

FloLog™ Gas Well Flow Logger



General Description

The Willowglen FloLog™ Gas Well Flow Logger is a flexible, cost effective and extremely energy efficient solution for remote gas well Electronic Flow Measurement (EFM) applications. With its hazardous area certification and battery operation, the FloLog™ device is ideal for use at well heads as a low cost, much higher accuracy and more convenient alternative to a chart recorder.

The FloLog™ device measures the orifice static pressure and differential pressure with a multivariable transducer and also includes a probe for temperature measurement.

The extreme low power operation of the FloLog™ device eliminates the need for expensive solar panels because the device can typically operate for a year on a set of three standard AA batteries.

Gas measurement readings are stored in non-volatile Flash-memory with a 36 day capacity. Periodic data retrieval is available through the built-in infrared port to an on-site laptop computer or a Pocket PC PDA. A serial port also allows the FloLog™ device to communicate with a SCADA host computer.

Combined with Willowglen's companion FloLink™ Radio Communication Unit, a completely battery powered RTU/Radio solution can be achieved.

Features

- Extremely Energy Efficient
- No solar panels required.
- Logs differential pressure, static pressure and process temperature at one-minute intervals.
- Differential pressure is measured once per second and square root averaged for the one minute log data.
- Scale factors and gas flow 'C' factor are entered using a local laptop computer or automatically downloaded from SCADA host computer.
- Integrated local display for on-site readings of the current process measurements (DP, SP, temperature and flow rate), system battery voltage, RTU address and power on time.
- Local Display controlled using the infrared finger-switch buttons that operate through the transparent window, no need to open the unit.
- Calibration is facilitated by using a local laptop computer.
- Easy to install using industry standard process connections.
- Hazardous Location Approved
- Communication using RS-485 or IrDA link.

FloLog™ General Specifications

Pressure Sensors

- **Standard Ranges:**
 - Differential: 50 kPag (200 inH₂O)
 - Static: 7000 kPaa (1000 psia) absolute
- **Optional Ranges:**
 - Differential: 200 kPag (840 inH₂O)
 - Static: 10,000 kPaa (1500 psia) absolute
- **Accuracy:**
 - ±0.15% FS over full pressure range (+30°C)
 - ±0.15% FS zero to ½ range (-40°C to +60°C)
 - ±0.25% FS ½ to full range (-40°C to +60°C)
- Material: 316SS housing and diaphragm
- Optional casing pressure sensor

Temperature Sensor

- **Range:** -50°C to +125°C
- **Accuracy:**
 - ±0.5°C, from -10°C to +85°C
 - ±2°C, from -50°C to +125°C
- **Type:** Digital solid-state in sealed 316SS probe

Flow Measurement

- **Gas Flow Algorithms:** AGA-3-92, AGA-8-92 (with 'C' calculated on laptop or SCADA host)
- **Compliance:** API Chapter 14, API Chapter 21
- **Data Log:** 36 days of one minute readings of DP, SP, Temperature, time stamp and optional casing pressure all stored within the FloLog device
- **Host/Laptop Configuration:** Orifice and gas parameters, alarm settings, polling and reporting periods and local display options
- Local Display of Gas Flow Rate

Local Display

- **Type:** LCD, 2 Line by 8 Character
- **Information:** Gas Flow Rate, Differential Pressure, Static Pressure, Temperature, Battery Voltage, RTU Address and Power On Time
- **Control:** IrDA Enable, Reset, Address, Mode
- **Update:** Once per Second
- Automatic Standby for Power Saving

Local Operation Push-Buttons

- **Type:** Two Infrared Detectors.
- **Operation:** Senses presence of finger on the display window.

Communication

- **Serial Communication:** RS-485, 2-wire half duplex at 9600 baud.
- Modbus Communication Protocol Supported.
- IrDA link at 9600 baud using IrCOMM protocol.
- Optional FloLink™ Spread Spectrum Radio Communication. Uses 900 MHz or 2.4 GHz license-free (in most countries) ISM bands.

Calibration and Data Retrieval

- **Platform:** Laptop computer.
- **Operating System:** MS Windows 98, 2000, XP
- **Calibration:** DP and SP (two point)
- **Data Retrieval:** Data log, current values, calibration factors, RTU operational parameters

Power

- **Batteries:** Internal self-contained.
- **Type:** Three "AA Cell" alkaline batteries.
- **Life:** Minimum of one year for normal operation.

Environmental

- **Operating Temperature:** -40°C to +60°C
- **Display Operating Limit:** -20°C to +60°C
- **Storage Temperature:** -40°C to +80°C
- **Operating Humidity:** 10% to 90% (non-condensing)
- **Storage Humidity:** 5% to 95% (non-condensing)
- Hazardous Area Approved and Intrinsically Safe
- Certified to CSA-C22.2 E79 series Class I, Div 1, C, D, T3 Exia IIB, T3

Mechanical

- **Weight:** 3.7 kg (8.2 lbs.) including batteries
- **Size:** 203 x 124 x 64 mm (8"x4.9"x2.5")
- **Environmental Rating:** NEMA 4X Enclosure
- **Mounting:** Process Connections or Flange
- **Process Connectors:** ¼ NPT or Flange mount
- **Conduit Connection:** Two ½ NPT

For additional information on specific configurations and pricing, please contact Willowglen Systems Inc.

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WILLOWGLEN SYSTEMS INC.
8522 DAVIES ROAD
EDMONTON, ALBERTA
CANADA, T6E 4Y5

Tel: +1 (780) 465-1530
Fax: +1 (780) 465-0130
email: marketing@willowglen.ca
Website: www.willowglen.ca