



U3M-148 Ultra-sonic Level Sensor, Mini, PVC, 1" NPT, 12-30 Vdc, 4-20mA Output, 6' ft Sensor Range, Push Button Programmable

The **U3M-148** is Madison Company's best selling general purpose ultrasonic continuous level sensor. Its compact design just above the tank or drum surface and is ideal for vented tanks with up to 6 feet of depth. The U3M series is a good solution for dirty, sticky, and scaling liquid media where non-contact sensing is preferred. The U3M series easily mates to Madison panel meters, which include a 24V supply for the sensor, or other industrial meters or PLCs, to provide continuous liquid level readings in tanks through open air.

As with all of our standard Ultrasonic models, the U3M has a PVC housing and sensor head. The U3M's microprocessor-based circuits provide a temperature compensated signal for improved accuracy with the ability to filter false echoes produced by peripheral obstructions. On-board push button programming allow for calibration of the 4-20mA output without the need for software and computers.

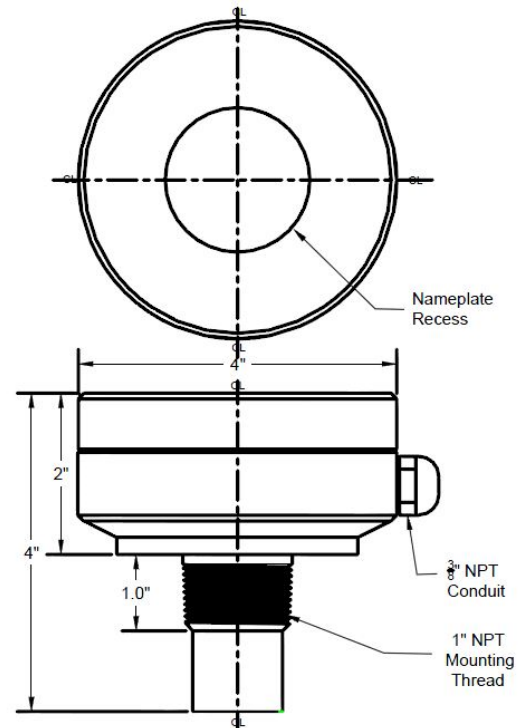
Other available models include - Ranges to 30', RS485 communications - allowing for networking, and Form C relay output - for alarms or on/off system control.

Product Information:

Mounting:	1" NPT Threads
Sensing Range:	4" to 72" in.
Accuracy:	0.25% max of full range (~ 0.3")
Supply Voltage:	12-30 Vdc
Output:	4-20 or 20-4 mA Push-button programmable
Beam Angle:	12° degree
Response Time:	2-3 echoes / sec. (Standard Configuration)
Loss of Echo:	Default = 1 min. for 21mA or 3.8mA output (Programmable from 1 min. to 4 min.)
Temp. Comp.:	Included in transducer

Features:

- Ultrasonic pulse technology
 - Self-cleaning sensor face
- Push-button Calibration or optional communication
 - Field or Bench Programmable
- Temperature compensation
- PVC, Sanitary SS316L or TEFLON materials available



Applications:

- Food and beverage
- Water and wastewater
- Chemicals and oils
- Various liquids, slurries and solids

