



Echotel® Model 335 Non-Contact Ultrasonic Transmitter for Level, Volume, or Open Channel Flow

DESCRIPTION

Echotel® Model 335 is a high performance, non-contact ultrasonic transmitter for liquid level, volume, and open channel flow measurement. The extremely powerful and flexible software incorporated in the Echotel 335 results in virtually unsurpassed measurement performance. Advanced digital signal processing enables the 335 to perform in applications involving in-tank obstructions, light foam and agitation.

The custom graphics LCD display module facilitates complete setup and configuration, and displays level, volume, flow and temperature, as well as diagnostic information. LEDs reflect the strength of the echo. A bar graph displays echo strength from the return signal, or tank level as a percentage of span.

FEATURES

- Custom graphics LCD display module with operational status icons.
- Advanced digital signal processing assures reliable measurement in difficult applications
- Dual function bar graph displays echo signal strength or tank level
- 50 kHz transducer with 26 ft (8 meter) range
- Narrow, 7-degree beam angle for excellent focus
- 4–20 mA output and SPDT relay for level control, alarm, diagnostics or remote flow totalization
- Fixed target suppression to eliminate interference from in-tank obstructions
- Common tank shapes and 32-point linearization table for volume calculations
- Extensive support of flume and weir calculations for open channel flow
- Two totalizers for flow, one resettable, and one non-resettable
- Temperature compensation over full range of transducer



APPLICATIONS

- Sump, well, tank and open channel measurement
- Water and wastewater treatment facilities
- General industrial applications
- Chemical storage tanks
- Vessels with highly viscous media
- Paint, ink and solvent tanks
- Food and beverage vessels
- Batch and day tanks

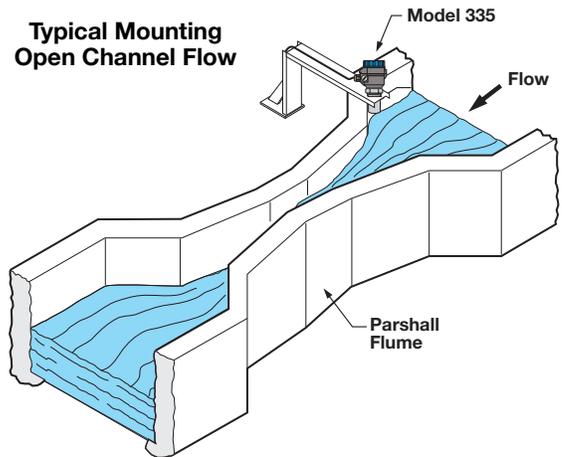
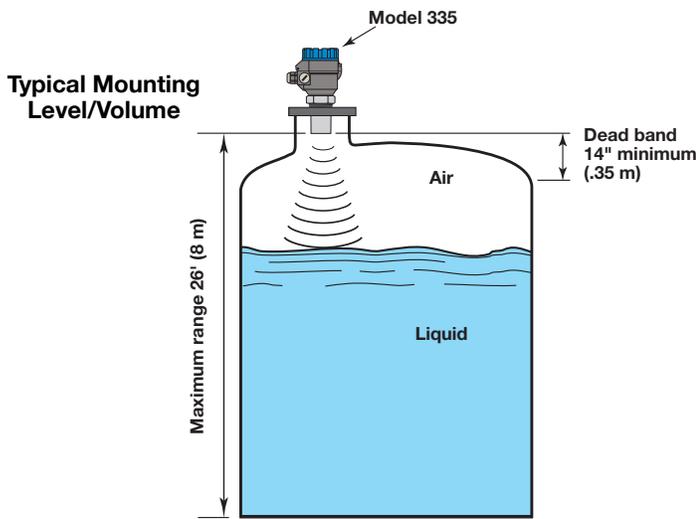
TECHNOLOGY

Non-contact ultrasonic level technology is a proven method for accurate liquid level measurement. This technology features the ability to measure the level or volume of the fluid without making physical contact with the material. This is especially important in applications containing corrosive materials, suspended solids or coating media.

The level measurement is made by emitting an ultrasonic pulse from the transducer and measuring the time required for the echo to reflect from the liquid surface and return to the transducer. The powerful electronics measure the time of the round trip pulse and, by

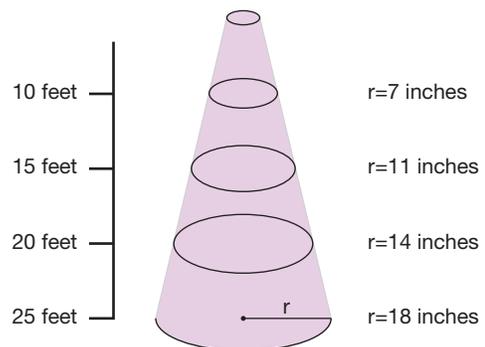
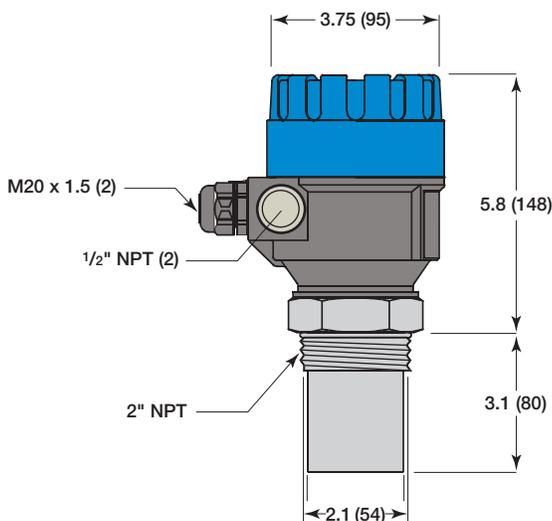
knowing the speed of sound, calculates the distance. Since speed of sound is temperature dependent, the transducer also measures the temperature in the vessel to provide compensation for changing temperature.

