

923-ST1

Features

- "EZ Setup" Guided Setup for First Time Users
- Rate/Total and Batching Functions
- Menu Selectable Hardware & Software Features
- Environmental Compliance Monitoring and Report Generation
- Universal Viscosity Curve (UVC) and API Eq.
- Advanced Batching Features: Overrun Compensation, Autobatch Start, Print End of Batch, Slow Fill, 2 Stage Batching
- Isolated Outputs Standard
- RS-232 Port Standard, RS-485 Optional
- Advanced Printing Capabilities
- Windows™ Setup Software

Description:

The 923-ST1 Flow Computer satisfies the instrument requirements for a variety of flowmeter types in liquid applications. Multiple flow equations and instrument functions are available in a single unit with many advanced features.

The alphanumeric display shows measured and calculated parameters in easy to understand format. Single key direct access to measurements and display scrolling is supported

The versatility of the 923-ST1 permits a wide measure of versatility within the instrument package. The various hardware inputs and outputs can be "soft" assigned to meet a variety of common application needs. The user "soft selects" the usage of each input/output while configuring the instrument.

The isolated analog output can be chosen to follow volume flow, corrected volume flow, mass flow, temperature, or density by means of a menu selection. Most hardware features are assignable by this method.

The user can assign the standard RS-232 Serial Port for data logging, transaction printing, or for connection to a modem for remote meter reading.

A Service or Test mode is provided to assist the user during start-up system check out by monitoring inputs and exercising outputs and printing system setup.

Multi-Function Flow Totalizer, Ratemeter and Batcher



- DIN Enclosure with Two Piece Connectors
- On Board Data Logging
- DDE Server & HMI Software Available
- Enhanced Modem Features for Remote Metering

Specifications:

Flow Meters and Computations:

Meter Types: All linear and square law meters supported

including: vortex, turbine, magnetic, PD, target, orifice, venturi, v-cone and many others

Linearization: Square root, 16 point table or UVC table

Computations: Volume, Corrected Volume & Mass

Fluid Computations: Temperature, Density, Viscosity and

API 2540 for petroleum.

Environmental:

Operating Temperature: 0°C to +50°C

Storage Temperature: -40°C to +85°C

Humidity : 0-95% Non-condensing

Materials: U.L. approved

Listing: UL/C-UL Listed (File No. E192404), CE Compliant

Display:

Type: 2 lines of 20 characters

Types: Backlit LCD and VFD ordering options

Character Size: 0.3" nominal

User programmable label descriptors and units of measure

Keypad:

Keypad Type: Membrane Keypad with 16 keys

Enclosure:

Size: See Dimensions
 Depth behind panel: 6.5" including mating connector
 Type: DIN
 Materials: Plastic, UL94V-0, Flame retardant
 Bezel: Textured per matt finish

Real Time Clock:

The 923-ST1 is equipped with a battery backed real time clock with display of time and date.
 Format: 12 or 24 hour time display
 Day, Month, Year date display

Power Input:

The factory equipped power option is internally fused. An internal line to line filter capacitor and MOV are provided for added transient suppression.

110 VAC Power: 85 to 127 Vrms, 50/60 Hz
 220 VAC Power: 170 to 276 Vrms, 50/60 Hz
 DC Power: 12 VDC (10 to 14 VDC)
 24 VDC (14 to 28 VDC)

Power Consumption:
 AC: 11.0 VA (11W)
 DC: 300 mA max.

Flow Inputs:**Analog Input:**

Accuracy: 0.01% FS at 20° C
 Ranges
 Voltage: 0-10 VDC, 0-5 VDC, 1-5 VDC
 Current: 4-20 mA, 0-20 mA
 Basic Measurement Resolution:
 16 bit
 Update Rate: 4 updates/sec
 Automatic Fault detection: Signal over/under-range,
 Current Loop Broken
 Calibration: Software Calibration (no trimmers) and
 Auto-zero Continuously
 Extended calibration:
 Learns Zero and Full Scale of each range using
 special test mode.
 Fault Protection:
 Reverse Polarity: No ill effects
 Over-Voltage Limit: 50 VDC Over voltage
 protection
 Over-Current Protection: Internally current limited
 protected to 24VDC

Pulse Inputs:

Number of Flow Inputs: one with or without quadrature
 or pulse security checking
 Input Impedance: 10 K Ω nominal
 Pullup Resistance: 10 K Ω to 5 VDC (menu
 selectable)
 Pull Down Resistance: 10 K Ω to common
 Trigger Level: (menu selectable)
 High Level Input
 Logic On: 3 to 30 VDC
 Logic Off: 0 to 1 VDC
 Low Level Input (mag pickup)
 Sensitivity:
 10 mV or 100 mV
 Minimum Count Speed:
 Menu selectable
 Maximum Count Speed:
 Menu Selectable: 40Hz, 3000Hz or 20
 kHz
 Overvoltage Protection: 50 VDC

Auxiliary / Compensation Input:

The auxiliary/compensation input is menu selectable for
 temperature, density or not used. This input is used for
 the compensated input when performing compensated
 flow calculations. It can also be used as a general
 purpose input for display and alarming.

