Nuts	2-200 ❶

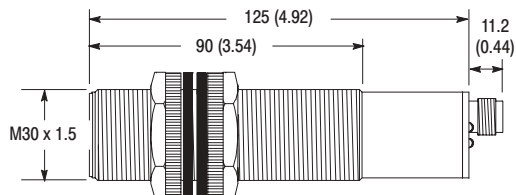
❶ For information on cordsets and accessories see the *Sensors* catalog.

Selection Guide

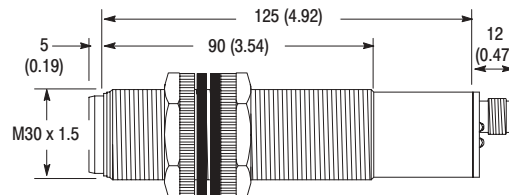
Barrel	Sensing Range—mm (inches)	Output Configuration	Switching Frequency	Connection	Catalog Number
30mm	150 to 1500 (5.98 to 59.10)	2 PNP (NO or NC) with 4–20mA	1 Hz	Micro QD	873P-DCAC1S-D5
	350 to 3500 (13.78 to 137.80)				873P-DCAC2S-D5
	150 to 1500 (5.98 to 59.10)	2 PNP (NO or NC) with 0–10V DC			873P-DCAV1S-D5
	350 to 3500 (13.78 to 137.80)				873P-DCAV2S-D5
Recommended standard QD cordset (-2 = 2m (6.5ft))					889D-F5AC-2

Dimensions—mm (inches)

1500mm



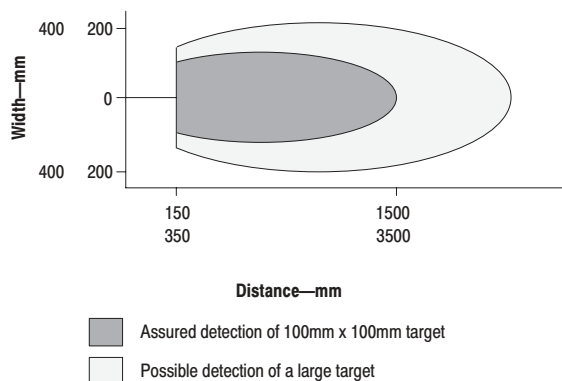
3500mm



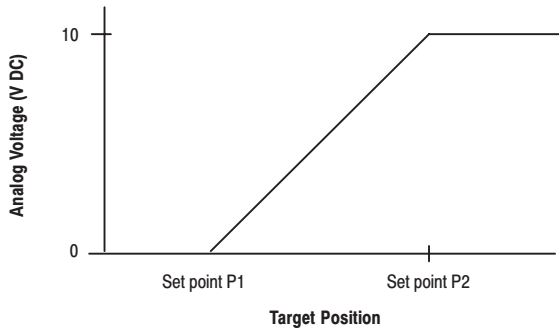
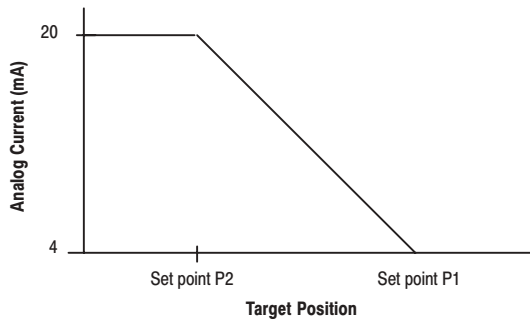
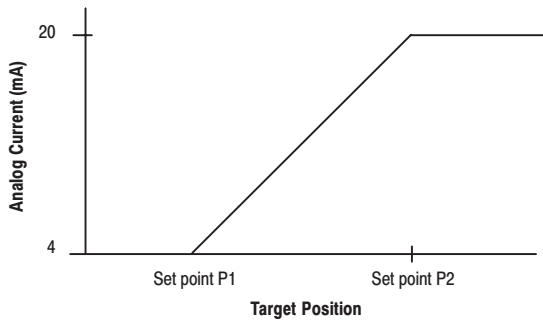
Wiring Diagram

	Pin	Function
	1	19 to 30V DC Operating Voltage
	2	Set point (P2)
	3	0V DC
	4	Set point (P1)
	5	4–20mA or 0–10V DC (depending on model)

Beam Pattern



Analog Output

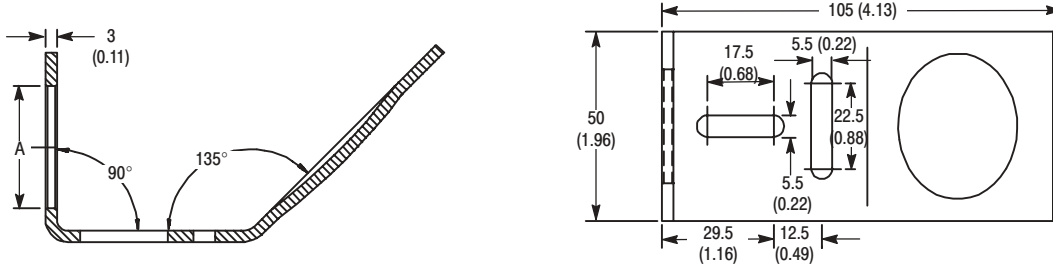


Accessories

Beam Deflectors

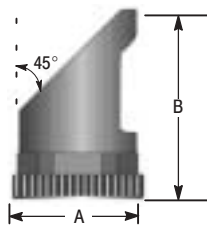
These plastic or stainless steel beam deflectors reduce the mounting profile for space critical applications by deflecting the ultrasonic beam 90°. In addition, stainless steel models provide mounting capability and focus the ultrasonic beam.

Ultrasonic Beam Deflector/Bracket—Stainless Steel—mm (inches)



Sensor Diameter	A —mm (inches)	Catalog Number
18mm	20 (0.79) Dia.	60-2757
30mm	32 (1.26) Dia.	60-2758

Ultrasonic Beam Deflector—Plastic—mm (inches)



Sensor Diameter	A —mm (inches)	B —mm (inches)	Catalog Number
18mm	23 (0.91)	35 (1.38)	60-2759
30mm	35.5 (1.40)	54 (2.13)	60-2760