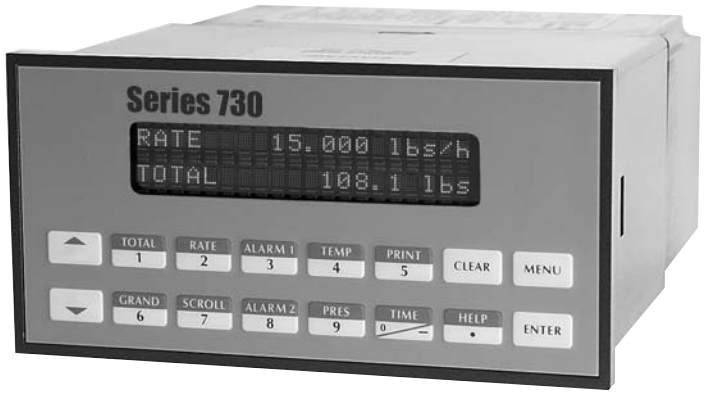
Product Data Sheet
PDS-730

Series 730

Technical Specifications

Series 730
Flow Computer



Description:
The Series 730 Flow Computer satisfies the instrument requirements for a variety of flowmeters in liquid, gas, steam and BTU applications. Multiple flow equations are available in a single instrument with many advanced features.

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

The versatility of the Flow Computer permits a wide measure of flexibility 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. Consider the following illustrative examples.

The isolated analog output can be chosen to follow the volume flow, corrected volume flow, mass 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.

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.

Features:
- "EZ Setup"- Guided Setup for First Time Users
- Liquid, Gas, Steam, Mass and BTU Flow Equations
- Utility Metering
- Menu Selectable Hardware & Software Features
- Internal Data Logging Option
- Isolated Pulse and Analog Outputs Standard
- RS-232 Port Standard, RS-485 Optional Windows™ Setup Software
- NX19 Gas Equations, Stacked DP Transmitters
- DDE Server & HMI Software Available
- Remote Metering by Wireless or Modem
- NEW! - Attractive Wall Mount Enclosure

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Specifications:

Environmental

Operating Temperature: 0 to +50 C
Storage Temperature: -40 to +85 C
Humidity : 0-95% Non-condensing
Materials: UL, CSA, VDE approved

Display

Type: 2 lines of 20 characters
Types: Backlit LCD and VFD ordering options
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, Explosion Proof
Size: See Dimensions
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 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 Cosumption
AC Power: 6.5 V/A
DC Power: 300 mA max.

Flow Meter Types:

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

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,
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 Ω 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 2, pressure, density or not used.

Calibration: Operator assisted learn mode
Operation: Ratiometric
Accuracy: 0.01% 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: 0.01 C

Stored Information (ROM)

Steam Tables (saturated & superheated),
Fluid Properties: Water, Air, Natural Gas or Generic

User Entered Stored Information (EEPROM / Nonvolatile RAM)

Transmitter Ranges, Signal Types
Fluid Properties
(specific gravity, expansion factor, specific heat, viscosity, isentropic exponent, combustion heating value, Z factor)
Units Selections (English/Metric)
Language Translations (optional)

Excitation Voltage

24 VDC @ 100 mA (fault protected)

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
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 Degrees 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:
- 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 aproximately 1000 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

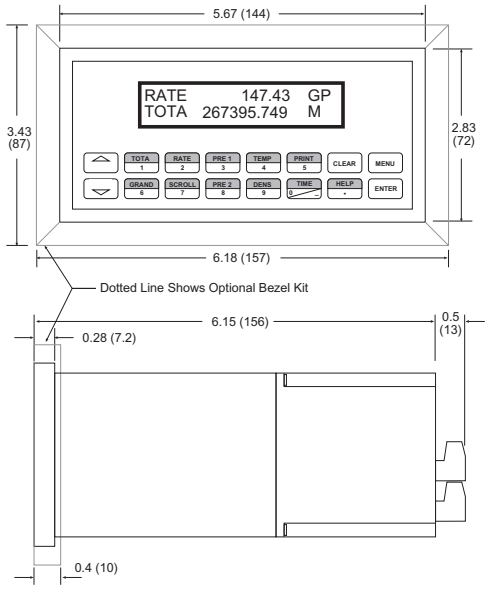
The isolated pulse output is menu assignable to Uncompensated Volume Total, Compensated Volume Total, Heat Total or Mass Total.

