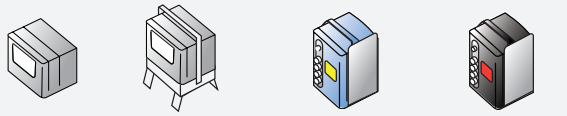
TIENet® Sensor Devices

Teledyne ISCO Environmental Network–TIENet–sensor devices accurately measure flow rate using a variety of technologies, each of which provides a solution to your specific application and site conditions. Each considers whether the specific sensor is best suited to contact or non-contact installation to produce results you can count on with confidence.

TIENet™

Teledyne ISCO Flow Meter Compatibility

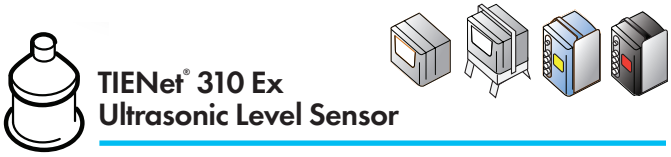


Signature (Hard wired)

Signature Portable (TIENet Plug)

DuraTracker (TIENet Plug)

DuraTracker Ex (TIENet Plug)



TIENet® 310 Ex Ultrasonic Level Sensor

The TIENet 310 Ex sensor is mounted above the flow stream, transmitting sound pulses that are reflected off the liquid's surface.The elapsed time between transmitted and returned signals determines liquid level. Flow rate is then calculated using one of the meter's built-in flow conversions, or a user-defined level-to-flow relationship.

Measurement Range:	0.3 to 3.3 m (1 to 11 ft)
Accuracy at 72 °F (22 °C):	±0.006 m (0.02 ft) at ≤1 ft level change ±0.009 m (0.03 ft) > 1 ft level change
Temperature Coefficient (within compensated range):	±0.0002 x Distance (m) x Temperature Deviation from 22 °C. ±0.00011 x Distance (ft) x Temperature Deviation from 72 °F.
Beam Angle:	10 ° (5 ° from center line)
Frequency:	50 kHz
Size:	9.1 cm x 10.2 cm tall (3.63 in. x 4 in.)
Cable Length:	10 or 23m (32.8 or 75.5 ft)
Weight:	1.8 kg (4 lbs)
Body Material:	PVDF
Temperature Range:	-30 ° to 60 °C (-22 ° to 140 °F) (Operating & storage)
Certifications:	Group 2, Category 1G (zone 0), T4 Class I, Div 1, Groups C & D, T4

TIENet® 330 Bubbler Module

The TIENet 330 bubbler module technology is ideal in flow streams affected by harsh weather, debris or corrosive chemicals. Since the depth of flow is determined by measuring the pressure needed to force bubbles out of the line, the rate of flow is easily determined using one of the meter's built-in flow conversions or a user defined level-to-flow relationship. Certified to MCERTS when paired with a Signature flow meter.

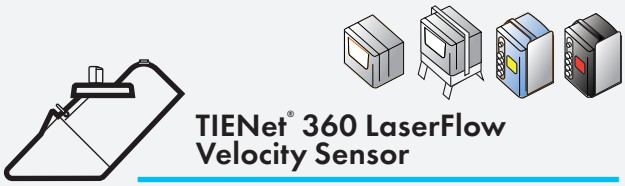
Level Measurement Range:	0.003 to 3.05m (0.01 to 10 ft)
Level Measurement Accuracy:	+0.002m @ 22 °C (0.007 ft @ 72 °F)
Operating and Storage Temperature:	-18 ° to 60 °C (0 ° to 140 °F)
Temperature Compensation Range:	0 ° to 60 °C (32 ° to 140 °F)
Temperature Coefficient (within compensated range):	±0.0003 x Level (m) x Temperature Deviation from 22 °C ±0.00017 x Level (ft) x Temperature Deviation from 72 °F

TIENet® 350 Ex Area Velocity Sensor

The 350 Ex sensor continuously transmits an ultrasonic signal into the flow stream. The signals are reflected off bubbles and solids and return to the sensor with a frequency shift (Doppler effect) which is translated into velocity. A differential pressure transducer in the sensor measures liquid depth to determine the wetted area. Flow rate is then calculated by multiplying the wetted area of the flow stream by its average velocity. Certified to MCERTS when paired with a Signature flow meter.

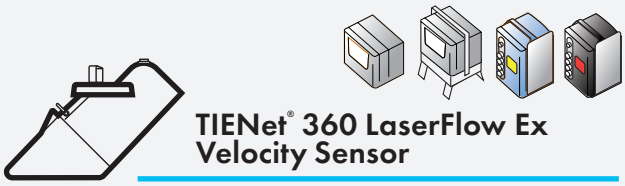
Probe Dimensions:	1.9 x 3.3 x 15.2 cm (0.75 x 1.3 x 6.0 in)
Materials:	Sensor: Epoxy, chlorinated PC, SST. Cable: UV-Rated PVC
Temperature Range:	0 to 70 °C (32 to 158 °F)
Velocity Measurement Range:	-1.5 to 6.1 m/s (-5 to 20 ft/s)
Velocity Measurement :	Bi-Directional
Velocity Accuracy:	±0.03 m/s (±0.1 ft/s) from -5 to 5 ft/s ±2% of reading from 5 to 20 ft/s, Uniform velocity profile
Minimum Depth:	25 mm (0.08 ft)
Frequency:	500 kHz
Level Measurement Range:	0.01 to 3.05 m (0.033 to 10 ft)
Level Accuracy:	± 0.10% Full Scale
Maximum Allowable Depth:	10.5 m (34 ft)
Typical Long-Term Stability:	±0.007 m/yr (±0.023 ft/yr)

See the LaserFlow data sheets for more information.



TIENet® 360 LaserFlow Velocity Sensor

The LaserFlow and LaserFlow Ex sensors use a laser to read the average velocity of water. LaserFlow is mounted above the flow stream and determines depth using an ultrasonic sensor. The sensor directs the laser to the proper depth, where the LaserFlow takes takes 5,000 velocity readings, below the surface of the flow, over a two second period. The resulting Doppler shift produced by bubbles and solids flowing in the water determines the velocity of the flow. Certified to MCERTS.



TIENet® 360 LaserFlow Ex Velocity Sensor

The LaserFlow Ex velocity sensor can be installed in hazardous areas defined as Class 1, Div 1, Zone 0 and ATEX category 1G. It remotely measures flow in open channels with non-contact Laser Doppler Velocity technology and non-contact ultrasonic level technology. Certified to MCERTS.

Teledyne ISCO TIENet provide seemless integration of a variety of input/output interface options to the flow meter of your choice.

- TIENet input and output devices use a common, proprietary interface protocol.
- Low system integration cost with multiple measurement technologies, Input/Outputs, protocols and communication options.
- Configurable and upgradable without hardware or firmware changes.
- Quick set-up with an identifiable, unique address for each device.
- Easy troubleshooting with built in device diagnostics.

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