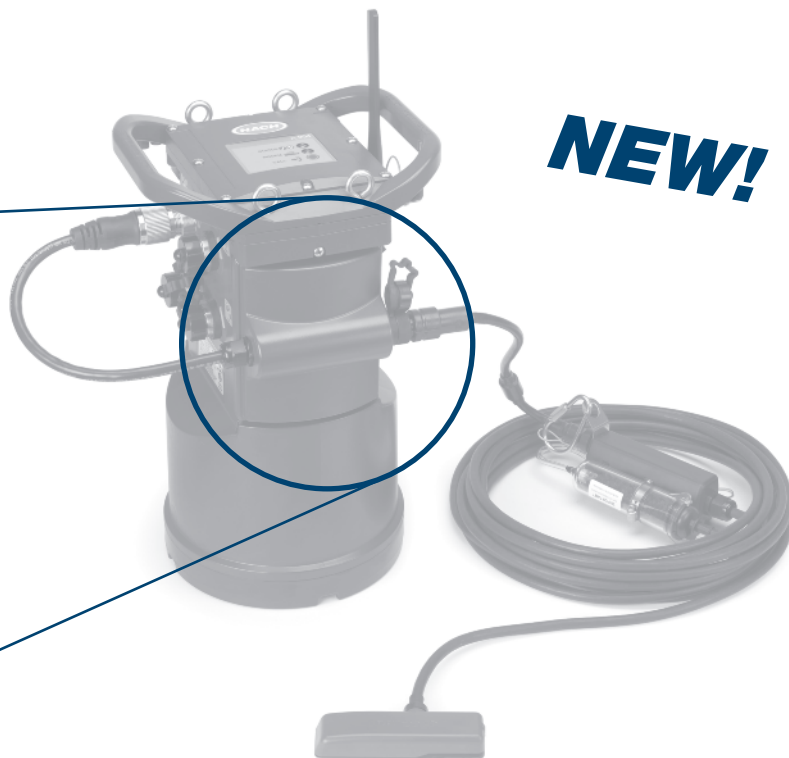


Hach AV9000 Area Velocity Analyzer Module

Flow

NEW!

AV9000 Analyzer Module shown with Sub AV Sensor and Wireless FL904 Flow Logger[†]. Sensor, analyzer module and logger are ordered separately.

[†]Not available in Europe.

WW

IW

C

Features and Benefits

Advanced Diagnostic Tools and Settings for Difficult Sites

For ease of use in the majority of sites, our factory default settings have been carefully selected to streamline set up, maximize battery life, and provide reliable data. For difficult sites and users desiring in-depth analysis and custom settings, the full set of diagnostic tools and advanced architecture of the AV9000 Area Velocity Analyzer facilitate collection of useful flow data in even the most difficult sites. On demand, a quick graph shows the Doppler spectrum and validates measurement quality. New quality and diagnostic parameters may be logged alongside the flow data.

Improved Accuracy

The AV9000 Area Velocity Analyzer module is compensated for temperature, thus eliminating potential velocity errors of 2.7% over a 10°C seasonal swing*. Its advanced multi-scale digital Doppler analysis provides the optimal combination of resolution and noise immunity. Mirror Image Processing™ eliminates sign errors and the advanced Target Set Processing™ reduces the impact of dominant targets (particles) in the stream to deliver a more

representative velocity. More accurate data produces more accurate billing.

*Calculated on a baseline temperature 10°C, assuming $\pm 5^\circ\text{C}$ shift between seasons.

NOTE: Mirror Image Processing™ and Target Set Processing™ are patent-pending.

Confidence in Your Data

Don't risk missing an event. Have confidence in your data before you leave the site from real time sensor diagnostic feedback and measurement flags. The LED indicator on the FL900 Series logger will also verify correct programming sensor set up and telemetry success or failure.

Less Maintenance and Troubleshooting

Submerged AV sensors are available with either oil-filled or non-oil-filled cover plates. The oil-filled models are designed for sites susceptible to fouling. The cavity is filled with high-viscosity silicon oil to reduce the collection of sand, silt and grit on the pressure transducer. Use the non-oil-filled cover plate model in sites where the pipe could run dry.

DW = drinking water WW = wastewater municipal PW = pure water / power
IW = industrial water E = environmental C = collections FB = food and beverage



Be Right™

Specifications*

AV9000 Module

VELOCITY MEASUREMENT

Measurement Method

1 MHz Doppler Ultrasound

Doppler Analysis Type

Digital Spectral Analysis

Doppler Accuracy

±1% of reading or 0,76 cm/s (with electronically simulated Doppler signal, - 7,6 to +7,6 m/s equivalent velocity)

Power Requirements

Supply voltage: 9-15 Vdc

Peak Current

<130 mA @ 12 Vdc with Sub A/V Sensor

Energy Per Measurement

<15 Joules (typical)

Operating Temperature

-18 to 60°C (0 to 140°F) at 95% RH

GENERAL ATTRIBUTES

Dimensions

5 cm H x 17,5 cm W x 13 cm L
(2,0 in. H x 6,875 in. W x 5,0 in. L)

Enclosure

PC/ABS

Environmental Rating

NEMA 6P (IP68)

Compatible Instruments

FL900 Series Flow Loggers and Sigma Submerged Area Velocity Sensors.

