

Rosemount Flow Computer

- “EZ Setup”- Guided Setup for First Time Users
- Liquid, Gas, Steam, Mass Flow, Heat Flow, and Corrected Volume Equations
- NX19 Gas Equations, Stacked DP Transmitters
- Isolated Pulse and Analog Outputs Standard
- RS-232 Port Standard, RS-485 Optional
Windows™ Setup Software
- Internal Data Logging
- Remote Metering by Modem Available
- Wall Mount Enclosures Available
- Applications
 - Utility Metering / Billing
 - Compensated Mass Flow
 - Energy Mass Balance



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Expand the Capability of Flow Measurement Technology

Expand Capabilities

The Rosemount Flow Computer satisfies the instrument requirements for a variety of flowmeter types in liquid, gas, steam and heat applications. Multiple flow equations are available in a single instrument with many advanced features.

Easy To Use

The alphanumeric display offers measured parameters in an easy to understand format. Manual access to measurements and display scrolling is supported.

Versatile

The versatility of the Flow Computer permits a wide measure of capabilities 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.

Adaptability

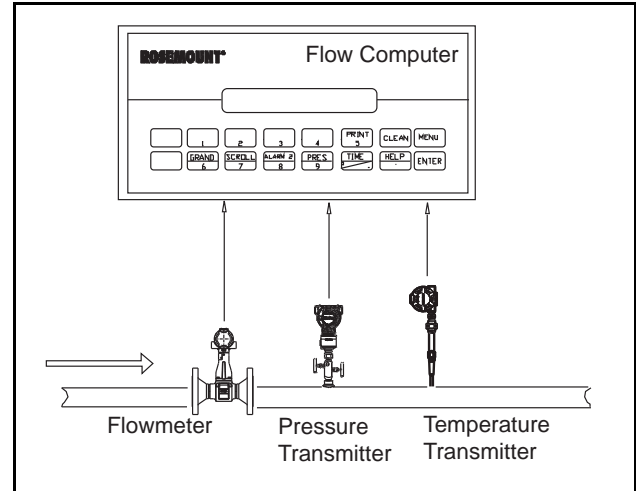
The isolated analog output can be chosen to follow the volume flow, corrected volume flow, mass flow, heat flow, temperature, pressure, or density by means of a menu selection. Most hardware features are assignable by this method.

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

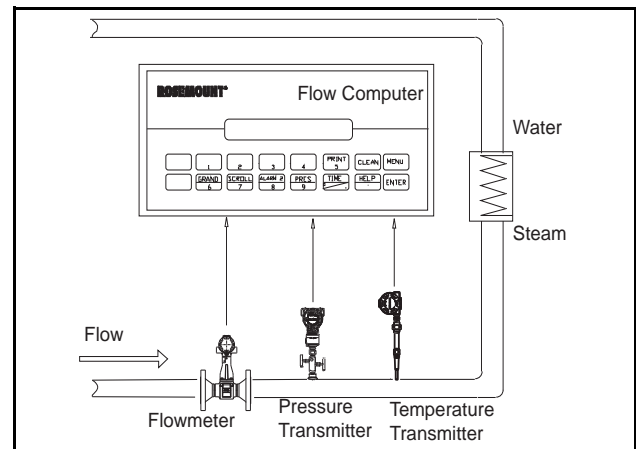
Simplified Verification

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.

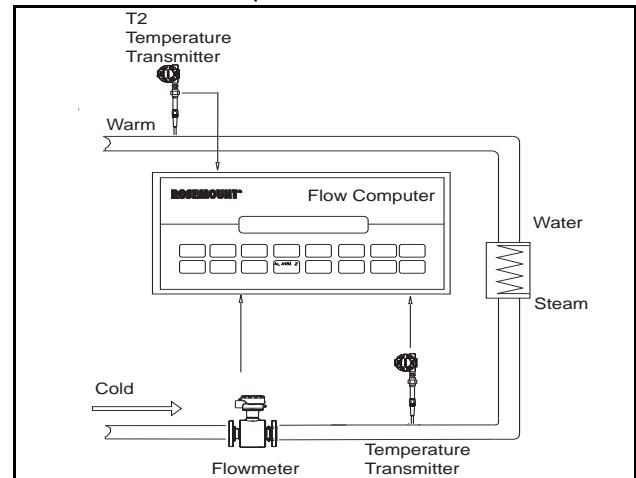
Steam Mass Flow



Steam Net Heat



Liquid Delta Heat



SPECIFICATIONS

Environmental

Operating Temperature: -4 to 131 °F
Storage Temperature: -40 to +85 °C (-40 to 185 °F)
Humidity: 0-95% Non-condensing
Materials: UL, CSA, VDE approved

