TELEDYNE ISCO
Everywhereyoulook™

Signature®

FLOWMETER

ISCO

Comprehensive Support for any Flow Measurement Application

The Signature Flowmeter from Teledyne ISCO is the ideal choice for many open channel, flow monitoring applications. With a highly flexible monitoring platform, Signature supports a variety of monitoring technologies, as well as, monitoring equipment from other manufacturers.

Signature will monitor any current, and future, blend of flow measurement technologies including; area velocity, bubbler, non-contact, submerged, continuous wave and ultrasonic. No need to buy multiple flowmeters to 'match' the equipment you have in the field. Signature Flowmeter can handle the mix of technologies and equipment.

PERFECT FOR:

- INDUSTRIAL PRETREATMENT COMPLIANCE
- PERMIT ENFORCEMENT
- WASTEWATER TREATMENT PLANT MONITORING
- OUTFALL MONITORING
- STORMWATER MONITORING

YOU GET:

Simple, Comprehensive
Discharge Monitoring Solution

Cost Effective and Easy
with Simple Programming and Interchangeable Sensors

Low Cost of System Integration
with Multiple Input, Output and Communications Options

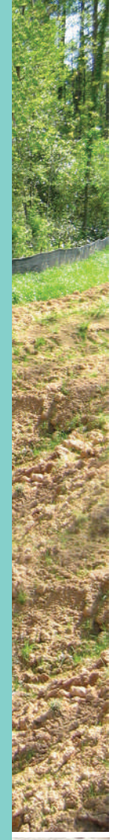
Easily Expandable
for Future Changing Needs

Common Platform
for Data Recording, Reporting, and Communicating for Multiple Parameters

Preventive Maintenance
Alerts and Detail Diagnostics

Easy Data Retrieval

Certified to MCERTS



CONFIGURABLE

The Teledyne ISCO Environmental Network—TIENet®—is key to the Signature flowmeter's flexibility. The Signature supports multiple TIENet devices* to monitor one or more channels with multiple, redundant, or alternate technologies, without hardware or firmware changes in the meter. This network's intelligent design minimizes cabling and conduit costs through the use of TIENet expansion boxes, common connectors, and efficient cable configurations.

In addition to TIENet devices, the Signature also accepts Rain Gauge, SDI-12, and Modbus ASCII/RTU inputs.

SIMPLIFIED PLANT INTEGRATION

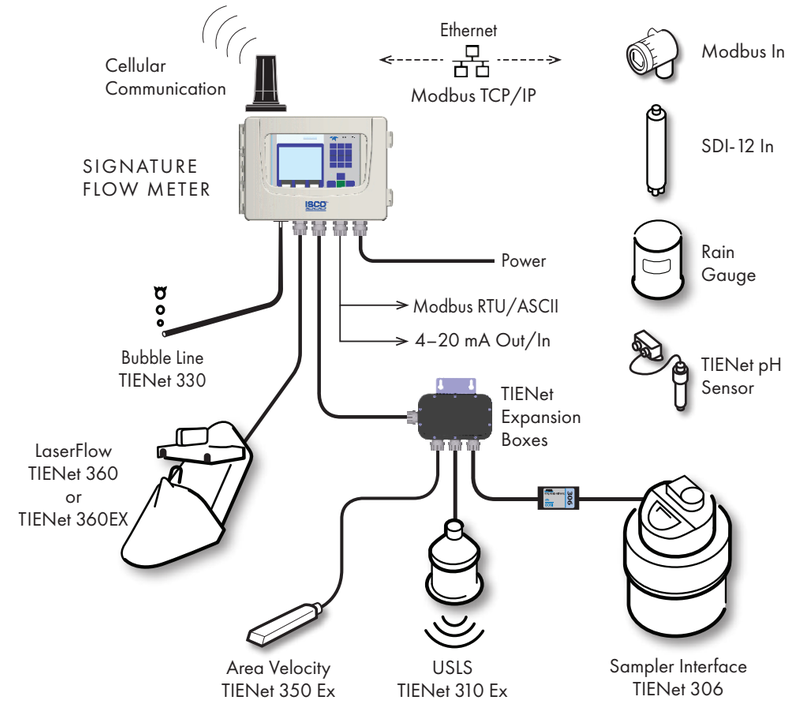
Signature records and transmits data, generates reports and will take action when certain pre-programmed criteria are met. Signature Flowmeter accepts a wide array of inputs and converts to an industry standard output. Signature is an ideal flowmeter for monitoring and compliance.