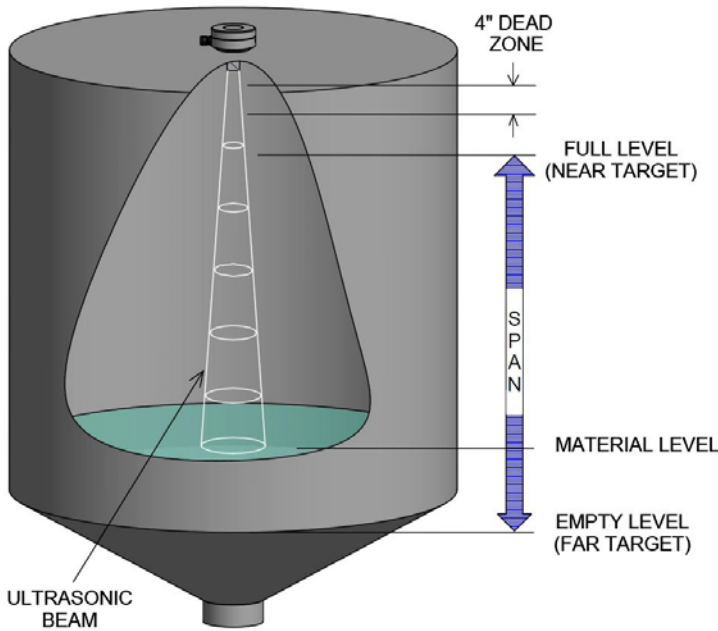
Madison Company

Tel: (203)-488-4477

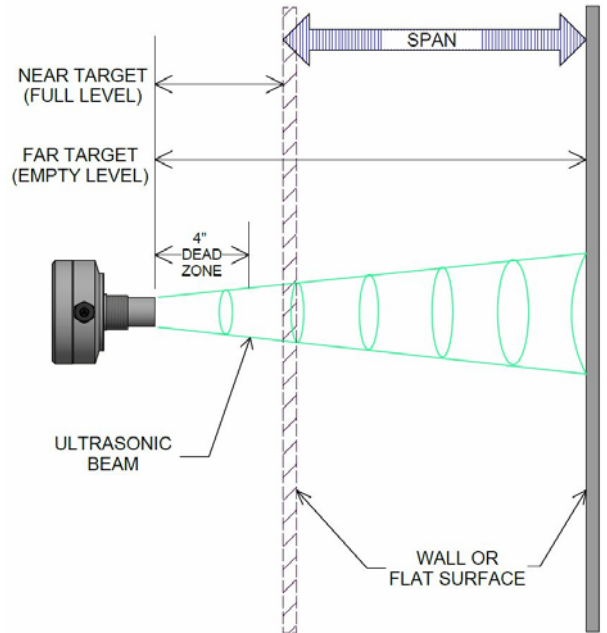
www.madisonco.com

<mailto:info@madisonco.com>

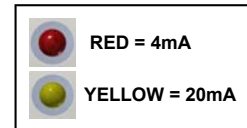
Application Calibration



Benchtop Calibration



- To calibrate your sensor prior to tank installation, simply point your sensor at a floor, wall or flat surface the appropriate distances to calibrate the Near and Far targets. (see Calibration below)
- If the Full Level (Near Target) is set to 20mA, then the Empty Level (Far Target) must be set to 4mA. If the Full Level (Near Target) is set to 4mA, then the Empty Level (Far Target) must be set to 20mA.
- Most common problem is setting 20mA & 4mA at the same target distance.



CALIBRATION for 20-4mA

FULL 20mA (Near Target)

1. Pointed within range, the Status LED will be Green. Aim the sensor & Set the appropriate distance for the Near target.
2. Push and Hold the calibration button until LED turns Yellow for 20mA. Release button. When properly set, the LED will flash and return to Green to acknowledge the calibration distance has been set.

EMPTY 4mA (Far Target)

3. With the Status LED green, Aim the sensor & Set the appropriate distance for the Far target.
4. Push and Hold the calibration button until LED turns Red for 4mA. Release button. When properly set, the LED will flash and return to Green to acknowledge the calibration distance has been set.