Display

Type: 2 lines of 20 characters
Types: Backlit LCD
Character Size: 0.3" nominal
User selectable label descriptors and units of measure

Keypad

Keypad Type: Membrane Keypad
Keypad Rating: Sealed to NEMA 4
Number of keys: 16

Enclosure

Enclosure Options: Panel, Wall Mount NEMA 4, Wall Mount NEMA 12/13
Size: See Dimensional Drawings on page 8
Depth behind panel: 6.5" including mating connector
Type: DIN
Materials: Plastic, UL94V-0, Flame retardant
Bezel: Textured per matte finish

Power Input

The factory equipped power option is internally fused. An internal line to line filter capacitor is provided for added transient suppression. MOV protection for surge transient is also supported.
Universal AC Power: 85 to 276 Vrms, 50/60 Hz
DC Power Option: 24 VDC (16 to 48 VDC)
Power Consumption
AC Power: 6.5 V/A (6.5W)
DC Power: 300 mA max.

Flow Meter Types:

Linear: Vortex, Turbine, Positive Displacement, Magnetic and others
Square Law: Orifice, Venturi, Nozzle, Wedge, Averaging Pitot, Target and others
Multi-Point Linearization: May be used with all flowmeter types. Including: 16 point, dynamic compensation

Flow Inputs:

Analog Input:
Accuracy: 0.02% FS at 20° C
Ranges
Voltage: 0-10 VDC, 0-5 VDC, 1-5 VDC
Current: 4-20 mA, 0-20 mA,
4-20 mA stacked, 0-20 mA stacked
Basic Measurement Resolution: 16 bit
Update Rate: 4 updates/sec
Automatic Fault detection: Signal over/under range,

Current Loop Broken
Calibration: Operator assisted learn mode
Extended calibration: Learns Zero and Full Scale of each range
Fault Protection:
Fast Transient: 500 V Protection (capacitive clamp)
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
Input Impedance: 10 k Ohms nominal
Trigger Level: (menu selectable)
High Level Input
Logic On: 2.5 to 30 VDC
Logic Off: 0 to 2 VDC
Low Level Input (mag pickup)
Selectable sensitivity: 10 mV and 100 mV
Minimum Count Speed: 0.25 Hz (to maintain rate display)
Maximum Count Speed: Selectable: 0 to 50 kHz
Overvoltage Protection: 50 VDC

Temperature, Pressure, Density Inputs

The compensation inputs usage are menu selectable for temperature, temperature (Δ temp) 2, pressure, density, or not used.
Calibration: Operator assisted learn mode
Operation: Ratiometric
Accuracy: 0.02% FS at 20° C
Basic Measurement Resolution: 16 bit
Update Rate: 2 updates/sec minimum
Automatic Fault detection:
Signal Over-range/under-range
Current Loop Broken
RTD short
RTD open
Reverse Polarity: No ill effects
Over-Current Limit (current input) Internally limited to protect input to 24 VDC
Available Input Ranges
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: 0.1°C
Temperature Accuracy: 0.25°C

Stored Information (ROM)

Steam Tables (saturated & superheated),
Fluid Properties: Water, Air, Natural Gas, A Variety of User Entered Industrial Fluids or Generic User Entry

Rosemount Flow Computer

User Entered Stored Information (EEPROM /Nonvolatile RAM)

Transmitter Ranges, Signal Types

Fluid Properties

(reference density, expansion factor, specific heat, viscosity,
isentropic exponent, combustion heating value, Z factor)

Units Selections (English/Metric)

Excitation Voltage

24 VDC @ 100 mA (fault protected with self resetting fuse)

Relay Outputs

The relay outputs usage is menu assignable to (Individually for each relay) Hi/Lo Rate Alarm, Hi/Lo Temperature Alarm, Hi/Lo Pressure Alarm, Pulse Output (pulse options), Wet Steam or General purpose warning (security).

Number of relays: 2 (3 optional)

Contact Style: Form C contacts (Form A with 3 Relay option)

Contact Ratings: 240 V, 5 amp

Analog Outputs

The analog outputs are menu assignable to correspond to the Uncompensated Volume Rate, Corrected Volume Rate, Mass Rate, Heat Rate, Temperature, Density, or Pressure.

