



## WIRELESS TRANSDUCER



### WIRELESS TRANSDUCER

Includes: **WIRELESS TRANSDUCER TRANSMITTER**  
With Pressure Sensor and 40 feet of Cable

**WIRELESS TRANSDUCER RECEIVER**  
With Antenna and Antenna Cable

### ORDERING INFORMATION

Part Number: **WTT40 WTR420 A B**

Analog Output Calibration:

**05** = 20mA @ 11.5 Ft/H<sub>2</sub>O

**10** = 20mA @ 23.1 Ft/H<sub>2</sub>O

**15** = 20mA @ 34.6 Ft/H<sub>2</sub>O

Communications Option:

**Blank** = Standard Unit — **E** = Ethernet Port



# WIRELESS TRANSDUCER TRANSMITTER

## TYPICAL APPLICATIONS

For use where having a wireless connection between the transducer and the control panel or telemetry panel is required.

## DESCRIPTION

**MADE IN  
THE U.S.A.**

### TRANSMITTER

The Wireless Transducer Transmitter performs the liquid level measurement and sends the data by radio signal to the Receiver. The device consist of two parts, connected by a cable; the Transmitter and the Pressure Sensor. The Transmitter is suspended above the liquid, and the Pressure Sensor is submerged in the liquid near the bottom of the tank.

The Transmitter transmits updated level data and battery condition data once every second. To conserve battery power, most of the circuitry is powered down and asleep between updates. After being asleep for one second, the Transmitter wakes up, powers up the Pressure Sensor, checks the level, checks the condition of the battery, transmits the new data to the Receiver, and then goes back to sleep.

### PRESSURE SENSOR

When submersed in liquid, the Pressure Sensor converts the pressure exerted by the liquid into an analog voltage signal that represents the liquid level. The sensor measures the absolute pressure, so a correction for the barometric pressure must be made. This correction is performed in the Receiver where the local barometric pressure is measured and subtracted from the signal.

A stainless steel diaphragm and silicone oil fill is provided to isolate and protect the pressure sensor from the liquid being measured.

The weight of the Pressure Sensor acts to reduce its movement when placed in a moving liquid. A Strength Cord in the cable provides ample support for its weight. A Kellems Grip is provided to secure the Pressure Sensor Cable to a float hanger.

The Pressure Sensor and the Transmitter come connected together tested and calibrated as a unit. It is calibrated to read levels between 0.0 feet and 34.6 feet and provide a 16 bit number to the Receiver that represents the measured level.



## TRANSMITTER SPECIFICATIONS

Enclosure Material:	PVC
Operating Temp:	-20 to +65 °C
Radio Frequency:	2.4 GHz
Battery:	Lithium, 3.6V, Size "D"
A/D Converter Resolution:	16 bit

## PRESSURE SENSOR

Enclosure Material:	316 Stainless Steel
Cable Jacket Material:	Polyurethane
Operating Temp:	0 to +60 °C
Accuracy:	± 1.0 % full scale

**Transmitter Subassembly: WTT40**

Includes: 40 feet of Cable with Kellems Grip



## WIRELESS TRANSDUCER RECEIVER

### TYPICAL APPLICATIONS

For use where having a wireless connection between the transducer and the control panel or telemetry panel is required.

### DESCRIPTION

The Wireless Transducer Receiver reads the liquid level information in the radio signal from the nearby Wireless Transducer Transmitter and provides an analog 4-20mA output and SCADA register data that represents the liquid level being monitored.

The Wireless Transducer Transmitter is suspended above the liquid in the nearby tank and is connected by cable to the Pressure Sensor submerged near the bottom of the tank. The Transmitter obtains the liquid level from the Pressure Sensor and sends the data by radio signal to the Receiver.

The Transmitter and Receiver are capable of reliable communication even with the Transmitter under a concrete slab inside a lift station wet well. The Receiver with its Antenna must however, be mounted nearby. For applications where the Transmitter and Receiver Antenna have line of site, reliable communication can be maintained at distances up to 125 feet.

The Pressure Sensor measures the Absolute Pressure, so in order to accurately determine the liquid level, the WTR420 measures the barometric pressure and makes the necessary correction.