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 non-volatile real time clock with display of time and date.
Format:
- 24 hour format for time
- Day, Month, Year for date

Dimensions

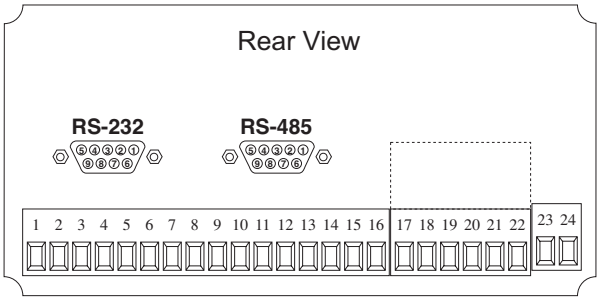


Dimensions are in inches (mm)

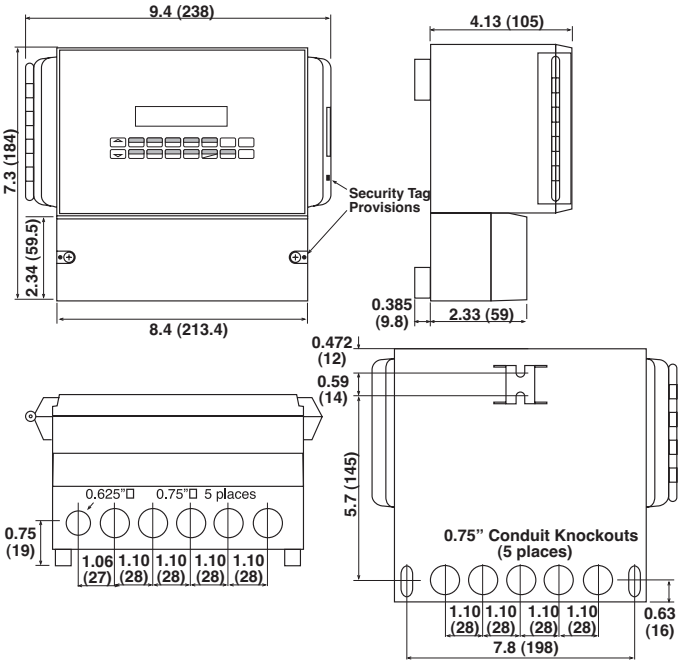
Terminal Designations

1	DC OUTPUT	FLOW IN	
2	PULSE IN	Vin (+)	
3	----------	Iin (+)	
4	COMMON		
5	RTD EXCIT (+)	TEMPERATURE IN	
6	RTD SENS (+)	Iin (+)	
7	RTD SENS (-)		
8	DC OUTPUT		
9	RTD EXCIT (+)	PRESSURE (TEMP 2) IN	
10	RTD SENS (+)	Iin (+)	
11	RTD SENS (-)		
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 (-)	

Terminal Layout



Wall Mount (option W)



Ordering Information

Example 730 L 1 0 P TU

Series:
730 = Flow Computer

Display Type:
L= LCD
V= VFD

Input Type:
1= 85 to 276 VAC
3= 24 VDC (16 to 48 VDC)

Network Card:
0= None
1= RS485/Modbus

Mounting:
P= Panel Mount
N= NEMA 4 Wall Mount
W= NEMA 12/13 Wall Mount w/ Clear Cover
E= Explosion Proof (No Button Access)
X= Explosion Proof (with Button Access)

Options:
2 = AGA NX-19 calculation for natural gas
3 = Three Relays
5 = Datalogger option (consult factory)
TB= RS485 Terminal Block for Panel Mount Enclosure

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