Number of Outputs: 2

Type: Isolated Current Sourcing (shared common)

Available Ranges: 0-20 mA, 4-20 mA (menu selectable)

Resolution: 16 bit

Accuracy: 0.05% FS at 20 °C

Update Rate: 5 updates/sec

Temperature Drift: Less than 200 ppm/°C

Maximum Load: 1000 ohms

Compliance Effect: Less than °.05% Span

60 Hz rejection: 40 dB minimum

EMI: No effect at 3 V/M

Calibration: Operator assisted Learn Mode

Averaging: User entry of DSP Averaging constant to cause a smooth control action

Listing: CE Compliant, UL/C-UL Pending

Serial Communication

The serial port can be used for printing, datalogging, modem connection, two way paging 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

RS-485: (optional 2nd COM port)

Device ID: 01-247

Baud Rates: 300, 600, 1200, 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 5000 transactions. This information can be used for later uploading or printing. Storage format is selectable for Comma-Carriage Return or Printer formats.

Isolated Pulse output

The isolated pulse output is menu assignable to Uncompensated Volume Total, Compensated Volume Total, Heat Total or Mass Total.

Pulse Output Form (menu selectable): Open Collector

NPN or 24 VDC voltage pulse

Nominal On Voltage: 24 VDC

Maximum Sink Current: 25 mA

Maximum Source Current: 25 mA

Maximum Off Voltage: 30 VDC

Saturation Voltage: 0.4 VDC

Pulse Duration: User selectable

Pulse output buffer: 8 bit

Fault Protection

Reverse polarity: Shunt Diodes

Over-current Protected

Over-voltage Protected

Real Time Clock

The Flow Computer is equipped with a nonvolatile real time clock with display of time and date.

Format:

24 hour format for time

Day, Month, Year for date

DIMENSIONAL DRAWINGS

FIGURE 1. Panel Mount Dimensions

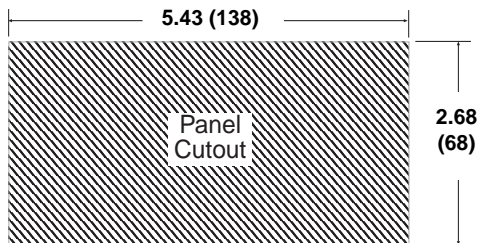
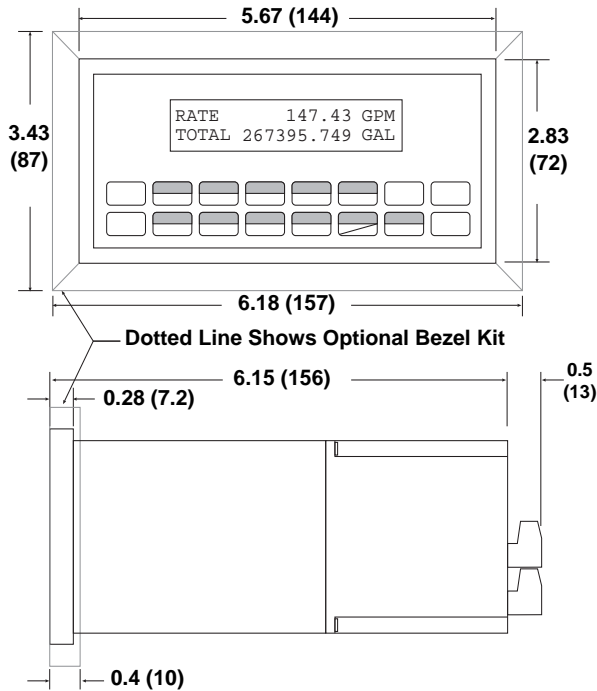


FIGURE 2. Terminal Designations

1	DC OUTPUT		
2	PULSE IN	Vin (+)	FLOW IN
3	-----	lin (+)	
4	COMMON		
5	RTD EXCIT (+)	TEMPERATURE	
6	RTD SENS (+)		IN
7	RTD SENS (-)	lin (+)	
8	DC OUTPUT		
9	RTD EXCIT (+)	PRESSURE	(TEMP 2)
10	RTD SENS (+)		IN
11	RTD SENS (-)	lin (+)	
12	PULSE OUTPUT (+)		
13	PULSE OUTPUT (-)		
14	ANALOG OUTPUT 1 (+)		
15	ANALOG OUTPUT 2 (+)		
16	ANALOG OUTPUT COMMON (-)		
17	NO		
18	COM RLY1		
19	NC		
20	NC		
21	COM RLY2		
22	NO		
23	AC LINE	DC (+)	POWER IN
24	AC LINE	DC (-)	

