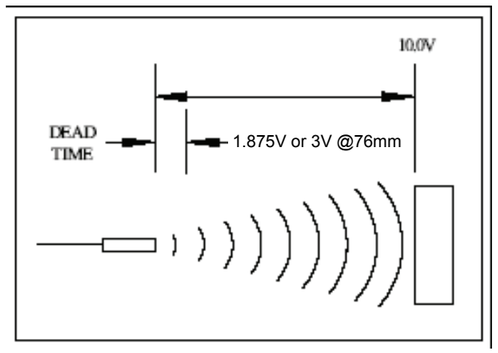
WT-H-412A (High Accuracy)

Features

- Input Voltage 20-30 VDC
- Analog Voltage Output
- Short Circuit Protected
- Wide Temperature Range
- Temperature Compensation
- Self Contained Sensor
- Quick Disconnect Connector
- Stainless Steel Housing

The WT-H-412A is a high accuracy analog ultrasonic sensor (0.05mm or 0.05% of range, which ever is greater, at 25℃). The sensor has a built in temperature compensation target, thatmonitors and compensates for air temperature 50 times per second. The sensor also compensates for changes in relative humidity, changes in barometric pressure, and other factors that influence the speed of sound.

The WT-H-412A has a 47mm stainless steel barrel housing. The stainless steel housing is electrically isolated from the sensor electronics. The sensor comes with two jam nuts for mounting. The WT-H-412A has a 0-10V analog output. The analog output is fixed. The WT-H-412A-16 is 0.025V per mm. The WT-H-412A-10 is 0.04Vper mm. For example using the 75 - 400mm range



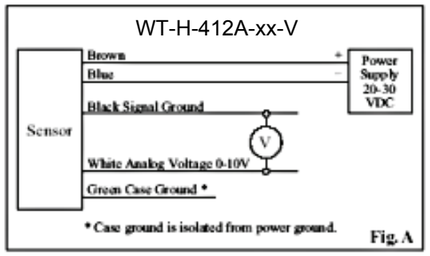
version, a target placed 75mm from the sensor face will result in a sensor output of 1.875V. A target placed 400mm from the sensor face will result in a sensor output of 10.0V. The WT-H-412A is designed to take advantage of today's PLC and computer analog input cards. The analog input card will determine the resolution of the system. The numerical values programmed into the PLC or computer will determine the zero and span.

SPECIFICATIONS

Model:	Range:	Volts per mm:
WT-H-412A-250-V	75 - 250mm	0.025V
WT-H-412A-400-V	75 - 400mm	0.04V

Accuracy: 0.05mm, or 0.05% of range (which ever is greater) @ 25℃ 0.2% of range from 0 to 50℃
Power Input: 20 to 30VDC Reverse Polarity Protected
Input Current: 65mA Typical
Operating Temperature: 0 to 50℃
Output: Analog Voltage Output
Short Circuit Protected
Output Referenced to Power GND or Signal GND
Load 500 Ohms to Infinity
Frequency: 60kHz

Housing Material: Stainless Steel with PVC Head
Sample Rate: 20ms Typical
Update Time: 2s Maximum
Weight: 624 g (shipping weight 1361 g)



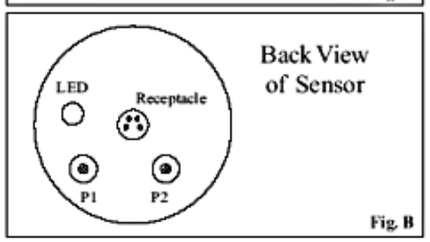
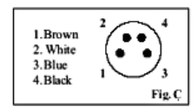
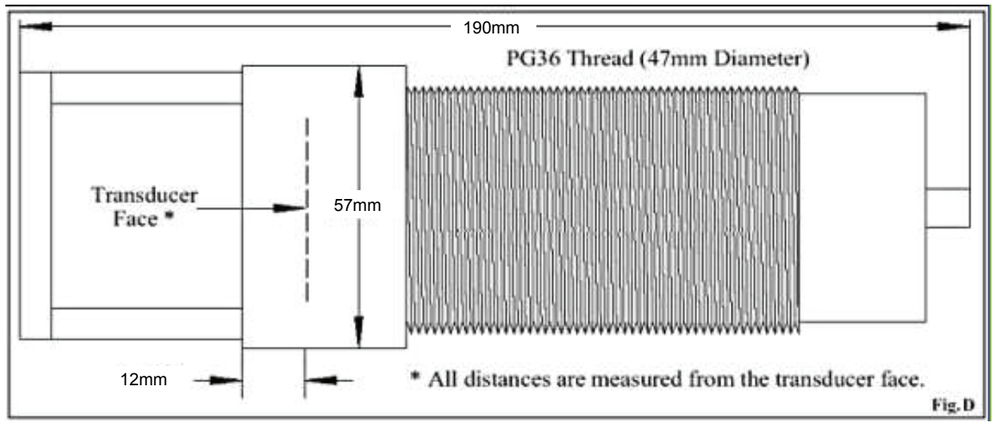


Figure:
A- Wiring Diagram
B- Back View of Sensor
C- Connector Diagram



D- Housing Diagram



PART NUMBER	RANGE OUTPUT	DESCRIPTION
WT-H-412A-250-V WT-H-412A-400-V	75 to 250mm 75 to 400mm	0 - 10VDC Analog Output 0 - 10VDC Analog Output
F32-5070042 F32-5070053 F32-5070094		1828mm Snap-In Cable, Straight (sold separately) 1828mm Locking Cable, Straight (sold separately) 1828mm Locking Cable, Right-Angle (sold separately)

SENSOR SETUP

Air Temperature:

The air temperature between the sensor and target must be constant. Any variations in air temperature will compromise the accuracy. The sensor can compensate for changes in air temperature provided the air temperature is constant between the sensor and target. If the air temperature varies between the sensor and target (For example if the air temperature is 20℃ from the sensor face to half way to the target, and the air temperature is 25℃ for the remainder of the distance) the sensor cannot compensate for the temperature variation.

Sensor Alignment:

The sensor must be aligned to obtain the best accuracy. To align the sensor place the target you will be measuring at the farthest distance it will be from the sensor. Monitor the color of the LED on the sensor (green is no signal, light red is a weak signal, and bright red is a strong signal) align the sensor, so the LED is the brightest red color you can get. This will be the optimum alignment of the sensor.

Calibration:

The sensor comes pre calibrated from the factory. The sensor may be recalibrated in the field. Follow the steps below to recalibrate.

1. Sensor alignment must be done before calibration.
2. P1 must be adjusted first.
3. Place the target at the near distance (closest distance target will get to sensor). Measure the distance from the target to the transducer face (DO NOT TOUCH THE FACE OF THE TRANSDUCER).
4. Calculate the voltage for the near distance. Multiply the distance by the volts per inch. Adjust P1 for the calculated voltage.
5. Place the target at the far distance (farthest distance target will be from sensor). Measure the distance from the target to the transducer face.
6. Calculate the voltage for the far distance. Multiply the distance by the volts per inch. Adjust P2 for the calculated voltage.
7. Repeat the adjustment of P1 and P2 to check for accuracy.