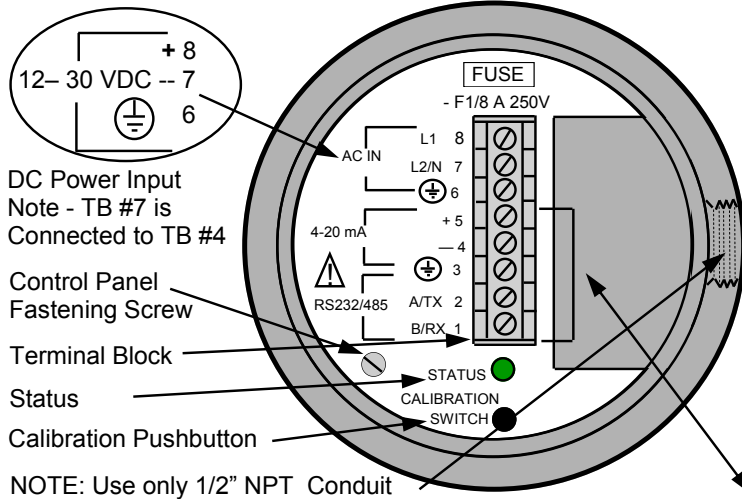


Inter-Connection Diagram Top View of Sensor (Access Cover Removed)



DC Power Input
Note - TB #7 is Connected to TB #4

Control Panel
Fastening Screw

Terminal Block

Status

Calibration Pushbutton

NOTE: Use only 1/2" NPT Conduit

FCC INFORMATION TO RADAR USERS

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

WARNING: Changes or Modifications not expressly Approved by Madison Company, could void the user's authority to operate the equipment.

Wiring Information:

- Ground shield at one end only.
- All terminal block wiring must be rated for 250V.
- Power input wiring must be protected by a 15A double pole circuit breaker .
- Terminal is for use only with equipment which has no live parts which are accessible .
- Terminal is for use with equipment which maintains basic insulation from hazardous voltage under normal and single fault conditions .
- Connection used at the remote end of external circuit .

Recommended Wiring:

For AC Sensor:

Power: 3 Wire unshielded 22 AWG, 300 V

Current Output: 1 Pair shielded 24 AWG, 300 V

Communication: 1 Pair shielded 24 AWG, 300 V

For DC Sensor:

Power & Current output : 3 Wire shielded 24 AWG, 300 V

Communication: 1 Pair shielded 24 AWG, 300 V

Calibration: 4 - 20 or 20 - 4 mA Output :

FULL: Calibrate 20 mA or 4mA (Set Near Target)

- 1) Calibration mode LED color is Green.
- (for Radar Low Dielectric Materials has to be off)
- 2) Push button and hold until LED turns Yellow (20 mA) or push button and hold until LED turns Red (4 mA)
- 3) Release button, observe LED flashes to acknowledge the calibration.

EMPTY: Calibrate 4 mA or 20 mA (Set Far Target)

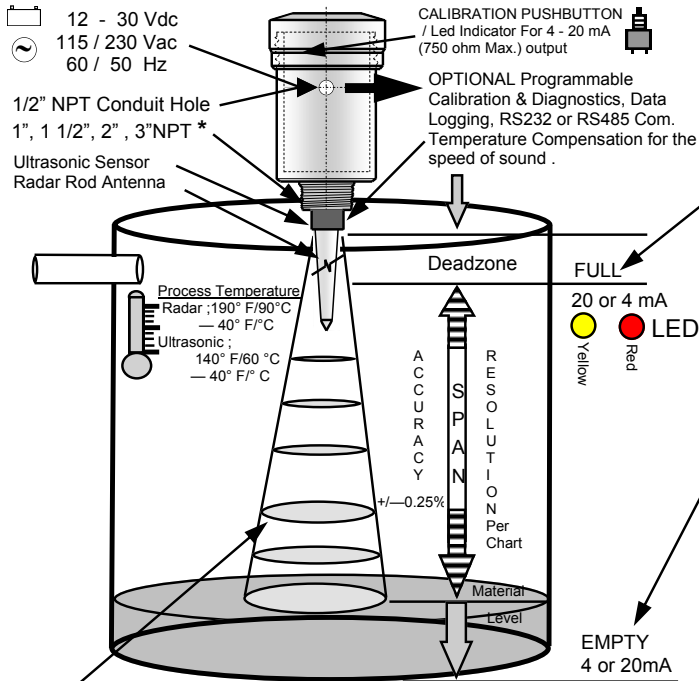
- 1) Calibration mode LED color is Green
- (for Radar Low Dielectric Materials has to be off)
- 2) Push button and hold until LED turns Red (4 mA) or push button and hold until LED turns Yellow (20 mA)
- 3) Release button, observe LED flashes to acknowledge the calibration.

For Radar to turn the Low Dielectric Materials operation mode ON and OFF: (this mode is recommended for materials with dielectric constant lower than 4, and also to eliminate multiple reflections in the tank.)

- 1) To turn the Low Dielectric Materials ON. Push button and hold until LED goes OFF after the sequence of Yellow, Red and turns Off. The Low Dielectric Material operation is On when the LED'S Green light blinks constantly.
- 2) To turn the Low Dielectric Materials OFF. Push button and hold until LED goes OFF after the sequence of Yellow, Red and Turns OFF. The Low Dielectric Material operation is OFF when LED is continuously Green.
- 3) Use communication program to turn Low Dielectric Materials on and off.

