



Technology Solutions

TEK-FC 8000B

NEMA 4X Field Mount Flow Computer



ACCESSORIES





Introduction

The Tek-FC 8000B Flow Computer satisfies the instrument requirements for a variety of flowmeter types in liquid, water, gas, steam and heat 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 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.

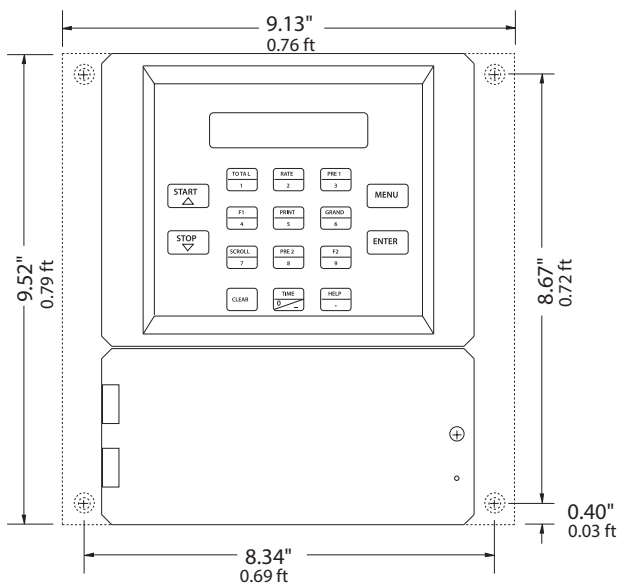
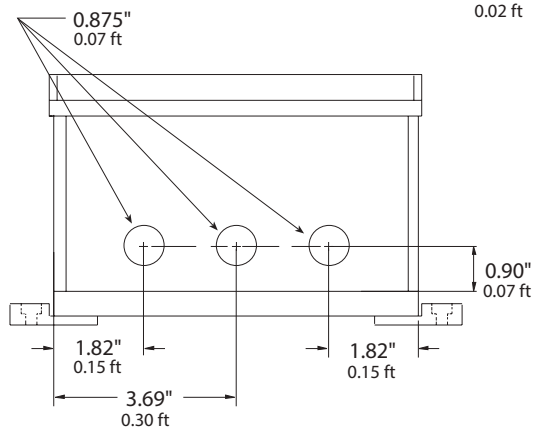
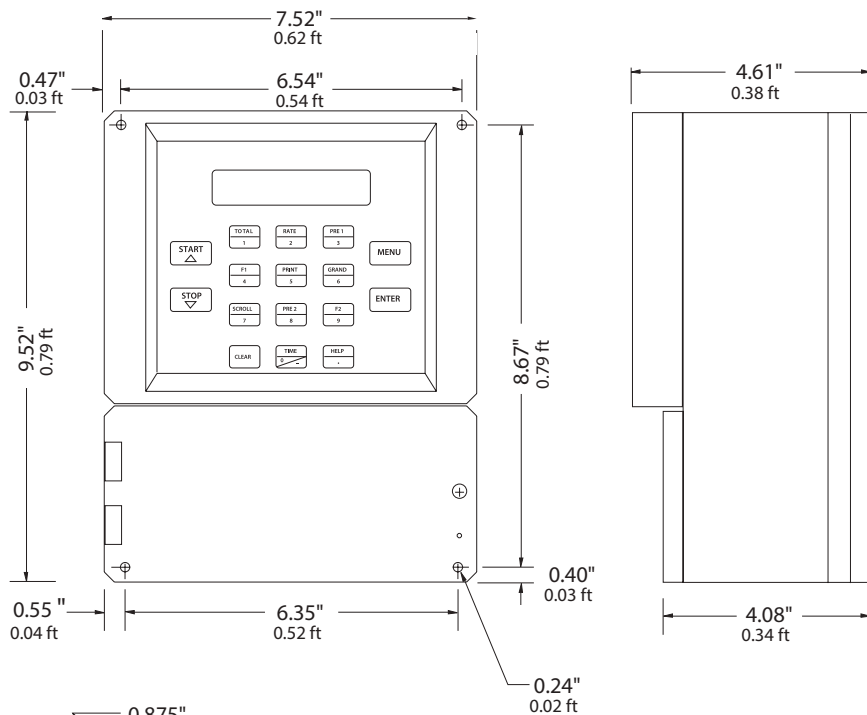
The isolated analog output can be chosen to follow the volume flow, corrected volume flow, mass flow, temperature, pressure, or density by means of a menu selection. Most hardware features are assignable by this method.

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.

Features

- "EZ Setup"- Guided Setup for First Time Users
- Liquid, Water, Gas, Steam and Heat Flow Equations
- Utility & Tariff 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
- Attractive, Rugged, Field Mount Enclosure

Dimensional Drawings



Specifications

Operating Temperature	-20 °C to 55 °C
Storage Temperature	-40 °C to 85 °C
Humidity	0-95% Non-condensing
Materials	UL, CSA, VDE approved
Display	Type: 2 lines of 20 characters, Types: Backlit LCD, OLED and VFD ordering options Character Size: 0.35"(8.3mm) nominal user programmable label descriptors and units of measure
Keypad	Keypad Type: Membrane Keypad with 116 keys, Keypad Rating: Sealed to NEMA 4X / IP65
Enclosure	Materials: Aluminum, UL94V-0 Keypad, Enclosure Rating: NEMA 4X Provisions for sealing unit
Power Input	The factory equipped power option is internally fused. An internal line to line filter capacitor s 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 DC Power: 300 mA max.
Flow Meter Types	Linear: Vortex, Turbine, Positive Displacement, Coriolis, Magnetic, Ultrasonic, 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.
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: 500V Protection (capacitive clamp) Reverse Polarity: No ill effects Over-Voltage Limit: 50 VDC Over voltage protection Over-Current Protection: Internally current limited protected to 24 VDC
Pulse Inputs	Number of Flow Inputs: one Input Impedance: 10 KΩ 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) Sensitivity: 10 mV and 100 mV Minimum Count Speed: 0.25Hz (to maintain rate display) Maximum Count Speed: Selectable: 0 to 50 kHz Over Voltage 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: 0.02% 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, Temperature Accuracy: ± 0.25 °C
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
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

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 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 and Other Common Fluids or Generic
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) Language Translations (optional)
Excitation Voltage	24 VDC @ 100 mA (fault protected)
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/CSA Optional
Serial Communication	The serial port can be used for printing, datalogging, modem connection, two way paging and communication with a computer. Termination: Terminal Block 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.
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

Popular Models

Model Number	Description
8000B-MS748	NEMA 4X Flow Computer

Customer Service and Support



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Tek-Trol LLC

796 Tek Drive Crystal Lake, IL 60014 USA
Tel: +1 847 857 6076, +1 847 655 7428 Fax: +1 847 655 6147
Email: tektrol@tek-trol.com
www.tek-trol.com