INTELLIGENT

The Signature responds intelligently to multiple concurrent inputs, with pre-programmed actions.

Actions

- Trigger and pace an automatic water sampler based on site conditions, with the optional TIENet 306 Sampler Interface
- Log or push data at more frequent intervals during critical events to capture higher-resolution data, returning to the primary rate during normal operating conditions
- Switch from one flow measurement technology to another based on site conditions
- Send alarm notifications via SMS text messaging or email

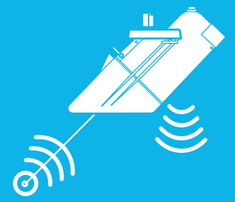


* *Response and speed will vary depending on the type and number of TIENet devices connected to the Signature. Check with your representative to ensure the optimal configuration for your application.*

Flow Technologies

Designed to work with every flow measurement technology, the Signature has the flexibility to seamlessly incorporate all technologies and equipment into data that is easily understandable and immediately actionable.

No need to buy several flow monitors, Signature Flowmeter can handle it.



LASERFLOW® VELOCITY SENSOR

The LaserFlow and LaserFlow Ex* sensor uses 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 which 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.

NON-CONTACT ULTRASONIC

With the TIENet 310 Ex* Ultrasonic Level Sensor mounted above the flow steam, transmitted sound pulses are reflected off the liquid 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.

CONTINUOUS-WAVE DOPPLER

The TIENet 350 Ex* Area velocity 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 in order to determine the wetted area. Flow rate is then calculated by multiplying the wetted area of the flow stream by its average velocity.

BUBBLER MODULE

Teledyne ISCO's 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 for hazardous areas classified as Class I, Div 1, Zone 0 and ATEX category 1G.*

Signature Flow Measurement Technology Guide

Suitability for Different Applications	310 Ultrasonic	330 Bubbler	350 Area Velocity	LaserFlow
Weirs and flumes	Excellent [1]	Excellent	Excellent	Very Good [5]
Channels less than 6 in. (150 mm)	Good [2]	Excellent	Good	Good [2]
Small round pipes, 6 to 8 in. (150 to 200mm)	Good [2]	Excellent	Good	Excellent
Medium round pipes, 10 to 15 in. (250 to 375 mm)	Good [2]	Excellent	Excellent	Excellent
Large round pipes, 15 to 96 in. (375 to 2500 mm)	Excellent [2]	Excellent	Excellent	Excellent
Irrigation channels and small streams	Excellent [2]	Excellent	Good	Excellent
Rivers and large streams	Excellent [2]	Excellent	Good	Excellent
Chemical Compatibility of Sensor				
Organic Solvents	Compatible	Compatible	Compatible	Compatible
Organic Acids	Compatible	Compatible	Compatible	Compatible
Alcohols	Compatible	Compatible	Compatible	Compatible
Esters	Compatible	Compatible	Compatible	Compatible
Inorganic acids	Compatible	Compatible	Compatible	Compatible
Inorganic bases	Compatible	Compatible	Compatible	Compatible
Inorganic salts	Compatible	Compatible	Compatible	Compatible
Performance Under Adverse Conditions				
Strong wind	Not recommended	Excellent	Excellent	Not recommended
Air temperature fluctuations	Good [3]	Very good [3]	Excellent	Good [3]
Steam above liquid	Not recommended [4]	Excellent	Excellent	Not recommended [4]
Foam on liquid	Not recommended [4]	Excellent	Excellent	Not recommended [4]
Flow stream turbulence	Not recommended [4]	Excellent	Excellent	Not recommended [4]
Floating debris	Not recommended [4]	Excellent	Excellent	Good [4]
Floating oil or grease	Not recommended [4]	Excellent	Excellent	Good [4]
Suspended solids	Excellent	Good	Very good	Excellent
Suspended grease	Excellent	Good	Very good	Excellent
Silting	Excellent	Good	Very good	Excellent
Liquid temperature fluctuations	Very good	Excellent	Good [4]	Very good
Submerged flow	Not recommended	Not recommended	Excellent	Excellent
Full pipe flow	Not recommended	Not recommended	Excellent	Excellent
Surcharged flow	Not recommended	Not recommended	Excellent	Excellent
Reverse flow	Not recommended	Not recommended	Excellent	Excellent
Maintenance Requirements Caused by Adverse Conditions				
Silting	None	Occasional	Occasional	None
Suspended solids	None	Occasional	Occasional	None
High grease concentration	None	Occasional	Occasional	None

