



CITY of NOVI CITY COUNCIL

Agenda Item B
March 12, 2018

SUBJECT: Approval to purchase five (5) ISCO 2150 AV sewer flow meters from Teledyne Isco through Hamlett Engineering Sales Company (HESCO), the exclusive distributor of the meters in Michigan, in the amount of \$ 26,411.00.

SUBMITTING DEPARTMENT: Department of Public Services, Water and Sewer Division

CITY MANAGER APPROVAL: 

EXPENDITURE REQUIRED	\$ 26,411.00
AMOUNT BUDGETED	\$ 40,000.00
LINE ITEM NUMBER	592-592.00-976.022

BACKGROUND INFORMATION:

The Water and Sewer Division is requesting the purchase of five (5) new ISCO 2150 sanitary sewer flow meters to replace the current meters purchased in 2005. These meters typically have a life span of eight to ten years. The Sewer Division uses these devices for temporary flow metering throughout the sanitary sewer system to verify existing main lines have adequate capacity and investigate potential problem areas.

The meters will be purchased from HESCO who is the exclusive sales representative and distributor in Michigan for these meters (see attached letter from the manufacturer).

RECOMMENDED ACTION: Approval to purchase five (5) ISCO 2150 AV sewer flow meters from Teledyne Isco through Hamlett Engineering Sales Company (HESCO), the exclusive distributor of the meters in Michigan, in the amount of \$ 26,411.00.



4700 Superior Street
PO Box 82531
Lincoln NE 68501
P: 402.464.0231 F: 402.464.0318
Toll Free: 800.228.4373
E-mail: iscoinfo@teledyne.com
www.isco.com

January 31, 2018

To Whom It May Concern

This is to certify that Teledyne Isco is the sole manufacturer of Teledyne Isco automatic wastewater sampling and flow monitoring equipment. These items include but are not limited to flow meters, LaserFlow™, samplers, rain gauges, connecting cables, and associated hardware, as well as, operation software. These parts can be obtained either direct from Teledyne Isco or through our local representative, Hamlett Engineering Sales Company (HESCO).

Hamlett Engineering Sales Company (HESCO) with offices located at 28838 Van Dyke Avenue, Warren MI 48093, is an exclusive Teledyne Isco Sales Representative and Distributor for State of Michigan (lower peninsula only) as defined in the Teledyne Isco Domestic Sales Representative and Distributor Agreement, dated September 1, 2014.

Respectfully,

Sharon Fischer
Quotations, Submittals, & Contracts Specialist
Teledyne Isco, a business unit of Teledyne Instruments, Inc.



Knowledgeable • Professional • Attentive • Likeable

28838 Van Dyke • Warren, MI 48093
Phone: 586.978.7200 • Fax: 586.978.2200
www.hesco-mi.com

Sunday, February 25, 2018

To: Novi, City of
Scott Roselle
45175 W Ten Mile Rd
Novi, MI 48375

RFQ #: Verbal
Quotation #: 0667504632K_K
Please refer to this number when ordering

Phone: 248-343-1303

Fax:

E-mail: sroselle@cityofnovi.org

RE: ISCO 2150 AV Meter(s)

Scott,

Please see attached ISCO 2150 AV Meter(s) quote per your e-mail request. Let me know if you need any additional information once you review.

Thanks for the opportunity!

If favored with an Order, please make the Purchase Order out to:

Teledyne Isco
P.O. Box 82531
Lincoln, NE 68501

and email or fax it to HESCO at (586) 978-2200 for order entry and processing.

