

# HACH FLO-TOTE® 3 AV SENSOR

## Applications

- Wastewater
- Collection Systems
- Industrial Water



**The Hach FLO-TOTE® 3 AV Sensor, when combined with a Hach Flow Logger, provides an ideal solution for highly accurate flow measurements.**

The FLO-TOTE® 3 AV Sensor measures flow velocity and level with an extremely high-level of accuracy, as proven through extensive testing by independent flow laboratories. And our accuracy claim holds true even under challenging flow and site conditions, including superior velocity measurements in both clean and slow moving water. Combined with the the power of a Hach flow logger, the FLO-TOTE 3 is an ideal solution for your flow measurement needs.

## Accurate Flow Measurements

FLO-TOTE 3 provides the user with highly accurate flow measurements under a wide range of flows and site conditions. The flow accuracy of the FLO-TOTE is based upon the accurate measures of both velocity and depth in hydraulic flow labs, as well as under actual sewer conditions. Verification of our specifications by an independent flow laboratory assures you of our commitment to accuracy.

## Interchangeable/Field Replaceable Sensor

The plug and play nature of the FL900 Series Flow Logger makes it easy to quickly disconnect the sensor for fast maintenance or replacement. The end result is less meter down time and lost data. For stationary applications, use with the Hach FL1500 Flow logger. The removable wiring terminals make wiring easy.

## Grease Tolerant Sensor

Grease shedding electrodes on the sensor shell allow for reliable data collection even in difficult environments.

## Q-Stick Band/Sensor Installation Tool

Sensor and band can be safely and easily installed or removed from street level with the Q-Stick tool eliminating the need for confined space entry.

## Specifications\*

### Sensor Specifications

<b>Material</b>	Polyurethane
<b>Dimensions</b>	13.6 L x 4.4 W x 2.8 H cm (5.37 L x 1.73 W x 1.10 H in.)
<b>Weight</b>	1.1 kg (2.4 lb) with 30 ft cable
<b>Operating Temperature</b>	0 to 45°C (32 to 113°F)
<b>Storage Temperature</b>	-20 to 52°C (-4 to 125°F)
<b>Power Requirements</b>	Power supplied by FL900 or FL1500 Series Logger

### Velocity Measurement

<b>Method</b>	Electromagnetic (Faraday's law)
<b>Range</b>	-1.5 to 6.1 m/s (-5 to +20 ft/s)
<b>Accuracy</b>	±2% of reading
<b>Zero Stability</b>	±0.015 m/s (±0.05 ft/s) at 0 to 3 m/s (0 to 10 ft/s)
<b>Resolution</b>	±0.0003 m/s (0.01 ft/s)

### Depth Measurement

<b>Method</b>	Submerged pressure transducer
<b>Standard Operating Range</b>	10 mm to 3.5 m (0.4 to 138 in.) <i>Contact Hach for information on extended ranges.</i>
<b>Accuracy</b>	±1% of reading
<b>Zero Stability</b>	±0.009 m (±0.03 ft.), for 0 to 3 m (0 to 10 ft.) <i>Includes non-linearity, hysteresis and velocity effects.</i>
<b>Resolution</b>	2.5 mm (0.1 in.)
<b>Over Range Protection</b>	2X range

### Flow Measurement

<b>Method</b>	Conversion of water depth and pipe size to fluid area. Conversion of local velocity reading to mean velocity. Multiplication of fluid area by mean velocity to equal flow rate.
<b>Conversion Accuracy</b>	±5.0% of reading. Assumes appropriate site calibration coefficient, pipe flowing 10% to 90% full with a level greater than 5.08 cm (2 in.).