Typical Installation

- 1) Direct mounting ultrasonic sensor: simply thread sensor into metal or plastic nozzle.
- 2) Radar unit MUST be installed into metal fitting with the antenna pointing downward.



Operation - An ultrasonic/electromagnetic pulse is transmitted from the sensor . The pulse travels to the surface being monitored and is reflected off this surface back to the sensor . The time of flight is divided by 2 and converted to an output signal directly proportional to the material level .

Installation and Maintenance

Model R3/R4 Sensors With Communication for a Single Or Network Level Sensors - RS485/232

Fig. # 1 RS232 Connection

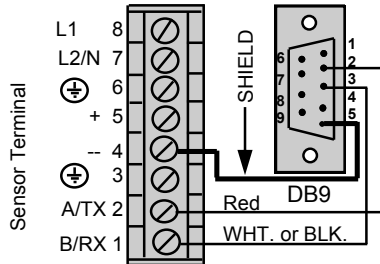
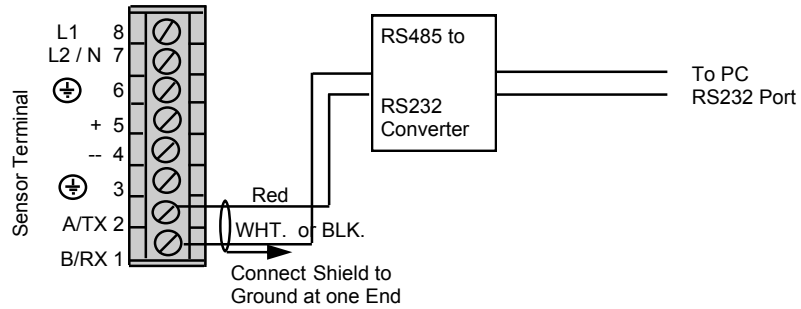
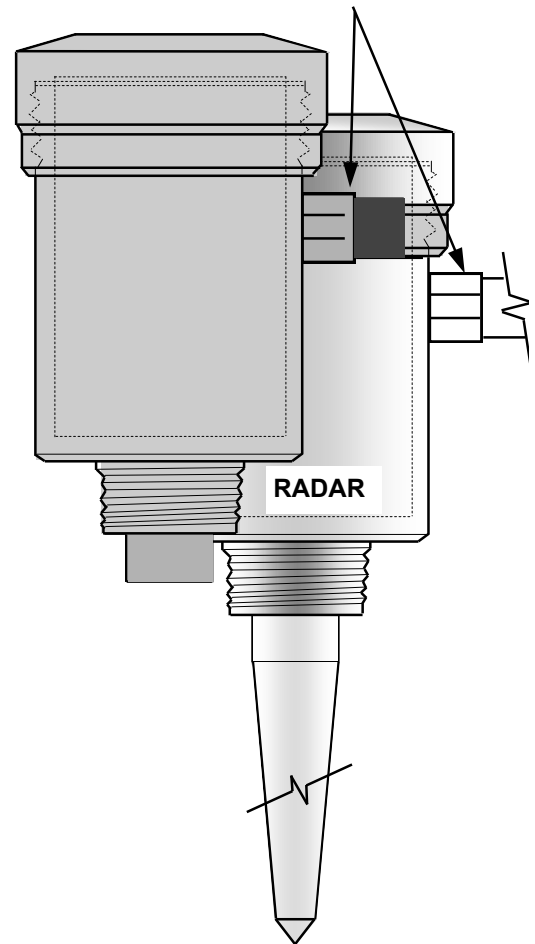
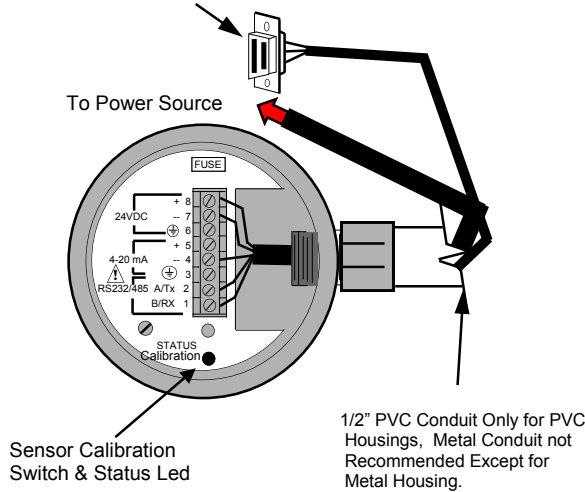


Fig. # 2 RS485 Connection



Connect to Serial Port of PC, use Extension Cable length as required, Refer to Figure # 1 or # 2 for wiring detail



- 1) Download the latest communication software from <https://madisonco.com/sites/default/files/downloads/ProbeGateway/PC71.zip>
- 2) Install software into your PC by double clicking the setup.exe file within the zip file. Follow the onscreen instructions.
- 3) Click on START and under PROGRAMS select "Probe_Gateway PC".
- 4) Follow instructions in the help file.