1. *Use with caution on small flumes*
2. *There must be adequate space above for mounting sensor*
3. *Large air temperature fluctuations will affect accuracy*
4. *Conditions that limit access to the water level may adversely affect measurement*
5. *Non free flow conditions may require programming adjustments*

LaserFlow Velocity Sensor

Area Velocity Sensor

Bubbler Level Sensor

Ultrasonic Level Sensor

pH Sensor Interface

SDI-12 Device*

Modbus Input*

4-20 mA Analog

Rain Gauge*

Flow monitoring combines with a variety of inputs to produce an in-depth representation of the measurement site. All input data can be recorded and used for reporting, output or control.

Flow Technologies

- Bubbler
- Ultrasonic
- Continuous wave Doppler
- Laser Doppler

pH

The TIENet 301 pH/temperature sensing device provides acidity/alkalinity measurements to the Signature.

INPUT

SDI-12*

Accept two SDI-12 inputs data ranging from single-parameter sensors to multi-parameter sondes and other SDI-12 output devices.

Modbus Input*

The Signature accepts up to two writable modbus registers to request updated readings from other measurement devices, totaling up to 40 parameters.

**Non-TIENet Device*

Analog 4–20 mA Current

Industry standard for signal transmission and electronic control.

TIENet® Devices

- TIENet input and output device utilize 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 in Signature Flow Meter.
- Quick set-up with an identifiable, unique address for each device.
- Easy trouble shooting with built in device diagnostics.

Signature is compatible with non-Teledyne ISCO equipment and software. Users can 'mix and match' a variety of monitors, rain gauges and other instruments and still monitor and control the area of concern.

4–20 mA Current Loop

Optional dual Analog Output cards support up to six independent 4–20 mA current loops for external control. Additional outputs are possible with an Expansion Box.

Ethernet

An Ethernet card provides Modbus RS485 interface over TCP/IP 15 retrieval of data and summary reports, remote programming, and alarming.

OUTPUT

Cellular

An internal LTE or GSM cellular modem enables long distance, remote programming, data retrieval, and alarms. Data can be automatically sent to server at set time intervals.

Modbus Output/SCADA

Simplified Plant Integration—The Signature communicates with SCADA systems using RS-485 Modbus ASCII/RTU output.

Contact Output Card

The TIENet 304 allows two user-assignable outputs per card.

Sampler Interface

The TIENet 306 Sampler Interface connects the Signature to an automatic wastewater sampler.

USB Connectivity

USB connectivity allows easy retrieval of report files via the front panel USB port with a flash drive, or a direct Windows® PC connection.