OR

CALIBRATION for 4-20mA

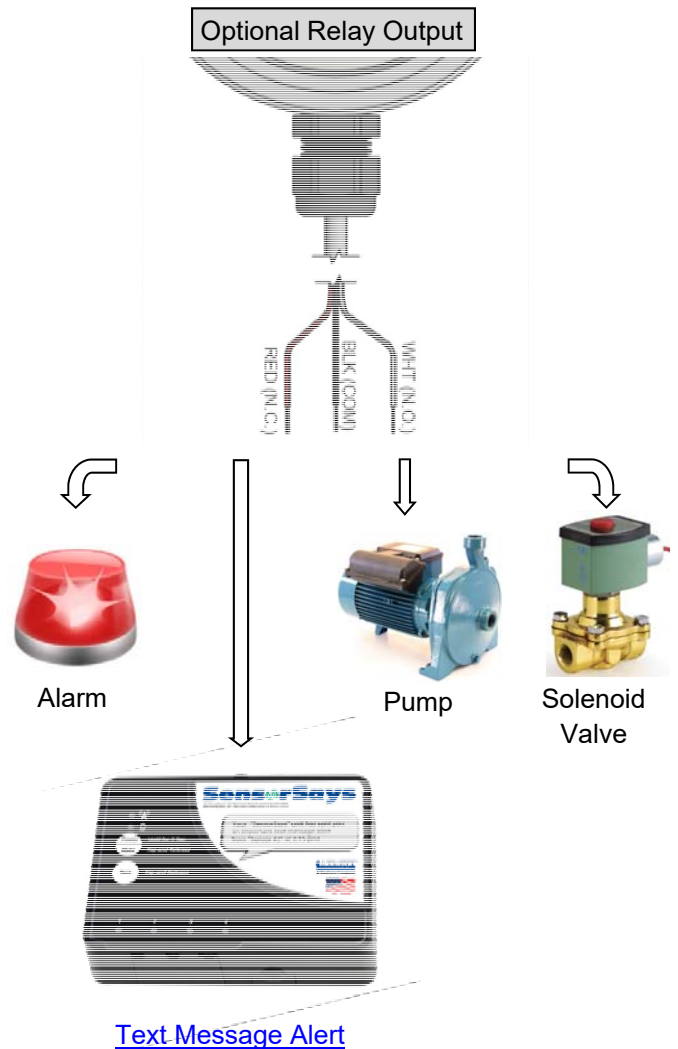
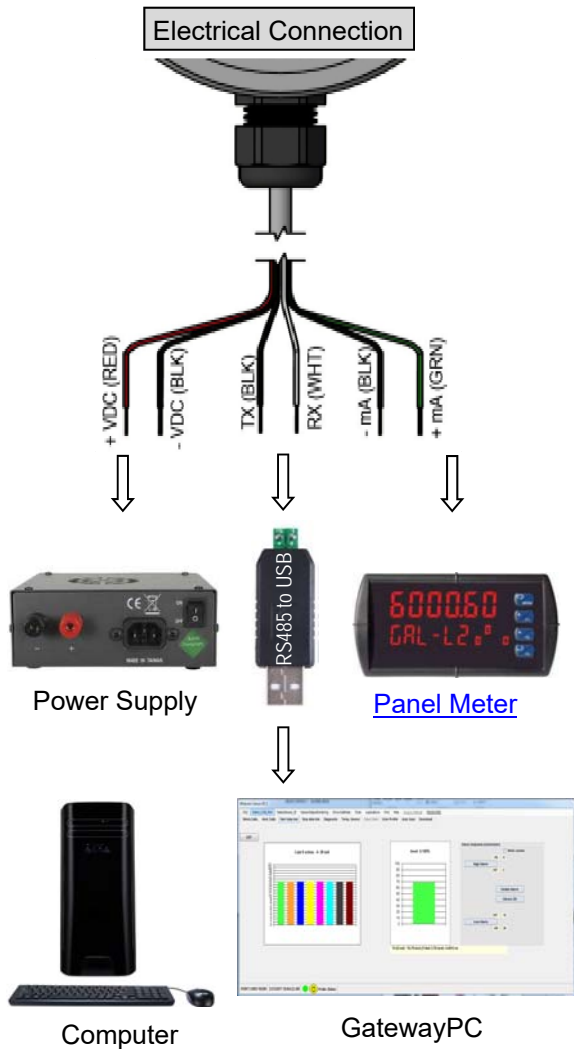
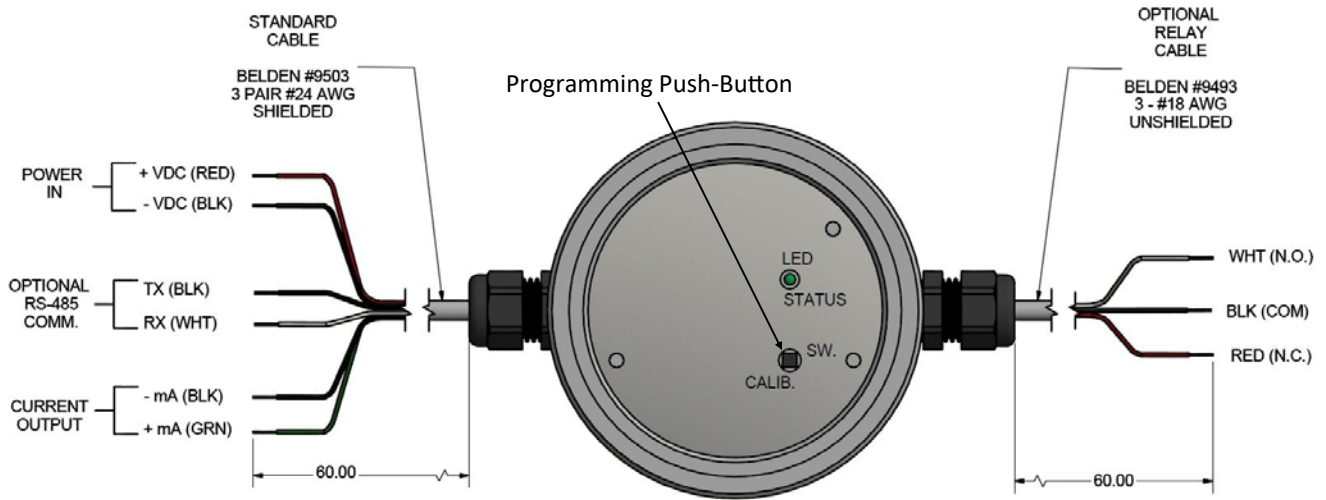
FULL 4mA (Near Target)