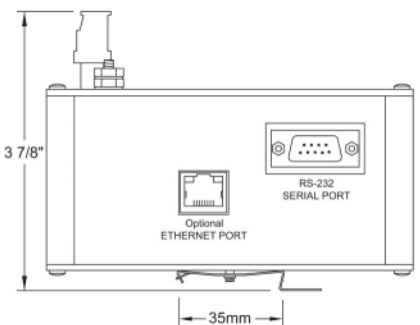
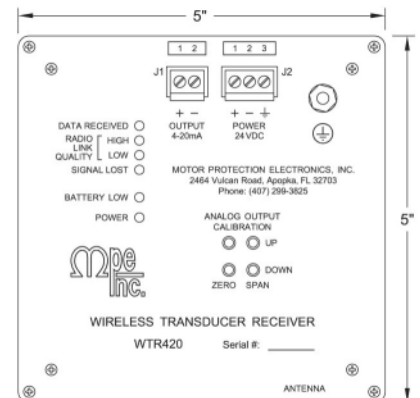
The WTR420 provides three levels of Radio Link Quality indication. HIGH, which indicates good communication. LOW, which indicates less than ideal communication. LOST, which indicates no communication with the Transmitter.

The BATTERY LOW indication on the WTR420 is provided to indicate the condition of the battery in the Transmitter. The indicator blinks when the battery has low voltage and must be replaced.

The 4-20mA Analog Output may be calibration in the field using the Zero and Span push-buttons on the front of the unit. The Span adjustment range is between 20mA @ 3.0 feet/H<sub>2</sub>O and 20mA @ 34.6 feet/H<sub>2</sub>O.

Connecting the RS-232 serial port (or optional Ethernet Port) to a SCADA system allows the liquid level to be monitored remotely. The WTR420 acts as a Modbus RTU slave.

Additional setup and troubleshooting features are available using the separately supplied Touch Screen Interface Device (TSID).



### SPECIFICATIONS

Input Power:	24 VDC $\pm$ 10% 120 mA max
Analog Output:	Non-Isolated 4-20 mA Maximum Load 600 $\Omega$
Radio Frequency:	2.4 GHz
Operating Temp:	-20 to +65 °C
Storage Temp:	-45 to +85 °C
Enclosure:	Aluminum, Din Rail Mounted

