

# SUPERtrol-I LE

## Economical Flow Totalizer, Ratemeter and Batcher

### Features

- EZ Setup Feature Speeds Instrument Setup
- Setup Diskette
- Advanced Batching Features, Including Quick Batching Sequence
- Menu Selectable Hardware Features
- Two Line LCD or VFD Display
- NEW! - 0-20mA or 4-20mA Analog Output
- NEW! - Attractive Wall Mount Enclosure
- Isolated Pulse Output Standard
- RS-232 Port Standard, RS-485 Optional
- Advanced Printing Capabilities
- Data Logging & Modem Remote Metering Support
- DIN Enclosure with Two Piece Connectors
- DDE Server & HMI Software Available



### Enclosure

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

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

### Flow Inputs:

#### Pulse Inputs:

Number of Flow Inputs: one (single or quadrature)  
Input Impedance: 10 K $\Omega$  nominal  
Pullup Resistance: 10 K $\Omega$  to 5 VDC (menu selectable)  
Pull Down Resistance: 10 K $\Omega$  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:

User selectable (as low as 1 pulse/99 seconds)

Maximum Count Speed:

Selectable: 40 Hz, 3000 Hz or 20kHz

Oversvoltage Protection: 50 VDC

Linearization: Average K or 16 Point linearization with separate forward and reverse tables

### Control Inputs

Number of Inputs: 3  
Switch Inputs are menu selectable for Start, Stop, Reset, Lock, Inhibit, Alarm Acknowledge, Print or Not Used.

#### 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 $\Omega$

#### 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)

### 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.

### Batching Features

Quick batching sequence, single or dual stage batching, slow fill, auto-batch restart and batch overrun compensation.

### Description:

The SUPERtrol-I LE Flow Computer satisfies the instrument requirements for a variety of pulse producing flowmeter types in liquid applications.

The alphanumeric display shows measured and calculated parameters in easy to understand format. Single key direct access to measurements and display scrolling is supported. An EZ Setup feature rapidly guides the user through the basic setup.

The SUPERtrol-I LE can be programmed for rate/total indication or batching. The various pulse inputs and outputs can be "soft" assigned to meet a variety of common application needs. The user "soft selects" the usage of each feature while configuring the instrument. A 0-20mA or 4-20mA analog output is standard.

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. An optional RS-485 serial port using Modbus RTU protocol is available.

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

### Specifications:

#### 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

Keypad Rating: Sealed to Nema 4

Number of keys: 16

**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.
- Print Initialization: Print on end of batch, key depression, interval, time of day or remote request.

RS-485: (optional 2nd COM port)

- Device ID: 01-247
- Baud Rates: 1200, 2400, 4800, 9600, 19200
- Parity: None, Odd, Even
- Protocol: Modbus RTU (Half Duplex)

**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).

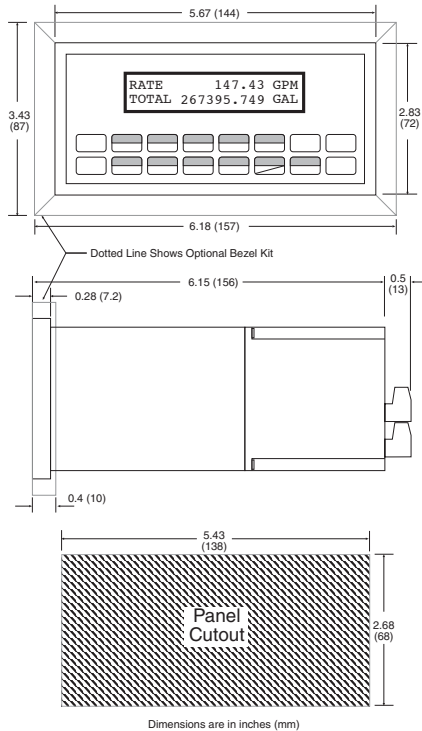
- Number of relays: 2 (4 optional)
- Contact Style: Form C contacts
- Contact Ratings: 5 amp, 240 VAC or 30 VDC

