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# ULTRASONIC

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# LEVEL TRANSDUCER

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## ULTRIX 200

### FEATURES

- Loop powered, two-wire 4-20 mA output
- Choice of ranges up to:  
9, 16, 20, 30, 50, 60 or 100 feet
- HART™ Communications (Standard)
- Chemically resistant PVC construction
- One-button setup
- Self-cleaning face
- Integral junction box

### APPLICATIONS

- Liquid and solid level sensing
- Open and closed tanks
- Filter beds
- Wet wells/lift stations
- Bulk storage tanks

Contegra's ULTRIX™ 200 is a two-wire ultrasonic level transmitter that provides non-contact measurement suitable for a wide range of media such as liquids, pastes, slurries, and solids. The ULTRIX 200 transmits short ultrasonic pulses toward the sensed media. The time taken for the echoes to return to the sensor is calculated and converted into a 4-20 mA DC output which is proportional to the measured distance. The ULTRIX 200 sensors are self-contained, easy to install, accurate, reliable, maintenance free and field configurable.

Thousands of these sensors have been applied in a broad range of applications. An optional Teflon® nose section is available for a higher level of chemical resistance. The ULTRIX 200 uses a simple two step, push button calibration. The calibration data is held in non-volatile memory.

*The Ultrix 200 can be flange mounted atop a closed tank or secured to a bracket. Additionally, Contegra offers accessories which permit suspension mounting.*

*These two-wire, 4-20 mA transmitters operate up to 50 feet! NEMA 4X construction, cable suspension mounting,*

Contegra Inc.

**Contegra**™

# ULTRIX 200

|                           | 9                           | 16                           | 20                           | 30                           | 50                            | 60                             | 100                             |
|---------------------------|-----------------------------|------------------------------|------------------------------|------------------------------|-------------------------------|--------------------------------|---------------------------------|
| <b>Range</b><br>(liquid): | 0.4 — 9 ft /<br>0.12 — 2.7m | 0.6 — 16 ft /<br>0.18 — 4.9m | 0.7 — 20 ft /<br>0.21 — 6.1m | 0.8 — 30 ft /<br>0.24 — 9.1m | 0.9 — 50 ft /<br>0.27 — 15.2m | 1.0 — 60 ft /<br>0.30 - 18.2 m | 1.4 — 100 ft /<br>0.40 - 30.0 m |
| <b>Resolution</b>         | 0.04"-0.98 mm               | 0.07"-1.8mm                  | 0.088"-2.2mm                 | 0.13"-3.4mm                  | 0.23"-5.7mm                   | 0.27" - 6.8mm                  | 0.41" - 10mm                    |
| <b>Frequency</b>          | 148 KHz                     | 81 KHz                       | 80 KHz                       | 70 KHz                       | 52 KHz                        | 45 KHz                         | 25 KHz                          |
| <b>Threading</b>          | 1.0" NPT                    | 1.5" NPT                     | 2.0" NPT                     | 2.0" NPT                     | 2.0" NPT                      | 3.0" NPT                       | 6.0" NPT                        |
| <b>Dim A / B</b>          | 1.1" / 2"                   | 1.5" / 2.1"                  | 1.8" / 2.25"                 | 1.8" / 2.25"                 | 2.2" / 3.01"                  | 3.0" / 3.0"                    | 6.0" / 1.5"                     |

## Specifications:

### Accuracy:

- +/- 0.1% of Max Span (lab)
- +/- 0.25 of Max Span (typ)

### Beam Angle: 10-12 deg

### Temperature Comp:

In Transducer

### Calibration: Push Button

### Power: 12-28 VDC

(25mADC max @ 24VDC)

### Output: 4-20 mADC

Loop Powered  
6uA resolution

### Material:

Enclosure: PVC-94V0

Sensor: PVC,

Teflon optional

### Rating: NEMA 4X / IP65

### Environmental: -40 to 140 F

### Approvals: Intrinsic Safety pending

### Electrical: 1/2" NPT Hole

Note: a) PVC conduit only. Metal conduit not recommended.

b) Plastic waterproof sealing gland must seal at housing and around customer supplied cable.

### Maximum loop resistance:

$$R_{(load)} = (V_{[Supply]} - 11V) / 23 \text{ mA}$$

## Engineering Specifications:

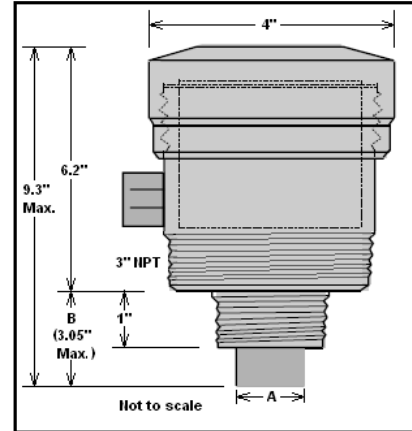
An ultrasonic level transmitter shall be provided to sense the liquid level of the \_\_\_\_\_ at the location as shown on the plan drawings and in accordance with the manufacturer's recommendations. The transmitter shall be a 4-20 mADC, 2-wire, 12-28 VDC loop powered type with its output signal directly proportional to the measured level excursion. The transmitter shall be self-contained with a NEMA 4X/IP65 housing. The transmitter shall be capable of being suspended by its signal cable. To ensure chemical compatibility, its nose section shall be made of PVC. The upper body shall be of PVC. The transmitter shall be a CONTEGRA ULTRIX™ 200.

### Installation Notes:

Use PVC conduits when connecting to the transmitter.

The minimum distance to the tank wall is about 0.1 \* height. For example, when measuring a 30' tank the transducer should be mounted at least 3 feet from the side of the tank.

In applications where vibration is present the transducer must be isolated by a rubber boot.



## Calibration:

**Normal Operating Mode:** The Calibration LED = blinking Gn

### Calibrate 20 mA Output:

Point transducer at reflective surface. Hold perpendicular to the surface and at the distance commensurate with the 20 mA output. Push and hold the calibration button until the LED turns YELLOW. Then release the button and observe that the LED flashes to confirm calibration.

### Calibrate 4 mA Output:

Point transducer at reflective surface. Hold perpendicular to the surface and at the distance commensurate with the 4 mA output. Push and hold the calibration button until the LED turns RED. Then release the button and observe that the LED flashes to confirm calibration.

### Output w/Loss of Echo

- 22 mA - Push the button until the LED blinks twice and turns off.
- 3.5 mA - Push the button until the LED blinks once and turns off.

| Model      | Range            | Sensor Material | Accessories |
|------------|------------------|-----------------|-------------|
| Ultrix 200 | 9 0.4 - 9 ft     | PVC = PVC       |             |
| -          | 16 0.6 - 16 ft   | TN = Teflon     |             |
|            | 20 0.7 - 20 ft   |                 |             |
|            | 30 0.8 - 30 ft   |                 |             |
|            | 50 0.9 - 50 ft   |                 |             |
|            | 60 1.0 - 60 ft   |                 |             |
|            | 100 1.4 - 100 ft |                 |             |

**Example:** Ultrix 200-16-PVC = Ultrix 200 w/16' Max Range, PVC sensor

Contegra Inc.

14033 Commerce Ave NE

Suite 300-405

Prior Lake, MN 55372

PHONE:

651-905-0900

FAX:

651-454-4665

INTERNET:

www.Contegra.com



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