1. Pointed within range, the Status LED will be Green. Aim the sensor & Set the appropriate distance for the Near target.
2. Push and Hold the calibration button until LED turns Red for 4mA. Release button. When properly set, the LED will flash and return to Green to acknowledge the calibration distance has been set.

EMPTY 20mA (Far Target)

3. With the Status LED green, Aim the sensor & Set the appropriate distance for the Far target.
4. Push and Hold the calibration button until LED turns Yellow for 20mA. Release button. When properly set, the LED will flash and return to Green to acknowledge the calibration distance has been set.

Wiring Configurations



Standard Models and Specifications				
Model	U3M-148	U3M-81	U3M-80	U3M-70
Beam Angle	12°	12°	12°	12°
Range	0.33 - 6 ft.	0.6 - 16 ft.	0.8 - 20 ft.	0.8 - 30 ft.
Resolution	0.03"	0.07"	0.03"	0.03"
Temperature Range	- 40 to 140°F	- 40 to 140°F	- 40 to 140°F	- 40 to 140°F
Pressure	5 Bar	5 Bar	5 Bar	5 Bar
Ingress Protection	NEMA 6 (IP68)	NEMA 6 (IP68)	NEMA 6 (IP68)	NEMA 6 (IP68)
Input Power	12 - 30 VDC	12 - 30 VDC	12 - 30 VDC	12 - 30 VDC
Output	4 - 20 mA	4 - 20 mA	4 - 20 mA	4 - 20 mA
Cable	5' - 24AWG	5' - 24AWG	5' - 24AWG	5' - 24AWG
Mounting	1.0" NPT	1.5" NPT	2.0" NPT	2.0" NPT
Options				
-S15 (Sanitary)	1.5" Cap	1.5" Cap	N/A	N/A
-S20 (Sanitary)	2" Cap	2" Cap	2" Cap	2" Cap
-HTP (High Temp & Pressure Nozzle)	-40 to 266°F	-40 to 266°F	-40 to 266°F	-40 to 266°F
-485 (Communication)	RS-485	RS-485	RS-485	RS-485
-R (Relay) ¹	SPDT 8A@230VAC	SPDT 8A@230VAC	SPDT 8A@230VAC	SPDT 8A@230VAC

1. Includes 5' - 18AWG Cable.

3/4" NPT Adapter



Sanitary Cap



Teflon



- For U3M-148 Models only
- Mounts into standard 55 Gallon Drums