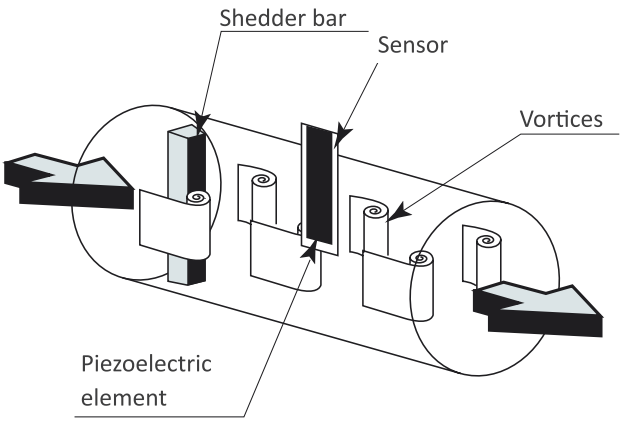
VF-8100 Series High Accuracy/ Non-contact Flow Sensing in PFA

DESCRIPTION

The VF-8100 consists of an inline flow sensor and electronics in one package. The flow sensor is a straight-through PFA tube that uses ultrasonic sensing technology to measure the flow rate. There are no moving parts or mechanical seals. The VF-8100 is an ideal choice for use in the semiconductor industry where minimal footprint, high purity and corrosion resistant wetted parts are required.

OPERATING PRINCIPLE

When a columnar object (object that generates vortices) is placed in the flow path of a fluid, regular channels of vortices, called Karman vortex channels, are generated at the back of the object. Since the frequency of a vortex generated is linearly proportional to the flow velocity within a given range, the flow amount can be measured by counting the number of vortices. The flowmeter makes use of this principle When the frequency of each vortex generated is detected by the incorporated vortex dectector (piezoelectric device), the signal processing circuit outputs a signal which is linearly proportional to a volume flow.



KEY FEATURES

- Due to no moving parts, the meter has superior reliability and durability and no error in mounting position
- Simple construction (its flow path of fluid contains a columnar object and a vortex detector only) ensure low pressure loss and low liquid leak. In addition, the detector does not get into contact with the fluid running through the path; therefore, it is ideal for process monitoring of various liquids.
- Two types of particle-free body materials (PPS and PFA) are available for choice according to your needs
- Global specification (CE Marking)
- Since PSA is the material for the entire wetted part and no o-rings is in use, the flowmeter is optimum for monitoring liquid flows in the manufacturing process of semiconductors.

BENEFITS

The VF-8100 utilizes the latest digital signal processing (DSP) technology and provides cost effective flow measuring solutions with minimum compromise in performance. Compact integrated (sensors/electronics) package saves space and minimizes cabling facilitating an easier installation.

Performance Specifications

	VF-8102	VF-8103	VF-8106	VF-8108
Tube Size / End connections	3/8"	1/2"	3/4"	1"
Standard Flow Range *	0.4 to 4 L/min	2 to 20 L/min	5 to 50 L/min	10 to 100 L/min
Accuracy	± 2 % F.S.*	± 2 % F.S.	± 2 % F.S	± 2 % F.S
Repeatability	Within ± 0.5 % F.S.			
Fluids for Measurements	Ultrapure water, chemicals, and other liquids			
Display Accuracy	± 3.0 % 1 digit			
Liquid Temperature Range	0 - 90 °C			
Ambient Temperature Range	0 - 50 °C			

NOTE: VF-8100 proof pressure = 140 psi, Burst pressure = 182 psi at 20 °C Tube ends.(Values may change depending on the configuration) Please consult SPS-International for additional details.

Electrical Specifications

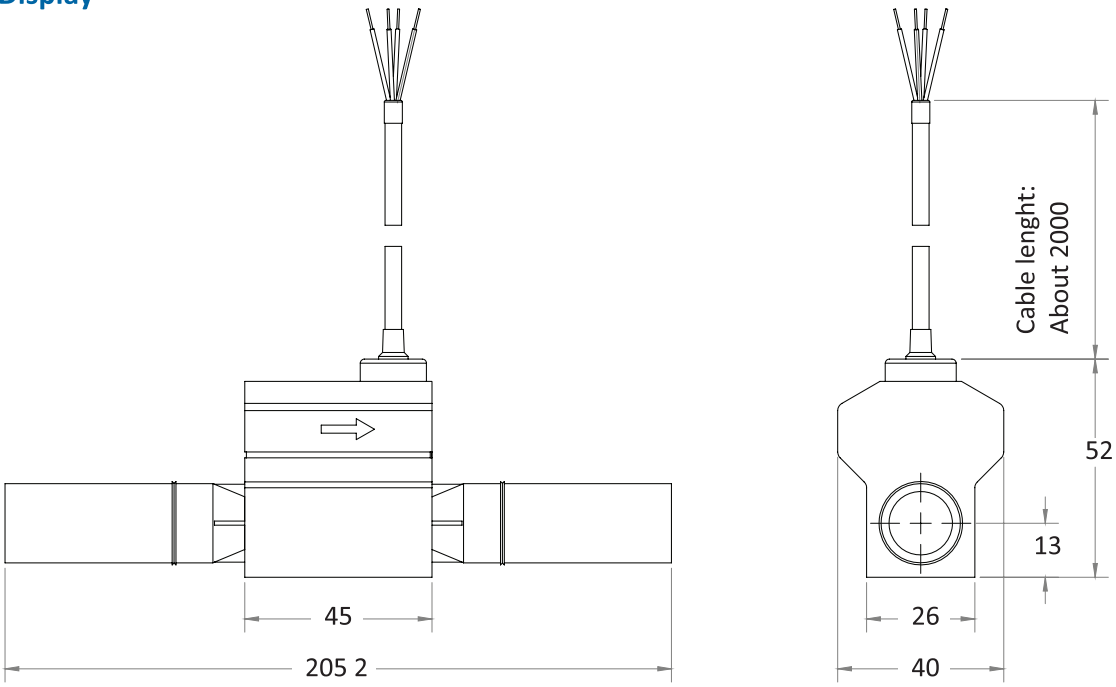
Output Options	With Indicator	LED display in 3 digits
		Current output: 4-20 mA (linear)
		Alarm output: Open collector (2 LEDs; 80mA, 30 Vdc max.)
	Without Indicator	Current output: 4-20 mA (linear)
		Alarm output: Open collector (10mA, 30 Vdc max.)
Supply Voltage		12 - 24 Vdc

Material Specifications

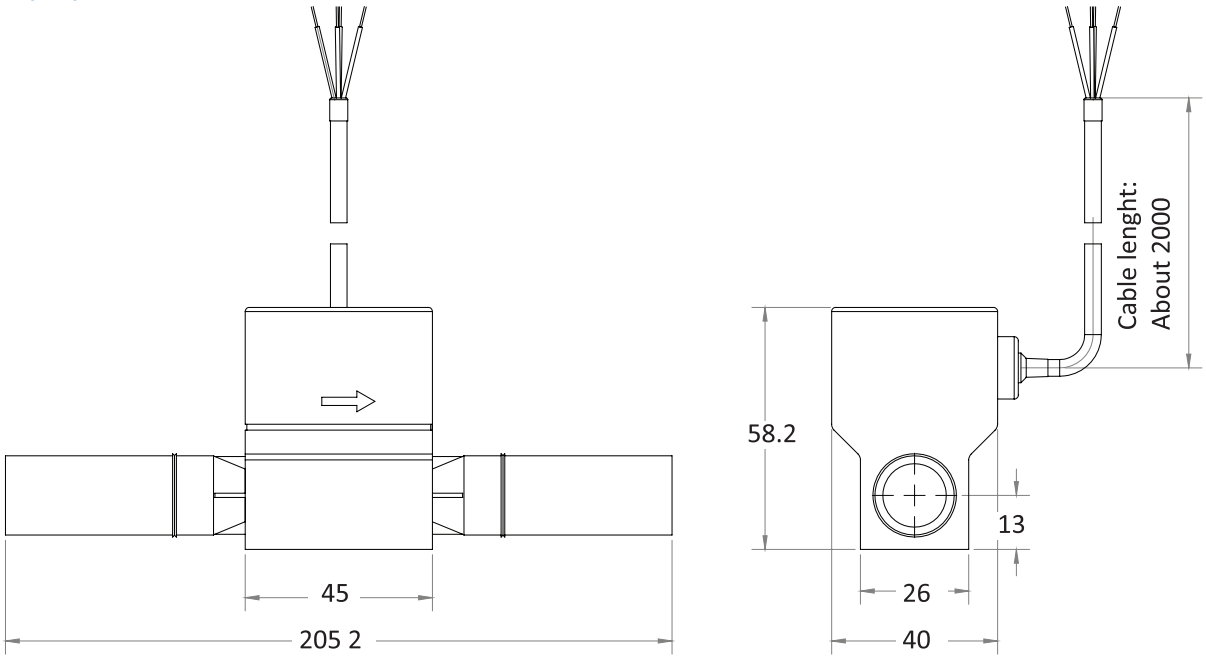
Body	All PFA, without o-rings
Cover	Polybutylene terephthalate (PBT) resin
Cable	2 meters long: Conductor: Tinned bare annealed copper wire Sheath: Heat/Cold resistant polyvinyl chloride (POC)

