

# Hach FL900 Series Flow Logger

## Applications

- Wastewater
- Collection Systems
- Industrial Water



*Hach FL900 Series Flow Logger with broad array of sensor options.*

## The Hach FL900 Series Flow Logger revolutionizes open channel flow monitoring by providing reliable, innovative solutions for any sewer flow measurement challenge.

From a wireless communication option<sup>†</sup> with free data hosting to longer battery life, the FL900 is designed to reduce monitoring costs, increase efficiency, and provide better data 24/7 with less hassle than you ever thought possible. When combined with any of our full array of smart sensors, the FL900 flow monitoring system will provide reliable flow data for any wastewater flow monitoring application. Plus, the FL900 includes two powerful, free software tools, FSDATA Desktop Instrument Manager for fast and simple set-up and FSDATA<sup>®</sup> Online Data Manager for data review and analysis. The result is a dramatic reduction in necessary site visits, allowing for increased time for data analysis and proactive actions for solving any flow-related issue.

### Plug and Play Sensor Ports

The FL900 is available with 1, 2 or 4 sensor ports. The sensor ports are “plug and play”; the logger auto detects the type of sensor connected to allow customers maximum flexibility for their Hach flow sensor inventories.

Compatible FL900 Flow Logger sensors include:

- FLO-DAR<sup>®</sup> AV Sensor with optional Surcharge Velocity Sensor
- FLO-TOTE<sup>®</sup> 3 AV Sensor
- Hach Submerged AV Sensor (with AV9000 Analyzer Module)
- Hach US9001 Down-Looking Ultrasonic Sensor
- Hach US9003 In-Pipe Ultrasonic Sensor

### Quick Installation/On-Site Confirmation

The FL900 is built for quick installation, reducing required time on site and improving safety for your installation and maintenance crews. The logger can be quickly attached to

a wall, pole or manhole ladder in minutes. And not only is the FL900 easy to install, it also includes an LED status light so that you know it's fully functional before leaving the site.

### The Power of Wireless

Eliminate risk by using wirelessly transmitted flow data to make smarter, real-time decisions regarding your collection system. With wireless-enabled models, you'll receive alarms, via email or text, alerting you to any concerns at your monitoring sites. Plus, using FSDATA Online Data Manager, you'll have secure 24/7 access to your flow data and wireless meter from the comfort of the internet. With FSDATA, site visits to collect flow data or to adjust meter settings are eliminated, decreasing maintenance costs. And you can set alarms and view sensor diagnostics remotely to maximize uptime. That's the power of wireless.

<sup>†</sup>Wireless option only available in the USA and Canada



Be Right<sup>™</sup>

## Specifications\*

### Portable DC Powered Electronics (Includes Models FL901, FL902 & FL904)

|   |   |
|---|---|
| <b>Dimensions<br/>(W x D x H)</b>         | 25.4 x 22 x 40 cm<br>(10.0 x 8.7 x 16.0 in.)  |
| <b>Enclosure</b>                          | PC/ABS structural foam  |
| <b>Environmental<br/>Rating</b>           | NEMA 6P (IP68)  |
| <b>Weight<br/>(Using Model<br/>FL900)</b> | 4.5 kg (10 lb)—no batteries;<br>6.3 kg (14 lb)—2 batteries;<br>8.2 kg (18 lb)—4 batteries |
| <b>Operating<br/>Temperature</b>          | -18 to 60°C (0 to 140°F) at 95% RH  |
| <b>Storage<br/>Temperature</b>            | -40 to 60°C (-40 to 140°F)  |
| <b>Power<br/>Requirements</b>             | 8 to 18 Vdc from batteries or external<br>power source, 2.5W max.                         |

#### Battery Life

Varies with sensor type, logging intervals, telemetry and environment.

For a 15-minute logging interval, 60 minute call frequency, four 6 V lantern batteries at room temperature:

130 days with 4 lantern batteries and a FLO-DAR sensor  
180 days with 4 lantern batteries and a FLO-TOTE 3 sensor  
160 days with 4 lantern batteries and a Sigma Submerged AV sensor with AV9000 Analyzer

200 days with 4 lantern batteries and Ultrasonic Down-Looking or In-Pipe sensor

The optional long life alkaline battery pack can be used to extend battery life in all models except the base FL900.

