



Series 1900 Flow Computer

The Series 1900 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.

The Series 1900 Flow Computer is compatible with Meriam Laminar Flow Element, Orifice, Venturi and AccuTube® Averaging Pitot flowmeter types. The alphanumeric display offers measured parameters in easy to understand format. Manual access to measurements and display scrolling is supported.

The Series 1900 Flow Computer 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. 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.

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 approximately 1000 transactions. This information can be used for later uploading or printing. Storage format is selectable for Comma-Carriage Return or Printer formats.

Listing

CE Approved, UL/CSA Pending

Series 1900



Flow Computer

Flow Inputs

Analog Input:

Accuracy: 0.01% FS at 20°C

Update Rate: 4 updates/sec

Temperature, Pressure, Density / Relative Humidity Inputs

The compensation inputs usage are menu selectable for temperature, temperature 2, pressure, density/relative humidity or not used.

Calibration: Operator assisted learn mode

Operation: Ratiometric

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

Voltage: 0-5 VDC, 0-10VDC on RH Input only

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

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 Flow 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	240V, 5 amp

Stored Information (ROM)

Steam Tables (saturated & superheated),

Fluid Properties: Water, Dry Air, Humid Air, Argon, CO₂, Ethylene, Helium, Hydrogen, Nitrogen, Oxygen, Methane, Natural Gas, Propane. Additional selections for dry or humid generic gas for general use.

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

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

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

Ordering Information

To order Meriam's Series 1900 Flow Computer custom-made to your specifications, please contact your Meriam sales representative with the following information:

- Display: Standard LCD or Optional Vacuum Fluorescent
- Power input: Standard Universal AC power (85 – 276 VAC) or 24 VDC
- Network Card: RS485/Modbus or none
- Optional Mounting: Panel, NEMA 4 Wall Mount, NEMA 12/13 Wall Mount with Clear Cover or Explosionproof (specify with or without buttons)
- Optional Outputs: 3-relays or datalogger

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: 5.6" x 2.8" x 6.65"

Depth behind panel: 6.5" including mating connector

Type: DIN

Materials: Plastic, UL94V-0, Flame retardant

Bezel: Textured per matt finish