**Isolated Pulse output**

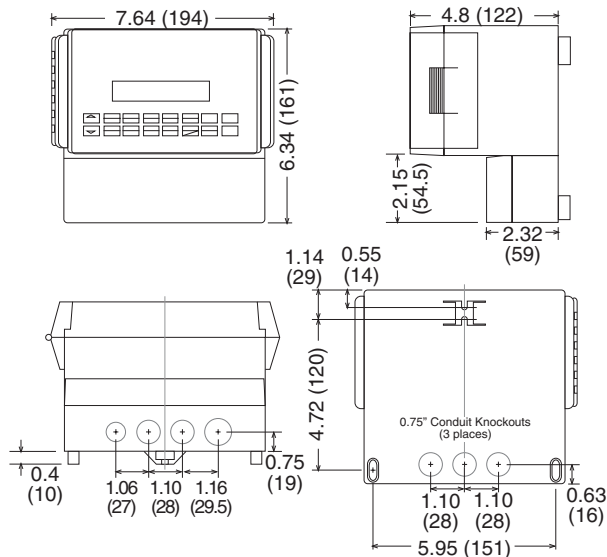
The isolated pulse output is assigned to Uncompensated Volume Total.

- 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 100mSec (user selectable)
- Pulse output buffer: 256
- Fault Protection
- Reverse polarity: Shunt Diode

**Fig. 1: Standard Dimensions**



**Fig. 2: Wall Mount ("W" mounting option) Dimensions**



**Terminal Designations**

1	DC OUTPUT	25	NC	COM RLY3	26	NO	COM RLY1	27	NO	COM RLY2	28	NO	COM RLY4	29	NO	POWER IN	DC+	DC-
2	PULSE IN 1	26	COM RLY1	27	NO	COM RLY2	28	NO	COM RLY4	29	NO	POWER IN	DC+	DC-				
3	PULSE IN 2	27	NO	COM RLY2	28	NO	COM RLY4	29	NO	POWER IN	DC+	DC-						
4	COMMON	28	NO	COM RLY4	29	NO	POWER IN	DC+	DC-									
5	DO NOT USE																	
6	DO NOT USE																	
7	DO NOT USE																	
8	DO NOT USE																	
9	CNTR IN 1																	
10	CNTR IN 2																	
11	CNTR IN 3																	
12	COMMON																	
13	PULSE OUTPUT +																	
14	PULSE OUTPUT -																	
15	ANALOG OUTPUT +																	
16	ANALOG OUTPUT -																	
17	NC																	
18	COM RLY1																	
19	NO																	
20	NC																	
21	COM RLY2																	
22	NO																	
23	AC LINE																	
24	AC LINE																	

**Ordering Information**

Example **ST1LE L 1 A 0 P ET**

Series: **ST1LE = SUPERtrol-I LE**

Display Type: **L = LCD**

**V = VFD**

Input Type: **1 = 110 VAC**

**2 = 220 VAC**

**3 = 12 VDC (10 to 14 VDC)**

**4 = 24 VDC (14 to 28 VDC)**

Relays: **A = 2 SPDT Relays**

**B = 4 SPDT Relays**

Network Card: **0 = None (STD)**

**2 = RS485/Modbus (optional 2nd COM port)**

Mounting: **P = Panel Mount** (see Fig. 1)

**N = NEMA 4 Wall Mount** (see NEMAtrolST4X)

**W = NEMA 12/13 Wall Mount w/ Clear Cover** (see Fig. 2)

**E = Explosion Proof (No Button Access)** (see XHVD 7/4)

**X = Explosion Proof (with Button Access)** (see XTROL 7/4)

Options: **TB = RS485 Terminal Block for Panel Mount Enclosure**

**ET = Extended Temperature** (consult factory)

**-4°F to 131°F (-20°C to 55°C)**

**IM = Internal Modem**

**M = Modem Power Option**

Accessories: **KEPS-KEP1-32 = KEP RS232 for SUPERtrol 1, SUPERtrol 1LE,**

**SUPERtrol 2 and LEVELtrol 2 • 32 Bit DDE Server**

Modem Available, see MPP-2400 and MPP-2400N (requires M option)

Serial printer available, see P1000, P295

Ethernet Port Server available, see IEPS

RS-422/485 to RS-232 Communication Adaptor available, see CA285

Remote metering and data collection software available, see TROLlink