The OleumTech® IO MAX® Transmitter provides four analog inputs for supporting 4-20 mA or 0-10 Vdc signals. The IO MAX also provides two discrete inputs and two discrete outputs. The MX1 can be configured to operate as a master device interfacing Modbus, LevelMaster ASCII, or HART devices. Multi-drop up to 16 instruments. The IO MAX is powered using an external 9-24 Vdc source. This not only enables its users to customize their power solution, but also allows for the IO MAX to supply continuous power to connected sensors or slave devices if required.

### Long-Range Multi-Function Transmitter

The field-proven wireless transmitter communicates with an assigned wireless gateway within the OTC Wireless Sensor and I/O Network creating a highly scalable network, accommodating virtually any I/O requirement.

The OleumTech Wireless Transmitter is certified for use in Class I, Division 2 (Zone 2) hazardous locations, and provides a robust RF range.

### Reliable, Scalable, and Safe

The Most Flexible Multi-I/O Wireless Transmitter

<table>
<thead>
<tr>
<th>Highlights</th>
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<tbody>
<tr>
<td>- 4x analog inputs (4-20 mA / 0-10 Vdc)</td>
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<tr>
<td>- 2x discrete inputs</td>
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<tr>
<td>- 2x discrete outputs (1.1 Amp cont. / 1.5 Amp pulse)</td>
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<tr>
<td>- Master: Modbus/HART/LevelMaster</td>
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<td>- Self-contained, rugged design</td>
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<td>- Multi-drop up to 16 slave devices</td>
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<tr>
<td>- Dedicated 10 Vdc output for powering H-Series Resistive Tank Level Sensors</td>
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<tr>
<td>- IP66, -40 °C to 80 °C</td>
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<tr>
<td>- 900 MHz: up to 10 miles (16.1 km)¹</td>
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<tr>
<td>- 2.4 GHz: up to 4.3 miles (7 km)¹</td>
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<tr>
<td>- 868 MHz: up to 5.2 miles (8.4 km)¹</td>
</tr>
<tr>
<td>- Secure AES encryption</td>
</tr>
<tr>
<td>- Class I, Division 2 (Zone 2) certified</td>
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</tbody>
</table>

¹ Depending on physical environment and obstacles.
**Technical Specifications**

**HARDWARE FEATURES**
- Device Functionality: Wireless Transmitter: Multiple Analog Inputs, Digital I/O
- Embedded Controller: Ultra-Low Power RISC Microcontroller with Internal FLASH (Field Upgradable)
- Configuration: Breez® Software for PC
- I/O Interface: 4x Analog Inputs (0-10 Vdc or 4-20 mA), 24-bit ADC, Independently Selectable via DIP Switches
- 2x Analog Outputs (Up to 24 Vdc, For Dry Contact or Open-Drain Output/NPN Devices), 20 ms - 2 s Filter
- 2x Analog Outputs (Open-drain / NPN / 1 Amp Sink Current)
- Accuracy: ±0.2 % Accuracy for 4-20 mA Input
- Modbus RTU: Master Function, Read and Write, Multi-drop up to 16 Slave Devices
- Modbus ASCII: Master Function, Read Only, Multi-drop up to 16 Slave Devices
- HART: Master Function, Read Only (PV, SV, TV, QV), Multi-drop up to 16 HART Instruments
- Power Source: External 9-24 Vdc
- Sensor Power Up Delay: Adjustable 0 – 60,000 ms (Switchable Power Only), 0 = Continuous (External Power Only)
- Device Diagnostics: Health Tags: Battery Voltage, Received Signal Strength Indication (RSSI), RF Refresh, RF Timeout