### Temperature Measurement

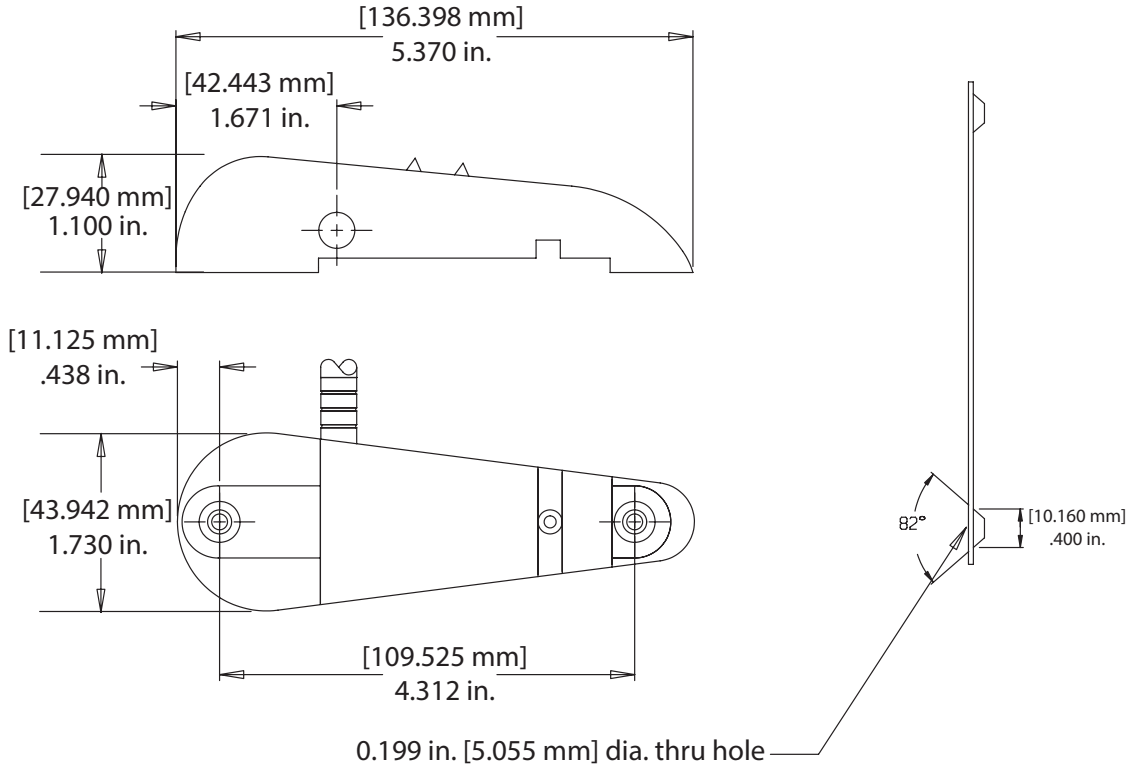
<b>Method</b>	1 wire digital thermometer
<b>Range</b>	-10 to 85°C (14 to 185°F)
<b>Accuracy</b>	±2°C (±3.5°F)

### Sensor Cable

<b>Material</b>	Polyurethane jacketed
<b>Length</b>	Available in specified lengths from 30 to 1000 ft.
<b>Compatible Loggers Connectors</b>	FL900: To use with Hach FL900 Series Logger Sensor with connector end (30 to 1000 ft. lengths)  Sensor with junction box, desiccant hub, sealant/potting kit and connector; allows for usage with conduit (30 to 1000 ft. lengths)  Important Note: The sensor cable assembly with desiccant hub is compatible with Hach FL900 Series Flow Loggers. FL1500: Use bare wire sensor MODEL 3000-9 + cable 360001901

\*Subject to change without notice.