Best regards,

Kip Koszewski
HESCO
E-mail: kip@hesco-mi.com

Tel: 586-978-7200
Fax: 586-978-2200

PRICE QUOTE

Item	Description	Qty	Unit Price	Subtotal
1.00	Teledyne Isco 68-2050-002 (68-2050-002) 68-2050-002 2150 Flow Module with 2191 Battery Module. Includes Area Velocity Sensor with 10 ft. (3 m) level measurement range and 33 ft. (10 m) cable, 2 battery holders, and carrying handle with suspension strap. Also includes instruction manual and coupon for free Isco Open Channel Flow Measurement Handbook. Requires Flowlink software and computer connect cable (sold separately).	5	\$5,199.00	\$25,995.00
2.00	Teledyne Isco Freight 8 (Standard Ground Freight Rate for Total Order Valve \$25,000.00 - \$...)	1	\$416.00	\$416.00
	Standard Ground Freight Rate for Total Order Valve \$25,000.00 - \$49,999.99			
Subtotal				\$26,411.00
Taxable Subtotal				\$0.00
Sales Tax [0.0000%]				\$0.00
Misc. Charge				\$0.00
Shipping & Handling Best Way				\$0.00
Grand Total				\$26,411.00

Terms & Conditions			
Proposed Shipping Date	2-3 Weeks After Receiving Order	Payment Terms	Net 30
Shipping Method	Best Way	Shipping Terms	Prepaid and Added to Invoice
F.O.B.	Factory	This Quotation is valid until 2018-04-30.	

Thank you for your inquiry!

Specifications

2150 Flow Module	
Size (HxWxD):	2.9 x 11.3 x 7.5 in (74 x 287 x 191 mm)
Weight:	2.0 lb (0.9 kg)
Materials of construction:	High-impact polystyrene, stainless steel
Enclosure (self-certified):	NEMA 4X, 6P (IP68)
Temperature Range:	-40° to 140° F (-40° to 60° C) operating and storage
Power Required:	12 VDC nominal (7.0 to 16.6 VDC), 100 mA typical, 1 mA standby
Power Source:	Typically, an Isco 2191 Battery Module, containing 2 alkaline or 2 rechargeable lead-acid batteries. (Other power options are available; ask for details.)
Typical Battery Life:	Using 15-minute data storage interval Energizer® Model 529 alkaline - 15 months Isco rechargeable lead-acid - 2.5 months
Program Memory:	Non-volatile programmable flash; can be updated using PC without opening enclosure; retains user program after updating.
Built-in Conversions	
Flow Rate Conversions:	Up to 2 independent level-to-area conversions and/or level-to-flow rate conversions.
Level-to-Area Conversions:	Channel Shapes - round, U-shaped, rectangular, trapezoidal, elliptical, with silt correction; Data Points - Up to 50 level-area points.
Level-to-Flow Conversions:	Most common weirs and flumes; Manning Formula; Data Points (up to 50 level-flow points); 2-term polynomial equation
Total Flow Calculations:	Up to 2 independent, net, positive or negative, based on either flow rate conversion
Data Handling and Communications	
Data Storage:	Non-volatile flash; retains stored data during program updates. Capacity 395,000 bytes (up to 79,000 readings, equal to over 270 days of level and velocity readings at 15-minute intervals, plus total flow and input voltage readings at 24-hour intervals)
Data Types:	Level, velocity, flow rate 1, flow rate 2, total flow 1, total flow 2, input voltage, temperature
Storage Mode:	Rollover; 5 bytes per reading.
Storage Interval:	15 or 30 seconds; 1, 2, 5, 15, or 30 minutes; or 1, 2, 4, 12, or 24 hours Storage rate variable based on level, velocity, flow rate, total flow, or input voltage
Data Retrieval:	Serial connection to PC or optional 2101 Field Wizard module; optional modules for spread spectrum radio; land-line or cellular modem; 1xRTT. Modbus and 4-20 mA analog available.
Software:	Isco Flowlink for setup, data retrieval, editing, analysis, and reporting
Multi-module networking:	Up to four 2100 Series Flow Modules, stacked and/or remotely connected. Max distance between modules 3300 ft (1000 m).
Serial Communication Speed:	38,400 bps



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Lincoln NE 68504 USA
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Internet: www.teledyneisco.com

