Hach US9000 Ultrasonic Sensor Series:

Flow Monitoring & Level Alarming

Applications

- Wastewater
- Collection Systems
- Industrial Water

US9001 Down-Looking Ultrasonic Sensor

US9003 In-Pipe Ultrasonic Sensor

Hach US9001B Ultrasonic Sensor with Ballast

More ultrasonic sensor options to solve more flow monitoring challenges.

The Hach US9000 Ultrasonic Sensor Series provides you with a variety of independent level-measuring capabilities, giving you even more ways to ensure your flow data collection is consistent and accurate. These state-of-the-art non-contact sensors are excellent for both level measurement and alarming, or paired with a submerged AV sensor for redundant level measurement.

Hach US9001 Down-Looking Ultrasonic Sensor

Mounted perpendicular to the flow surface, the Hach US9001 Down-Looking Ultrasonic Sensor is often used with a hydraulic structure to determine flow, including weirs, flumes and configurable level-area and head-flow tables.

Hach US9001B Ultrasonic Sensor with Ballast

The US9001B resourcefully takes the Down-Looking Ultrasonic Sensor and adds cable-straightening ballast to create a highly reliable SSO and CSO alarming solution when coupled with a wireless Hach FL900 Series Flow Logger. And with highly accessible top-side mounting options that don't require confined space entry, installation and maintenance is quick and simple, making this an extremely economical approach. So now you can capture data from more sites in your network without crushing your budget. Simply use the proven accuracy of the FLO-DAR® AV Sensor to monitor your critical primary sites, and then employ this more economical alarming option at secondary locations to smartly expand your system awareness and still live within your financial plan. Plus, you can also capture additional flow data using Manning's equation.

Hach US9003 In-Pipe Ultrasonic Sensor

Configured to eliminate inherent ultrasonic deadband, the Hach US9003 provides accurate measurements even in near-full pipe conditions. This clever approach places the transducer parallel to the flow surface within an engineered enclosure that contains a 45° reflector. As a result, you can effectively collect flow level data in tight open-channel scenarios while greatly reducing this non-contact sensor's chances of fouling.

Constant Awareness

Combined with a wireless Hach FL900 Series Flow Logger to transmit data and alarms right to your desktop or mobile phone, these ultrasonic monitoring and alarming solutions from Hach are extraordinarily convenient. And real-time data is available 24/7 through FSDATA Online Data Manager software from anywhere you have internet access. Not only does this dramatically increase your timely knowledge of every event, it also reduces site visits for data collection, meter adjustments, or sensor cleaning. Connect to Hach's FL1500 Stationary Flow Logger and push data to your SCADA system vis RS-485 MODBUS.

HACH®

Be Right™

Specifications*

Hach US9001 Down-Looking Ultrasonic Sensor

Dimensions	Ø x L: Ø 3.02 x 10.31 cm (Ø 1.19 x 4.06 in.)
Enclosure	316 stainless steel
Weight	0.76 kg (1.68 lb) with 9.14 m (30 ft) cable
Mounting	Wall mount, adjustable arm mount
Frequency	120 kHz
Accuracy	0.2 mm/25.4 mm (0.008 in./in.) from the calibration point at steady state temperature, still air and ideal target
Measurement Range	13.34 to 396.24 cm (5.25 to 156 in.)
Power Requirements	12 VDC, 0.0416 A, 0.5 W
Operating Temperature	–18 to 60°C (0 to 140°F)
Operating Humidity	0 to 95%, non-condensing
Storage Temperature	–40 to 60°C (–40 to 140°F)
Resolution	2.54 mm (0.01 in.)
Cable Jacket Material	Polyurethane
Cable Diameter	6.10 mm (0.24 in.)
Cable Length	9.14 m (30 ft), 91.44 m (300 ft) maximum
Beam Angle	9° (half angle typical)
Enclosure Rating	NEMA 6P, IP68
Compatible Instrument	Hach FL900 and FL1500 Series Flow Loggers
Certifications	CE

Hach US9001B Ultrasonic Sensor with Ballast

Specifications are identical to the US9001 Down-Looking Ultrasonic Sensor, plus the following Ballasting Kit:

Length	343.4 mm (13.52 in.) - Ballast Only 403.9 mm (15.9 in.) - Ballast with Sensor
Diameter	40.6 mm (1.60 in.)
Weight Total	1179.3 g (2.6 lb)

