

Electro-Magnetic Flowmeters Smart AC Signal Converters

50SM1000

- **High Accuracy**
±1.0% of rate under reference conditions aided by microprocessor controlled, digital signal processing.
- **Process Alarms**
Signal converter allows for user configuration of high level or low level process alarm from 1 to 130% of specified range.
- **Back Lit LCD Display**
Indicates both rate and total on a 2 line x 16 character lighted liquid crystal display.
- **Configuration**
Converter is online during configuration
- **User Friendly Keypad for Data Entry**
Allows easy access to key configurable functions with the push of one button.
- **Remote Communications**
Via RS232C, RS485, or HART® Protocol.
- **Self Diagnostics**
Internal tests are performed and alarmed when failure conditions occur.
- **Self Test Mode**
Allows the converter to drive the outputs to any value between 0% and 100% to check out any other device in the loop.
- **Memory Storage**
All data is stored in non-volatile memory for 10 years without battery back-up.



Smart AC Signal Converter
Series 50SM1000D

Smart AC Signal Converter

The Series 50SM1000 Magnetic Flowmeter Signal Converter is a microprocessor based AC converter. The coils of the magnetic flowmeter are excited with line frequency current in order to establish the magnetic field. As a conductive liquid passes through this magnetic field, an electrical voltage is induced in the liquid which is directly proportional to its velocity. This induced voltage is sensed by the electrodes and sent to the converter which digitally manipulates and transforms these signals into analog and digital output signals.

The converter is designed to be mounted remotely on a pipe or wall with 100 ft. (15 M) of interconnecting cable supplied as standard.

The remote converter is housed in a cast, three piece aluminum housing for field mounting and is designed to meet NEMA 4X (IP65) standards.

Engineering Specifications

Full Scale Setting: Configurable from 0.5 to 10 m/s (1.5 to 33.3 ft/s)

Rangeability: 20:1.

Display: LED illuminated LC-display, 2 lines, each with 16 alphanumeric characters.

Data Entry: Input of configuration data is by means of a 6 key membrane keypad.

Program Protection: Software protection to restrict unauthorized adjustments of configuration data.

Bi-Directional Flow: Indication and totalization in both forward and reverse direction. Flow direction is indicated by contact closure. The active pulse output option provides an output for each flow direction.

Output Signal: Analog current 4-20 mA, 0-20 mA, user defined into 0-500 ohm load.

Isolation: Inputs and outputs are isolated 400V

Scaled Frequency Output: All pulse widths for the outputs listed below are configurable from 0.1 ms to 2000 ms. Pulse factors from 0.001 to 1000 per selected unit.

- Max pulse width: 50 ms
- Pulse amplitude: 24V @ load > 150 ohms
- Max count frequency: 1000 Hz.

Contact Outputs:

- Relay: max 28V, max 250 mA, max 3 W.
- Opto coupler: UCE < 25 V dc, ICE < 7.5 mA.

Accuracy:

Frequency: 1.0% of rate or 0.005 m/s, whichever is greater

Analog: add 0.1% of range to frequency specification

Repeatability: $\pm 0.2\%$ of rate or ± 0.005 m/s, whichever is greater.

Power Supply : 230 or 115V ac $\pm 10\%$

Line Frequency: 47 to 53 Hz or 56 to 64 Hz.

Power Consumption: < 30 VA

Low Flow Cut-Off: 0 to 10% configurable.

Maximum Cable Length: 100 ft between primary and signal converter.

Serial Interface : for remote communications.

- via RS232

Baudrate:	110 to 9600 Baud
Max Cable length:	45 ft. (15m)
# of nodes:	1 instrument

- via RS485

Baudrate:	110 to 28.8K
Baud Max Cable length:	4000 ft (1200 m)
# of nodes:	32 instruments

- via HART[®] Protocol

1200 bits/s using frequency shift keying	
Max cable length:	5000 ft (1500 m)

Damping: 1 to 100 sec configurable.

Response Time: 250 ms.

Conductivity: > 20 μ S/cm.

Zero Return: Provides constant zero output signal during conditions when false flow signals are possible. Activated by external non-powered contact.

Empty Pipe Detection: This feature automatically drives both the analog and digital output signals to zero when the electrodes become uncovered. Maximum cable length is 50 ft.

Remote Totalizer Reset: Resets both forward and reverse totalizer from a remote location. Zero return feature not available with this option.