2150 Area Velocity Sensor	
Size (HxWxD):	0.75 x 1.3 x 6.0 in (19 x 33 x 152 mm)
Cable (Length x Diameter):	33 ft x 0.37 in (10 m x 9 mm) standard. Custom lengths available on request.
Weight (including cable):	2.2 lbs (1 kg)
Materials of construction:	Sensor - Epoxy, chlorinated polyvinyl chloride (CPVC), stainless steel Cable - Polyvinyl chloride (PVC), chlorinated polyvinyl chloride (CPVC)
Operating Temperature:	32° to 140° F (0° to 60° C)
Level Measurement:	Method - Submerged pressure transducer mounted in the flow stream Transducer Type - Differential linear integrated circuit pressure transducer Range (standard) 0.033 to 10 ft (0.010 to 3.05 m); (optional) up to 30 ft (9.15 m). Maximum Allowable Level 34 ft (10.5 m) Accuracy ±0.01 ft from 0.033 to 10 ft, (±0.003 m from 0.01 to 3.05 m.) Long-Term Stability ±0.023 ft/yr (±0.007 m/yr) Compensated Range 32° to 122°F (0° to 50°C)
Velocity Measurement:	Method - Doppler ultrasonic, frequency 500 kHz Typical Minimum Depth 0.08 ft (25 mm) Range -5 to +20 ft/s (-1.5 to +6.1 m/s) Accuracy (in water with uniform velocity profile, speed of sound = 4850 ft/s, for indicated velocity range) ±0.1 ft/s from -5 to 5 ft/s (±0.03 m/s from -1.5 to +1.5 m/s) ±2% of reading from 5 to 20 ft/s (1.5 to 6.1 m/s)
Temperature Measurement:	Accuracy ±3.6° F (±2° C)
2191 Battery Module	
Size (HxWxD):	6.0 x 9.6 x 7.6 in (152 x 244 x 193 mm)
Weight (without batteries):	3.2 lb (1.4 kg)
Materials of construction:	High-impact polystyrene, stainless steel
Enclosure (self certified):	NEMA 4X, 6P, (IP68)
Batteries:	Two 6-volt Energizer Model 529* alkaline (25 Ahrs capacity) or Isco Rechargeable Lead-acid (5 Ahrs capacity) recommended. *Note - Energizer 529 ER does not give specified life.

2150 Ordering Information

Contact your Teledyne Isco representative for complete ordering details and information on other 2100 Series Modules.

Description	Part No.
2150 with AV sensor, 2191 Battery Module, and Handle	68-2050-002
2150 Module with AV sensor (only)	68-2050-001
Isco Flowlink® 5 Software	68-2540-200
Energizer® Model 529 Alkaline Lantern Battery (2 required)	340-2006-02
Isco Rechargeable Lead-acid Battery (2 required)	60-2004-041
Charger for Lead-acid Batteries (holds 2 batteries)	60-2004-040



Certified
ISO 9001

Isco Product Data

Isco 2150 Area Velocity Flow Module

The 2150 Flow Module uses continuous wave Doppler technology to measure mean velocity. The sensor transmits a continuous ultrasonic wave, then measures the frequency shift of returned echoes reflected by air bubbles or particles in the flow.

The 2150's "smart" area velocity probe is built on digital electronics, so the analog level is digitized in the sensor itself to overcome electromagnetic interference. The probe is also factory-calibrated for 10-foot (3 meter) span at different temperatures. This built-in calibration eliminates drift in the level signal, providing long-term level stability that reduces recalibration frequency and completely eliminates span recalibration.

In field use, the 2150 is typically powered either by two alkaline, or Isco Rechargeable Lead-acid batteries, within a 2191 Battery Module. Highly efficient power management extends battery life up to 15 months at 15-minute data storage intervals. Other power options (including solar) are available.

Applications

- ◆ Portable and permanent-site AV flow monitoring for inflow and infiltration, capacity assessment, sewer overflow, and other sewer studies.
- ◆ Measuring shallow flows in small pipes. Our low-profile area velocity sensor minimizes flow stream obstruction and senses velocity in flows down to 1 inch (25 mm) in depth.