### Receiver Subassembly: WTR420 A B

Analog Output Calibration: \_\_\_\_\_

**05** = 20mA @ 11.5 Ft/H<sub>2</sub>O

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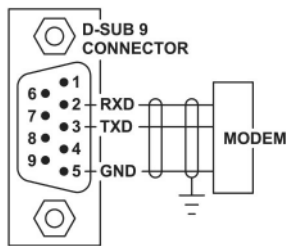
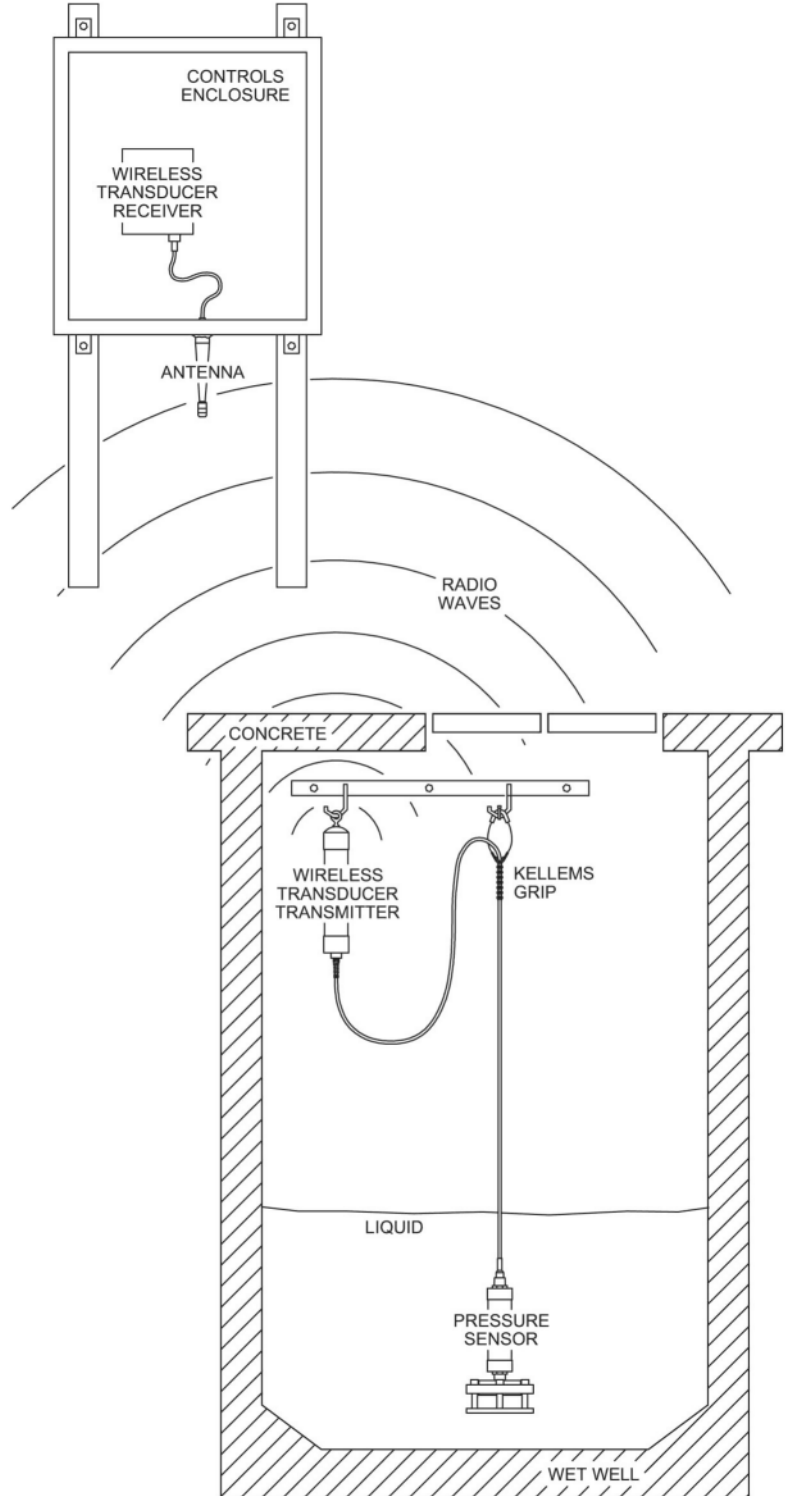
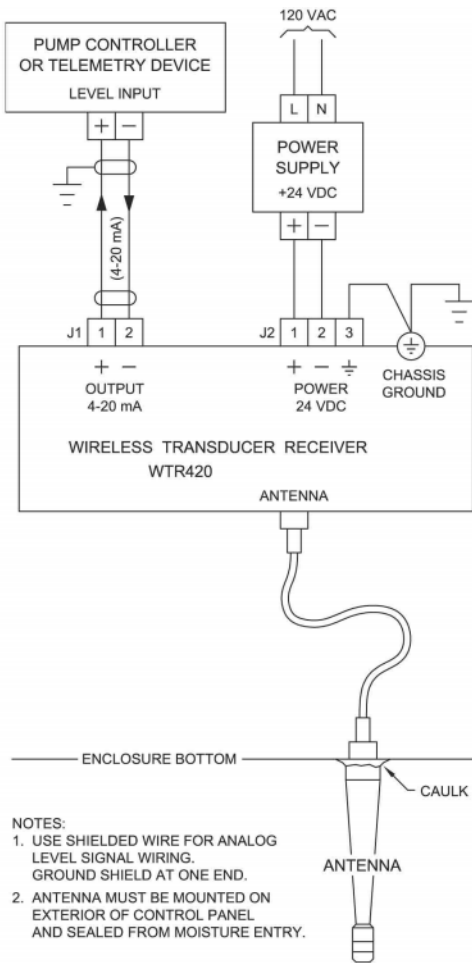
Communications Option:

**Blank** = Standard Unit **E** = Ethernet Port

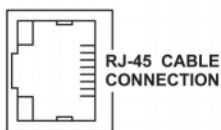
Includes: Antenna and Antenna Cable

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## CONNECTION DIAGRAM



### RS-232 SERIAL PORT



### Optional ETHERNET PORT