By inputting the type and geometry of the vessel, the intelligent electronics can calculate the liquid volume in the vessel. In a similar operation, the Model 335 can perform open channel flow measurement by converting the level reading into units of volume per time. Common tank shapes, flumes, and weirs are stored in the 335 software. A 32-point linearization table is also available for unusual tanks or primary flow elements.



DIMENSIONAL INFORMATION

INCHES (MM)



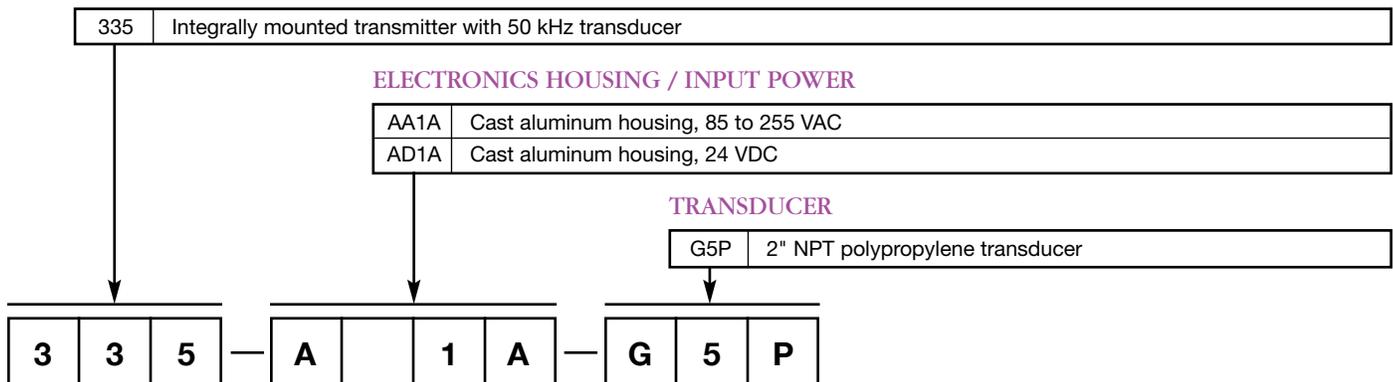
7-Degree Beam Radius vs. Distance

SPECIFICATIONS

Transmitter	
Supply voltage	85 to 255 VAC (2 VA) for 335-AA1A-G5P 20 to 28 VDC (3 W) for 335-AD1A-G5P
Output signal	4–20 mA isolated, 600 Ω load
Fault detection	Configurable 3-amp SPDT relay, and 3.6 or 22 mA (NAMUR NE 43)
Relays	One 3-amp SPDT, 250 VAC, and one 1-amp SPDT, 30 VDC
Failsafe	Software selectable
User Interface:	
Keypad	4-button menu-driven data entry
Display	Removable 6 digit LCD module with dual function bar graph
LED status indication	Echo strength
Ambient temperature	-22 to +160 °F (-30 to +70 °C)
Enclosure	Cast aluminum (IP 67)
Cable entry	Two – ½" NPT and two M20 x 1.5 entries
Transducer	
Maximum range	26 feet (8 meters)
Dead zone	14 inches (350 mm)
Frequency	50 kHz
Process connection	2 inch NPT (flanges optionally available)
Process temperature	-22 to +195 °F (-30 to +90 °C)
Process pressure	Atmospheric to 44 psi (3 bar)
Ultrasonic beam angle	7 degrees conical
Temperature compensation	Automatic over the operating temperature range of the transducer
Material	Polypropylene (IP 68)
Performance	
Accuracy	± 0.2% of the measured distance, plus 0.05% of the range
Resolution	1 mm for up to 6.5 feet (2 meters), 2 mm for 6.5 to 16.4 feet (2 to 5 meters) 5 mm for 16.4 to 26 feet (5 to 8 meters)

MODEL NUMBER

BASIC MODEL NUMBER



QUALITY



The quality assurance system in place at Magnetrol guarantees the highest level of quality throughout the company. Magnetrol is committed to providing full customer satisfaction both in quality products and quality service.

The Magnetrol quality assurance system is registered to ISO 9001 affirming its commitment to known international quality standards providing the strongest assurance of product/service quality available.

WARRANTY



All Magnetrol electronic level and flow controls are warranted free of defects in materials or workmanship for eighteen months from the date of original factory shipment.

If returned within the warranty period; and, upon factory inspection of the control, the cause of the claim is determined to be covered under the warranty; then, Magnetrol will repair or

replace the control at no cost to the purchaser (or owner) other than transportation.

Magnetrol shall not be liable for misapplication, labor claims, direct or consequential damage or expense arising from the installation or use of equipment. There are no other warranties expressed or implied, except special written warranties covering some Magnetrol products.



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