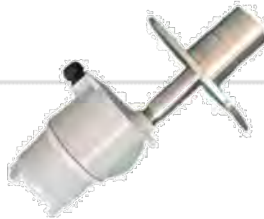




An International Solution Provider

DELTA-PHASE ELECTRONICS, INC.



Alpha6000

Ultrasonic Gas Flowmeter
For Gases

ALPHA6000 ULTRASONIC FLOWMETER

General Purpose Gas Flowmeter

The Alpha6000 ultrasonic flowmeter works according to the acoustic transit time differential method. Ultrasonic transducers mutually send and receive short pulses with and against the gas flow direction which affects their transit time. The volume flow is calculated from the difference of transit times.

Auto-Correlation Detection Technique

Alpha6000 Ultrasonic Gas Flowmeter employs digital signal auto-correlation method to reduce the interference caused by pipe vibration, valve opening or closing, which greatly improves the measurement reliability. Alpha6000 can be used for flow measurement in harsh industrial fields and conditions.

Accuracy

Accuracy is up to $\pm 2\%$ of FS. Wide rangeability with 150 to 1 turndown ratio. The dual channel flowmeter that would improve the accuracy and that also measure the flow in two separate pipes or at two different places in the same pipe is optional. And the flowmeter can measure both bi-directional flows.

Micro-Processor Design

The transmitter based on microprocessor is modular design. The meters can display flowrate, total flow, signal strength. Output: analog 4~20mA, pulse, RS485, Bluetooth.

No Pressure Drop, Low Maintenance

Since the transducers of Alpha6000 Gas Flowmeter do not obstruct the flow, they generally do not cause any pressure drop as other types of flowmeters do. The Alpha6000 has no parts that foul or collect debris, and no moving parts to wear out. As a result, it requires no lubrication, cleaning or other routine maintenance.

Mass Flow Measurement

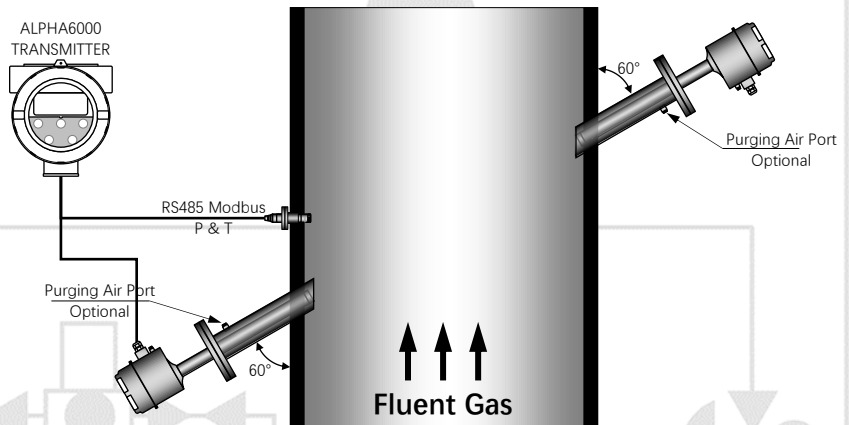
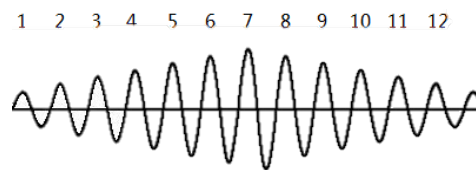
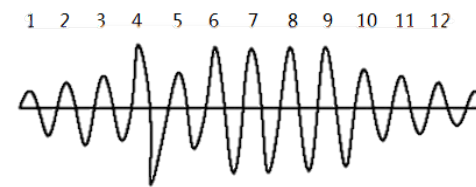
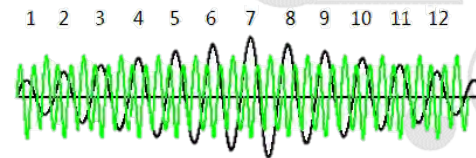
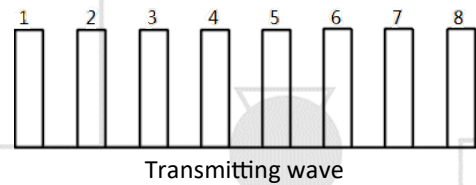
The meter can connect optional integral Pressure and Temperature sensor by RS485/Modbus to get these two parameters for Mass Flow calculation.

Applications

The Alpha6000 series flow meters are designed to work on clean and dirty fluids. Difficult applications include wet gases, mixed gases and custody transfer.