#### LED Status Indicator

- Green Flashes every 3 seconds during normal operation. Flashes every 15 seconds during sleep mode.
- Red Flashes when an attached sensor does not agree with the logger program, when an expected sensor is not found or the sensor is not working properly.

|                          |  |
|--------------------------|--|
| <b>Sensor Ports</b>      | 1, 2 or 4 ports  |
| <b>Connectors</b>        | Stainless steel connectors   |
| <b>Datalog Channels</b>  | 16 maximum   |
| <b>Alarms</b>            | Maximum of 16 channel alarms including high/high, high, low, low/low and system alarms including low battery, low RTC battery, low slate memory, slate memory full, sensor timeout, sensor ID error. |
| <b>Alarm Actions</b>     | Send an e-mail, or send text message (SMS) (requires wireless logger and active wireless service), trigger sampler, change logging interval, change call interval                                    |
| <b>Logging Intervals</b> | 1, 2, 3, 4, 5, 6, 10, 12, 15, 20, 30 or 60 minutes<br><br>Primary and secondary intervals for dynamic logging.   |

|  |  |
|--|--|
| <b>Data Storage</b>                          | Datalog: 325,000 sensor measurement data points; 1128 days for 3 channels at 15-minute log intervals<br><br>Event Log: 1,000 events maximum in non-volatile flash memory<br><br>Sample History: 2,000 sample events maximum in non-volatile flash memory   |
| <b>Local<br/>Communication</b>               | USB<br>RS232 (Baud rates: 9600, 19200, 38400, 57600, 115200)   |
| <b>Protocols</b>                             | Local Modbus RTU   |
| <b>Timebase<br/>Accuracy</b>                 | ±0.002%, synchronized every 24 hours with server software and modem  |
| <b>Supported<br/>Sensors</b>                 | FLO-TOTE 3, FLO-DAR, FLO-DAR with Surcharge Velocity Sensor (SVS), Submerged Area Velocity Sensor (requires AV9000 Analyzer Module), Rain Gauge, Sigma 950 Flow Meter (requires IM9001), US9001, US9003  |
| <b>Sampler<br/>Interface</b>                 | Compatible with Hach AS950 Automatic Sampler and all Hach legacy samplers. When paired with a Hach sampler, successful or failed sample, as well as bottle number, are stored in sample history. Sample history can be included in reports generated by FSDATA. Also compatible with most non-Hach samplers capable of being triggered by 5 V dc pulse lasting 50 milliseconds |
| <b>Desktop<br/>Software</b>                  | FSDATA Desktop Instrument Manager software is required for programming the logger and can be used for data management and report generation. It is compatible with desktop/lap top computers utilizing Windows operating system. Minimum resolution needed is 1024x768.  |
| <b>Internet<br/>Application<br/>Software</b> | FSDATA web-based software for flow meter programming, data management and report generation for wireless flow meters.  |
| <b>Certifications</b>                        | Logger: CE; optional AC power supply: UL/CSA/CE  |
| <b>Warranty</b>                              | 1 year   |

*\*Subject to change without notice.*

 The Hach FL900 Series Flow Logger meets CE requirements.

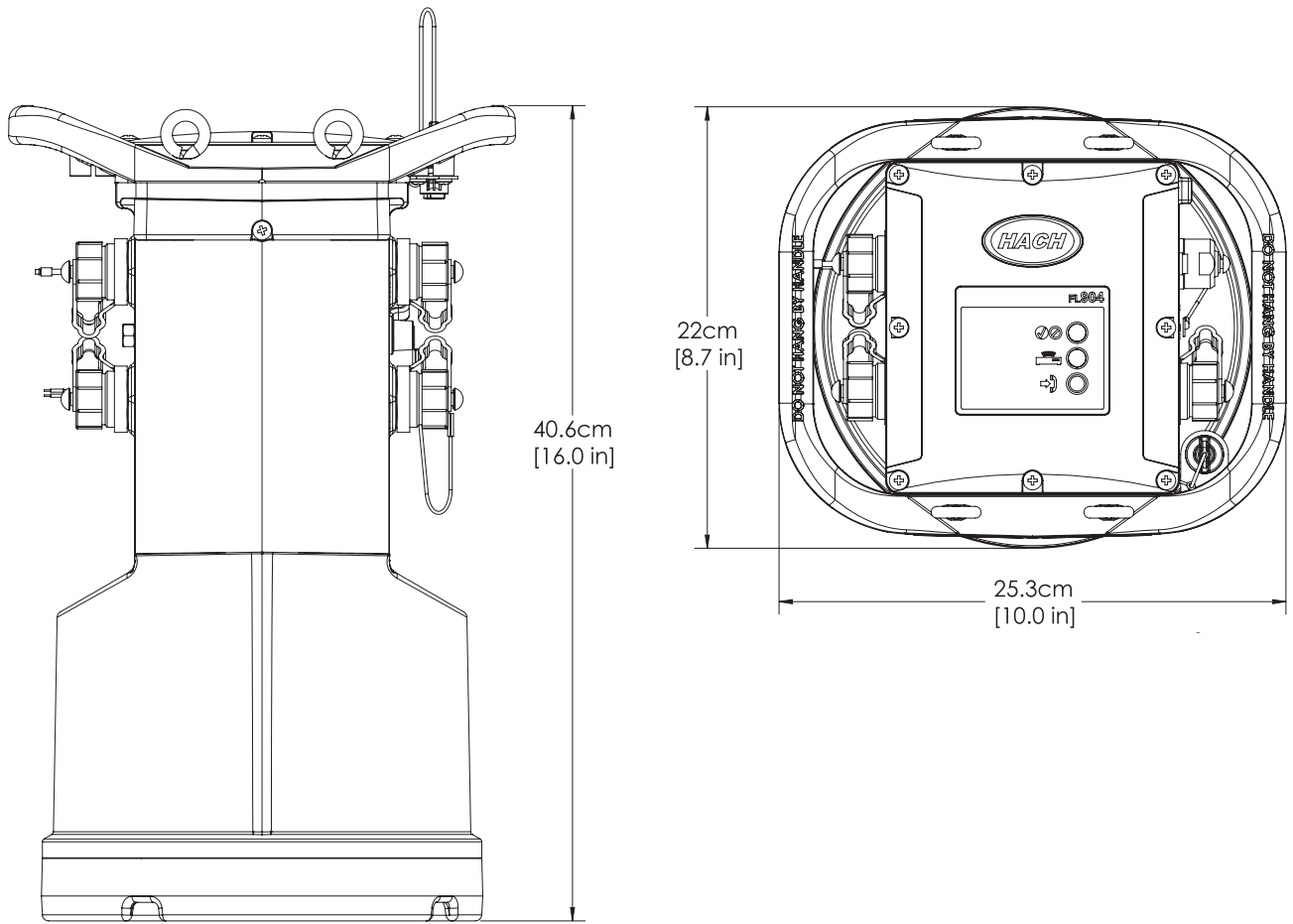
### Specifications Explicit to Wireless FL900 Series Flow Loggers:

#### LED Modem Indicator

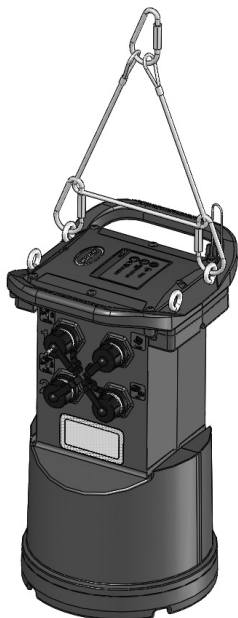
- Stays green during a call to the server. Goes blank after the call is successfully completed and terminated.
- Flashes red if the call to the server failed.

**Remote  
Communication** Wireless modem; 3G and 4G LTE technology with a mobile provider.

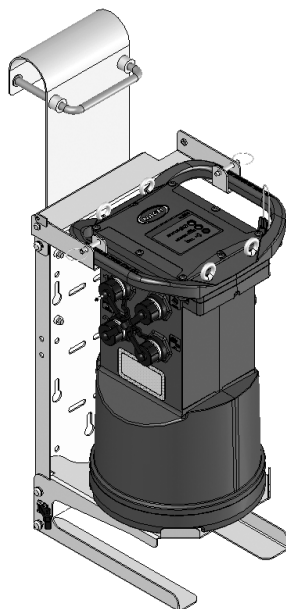
### FL900 Series Flow Logger Dimensions



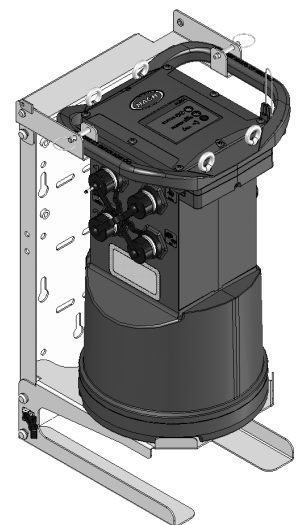
### FL900 Series Flow Logger Installation/Mounting Options