Operation: Ratiometric
 Accuracy: 0.01% FS at 20° C
 Basic Measurement Resolution:
 16 bit
 Update Rate: 1 update/sec minimum
 Automatic Fault detection:
 Signal Over-range/under-range
 Current Loop Broken
 RTD short
 RTD open
 Fault mode to user defined default settings
 Fault Protection:
 Reverse Polarity: No ill effects
 Over-Voltage Limit (Voltage Input): 50 VDC
 Available Input Ranges
 Voltage: 0-10 VDC, 0-5 VDC, 1-5 VDC
 Current: 4-20 mA, 0-20 mA
 Resistance: 100 Ohms DIN RTD

100 Ohm DIN RTD
 (DIN 43-760, BS 1904):
 Three Wire Lead Compensation
 Internal RTD linearization learns ice point
 resistance
 1 mA Excitation current with reverse polarity
 protection
 Temperature Resolution: 0.01 C

Control Inputs:

Switch Inputs are menu selectable for Start, Stop, Reset, Lock, Inhibit, Alarm Acknowledge, Print or Not Used.
Number of Control Inputs: 3
Control Input Specifications
Input Scan Rate: 10 scans per second
Logic 1: 4 - 30 VDC
Logic 0: 0 - 0.8 VDC
Input Impedance: 100 K Ω
Control Activation:
Positive Edge or Pos. Level based on product definition for switch usage.

Excitation Voltage:

Menu Selectable: 5, 12 or 24 VDC @ 100 mA (fault protected)

Relay Outputs:

The relay outputs are menu assignable to (Individually for each relay) Low Rate Alarm, Hi Rate Alarm, Prewarn Alarm, Preset Alarm or General purpose warning (security), low temperature/high temperature.

Number of relays: 2 (4 optional)
Contact Style: Form C contacts
Contact Ratings: 5 amp, 240 VAC or 30 VDC

Serial Communication:

The serial port can be used for printing, datalogging, modem connection and communication with a computer.

RS-232:

Device ID: 01-99
Baud Rates: 300, 600, 1200, 2400, 4800, 9600, 19200
Parity: None, Odd, Even
Handshaking: None, Software, Hardware

Print Setup: Configurable print list and formatting.

Print Out: Custom form length, print headers, print list items.

Print Initialization: Print on end of batch, key depression, interval, time of day, control input or serial request.

RS-485: (optional 2nd COM port)

Device ID: 01-247
Baud Rates: 2400, 4800, 9600, 19200
Parity: None, Odd, Even
Protocol: Modbus RTU (Half Duplex)

Data Logging:

The data logger captures print list information to internal storage for approximately 1000 transactions. This information can be used for later uploading or printing. Storage format is selectable for Comma-Carriage Return or Printer formats.

Isolated Analog Output:

The analog output is menu assignable to correspond to the Uncompensated Volume Rate, Corrected Volume Rate, Mass Rate, Temperature, Density, Volume Total, Corrected Volume Total or Mass Total.
Type: Isolated Current Sourcing
Available Ranges: 4-20 mA, 0-20 mA
Resolution: 12 bit
Accuracy: 0.05% FS at 20° C
Update Rate: 1 update/sec minimum
Temperature Drift: Less than 200 ppm/C
Maximum Load: 1000 ohms (at nominal line voltage)
Compliance Effect: Less than .05% Span
60 Hz rejection: 40 dB minimum
Calibration: Operator assisted Learn Mode
Averaging: User entry of damping constant to cause a smooth control action

Isolated Pulse output:

The isolated pulse output is menu assignable to Uncompensated Volume Total, Compensated Volume Total or Mass Total
Pulse Output Form: Photomos Relay
Maximum On Current: 25 mA
Maximum Off Voltage: 30 VDC
Saturation Voltage: 1.0 VDC
Maximum Off Current: 0.1 mA
Pulse Duration: 10 mSec or 100 mSec (user selectable)
Pulse output buffer: 256
Fault Protection
Reverse polarity: Shunt Diode