- Vent gas
- Fuel gas
- Coke gas
- Biogas
- Waste gas
- Flue gas

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Features

- Application for wet or dirty gases
- Continuous measurement of flow volume and gas velocity
- Optional automatic zero point and reference point calibration check
- Optional inputs of temperature and pressure signals for mass flow calculation
- Optional transducer water cooling system for high temperature application

ALPHA6000 ULTRASONIC FLOWMETER

Specification

Electrical Specifications	Transducer Specifications	Overall Specifications
<p>Power Supply: 90-240 VAC, 50/60 Hz for standard meter; 12 to 36 VDC for Ex-proof meter. Power consuming < 5W</p> <p>Operating Temperature: -4 to 158 °F (-20 to 70 °C)</p> <p>Display: LCD for Standard meter/OLED for Ex-proof meter (Flow, Flow rate, Total Flow, Signal strength etc.)</p> <p>Inputs: Digital signal of optional Temperature and Pressure sensors for Mass Flow calculation.</p> <p>Outputs: Analog: 4 to 20 mA, Max 600 Ω; Isolated Pulse; SPDT Relay for limit or system alarm, 0.5A@30VDC</p> <p>Digital Interface: RS485 Modbus, Blue tooth 5.2.</p> <p>Enclosure: <u>The standard ½ DIN meter is enclosed in a Polycarbonate housing. The Explosion proof meter with die-casting aluminum housing has Ex-proof approval code: Ex d IIC T6.</u></p> <p>Dimensions: Standard meter: 5.83X5.83X4.53" (148X148X115mm) Ex-proof meter: Dia. 4.6 x 8.1 in.(Dia. 117 x 206 mm)</p>	<p>Process Temperature: 32 to 194°F (0 to 90°C) 32 to 392°F (0 to 150°C) with purging</p> <p>Process Pressure: 0 to 145 Psi (0 to1 MPa)</p> <p>Process Connection: Universal flanges or retractive Ball-valve assembly (Depends on sensor type and application).</p> <p>Cable & Length:</p> <ul style="list-style-type: none"> • Standard: Length to 10 ft. (3.05 m) • Optional: Length up to 1000 ft. (305 m) <p>Material: 316L SS housing with PVDF face; Consult factory for special requests.</p> <p>Protection: IP68</p> <p>Pipe Size: 10" to over 315" (250mm to over 8000mm)</p>	<p>Accuracy: Less than 2% of reading <i>Accuracy depends on pipe size and whether measurement is one-path or two-path. Accuracy to ±0.5% of reading may be achievable with process calibration.</i></p> <p>Repeatability: ±0.2% to 0.5% of reading</p> <p>Rangeability: 150:1</p> <p>Velocity Range : 0.1 ft./s to 131 ft./s (0.03 m/s to 40 m/s)</p> <p>Channel Options:</p> <ul style="list-style-type: none"> • Standard: Single channel • Optional: Dual channels



Order Code

Alpha6000 Ultrasonic Gas Flowmeter Transmitter			
Encloser	-	Standard housing	
	-Ex	Explosion proof (Ex d IIC T6)	
Channels		-	Single Channel
		-D	Dual Channels
Power		-AC	90VAC to 260VAC
		-DC	12 to 36 VDC
Alpha6000	-	-	-AC

Alpha6000 Ultrasonic Gas Flow Sensor		
Sensor Type	-K120	A pair of Sensor with 1-1/2" ball-valve assembly for pipe size from 10" to 40" (250mm to 1000mm)
	-K75	A pair of Sensor with 4" ANSI 150# flange for pipe/duct size from 20" to 80" (500mm to 2000mm)
	-K50	A pair of Sensor with 4" ANSI 150# flange for duct/stack size from 40" to 197" (1000mm to 5000mm)
	-K40	A pair of Sensor with 5" ANSI 150# flange for stack size from 118" to 315" (3000mm to 8000mm)
		Consult factory for other installation.
Cable Length	-C10	10' about 3.1m
	-C30	30' about 7.6m
	-C50	50' about 15m ...
Alpha6000	-K50	-C30

Flue Gas Monitoring

Flue gas is the gas that eventually exhausted of combustion process. It comes from coal-fired boiler, incinerators, gas and oil fired boiler, blast furnace, coke oven and industrial furnace etc.

There are more problems for other flowmeters in application, such as: large diameter flue, low pressure, dust, moisture and other impurities, which will make troubles on measurement and daily maintenance.

Alpha6000 Ultrasonic gas flow meters have demonstrated their ability to measure the gas of flue conditions that contain such problems.



DELTA-PHASE ELECTRONICS, INC.

3 Peters Canyon Rd, Suite 100,

Irvine, CA 92606 U.S.A.

Phone: (949) 701-7728

<http://www.delta-phase.us>

Represented by: