

SUPERtrol-I

Multi-Function Flow Totalizer, Ratemeter and Batcher

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, Print End of Batch, Slow Start of Batch Fill, Slow End of Batch Fill, 2 Stage Batching
- Isolated Pulse, Analog and Relay Outputs Standard on AC Powered Models
- RS-232 Port Standard, Modbus RTU RS-485 Optional
- Advanced Printing Capabilities
- Windows™ Setup Software
- DIN Enclosure with Two Piece Connectors
- On Board Data Logging
- DDE Server & HMI Software Available
- Enhanced Modem Features for Remote Metering

Description:

The SUPERtrol-I 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 SUPERtrol-I 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. Remote metering software available.

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.



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 SUPERtrol-I 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
Temperature Accuracy: \pm 0.25°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