**WIRELESS COMMUNICATIONS**
- Type: 900 MHz / 915 MHz
- 2.4 GHz / 868 MHz
  - 2.4 GHz: DSSS (Direct-Sequence), AES Encryption 128-bit
  - 868 MHz: LBT (Listen Before Talk), AFA (Adaptive Frequency Agility), AES Encryption 128-bit
- Bit Rate: 900 MHz: -110 dBm @ 9600 bps, -100 dBm @ 115.2 kbps
- 2.4 GHz: -100 dBm @ 250 kbps; 868 MHz: -101 dBm @ 80 kbps
- Output Power (Max): 900 MHz: 100 mW; 2.4 GHz: 63 mW; 868 MHz: 25mW
- Receiving Sensitivity: 900 MHz: -110 dBm @ 9600 bps, -100 dBm @ 115.2 kbps
- 2.4 GHz: -100 dBm @ 250 kbps; 868 MHz: -101 dBm @ 80 kbps
- RF Range:
  - 900 MHz: Up to 10 Miles / 16.1 km with Clear Line of Sight
  - 2.4 GHz: Up to 4.3 miles (7 km)
  - 868 MHz: Up to 5.2 miles (8.4 km)

**CERTIFICATIONS & COMPLIANCE**
- EMC/EMI: FCC Part 15 (USA), IC ICES-003 (Canada), ACMA (Australia)
- AS/NZS CISPR 32 (Australia), ENS5032 & ENS5024 (EU)
- Safety: Class I, Division 2; ATEX: SIRA 18TEX4010X, Enx a IIC T3 Ga; II 3 G
- IECEx: SR 18.0002X, Ex nA IIC T4 Gc / 9-24 Vdc, 0.64 A

**MECHANICAL SPECIFICATIONS**
- Dimensions (WxHxD): 6.3 x 12.8 x 4.4-inch / 159 mm x 324 mm x 111 mm
- Package Dimensions: 10.38 x 14.38 x 6.5-inch / 26.4 cm x 36.5 cm x 16.5 cm
- Weight: Net: 5.5 lbs / 2.4 kg; Package: 6.5 lbs / 3.5 kg
- Connection Fitting: 3x 3/4-inch NPT Female, Pipe Mountable
- Enclosure Casing Material: Type 4X Aluminum; IP66

**ELECTRICAL SPECIFICATIONS**
- DC Power Input: 9-24 Vdc
- Power Consumption @ 12 V:
  - Average Current: 0.35 mA (Tx Pwr @ 100 mW, Tx Interval @ 60 sec)
  - Average Current: 0.66 mA (Tx Pwr @ 100 mW, Tx Interval @ 30 sec)
  - Average Current: 18.58 mA (Tx Pwr @ 100 mW, Tx Interval @ 1 sec)
- Power Consumption @ 24 V:
  - Average Current: 0.21 mA (Tx Pwr @ 100 mW, Tx Interval @ 60 sec)
  - Average Current: 0.38 mA (Tx Pwr @ 100 mW, Tx Interval @ 30 sec)
  - Average Current: 10.44 mA (Tx Pwr @ 100 mW, Tx Interval @ 1 sec)

**GENERAL SPECIFICATIONS - TRANSMITTER**
- Operating Conditions:
  - Ambient Temperature (Class I, Division 2 / Zone 2): -40 °F to 176 °F (-40 °C to 80 °C)
  - Humidity: 0 to 99 %, Non-Condensing
- Warranty: 2-Year Parts and Labor
- Country of Origin: USA

**ORDERING INFORMATION**
- Model Numbers: WT-0900-MX1, WT-0915-MX1, WT-2400-MX1, WT-0868-MX1
- Wirelessly Connects To: OTC Wireless Gateway
- Configuration Cable: SX1000-CC2, 20-ft All-in-One Configuration Cable

1 The maximum RF range data was collected under optimal test conditions, including a clear line of sight between antennas. Actual wireless RF range may vary depending on location, RF interference, weather, antenna type, cable type, and line of sight.

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**Networking Diagram**

SCADA/CLOUD

PLC/RTU/EFM/IP RADIO

MX1

Analog Inputs Digital I/O

Pressure Temperature Flow, etc.

Arrival Sensors Valve Position ESD

Solenoids

Alarms

RS485/HART Master

Modbus Slaves
LevelMaster ASCII Slaves
HART Instruments

DHI shown with optional omni-directional antenna.