



873C DC Cable Style
30mm
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Specifications

Load Current	Digital/discrete output: ≤400mA Analog output: ≤5mA
Minimum Load Current	1mA
Leakage Current	≤10μA
Operating Voltage	18-30V DC
Voltage Drop	≤2.4V
Analog Output Voltage	1-10V DC
Repeatability	±5mm in axial direction
Hysteresis	≤15mm typical
Ultrasonic Frequency	200kHz
Ultrasonic Pulse Cone Angle	8° (full angle)
Protections	False Pulse, Transients, Reverse Polarity, Short Circuit, Overload
Approvals	CE marked for all applicable directives
Enclosure	NEMA 12 and IP65 (IEC 529) Nickel-plated brass barrel with plastic face
Connection	Cable: 2m (6.5ft) length 3-conductor PVC
LED	Digital Model: Output Energized Analog Model: Echo Detected
Operating Temperature	-10°C to +60°C (+14°F to +140°F)
Shock and Vibration	30g, 10-55Hz

Description

The Bulletin 873C ultrasonic sensor has the ability to detect solid and liquid targets from a distance of up to 1m (3.3ft).

The Bulletin 873C comes in one of two versions: a background suppression unit with analog voltage output or a standard diffuse model with a digital output.

The analog model provides an output voltage that varies linearly with the target distance and an adjustable background suppression feature. For many applications, such as monitoring the level of water in a tank, ultrasonic technology allows a single device to do a job that would otherwise require multiple sensors.

The digital model has a normally open PNP output that can be adjusted between 300mm (11.8in) and 1m (3.3ft).

Features

- 3-wire operation
- 3-conductor connection
- 18-30V DC
- Analog or digital (discrete) output
- Metal, nonmetal solid and liquid sensing capability
- Short circuit, false pulse, reverse polarity, overload and transient noise protection
- Adjustable sensing distance (digital/discrete model)
- Adjustable background suppression (analog model)
- CE marked for all applicable directives

Target Considerations

Because ultrasonic sensors depend on a reflected sound wave for proper operation, the shape, material, temperature and positioning of the target are important. These must be selected to return the strongest possible echo.

The ideal target shape is a smooth, flat surface. Rounded or uneven objects can also be detected, but the sensing distances and/or analog output voltages will be reduced.

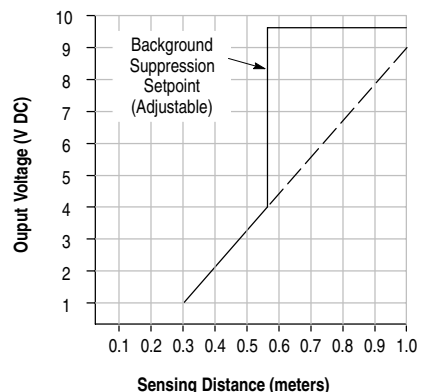
An object must be close to the sensor barrel axis to be detected because the 873C emits ultrasonic pulses in an 8° cone. Targets must be within this cone to reflect the pulses and activate the switch. The object's surface must also face directly toward the sensor to give a proper echo.

The sensor can be positioned accurately using the LED on its end, which glows with an intensity proportional to the strength of the echo. Simply place a target at the desired sensing point, then adjust the position and angle of the sensor to maximize the LEDs brightness.

Soft materials such as fabric or foam rubber are difficult to detect by ultrasonic technology because they are not adequately sound-reflective. This means that non-target objects in the sensing field can be hidden from the sensor by covering them with sound-absorbent material and/or by positioning them so that their echoes are not reflected to the detector.

Target temperatures must be at or below 100°C (212°F) for reliable sensing.

Output Voltage vs. Target Distance (Analog Model)



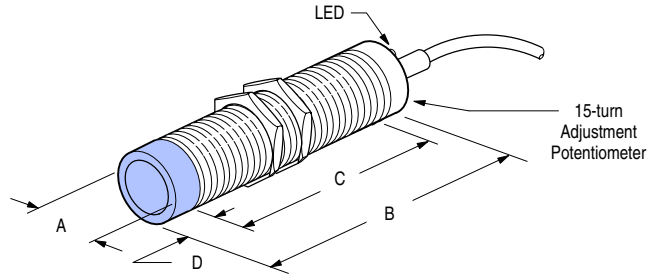
873C 3-Wire DC, Cable Style

Plastic Face/Threaded Nickel-Plated Brass Barrel

Selection Guide

Barrel Diameter	Nominal Sensing Distance mm (inches)	Output Configuration		Switching Frequency (Hz)	Catalog Number
30mm	300 (11.81) to 1000 (39.37)	Analog	PNP	5	873C-DDAV1000E2
		N.O. digital			873C-DDNP1000E2

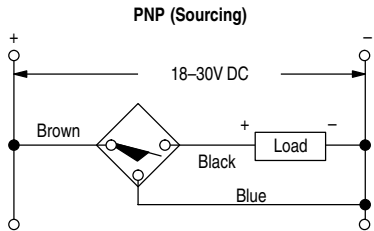
Dimensions—mm (inches)



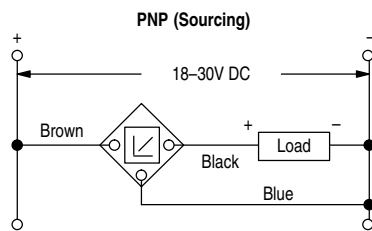
Thread Size	mm (inches)			
	A	B	C	D
M30 X 1.5	30.0 (1.18)	117.0 (4.61)	95.0 (3.74)	12.0 (0.47)

Wiring Diagrams

Normally Open Digital (Discrete)



Analog



Accessories

Description	Page Number
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Mounting Brackets	2-188 - 2-192
Extra Mounting Nuts	2-199 - 2-200