Flow Monitoring Product Guide

2100 Series Flow Modules

Velocity Profiling Meters

4200 Series Flow Meters

3010 Flow Transmitter

4501 Pump Station Flow Monitor

TELEDYNE ISCO
A Teledyne Technologies Company

Advanced Flow Products From Teledyne Isco

Offering a wide range of flow instruments and technologies to meet your unique application needs

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ISCO®

With more than four decades of industry leadership, we continue to advance flow technology by developing and producing highly accurate, durable, and innovative instruments and software.

For in-depth information on Isco flow meter products, contact your Authorized Isco Representative, or visit us on the web at: www.isco.com/fm.

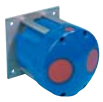
Collection Systems

- **Flow measurement choices with unique benefits for capacity assessment, I & I, and sanitary sewer evaluation**
- **Energy efficient battery-powered flow loggers for portable installation**
- **Remote telemetry options for flow loggers in permanent installations**

SSOs and CSOs

- **Flow monitoring systems with unique technologies for low- and high-water level applications**
- **NEMA 6P and IP68 protection**
- **Event notification and remote telemetry options**

Isco Instrument S

Isco Recommends ▶	2150 Area Velocity* Flow Module	2110 Ultrasonic Flow Module	accQmin	Pro 20	H-ADFM
For Use Here					
	Continuous-wave Doppler	Ultrasonic	Pulse Doppler	Pulse Doppler	Pulse Dopple
Small Channels/Pipes (<36″) [1]	■	■	■		
Large Channels/Pipes (>36″) [1]	■			■	
Large Pipes (Low Depth <3″) [1]	■		■		
Concrete-lined Open Channels	■		■	■	■
Primary Devices (Weirs & Flumes)		■			
Full Pipes/Force Mains (>18″ Dia.)					
Compound Pipes (Surcharge)	■		■	■	
Lift Stations					

[1] Nominal level.

Wastewater Treatment Plants

- Cost-effective alternative to primary devices at plant inlet, eliminating downstream excavation and construction cost
- Choice of flow technologies to measure flow in chlorine contact or effluent discharge
- SCADA connectivity

Stormwater Runoff

- Dry and wet weather flow studies in conjunction with rainfall
- Parameter, rain gauge, automatic sampler interface with flowmeter
- Remote telemetry system

Suitability Guide

	Isco HotTap	4210 Ultrasonic Flow Meter	4220 Submerged Flow Meter	4230 Bubbler Flow Meter	4250 Area Velocity Flow Meter	3010 Flow Transmitter	4501 Pump Station Monitor
							
	Pulse Doppler	Ultrasonic	Submerged Probe	Bubbler	Area Velocity	Ultrasonic	
		■	■	■	■		
		■	■	■	■		
		■	■	■	■		
■		■	■	■	■		
		■	■	■		■	
	■						
					■		
	■ **						■

* CSA- and Baseefa-approved versions available for intrinsically safe use.

** In full pipes 18 inches or greater in diameter.

Lift Stations

- Accurate flow measurement during varying inflow conditions, using patented algorithm
- Accurate full-pipe meters for pipes of any material. Options include easy-to-install insertion meters that don't require long straight runs or expensive bypasses
- Remote telemetry system

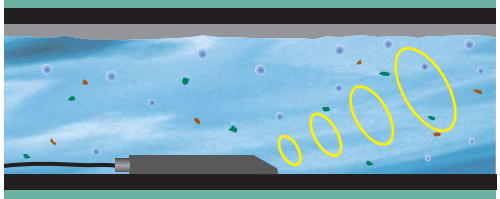
Billing/Custody Transfer

- Highly accurate flow measurement with and without primary devices
- Accurate flow measurement for turbulent flow, and near-zero velocities

Isco Flow Monitoring Technologies

Select the technology best suited for your application

No matter how challenging the application or site conditions, Isco offers a proven technology for your needs. Our products are recognized throughout the industry as *"The Future of Flow!"*

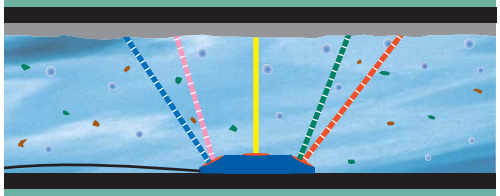


In-stream area velocity sensor

Continuous-wave Doppler

Area velocity sensors continuously transmit an ultrasonic signal into the flow stream. Those signals are reflected off bubbles and particles, and return to the sensor with a frequency shift (Doppler effect) proportional to 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.



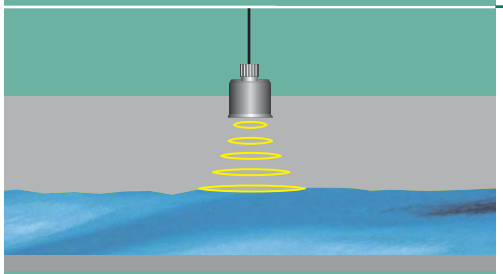
Pulse Doppler

Pulse Doppler Velocity Profiling

Multiple ceramic crystals transmit an ultrasonic pulse into the flow stream. They are returned after contacting bubbles or particles, with a frequency shift (Doppler effect) that is proportional to velocity.

