

Combining Dual Frequency Doppler (DFD) technology with digital signal processing, the Polysonics SX40 is immune to much higher levels of external noises than with standard Doppler technology. The DFD technique reduces errors in flow measurement of fluids which contain particulates thus improving the ability to operate in what were previously considered marginal applications.

Polysonics SX40

Dedicated Dual Frequency Doppler Flowmeter



Applications

- Primary sludge
- Digested sludge
- Thickened sludge
- Waste activated sludge
- Return activated sludge
- Slurries
- Dredging

Features and Benefits

- Accuracy to $\pm 1\%$ of velocity fullscale
- Password protection
- Backlit graphics display
- Excellent noise immunity
- Easy to install and set up
- AC or DC supply operation
- Powerful 90,000 point data logger

Unlike conventional Doppler flowmeters which operate at a single frequency, the Polysonics SX40 generates two independent ultrasonic signals at different frequencies. By correlating these frequencies, the instrument automatically identifies and eliminates noise errors from sources such as variable frequency drives.

In addition, the operation of the instrument is enhanced by an Expert System which allows the flowmeter to automatically "learn" the application parameters. As a result, the Polysonics SX40 can be easily commissioned in a fraction of the time necessary to configure competitive ultrasonic flowmeters.

Housed in a NEMA 4X (IP65) enclosure, the instrument is well suited to most municipal and industrial environments. The backlit graphics display provides excellent visibility even in poorly lit conditions. Outputs include a 12-bit, optically isolated, 4-20 mA analog signal

and up to four independent programmable relays. The relays can be used for pump control, fault indication, limit switching, sampler activation, power down alarming or remote totalizer driving. In addition, a contact closure activated by a remote pump or other control device is available to eliminate unwanted or erroneous flow volume data when backflow conditions are present. A powerful 90,000 point data logger with non-volatile memory is also incorporated in the instrument. This avoids the additional cost of a chart recorder or external data logger for applications where continuous flow recording is required.

Thermo Electron Corporation manufactures a comprehensive range of ultrasonic flowmeters for closed full pipe, partially filled pipe and open channel applications. Models are available for raw sewage, centrates, filtrates, plant effluent, raw water, surface water, groundwater, finished water and chemicals.

Polysonics SX40 Dedicated Dual Frequency Doppler Flowmeter

Specifications

Performance Specifications

Velocity Range	0.06 to 5.5 m/s (0.2 to 18 ft/s), volumetric value based on cross-sectional area of pipe
Accuracy	±1% of velocity full scale
Fluids	Liquids containing particulate or entrained gas bubbles
Pipe Size	12 to 5000 mm (0.5 to 200 in)

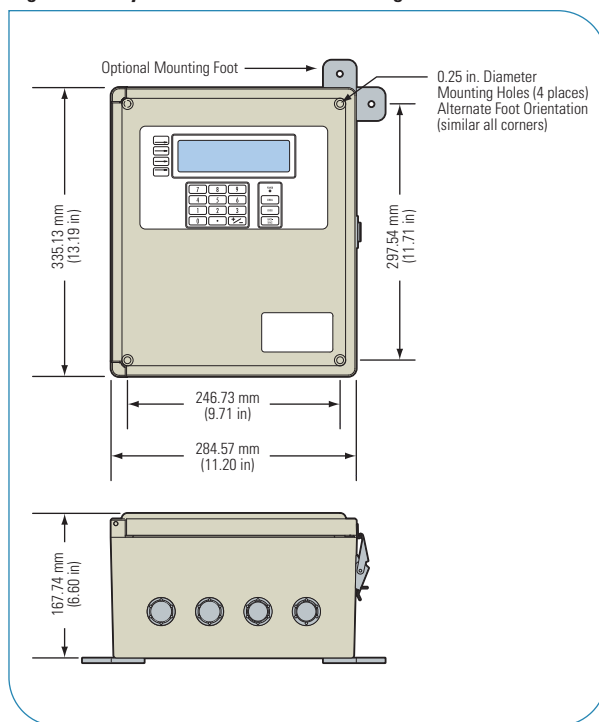
Physical Specifications

Transmitter	NEMA 4X (IP65), flame retardant fiberglass-reinforced polyester
Transducers	Two encapsulated dual frequency sensor heads suitable for underground service Encased in stainless steel shrouds with integral transducer clamps 9 m (30 ft) cable length - standard
Weight	Approximately 5.4 kg (12 lbs)

Functional Specifications

Outputs	4-20 mA (into 750 ohms); 12-bit, 5 kV, opto-isolated, loop or self-powered; RS232 serial interface
Power Supply	90-132 Vac or 190-250 Vac, 50/60 Hz (switch selectable); 11-28 Vdc
Temperature Range	Transducers: pipe surface -40° to +121°C (-40° to +250°F); ambient air limited to +80°C (+176°F) Electronics: -29° to +60°C (-20° to +140°F) With integral heater: -40° to +60°C (-40° to +140°F)
Keypad	19 key with tactile action
Display	Backlit, 240 x 60 dot, high resolution graphics display
Data Logger	90,000 point data logger Programmable in log intervals of 30 sec, 1, 5, 15, 30, 60 mins <i>HydraScan</i> retrieval software for Windows® included as standard Compatible with Microsoft® Excel, Lotus® 1-2-3 and other similar packages
Compliance	Hazardous area certifications (see ordering information below)

Figure 1 – Polysonics SX40 Dimensional Diagram



Ordering Information

MODEL NUMBER

SX40: Polysonics SX40 Dedicated DFD Flowmeter

POWER SUPPLY

1: 90-132 Vac, 50/60 Hz **3:** 11-28 Vdc
2: 190-250 Vac, 50/60 Hz

OUTPUTS

0: 4-20 mA, no relay (standard)
1: One relay, 5 amp, SPDT, programmable
2: 2 relays, 5 amp, SPDT, programmable
3: 3 relays, 5 amp, SPDT, programmable
4: 4 relays, 5 amp, SPDT, programmable

TRANSMITTER ENCLOSURE

1: NEMA 4X (standard)
2: NEMA 7

TRANSDUCER CABLE LENGTH

X30: 9 m (30 ft) standard cable
XXX: Optional cable length in feet, XXX = 050, 075, 100, 125, 150, 200, 250 or 300

HAZARDOUS AREA CERTIFICATION

A: CSA (Class I or II, Div. 2)
B: CSA (Class I, II or III, Div. 1)
C: CENELEC (LCIE)

MODEL NUMBER
SX40

POWER SUPPLY
A

OUTPUTS
B

ENCLOSURE
C

CABLE LENGTH
D

CERTIFICATION
E

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