FIGURE 3. Wall Mount (NEMA 12/13) Dimensions

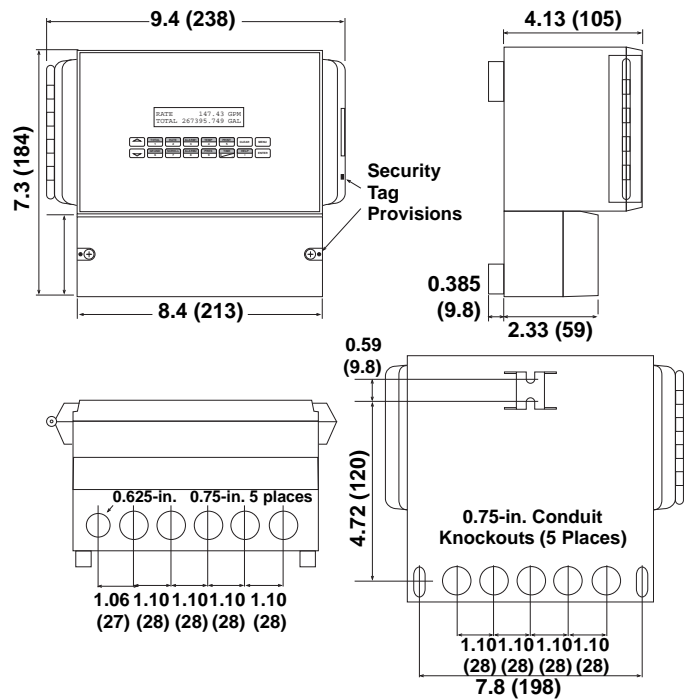


FIGURE 4. Standard Terminal Layout

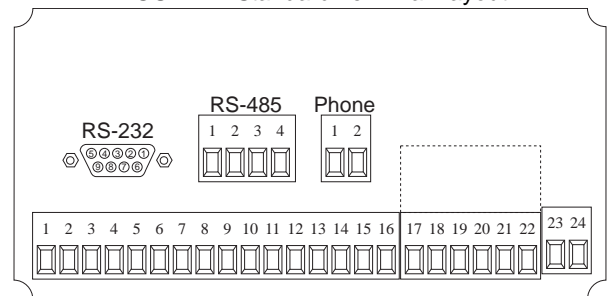
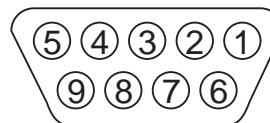


FIGURE 5. RS-232 DB-9 Pinout



1. Handshake Line (cd in)
2. Transmit (tx)
3. Receive (rx)
4. Do Not Use
5. Ground
6. Do Not Use
7. RTS Out
8. Do Not Use
9. DC Power Out*