4-20 mA Analog

Ethernet Network Modbus TCP/IP

Cellular Modem

Modbus/ SCADA

Flowlink Software

Alarms

Sampler Interface

USB Interface

Internet Accessible Data

Regulatory Compliance

The Signature secures the integrity of your site data through verifiable reports with data authentication for regulatory agencies.

Reports

Digital reports are available in a variety of ways.

Report types include:

- Summary—Includes the daily minimum, maximum and average for selected data types
- Diagnostic—Tracks all tests and results to ensure data quality
- Program—Contains the current configuration and tracks any changes
- History—Contains all events (transfers, changes and adjustments) used to confirm equipment operation and detect tampering

USB Connectivity

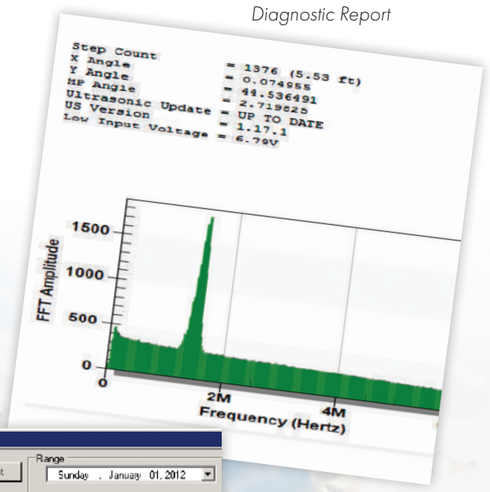
With a USB flash drive attached, you can quickly download Diagnostic, Program, History, and Summary reports, update firmware in the Signature flowmeter and connected TIENet devices, and download data files for use with Flowlink software.

In addition, the USB port provides direct serial connection with a computer running Flowlink.

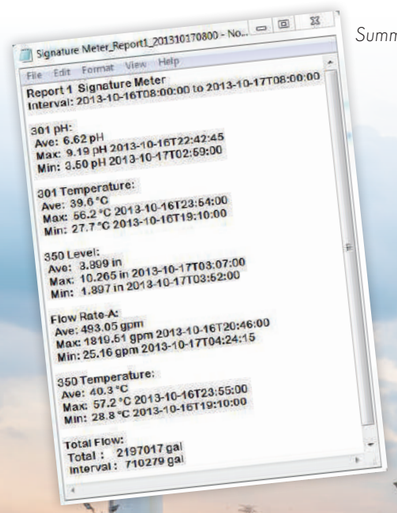
Original and Authentic—Verified!

Use the free Report Verification tool installed alongside Flowlink on your computer to verify data integrity. All downloaded Signature data is accompanied by a singular key calculated with a hash-based message authentication code (HMAC). Even the slightest change to your data will result in a drastically different key.

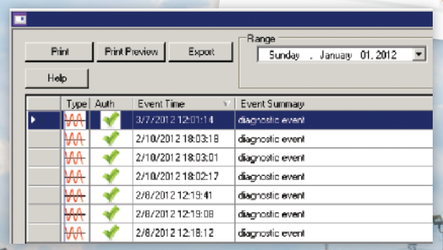
Diagnostic Report



Summary Report



History Report



Take the Signature any where you need it!

POWER OPTIONS

The Signature can operate on 120–240 Vac or 12–24 Vdc battery, including solar installations for remote sites.

DURABLE CONSTRUCTION

An IP66 enclosure rating means your Signature is protected from dust and powerful water spray.

PERMANENT OR PORTABLE

Signature Portable includes a stand with locking handle and built-in battery compartment for temporary monitoring sites.

Signature Portable

TELEDYNE ISCO
Everywhereyoulook™

4700 Superior Street, Lincoln, NE 68504 USA
Tel: (402) 464-0231 • USA & Canada: (800) 228-4373 • Fax: (402) 465-3022
teledyneisco.com

Teledyne ISCO is continually improving its products and reserves the right to change specifications without notice.

L-2156 v6.0
03/22