

# SUPERtrol-I

## Multi-Function Flow Totalizer, Ratemeter

### Features

- "EZ Setup" Guided Setup for First Time Users
- Rate/Total
- 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
- DIN Enclosure with Two Piece Connectors
- On Board Data Logging
- DDE Server & HMI Software Available
- Enhanced Modem Features for Remote Metering
- NEW! - Attractive Wall Mount Enclosure

### 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.

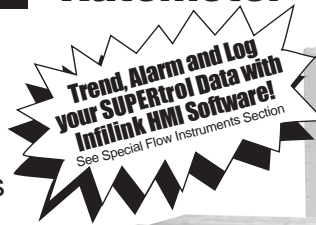
The alphanumeric display shows measured and calculated parameters in easy to understand format. Single key direct access to measurements and display scrolling is supported

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.

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 KΩ nominal  
 Pullup Resistance: 10 KΩ to 5 VDC (menu selectable)  
 Pull Down Resistance: 10 KΩ 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 KΩ  
 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