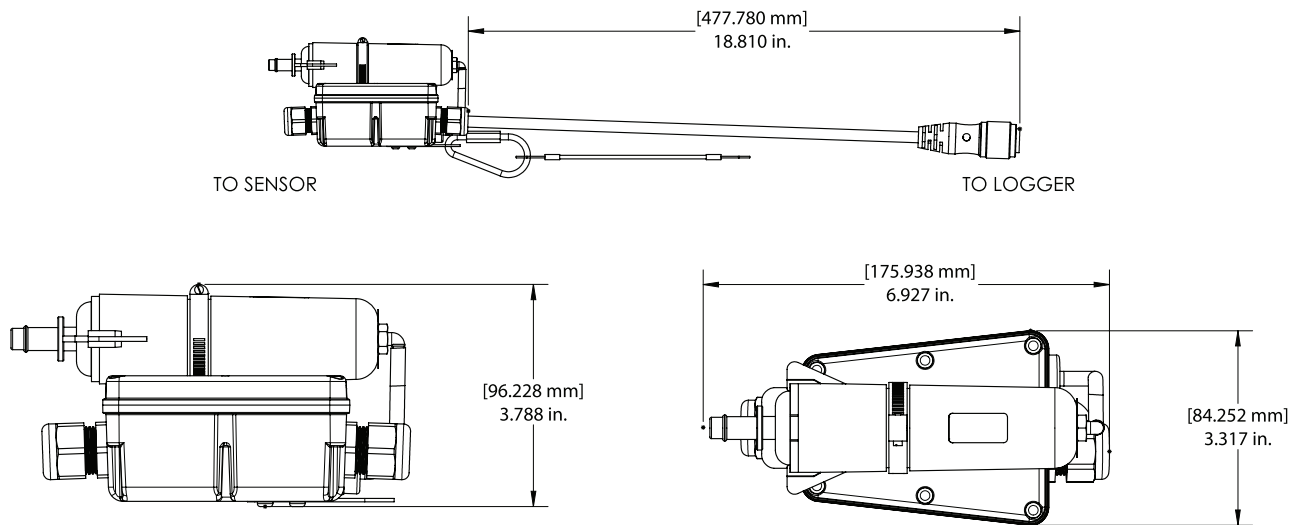
### Hach FLO-TOTE 3 AV Sensor Dimensions



### Desiccant Hub Assembly Dimensions

The desiccant hub assembly includes a junction box to connect sensor cable to the desiccant and subsequently to the FL900 Logger. The desiccant can easily be replaced without need to purchase a separate desiccant module.

When connecting to a Hach FL1500 Series logger, it is strongly recommended to use a desiccant external to the FL1500 to prevent moisture accumulation in the Flo-Tote sensor air tube (Hach Prod. No. 8321200)



## Ordering Information

### FLO-TOTE 3 AV Sensor with Cable

**EM9000-XXX\*** FL900 Series Flow Logger  
Includes sensor with cable, sealed desiccant hub and connector to logger

**EMJCTBOXCBL-XXX\*** FL900 Series Flow Logger (For use with conduit)  
Includes sensor with cable, unsealed desiccant hub, potting kit and connector to logger

#### Available Cable Lengths (in feet)

30	125	300	700
60	150	400	800
75	175	500	900
100	200	600	1000

\*XXX—Specify length from the table below.

**Model 3000-9** FL1500 Series Flow Logger PLUS 360001901 cable with length specified by foot up to 1,000 ft.

## Mounting Hardware

### Mounting Bands

Several configurations available. Consult with Hach representative.

## Accessories and Spare Parts

**55031SS** Profiling Adapter. Allows sensor to be mounted on pole for profiling flow channel.

**750000201** Q-Stick Insertion Tool

**245000501** Q-Stick Replacement Pole Only

**8755500** Bulk desiccant beads (1.5 pounds)

**For additional information on products mentioned in this data sheet, download the following data sheets at: [www.hachflow.com](http://www.hachflow.com)**

Hach FL900 Series Flow Logger (DOC053.53.35081)

Hach FL1500 Series Flow Logger (DOC053.53.30400)

LIT2712 Rev 5

## Hach World Headquarters: Loveland, Colorado USA

United States: 800-368-2723 tel 970-669-5150 fax [hachflowsales@hach.com](mailto:hachflowsales@hach.com)

Outside United States: 970-622-7120 tel

[hachflow.com](http://hachflow.com)

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