SENSOR DIMENSIONS

- **Without Display**



- **With Display**

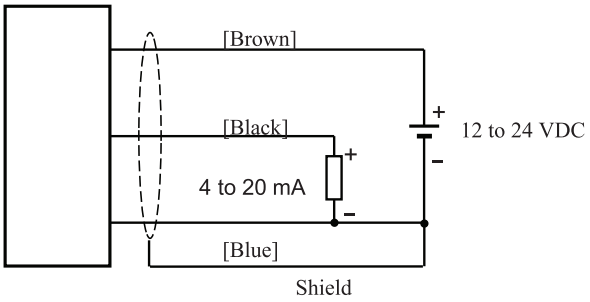


DESCRIPTION

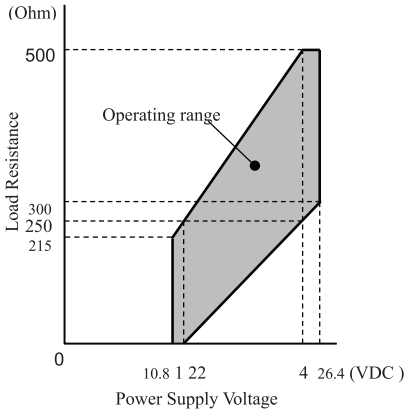
When wiring the cable, use the crimp-style terminals or solder the wires to the terminals in order to secure the connection

POWER AND WIRING

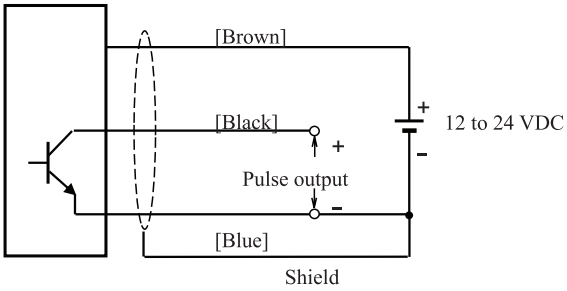
Current Output Model



Load Resistance Range for Current Output Model

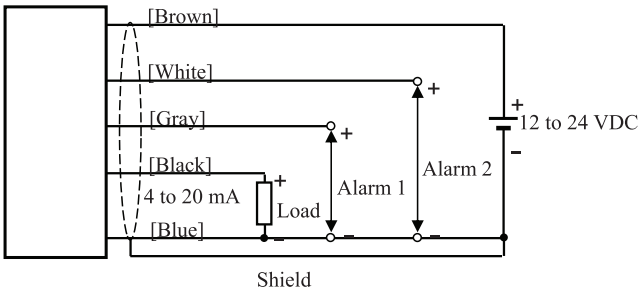


Pulse Output Model



Pulse output : Open collector
Max. 10 mA / 30V

Display / Current Output model



WIRING CAUTIONS

(1) Lay wiring as far as possible from electrical noise source such as large transformers, motors and power supplies.
(2) Do not conduct an insulation resistance test or dielectric strength test; the electronics of Flowmeter can be damaged by the test.

Ordering Information

Model Code									
VF-81	-	**	-	**	-	*	-	XXX	
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Conncetion / Scale Range	02								3/8" / 0.4 - 4 LPM
	03								1/2" / 2 - 20 LPM
	06								3/4" / 5 - 50 LPM
	08								1" / 10 - 100 LPM
		-							
Input/Output			CX						Current output; DC 4-2-mA (No Local Display)
			VX						Voltage output; 1 - 5 Vdc
			PX						Pulse output; Open collector (No Local Display)
			DC						Display + Current output
			DV						Display + Voltage output
				-					
End Connection					1				Tube Ends
					7				Pillar Super 300
					8				Custom Connection
						-			
								XXX	