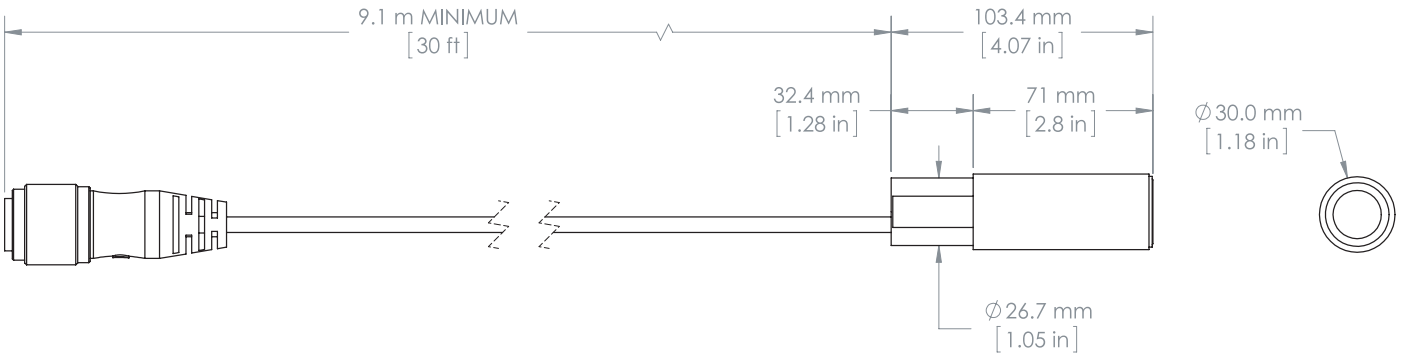
Hach US9003 In-Pipe Ultrasonic Sensor

Dimensions	Ø 4.06 x 28.04 cm (Ø 1.6 x 11.04 in.)
Enclosure	316 stainless steel and ABS
Weight	0.92 kg (2.03 lb) with 9.14 m (30 ft) cable
Mounting	In-pipe mount
Frequency	120 kHz
Accuracy	0.2 mm/25.4 mm (0.008 in./in.) from the calibration point at steady state temperature, still air and ideal target
Measurement Range	0 to 382.91 cm (0.00 to 150.75 in.)
Power Requirements	12 VDC, 0.0416 A, 0.5 W
Operating Temperature	–18 to 60 °C (0 to 140 °F)
Operating Humidity	0 to 95%, non-condensing
Storage Temperature	–40 to 60 °C (–40 to 140 °F)
Resolution	2.54 mm (0.01 in.)
Cable Jacket Material	Polyurethane
Cable Diameter	6.10 mm (0.24 in.)
Cable Length	9.14 m (30 ft), 91.44 m (300 ft) maximum
Beam Angle	6° (half angle typical)
Enclosure Rating	NEMA 6P, IP68
Compatible Instrument	Hach FL900 and FL1500 Series Flow Loggers
Certifications	CE

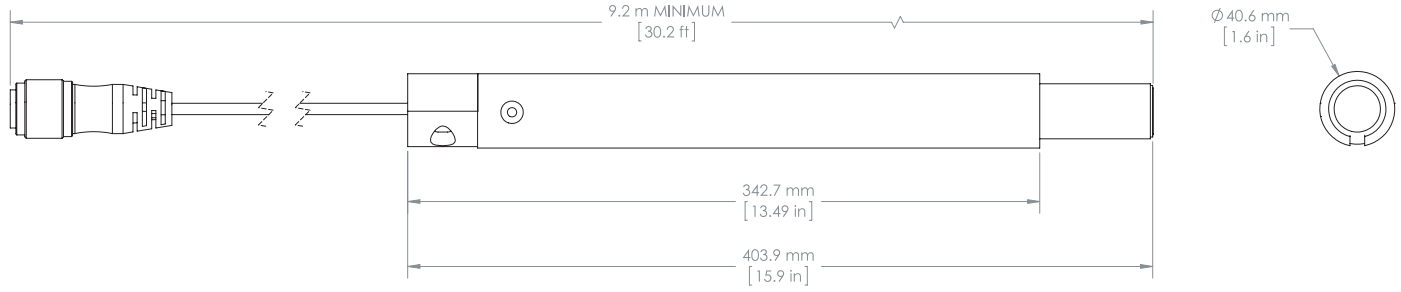
**Subject to change without notice.*

Dimensions

Hach US9001 Digital Down–Looking Ultrasonic Sensor



Hach US9001B Ultrasonic Sensor with Ballast



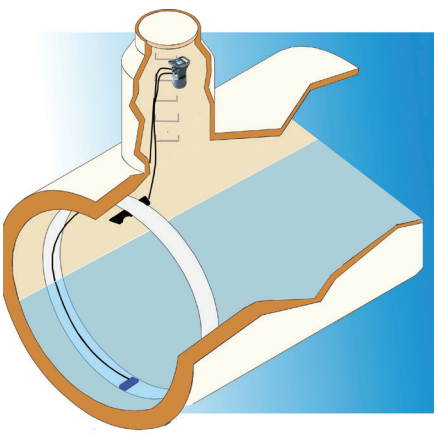
Hach US9003 Digital In-Pipe Ultrasonic Sensor