By "range gating" the returned signals, velocity is measured in multiple, distinct cells, called velocity bins. Detailed velocity data in relation to sensor location is then used to calculate a highly accurate velocity profile.

An upward-looking ultrasonic transducer atop the sensor measures liquid depth to determine the wetted area.

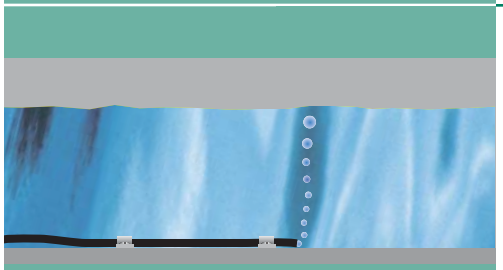


Ultrasonic flow sensor

Non-contact Ultrasonic

With its sensor mounted above the flow stream, 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.

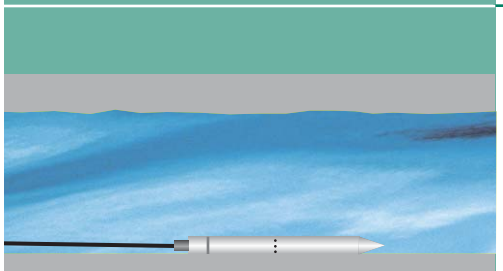


Bubbler

Bubbler

The depth of flow is determined by measuring the pressure needed to force bubbles out of the line. Flow rate is then calculated using one of the meter's built-in flow conversions, or a user-defined level-to-flow relationship.

Bubbler technology is ideal in flow streams affected by harsh weather, debris, or corrosive chemicals.



Submerged Probe

A probe mounted at the bottom of the channel measures the pressure of the liquid above to determine flow stream depth. The level reading is then converted to flow rate using one of the meter's built-in flow conversions, or a user-defined level-to-flow relationship.

A popular choice for sites where wind, steam, foam, or turbulence exist.

Communication Options

Isco offers a wide variety of communication methods to facilitate flow monitoring, deliver off-site data, and provide alarms.

Wireless Communication

Gather data while inside your vehicle, with drive-up convenience and safety.

Land-line Modem

Dial up a flow meter from your desktop. Features include dial-out alarms.

Cellular and GSM Options

CDMA, 1xRTT, GSM, GPRS communication for configuration, data retrieval, and data push. SMS, e-mail, and text alarm also available.

Interface Module

Integrates multiple field instruments and provides a common platform for logging and communications. Optional versions include built-in CDMA, 1xRTT, GSM, or GPRS capability and remote or online data access. SMS, e-mail, and text alarm also available.

Analog Output

4-20 mA signals for monitoring and control. Easy interface with SCADA/DCS and other secondary systems.

Certified ISO 9001

ISCO
www.isco.com

Teledyne Isco, Inc.
4700 Superior St.
Lincoln, NE 68504 USA
Phone: (402) 464-0231
USA & Canada: (800) 228-4373
Fax: (402) 465-3022
e-mail: iscoinfo@teledyne.com

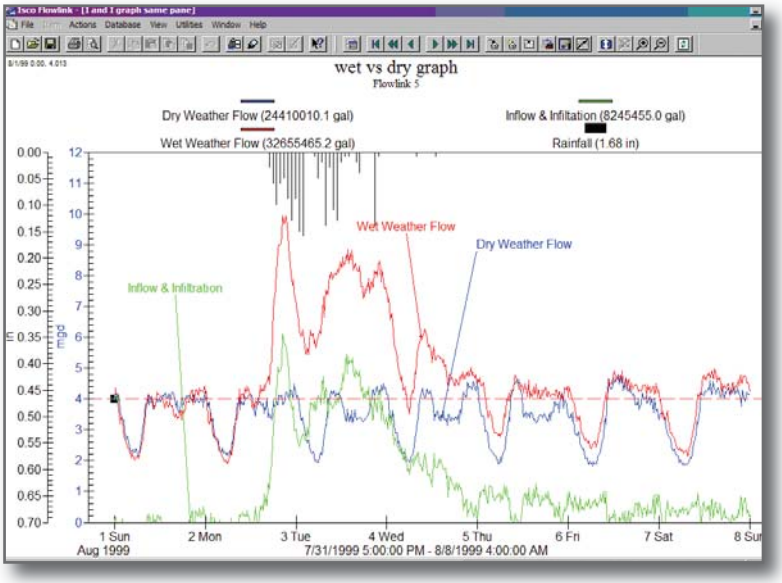
TELEDYNE ISCO
A Teledyne Technologies Company

Isco Flowlink® Software

For instrument configuration, data retrieval, data management, and comprehensive reports.

The example below shows Flowlink's ability to calculate average, minimum, maximum, and total accumulated values. You may also compare data from multiple sites, using both Isco, and non-Isco input. Use series formulas to know the relation between sites or parameters.

Zoom vertically or horizontally, and easily convert graphs to tables.



Isco Flowlink® Pro

A server/client package providing real-time data, via web interface, for large municipalities and flow service providers.

Facilitates management of multi-site flow monitoring networks.