Standard Features

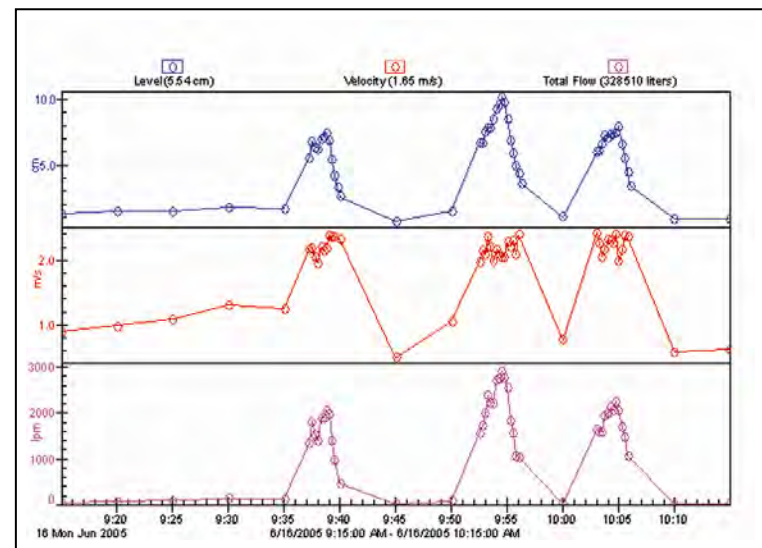
- ◆ Rugged, submersible enclosure meets NEMA 4X, 6P (IP68) environmental specs.
- ◆ Chemically resistant epoxy-encapsulated sensor withstands abuse, resists oil and grease fouling, and eliminates the need for frequent cleaning.
- ◆ Replaceable high-capacity internal desiccant cartridge and hydrophobic filter protect sensor reference from water entry and internal moisture.
- ◆ Pressure transducer vent system automatically compensates for atmospheric pressure changes to maintain accuracy.
- ◆ The quick-connect sensor can be easily removed and interchanged in the field without requiring recalibration.
- ◆ Up to four 2100 Series flow modules can be networked by stacking and/or extension cables.



Above left: Additional modules can be added for redundant or multi-stream measuring (Isco 2110 Ultrasonic Module shown). Right: Optional mounting rings provide quick, secure sensor installation in round pipes from 6 to 80 inches (150 to 2000 mm).

Software Features

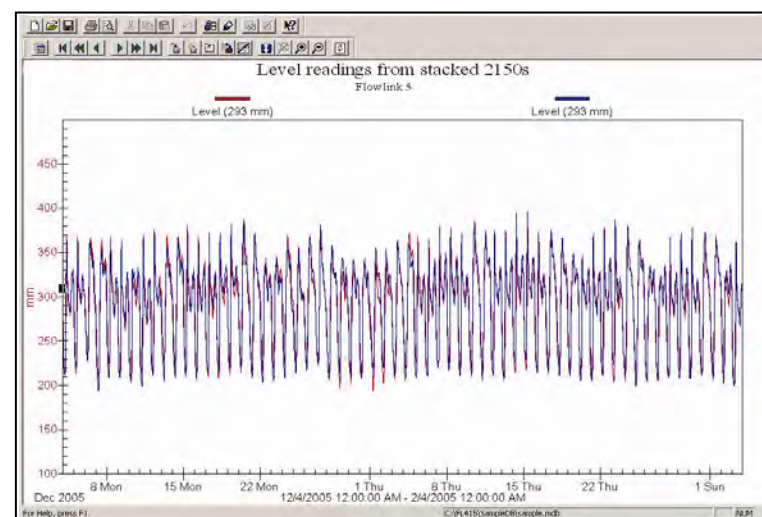
- ◆ Secure data storage. All data are continuously stored in flash memory to protect against loss in case of power failure
- ◆ Easy to upgrade. New operating software can be downloaded into non-volatile flash memory, without affecting stored program and data.
- ◆ Records and stores input voltage and temperature data.
- ◆ Variable rate data storage lets you change the data storage interval when programmed conditions occur. This feature assures maximum information about an exceptional event – such as an overflow – while conserving power and data capacity during normal conditions.
- ◆ 38,400 bps communication provides speedy setup and data retrieval.



Variable rate data storage

The 2150 flow module has the ability to automatically switch data storage rates based on varying conditions.