Compatible Software

Flo-Ware software and FL900 Series driver v1.0.4.0 or greater for local programming and reporting.

Submerged Area Velocity Sensor

VELOCITY MEASUREMENT

Method

Doppler ultrasonic; twin 1 MHz piezoelectric crystals

Typical Minimum Operating Depth

2 cm (0,8 in.)

Recommended Range

-1,52 to 6,10 m/s (-5 to 20 ft/sec)

Accuracy

±2% of reading or 1,5 cm/s**

**Uniform velocity profile, known salinity, positive flow.
Field performance is site specific.

LEVEL MEASUREMENT

Method

Pressure transducer with stainless steel diaphragm

Accuracy (static)

±0,16% full scale ±1,5% of reading at constant temp (±2,5°C)
±0,20% full scale ±1,75% of reading from 0 to 30°C (32 to 86°F)
±0,25% full scale ±2,1% of reading from 0 to 70°C (32 to 158°F)

Velocity-Induced Depth Error

Compensated based on flow velocity

Level Range

Standard: 0-3 m (0-10 ft)
Extended: 0-9 m (0-30 ft)

Allowable Level

Standard: 10,5 m (34,5 ft)
Extended: 31,5 m (103,5 ft)

GENERAL ATTRIBUTES

Air Intake

Atmospheric pressure reference is desiccant protected

Operating Temperature

0 to 70°C (32 to 158°F)

Level Compensated Temperature Range

0 to 70°C (32 to 158°F)

Material

Noryl® outer shell with epoxy potting within

Power Consumption

Less than or equal to 1,2 W @ 12 Vdc

Cable

Urethane sensor cable with air vent

Connector

Hard anodized, satisfies Military Spec 5015

Cable Lengths Available

Standard: 9, 15, 23 and 30,5 m (30, 50, 75, 100 ft)
Custom: 30,75 m (101 ft) to 76 m (250 ft) maximum

Cable Diameter

0,91 cm (0,36 in.)

Dimensions

2,3 cm H x 3,8 cm W x 13,5 cm L
(0,9 in. H x 1,5 in. W x 5,31 in. L)

Compatible Instruments

910, 920, 930, 930T, 950, 900 Max Samplers, and AV9000 Interface Analyzer Module (for use with FL900 Series Flow Loggers)

Compatible Software

For FL900 Series Loggers: Flo-Ware software and FL900 Series driver v1.0.4.0 or greater.

For Sigma meters: InSight v5.7 or greater.

Both programs can be found at <http://www.hachflow.com> or ordered on a disk from customer service.

*Specifications subject to change without notice.

Engineering Specifications

AV9000 AV Analyzer Module

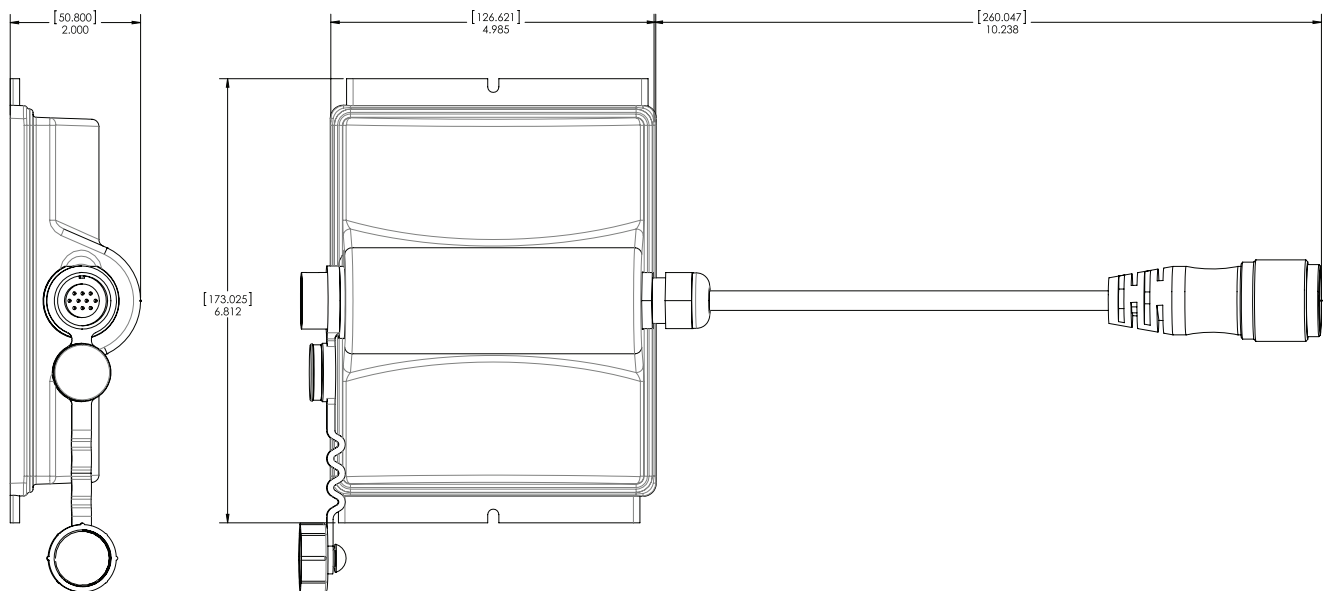
1. The module shall have the ability to perform advanced multi-scale Doppler analysis, Target Set Processing and Mirror Image Processing.
2. Flo-Ware software shall be used for programming.
3. The Doppler accuracy shall be 1% of reading (with electronically simulated Doppler, - 7,6 to +7,6 m/s equivalent velocity).
4. The module shall be the Hach AV9000 Area Velocity Analyzer Module manufactured by the Hach Company.

