

Dual Orifice Constant Flow Bubble Gauge/Recorder



Overview

The Sutron Accubar® Constant Flow (CF) Dual Orifice Bubble Gauge/Recorder is a self-contained, precision device for measuring water levels, water temperature, suspended sediment & density. Ideal for rivers, streams, dams & reservoirs, oceans & industrial areas plus any area where water density changes (eg, tidal & estuary areas), it packages the following components into a single enclosure: Accubar sensor, SDI-12, RS232 & RS485 interfaces, front panel (display & keypad), pump, tanks, manifold, control board.

Features

- ▶ Models that measure water temperature, density & suspended sediment.
- ▶ User-set measurement & logging. The -2 model makes separate measurements in 2 locations. Bubbler manages pressure on each orifice line independently so pressures in one line do not affect the other line.
- ▶ Measures parameters in separate channels or separate bodies of water or within the same area as redundant sensors (-2 version)
- ▶ Install the Bubbler orifice with a vertical separation to get an extended range measurement of up to 50 psi total on a 25 psi unit.
- ▶ The -3 model adds special ultra-accurate density sensor with more accurate measurements (0.1%) than separate stage sensors on-site would produce.
- ▶ Bubbler is both a logger & sensor, capable of working as a stand-alone or with other loggers/communications devices via SDI-12, RS232 & RS485.
- ▶ Flash Log holds <300,000 readings & records status, water level data.
- ▶ SDI-12 & RS232/RS485 interfaces provide data to loggers or communications equipment
- ▶ Dual Orifice CF Bubbler supports MODBUS protocol.
- ▶ RS232 port supports a simple command line mode compatible with HyperTerminal & other communications programs.
- ▶ RS232 port also provides full access to setup, status & Bubbler data plus easy connection to a modem or radio.
- ▶ Front panel for setting up operating parameters, monitoring performance, testing, & examining the log
- ▶ Self-contained needing only external power & orifice tubing
- ▶ Long-life desiccant (1 year depending on local humidity & user set flow rate)
- ▶ User-set bubble rate for each line accommodates variety of field conditions
- ▶ User-set configuration of single, dual orifice lines & extended range (-2 only)
- ▶ Built-in, precision Accubar® sensor, accuracy 0-20ft 0.01 ft, 20-57.5 ft. 0.05% reading. 50 psi version's accuracy 20-115.3ft. 0.05% reading.
- ▶ User-configured averaging to filter out waves.
- ▶ User-set auto purge to keep the outlet clear of debris. Sensors auto zero after purge to prevent sensor drift.
- ▶ Easy maintenance swing-out panel
- ▶ Redundant data storage when connected to an external logger



Applications

- ▶ Meteorology
- ▶ Climatology
- ▶ Agrometeorology
- ▶ Natural Resources
- ▶ Oceanography
- ▶ Disaster Warning
- ▶ Water Level & Flow
- ▶ Water Quality
- ▶ Hydrology
- ▶ Structures
- ▶ Geotechnical
 - ✓ Dam Safety
 - ✓ Structural Stability



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SPECIFICATIONS

Measurements (2) Stage/Level/Pressure		Internal Temp, Battery. -3 model makes 1 stage/level/pressure measurement & 1 density measurement. Optional water temperature port.	
Automeasure Interval		1 sec to 24 hours	
Stage/Level/Pressure Accuracy		Pressure/stage/Level: 0.05% reading with minimum of 0.01 ft.	
Measurement Technique Constant flow with user-programmable bubble rate		-2 models: dual, independent Accubars measure 2 levels. -3 models: 1 Accubar for level & 1 for density	
Stage/Level/Pressure Range		25 psi, 57 ft, 17 m; 50 psi, 115 ft, 35 m	
Density Accuracy		0.1% (excluding orifice spacing error, -3 only)	
Water Temperature (Optional on -2 model. Standard on -3 model.)			
Types Supported		Platinum 385, Platinum 392, Thermistor, Custom	
Sensor Operational Range		-40°C to +60°C	
Accuracy		0.1°C (-5°C to +45°C)	
Resolution		0.01°C	
Suspended Sediment			
Operational Range		0 to 1,000,000 mg/L	
Accuracy 2 ft. separation		±500 mg/L	
		>10,000 mg/L = 10.0 % accuracy	
		>50,000 mg/L = 2.0 % accuracy	
		>100,000 mg/L = 1.0 % accuracy	
Maximum Purge Pressure		50 psi or 70 psi based on model	
Desiccant		Silica Gel, lasts up to a year	
Pressure Outlet		4/6mm tube or 3/8" tube based on model	
Enclosure		Fiberglass NEMA-4, IP64, lockable	
Communication Ports		SDI-12, RS232, RS485	
Communication Protocols		MODBUS (RS232 only), SDI-12, command line	
Operating Temperature		-25°C to +60°C standard -40°C to +60°C optional (Part #BBL-ET)	
Display Type		2x20 LCD with backlight	
Keypad Type		6 button	
Memory			
Built-In Flash		>300,000 readings	
SD/MMC Card		yes	
USB		no	
Ethernet		no	
Programming		via front panel, commandline or SDI-12	
Power Requirements		8 to 16 VDC	
Average Current		<15mA for 3 second measurement every 15 minutes, no purge <30 mA @12V for 120 sec. measurement every 5 min with 30 sec. purge daily.	
Pump-on Current (Max)		4 amp max, 2.5 amp typ, (8 amp max for 50 psi)	
Quiescent current		<1 mA	
Dimensions			
Standard		Shipping	
Height	15" (38.1 cm)	Shipping Height	20 in. (51 cm)
Length	15" (38.1 cm)	Shipping Length	15 in. (38.1 cm)
Width	7.5" (19.1 cm)	Shipping Width	10 in. (25.4 cm)
Weight	20 lbs. (9.1 kg)	Shipping Weight	22 lbs. (10 Kg)

ORDERING*

PART NUMBER	DESCRIPTION
56-0134-25-2	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 25 PSI max, dual sensors, 3/8 in. orifice
56-0134-25-2C	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 25 PSI max, dual sensors, 6mm orifice* (Canadian Users)
56-0134-50-2	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 50 PSI max, dual sensors, 3/8 in. orifice
56-0134-50-2C	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 50 PSI max, dual sensor, 6mm orifice* (Canadian Users)
w/WATER TEMPERATURE & SUSPENDED SEDIMENT	
56-0134-25-2-T	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 25 PSI max, dual sensors, with water temperature & suspended sediment measurement capabilities
56-0134-50-2-T	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 50 PSI max, dual sensors, with water temperature & suspended sediment measurement capabilities
56-0134-25-2C-T	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 25 PSI max, dual sensors, 6mm orifice*, with water temperature & suspended sediment measurement capabilities
56-0134-50-2C-T	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 50 PSI max, dual sensors, 6mm orifice*, with water temperature & suspended sediment measurement capabilities
56-0134-25-3-T	Constant Flow, Dual Orifice Bubble Gauge & Recorder, 25 PSI max, dual sensors, with density, water temperature, & suspended sediment measurement capabilities
ACCESSORIES	
5600-0100-100	Platinum 385 Water Temperature Sensor w/100 ft. cable
5600-0030-1-050	Thermistor Water Temperature Sensor w/50ft cable
2911-1279-1	Replacement Desiccant, full canister
2911-1183	Polyurethane, Black Orifice Tubing - 3/8" OD tubing, order by the foot (up to 2000')
6661-1314-1	Orifice Termination, fits 2" rigid pipe

* References to ft based on USGS conversion factor of 2.3073 ft water per psi (pure water @ 50° F. Specifications are subject to change without notice.