DCU-1100

Ultrasonic Level Sensors

- 2 to 50 ft. (0.6 to 15.2 m) detection range on liquids
- Internal temperature compensation
- Programmable response time
- Maintenance free
- Programmable filtering

FM APPROVED

Class I, Div. 2 on DCU-1100 Models

Description

The DCU series sensors use ultrasonic technology to provide a non-contact method of determining distance or level measurements. This versatility makes the DCU series ideal for a variety of applications. The color, translucency, dielectric constant, specific gravity or viscosity of the target does not affect an ultrasonic sensor. Ultrasonic sensors function extremely well in harsh environments, are reliable, and require little or no maintenance.

Operational Description

Ultrasonic sensing is very similar to radar. The sensor transmits ultrasonic sound waves. If the sound waves meet a solid or reflective object, such as a liquid, they are reflected back and detected by the sensor. The time of flight is measured, and since the speed of sound is a well-known variable, the distance to the object can be calculated.

Until recently, the many variables in the speed of sound created inaccurate readings. With the advent of microprocessor technology, these variables can now be factored into the equation and eliminated. One such variable is ambient temperature. The DCU series incorporates internal temperature compensation to adjust for changes in ambient temperature. The DCU series also incorporates programmable filtering options to account for other variables, such as waves on a liquid, or tank irregularities. The distance to the object is converted into an analog output signal that is user adjustable.

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Specifications

Operating Range: 2 to 50 ft. (0.6 to 15.2 m)
Output: (2) solid state relays and 4-20 mA
Supply Voltage: 24 VDC*
Total Current Draw: 110 mA @ 24 VDC
Maximum Rated Power: 3 W
Housing: PVC
Mounting: 3 NPT or 3 in. 150 lb. flange
Transducer Type: DCU-1104: ceramic, PVC faced DCU-1108: ceramic, Teflon® faced
Ratings: NEMA 4X
Approvals: FM Class I, Div. 2
Response Time: Programmable (120 ms minimum)
Sample Rate: Programmable (8-0.125 Hz)
Resolution: 0.1 in. (2.5 mm)
Accuracy (with no temperature gradient): ±0.25% of detected range
Adjustments: Integrated keypad
Operating Temperature: -30 to 140°F (-34 to 60°C)
Temperature Compensation: Internal
Beam Pattern: 9° off axis
Connections: (10) conductor cable (6 ft. (1.8 m) standard length)
Frequency: 42 kHz

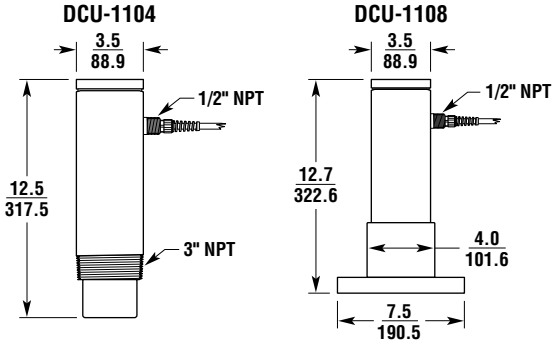
* The sensor will operate from 12-28 VDC, but the sensor performance will be diminished if the voltage is less than 24 VDC.

Specifications are subject to change without notice.

Wiring

	DCU-1100
Red	+ 24 VDC
Black	– VDC
Green	Clock synch
White	Digital pulse width
Blue	Relay 1 common
Grey	Relay 1 normally open
Purple	Relay 2 common
Brown	Relay 2 normally open
Orange	4-20 mA output
Yellow	4-20 mA ground

Dimensions — in./mm



Ordering Information

DCU – 110 ☐

Mounting Option	
4	3 NPT
8	3 in. 150 lb. flange

For information on ultrasonic sensing accessories, see www.apgsensors.com