Submerged Depth/Velocity (AV) Sensor

1. The sensor shall be capable of directly measuring average velocity.
2. The method of velocity measurement shall employ transducer type that is twin 1-MHz piezoelectric crystals.
3. The method of depth measurement shall be pressure transducer with stainless steel diaphragm.
4. Velocity range shall be -1,52 to 6,10 m/s (-5 to 20 ft./s)
5. The range of depth measurement shall be 0 to 3 m (0 to 10 ft.), standard, and 0 to 9 m (0 to 30 ft.), extended.
6. The body material of the sensor shall be Noryl® plastic outer shell with epoxy potting.
7. The connector of the sensor shall be hard anodized and satisfy Military Spec 5015.
8. Power consumption of the sensor shall be less than or equal to 1,2 W at 12 Vdc.
9. The sensor shall be the Sigma AV Sensor Flow Sensor manufactured by Hach Company.

Dimensions

AV9000 AV Analyzer Module



At Hach, it's about learning from our customers and providing the right answers. It's more than ensuring the quality of water—it's about ensuring the quality of life. When it comes to the things that touch our lives...

Keep it pure.

Make it simple.

Be right.

For current price information, technical support, and ordering assistance, contact the Hach office or distributor serving your area.

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Fax: +49 831 5617-209
E-Mail: info@ott.com
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www.hachflow.com

Ordering Information

Analyzer Module

8531300 AV9000 Area Velocity Analyzer module

Submerged Area Velocity Sensors

77065-030	Non-oil filled with connector, 0 to 3 m range, 9 m cable
77065-050	Non-oil filled with connector, 0 to 3 m range, 15 m cable
77065-075	Non-oil filled with connector, 0 to 3 m range, 23 m cable
77065-100	Non-oil filled with connector, 0 to 3 m range, 30 m cable
77075-030	Non-oil filled with connector, 0 to 9 m range, 9 m cable
77075-050	Non-oil filled with connector, 0 to 9 m range, 15 m cable
77075-075	Non-oil filled with connector, 0 to 9 m range, 23 m cable
77075-100	Non-oil filled with connector, 0 to 9 m range, 30 m cable
77064-030	Oil filled with connector, 0 to 3 m range, 9 m cable
77064-050	Oil filled with connector, 0 to 3 m range, 15 m cable
77064-075	Oil filled with connector, 0 to 3 m range, 23 m cable
77064-100	Oil filled with connector, 0 to 3 m range, 30 m cable
77074-030	Oil filled with connector, 0 to 9 m range, 9 m cable
77074-050	Oil filled with connector, 0 to 9 m range, 15 m cable
77074-075	Oil filled with connector, 0 to 9 m range, 23 m cable
77074-100	Oil filled with connector, 0 to 9 m range, 30 m cable
7724800	Silicone oil refill kit, includes dispensing gun, dual 50 mL oil pack & hardware
7715300	Silicone oil/gel dispensing gun for oil-filled sensors

FL900 Series Flow Logger

FL900.98	FL900 Flow Logger, 1 sensor port
FL900AV.98	FL900 Flow Logger with AV9000 analyzer module, 1 sensor port

FL900 Series Flow Logger

		Sensor Connector(s)	Country Code	Modem	Rain Gauge
FL90X Electronics (Flow Logger)	Model FL90	—	.98.	—	—
1 Sensor Connector		1			
2 Sensor Connectors		2			
4 Sensor Connectors		4			
None				X	
None					X

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In the interest of improving and updating its equipment, Hach Company reserves the right to alter specifications to equipment at any time.



Be Right™