

MS-720

Multi-Function Flow Computer for Thermal Mass Flowmeters

Features

- Compatible with Thermal Mass Flowmeters
- Rate/Total and Batching Functions
- User Definable Units of Measure
- Menu Selectable Hardware & Software Features
- Auxiliary Power for Thermal Mass Flowmeters
- Monitoring and Report Generation
- 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 Panel Mount Enclosure with Two Piece Connectors
- On Board Data Logging
- DDE Server & HMI Software Available
- Enhanced Modem Features for Remote Metering
- Attractive Wall Mount Enclosure Option
- Bench Top Enclosure Option

Description:

The MS720 is a special purpose flow computer intended for use with Thermal Mass Flowmeters. The units of measure for flow rate and total can be entered by the user. An auxiliary, internal, high current, DC power supply is provided to power the Thermal Mass Flowmeters. Several DC power supply voltages are available.

The MS720 accepts analog input from Thermal Mass Flowmeter and provide linearization for the sensor and scaling to the flowrate and totalizer indicators. A variety of pulse output, analog outputs, control inputs, relay alarms, and RS232 outputs are provided standard. RS485 Modbus RTU is also an ordering option.

Enclosures are available suitable for panel, wall (Nema 4), benchtop, and explosion proof enclosure (Class 1 Div 1 Groups C+D) mounting schemes.



Specifications:

Flow Meters and Computations

Meter Types: Thermal Mass flowmeters plus 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/CUL Listed (File No. E192404), CE Compliant,

Display

Type: 2 lines of 20 characters
Types: Backlit LCD, OLED and VFD ordering options
Character Size: 0.2" nominal
User programmable label descriptors and units of measure

Keypad

Keypad Type: Membrane Keypad with 16 keys

Enclosure (Panel Mount Standard)

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 MS-720 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 (11.0 VA)
220 VAC Power: 170 to 276 Vrms, 50/60 Hz (11.0 VA)
24 VDC Power: (14 to 28 VDC); 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

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.

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)

Auxiliary DC Supply with High Current Capability

24 VDC 420 mA (600 mA Peak)

(Other voltages on request)

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.

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

RS-485:

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.