*8 VDC Power supplied on Pin 9 to power modem

FIGURE 6. Wall Mount (NEMA 4) Dimensions

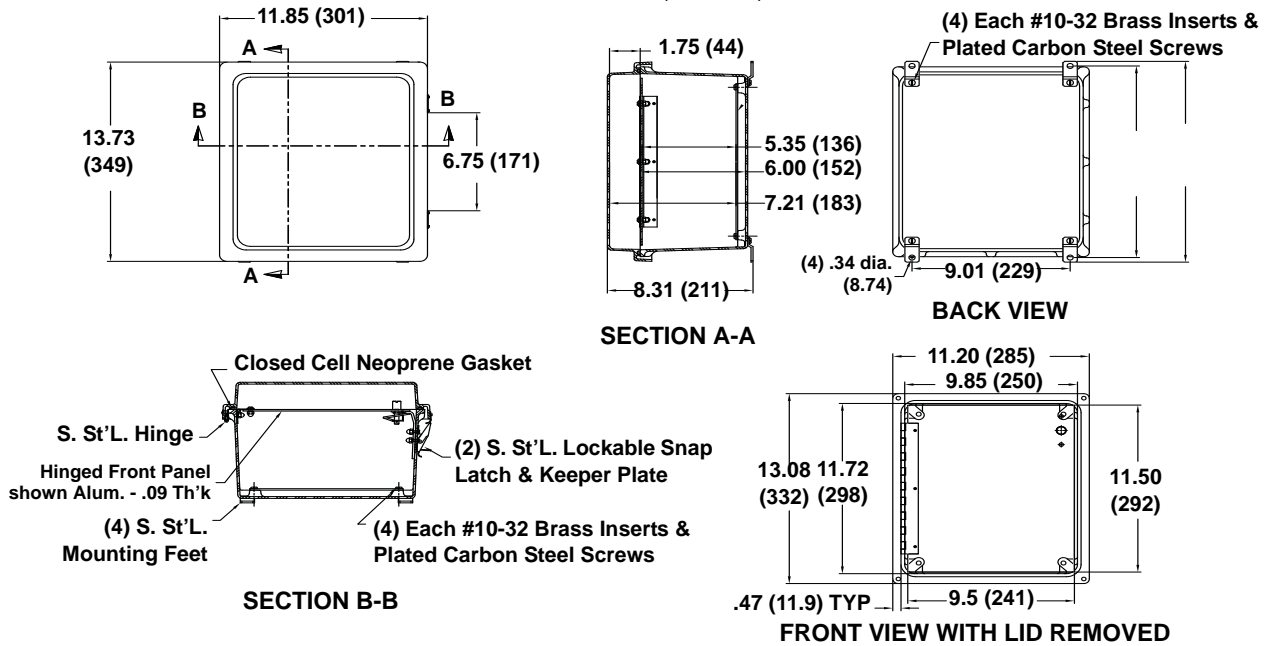
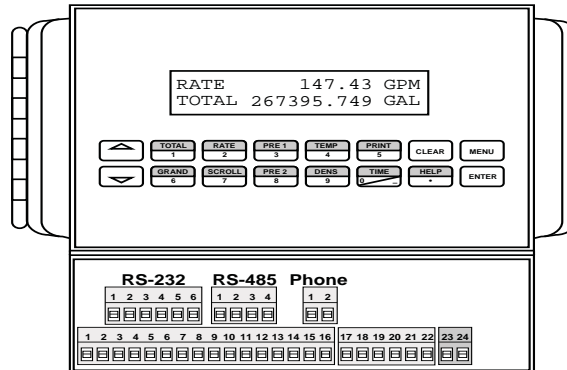
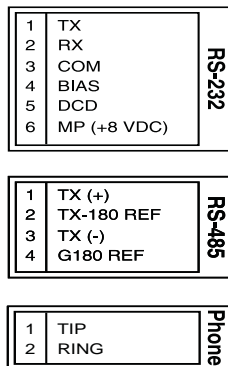


FIGURE 7. NEMA 12/13 Terminal Designations



1	DC OUTPUT		
2	PULSE IN	Vin (+)*	FLOW IN
3	-----	lin (+)	
4	COMMON		
5	RTD EXCIT (+)		TEMPERATURE
6	RTD SENS (+)		IN
7	RTD SENS (-)	lin (+)	
8	DC OUTPUT		
9	RTD EXCIT (+)		PRESSURE
10	RTD SENS (+)		(TEMP 2)
11	RTD SENS (-)	lin (+)	IN
12	PULSE OUTPUT (+)		
13	PULSE OUTPUT (-)		
14	ANALOG OUTPUT 1 (+)		
15	ANALOG OUTPUT 2 (+)		
16	ANALOG OUTPUT COMMON (-)		
17	NO RLY1	17	NO RLY1
18	COM RLY1	18	COM RLY1
19	NC RLY1	19	NO RLY2
20	NC RLY2	20	COM RLY2
21	COM RLY2	21	NO RLY3
22	NO RLY2	22	COM RLY3
23	AC LINE	DC (+)	POWER IN
24	AC LINE	DC (-)	

3 Relay Option

ORDERING INFORMATION

• Available
 - Not Available

Rosemount Part Number	Description	Panel	NEMA 4	NEMA 12/13
08800-0800-xxxx	Flow Computer	•	•	•
Input Type (Power Supply)				
1	AC (85 to 275 V)	•	•	•
3	DC (24 V)	•	•	•
Network Card				
0	None	•	•	•
1	RS-485	•	•	•
Mounting				
0	Panel	•	-	-
1	NEMA 4 Wall Mount	-	•	-
2	NEMA 12/13 Wall Mount	-	-	•
Options				
0	No Additional Option ⁽¹⁾	•	•	•
1	3 Relays	•	•	•
2	Internal Modem ⁽²⁾	•	•	•
Typical Part Number: 08800-0800-1000				

(1) Note: Peak Demand, AGA NX 19, Stacked DP, Data Logging, Manifold Flowmeter Control, Modem Power, and Extended Temp Display are Standard.

(2) Note: Internal Modem cannot be ordered in combination with RS-485 Card for NEMA 12/13 Mounting.

Rosemount Flow Computer

Product Data Sheet
00813-0100-4005, Rev BA
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