Ambient Temperature:

14°F to 122°F (-10°C to +50°C)

Remote Enclosure Classification:

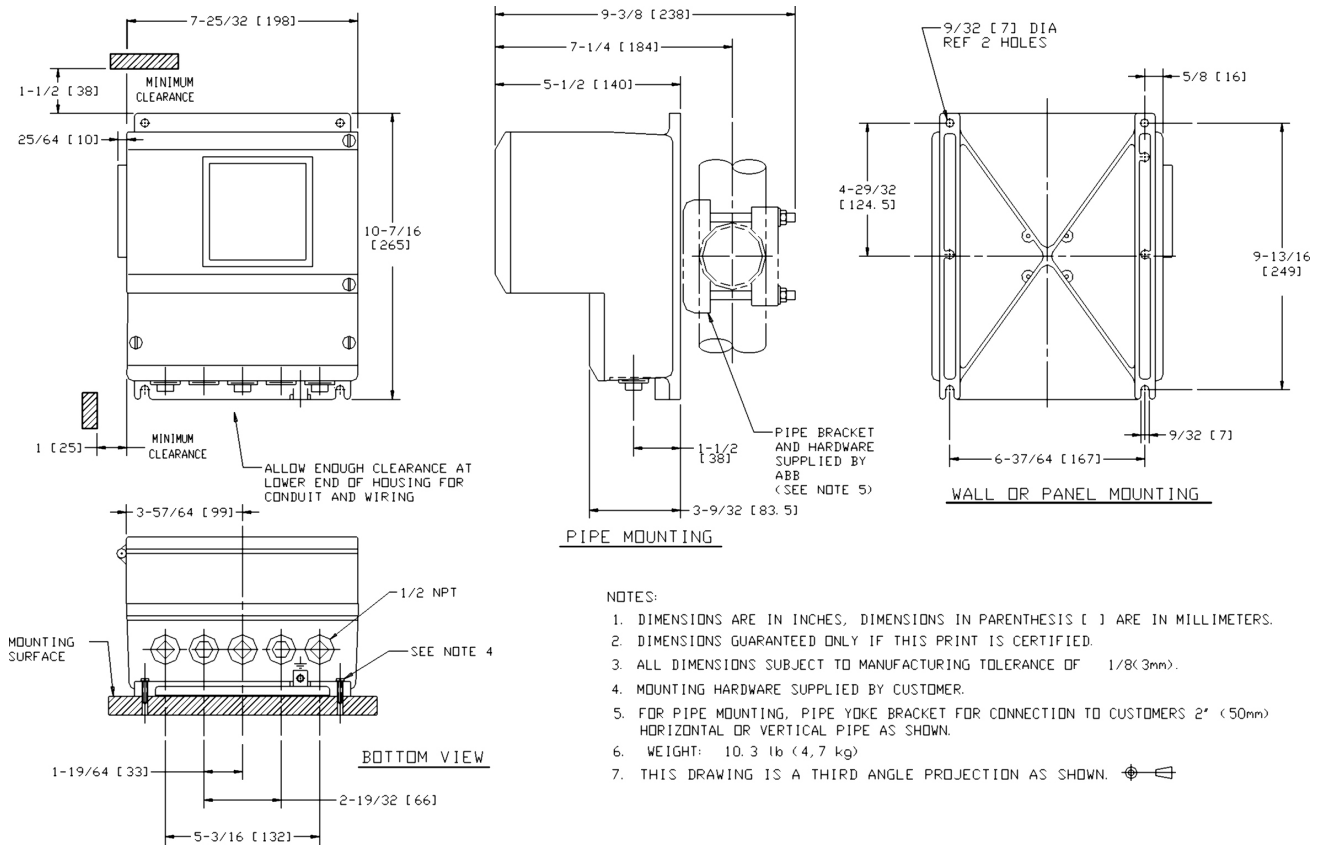
Enclosure Classification:	NEMA 4X (IP65)
Weight:	9.7 lbs. (4.4 Kg)
Material:	Cast Aluminum
Cable Entry:	1/2" NPT 5 positions
Mounting:	Wall or 2 inch pipe

Equipment Description

The magnetic flowmeter signal converter shall be microprocessor based of the line frequency electromagnetic induction type and shall produce a AC signal directly proportional and linear to the liquid flowrate. The meter shall be designed for operation on 115 Vac $\pm 10\%$ 60 Hz ± 4 Hz with a power consumption of less than 50 VA. The magnetic flowmeter converter shall be series 50SM1000.

A full keypad shall be supplied for all data entry. Remote communications shall be available via RS-232C, RS-485, or HART® Protocol.

Dimensions



Hart® is a registered trademark of the HART Communication Foundation