Installation

Hach US9001 Down-Looking Ultrasonic Sensor

Hach US9001B Ultrasonic Sensor with Ballast

Hach US9003 In-Pipe Ultrasonic Sensor



Ordering Information

9487100 US9001 Ultrasonic Down-looking Sensor, 9.1 m (30 ft) cable with connector. For use with FL900 Logger.

9487101 US9001 Ultrasonic Down-looking Sensor, 9.1 m (30 ft) cable with bare wire. For use with FL1500 Logger.

9487300 US9003 Ultrasonic In-pipe Sensor, 9.1 m (30 ft) cable with connector. For use with FL900 Logger.

9487301 US9003 Ultrasonic In-pipe Sensor, 9.1 m (30 ft) cable with bare wire. For use with FL1500 Logger.

9088700 US9001B Ultrasonic Sensor with Ballast w/o mounting hardware. For use with FL900 Logger.

9088701 US9001B Ultrasonic Sensor with Ballast w/o mounting hardware. For use with FL1500 Logger.

9088800 US9001B Ultrasonic Sensor with Ballast, suspension kit and mounting hardware. For use with FL900 Logger.

9088801 US9001B Ultrasonic Sensor with Ballast, suspension kit and mounting hardware. For use with FL1500 Logger.

9088200 Suspended Ballast Component Kit (sensor sold separately)

9088600 Calibration Target for US9001B

245000501 Q-Stick pole 12.4-7.3 m (8-24 ft) for calibration target

Cable Options for All Sensors in Series

9489000 Extension cable with connectors, 15.2 m (50 ft)

9488100 Extension cable, 82.3 m (270 ft), bare wire one end

9488000 Extension kit for conduit, includes: 82.3 m (270 ft) cable with bare wires and junction box with 61 cm (24 in.) cable and connector to logger *Note: Order the ultrasonic sensor, dispensing gun, and gel cartridges separately.*

7725600 Gel cartridges (Qty: 3) with feed tubes (Qty: 3), for the junction box

7715300 Dispensing gun for gel cartridge

9488200 Junction box with 61 cm (24 in.) cable for junction box to FL90X connection. *Note: Order the dispensing gun and gel cartridges separately.*

8315200 Extension Kit. Junction box with 100 ft. bare wire cable for connection to FL1500. *Note: Order the dispensing gun and gel cartridges separately*

8315201 Extension Kit. Junction box with 270 ft. bare wire cable for connection to FL1500. *Note: Order the dispensing gun and gel cartridges separately*

US9003 Mounting Hardware Options

4021 15.2 cm (6 in.) spring ring

4022 20.3 cm (8 in.) spring ring

4023 25.4 cm (10 in.) spring ring

4024 30.5 cm (12 in.) spring ring

9706100 Scissor band for 38.1 (15 in.) pipe

9706200 Scissor band for 45.7 cm (18 in.) pipe

9706300 Scissor band for 53.3 (21 in.) pipe

9706400 Scissor band for 61 cm (24 in.) pipe

9706500 Scissor band for 68.6 cm (27 in.) pipe

9706600 Scissor band for 76.2 cm (30 in.) pipe

9706700 Scissor band for 83.8 cm (33 in.) pipe

9706800 Scissor band for 91.4 cm (36 in.) pipe

9706900 Scissor band for 106.7 cm (42 in.) pipe

3766 Scissor band for 38.1-106.7 cm (15-42 in.) pipe

3868 Mounting clip

3875 Mounting bracket, permanent

US9001 Mounting Hardware Options

2904 Mounting bracket, floor or wall, adjustable

2974 Mounting bracket, wall, permanent

US9001B Mounting Hardware Options

9088100 Standard mounting hardware kit (includes bracket, anchor, nut & washer)

9542 Spanner bar for 457.2-685.8 cm (18-27 in.) pipe

9557 Spanner bar for 711.2-1219.2 cm (28-48 in.) pipe

5713000 Instrument support bracket

For additional information on products mentioned in this datasheet, request the following literature:

Hach Wireless Level-Alarming Network Extension (LIT2806)

Hach FL900 Series Flow Logger (DOC053.53.35081)

Hach FSDATA Online Data Manager Software (LIT2707)

Redundant-Level Metering System (LIT2805)

Hach FL1500 Series Flow Logger (DOC053.53.30400)

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