*Flow Logger Suspension Cable with Carabiner (Standard)*



*Flow Logger Ladder Rung Mount Prod. No. 8544500 (Optional)*



*Flow Logger Wall Mount Prod. No. 8542700 (Optional)*

## Ordering Information

| FL90X Electronics (Flow Logger) | Model FL90 | Sensor Connector(s) | Country Code        | Modem | Rain Gauge |
|---------------------------------|------------|---------------------|---------------------|-------|------------|
| FL90X Electronics (Flow Logger) | Model FL90 | —                   | USA - 97<br>EU - 98 |       |            |
| 1 Sensor Connector              |            | 1                   |                     |       |            |
| 2 Sensor Connectors             |            | 2                   |                     |       |            |
| 4 Sensor Connectors             |            | 4                   |                     |       |            |
| None                            |            |                     |                     | X     |            |
| AT&T (Activated)                |            |                     |                     | A     |            |
| PTCRB no SIM                    |            |                     |                     | G     |            |
| Verizon (Inactive) no SIM       |            |                     |                     | U     |            |
| Verizon (Activated)             |            |                     |                     | V     |            |
| No Rain Gauge Connector         |            |                     |                     |       | X          |
| With Rain Gauge Connector       |            |                     |                     |       | R          |

### FL900 Series Flow Logger

**FL900.97 in USA,** FL900 Flow Logger, 1 sensor port  
**FL900.98 in EU**

**FL900AV.97 in USA,** FL900 Flow Logger with AV9000  
**FL900AV.98 in EU** analyzer module, 1 sensor port

### External Modules

- 8531300** AV9000 Area Velocity Analyzer module (required to attach a Submerged AV sensor)  
**8549800** IM9001 Interface module (required to attach a Sigma 950 flow meter)

### Cables

- 8528700** Cable, External power, 2 wire, 9 ft.  
**8528200** Cable, Communication, RS232, 9 ft.  
**8528300** Cable, Communication, USB, 9 ft.  
**9500700** Cable, Aux, 7pin MIL 5015 (Connect to Hach AS950 Sampler\*), 9 ft.  
**9500701** Cable, Aux, 7pin MIL 5015 (Connect to Hach AS950 Sampler\*), 25 ft.  
**8322800** Cable assembly, power input Aux, AS950-FL900 with power adapter

*\*Cables for obsolete sampler models are also available. Contact technical support for more information.*

### Antennas<sup>†</sup>

- 8623800** Blade, 3G/4G LTE, 3 dBi  
**8624000** Mini-wing, 2G/3G/4G LTE, 2.5 Meter Cable, 5.5 dBi  
**8624200** Burial, 3G/4G LTE, 3 Meter Cable, 3 dBi  
**8624400** Manhole Lid, 3G/4G LTE, 3 Meter Cable, 3 dBi

<sup>†</sup>Wireless option only available in the USA and Canada

### Software

FSDATA Desktop Instrument Manager Desktop free download at: [www.hachflow.com](http://www.hachflow.com)

### Mounting Hardware

- 8543800** Wall mount bracket (304 Stainless)  
**8545600** Wall mount bracket with ladder hanger (304 Stainless)  
**8542700** Wall mount bracket with AC Power Supply shelf (304 Stainless)  
**8544500** Wall mount bracket with AC Power Supply Shelf with ladder hanger (304 Stainless)

### Replacement Parts

- 8755500** Desiccant refill beads, Bulk 1.5 lb  
**11013M** Battery, 6V lantern  
**8542900** Battery, long-life alkaline  
**8542800** Rain Gauge with 100 ft. cable

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

FSDATA Desktop Instrument Manager (LIT2832)

Hach US9000 Ultrasonic Sensors (LIT2804)

FSDATA Online Data Manager (LIT2707)

Hach Redundant Flow Monitoring System (LIT2805)

FLO-DAR AV Sensor (LIT2708)

Hach Wireless Level Alarming System (LIT2806)

FLO-TOTE<sup>®</sup> 3 AV Sensor (LIT2712)

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