In the example at left, the 5-minute data storage rate automatically changed to 30 seconds when the flow rose above a programmed level.



Level stability

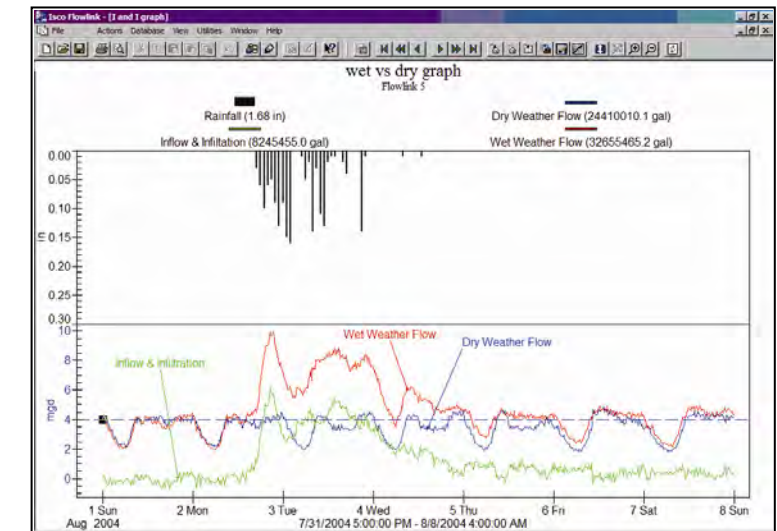
Frequent multipoint level recalibration is a requirement with other area velocity flow meters. Isco's exclusive "smart" sensor design in the area velocity probe yields exceptionally low drift in the level signal.

The 2150's factory-calibrated 3-meter span totally eliminates the need for cumbersome span recalibration in the field.

In the example at left, two area velocity probes were installed at the same site. The level readings from both sensors track closely without any drift, over an 8-week period.

Flowlink® Data Analysis

Isco Flowlink® Software is a powerful tool for analyzing flow and water quality data. It provides site setup, data retrieval, and comprehensive data analysis, as well as advanced reporting and graphing. See separate datasheets for details on Flowlink and Flowlink Pro software.



The Flowlink screen shown above gives a comparison of dry and wet weather flows, plus rainfall typical of an inflow & infiltration study

Information Delivery

Isco 2100 Series Flow Modules offer a wide variety of communication and retrieval options, to minimize the need for expensive on-site visits and confined space entry. These include:

Isco 2103 Land-line Modem Module

Reliable two-way dial-up communication between down-hole 2100 Flow Modules and your desktop computer, equipped with Isco Flowlink Software. A dial-out feature enables the system to transmit a text message alarm to your digital cell phone or pager.

Isco 2103c Cellular Modem Module

All the features of the 2103 Modem with the convenience of cell phone access. And the 2103c can automatically send data via the Internet to a designated server running Flowlink Pro software, using economical 1xRTT packet-switched data transmission.

Isco 2108 Analog Output Module

Provides current outputs for use with Isco 2100 Series Area Velocity and Ultrasonic Flow Modules. It allows easy interface with SCADA/DCS or other secondary instrument systems.

Modbus

2100 Series Flow Modules provide digital RS 232 Modbus output that can be used to interface with external communication modules, SCADA systems, or other devices.

On-site Data Retrieval

Isco Flowlink Software

Download and process data on-site. Enjoy unmatched data management capability, advanced data editing and analysis, powerful reporting and presentation choices, and a variety of downloading and data handling options.

Isco 2101 Field Wizard

A durable, weatherproof module for on-site data retrieval. Don't risk damage to your fragile notebook PC. The 2101 Field Wizard provides on-site display of current readings, information about stored data, diagnostics, and more.

Interrogate all 2100 Series Flow Modules in the stack at one time, and store more than 14 days' data from up to 20 modules!

Isco 2102 Communication Module

Connect with your Isco 2100 Series Flow Modules from the safety and convenience of your vehicle.

Digital spread-spectrum radio signals enable "drive-up" data retrieval, system configuration, and level calibration, with minimum power consumption. "Plug and Play" setup – no interfacing needed.