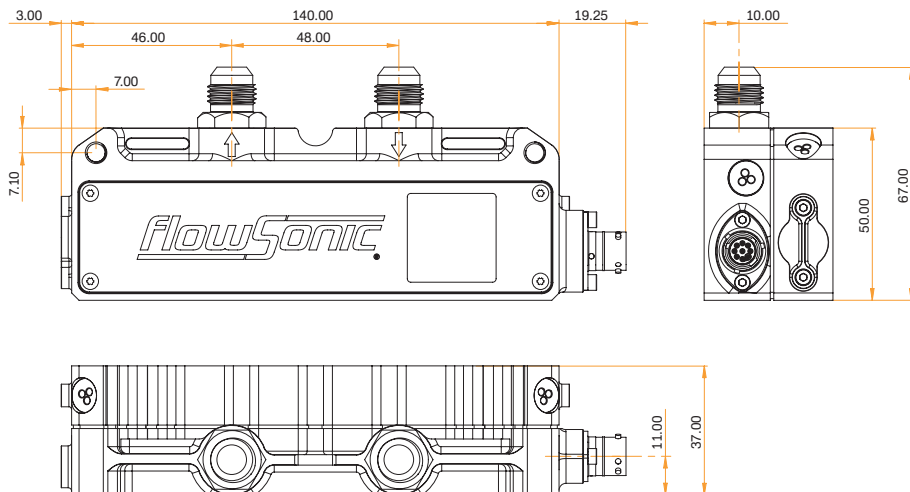
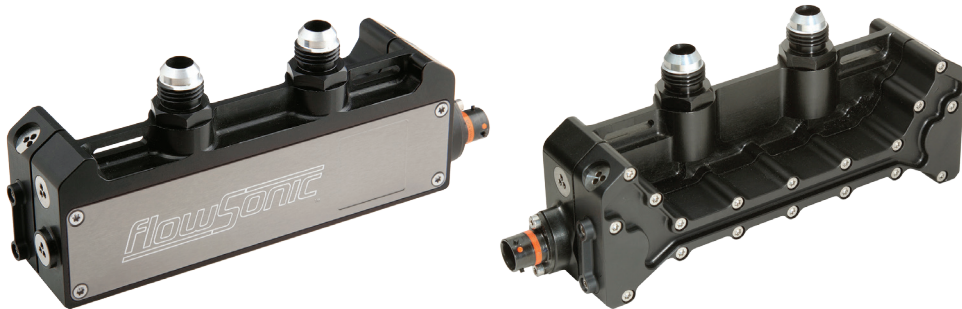


FlowSonic[®]

by *sentronics*[®]

Compact ultrasonic fluid flow sensors for automotive engine testing and development

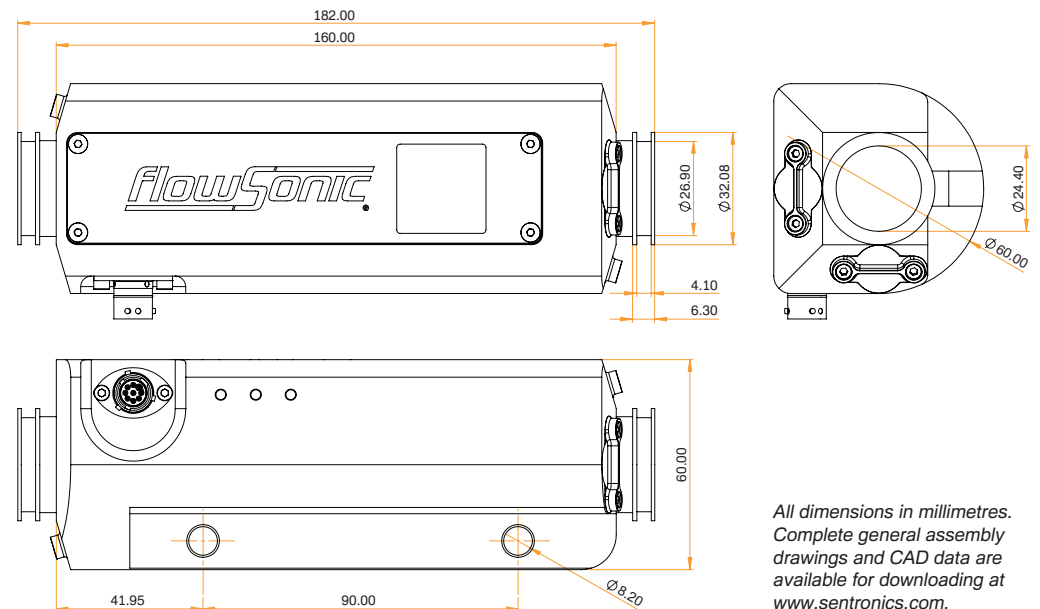
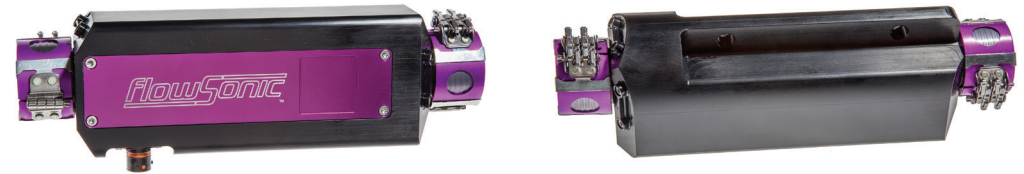
FlowSonic[®] LF Low-Flow Sensor



The FlowSonic[®] line of sensors from Sentronics[™] is a breakthrough in fluid flow testing technology for automotive engines of every type. The FlowSonic LF has been designed for the ultra-low fuel flow conditions found in today's high-efficiency road car engines, while the FlowSonic HF has been developed to measure the high fluid flows of heavy-duty industrial vehicle powerplants. Key features and advantages include:

- ✓ Compact, lightweight, no moving parts
- ✓ Outstanding accuracy and repeatability
- ✓ -40°C to +120°C temperature range
- ✓ Fast measurement rate for dynamic flows
- ✓ Class-leading ultrasonic turndown ratio
- ✓ Easily installed on test bench or vehicle
- ✓ Exceptionally robust and vibration tolerant
- ✓ Internal processing and diagnostics
- ✓ CAN, TTL pulse, analog output formats
- ✓ Minimal operating and maintenance costs

FlowSonic[®] HF High-Flow Sensor





All dimensions in millimetres. Complete general assembly drawings and CAD data are available for downloading at www.sentronics.com.

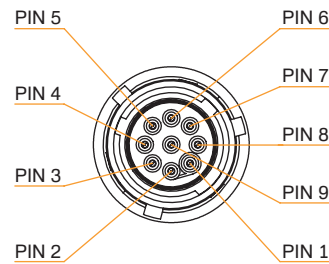
FlowSonic® Common Features

Flow Measurement	
Repeatability	+/- 0.15% of reading
Uncertainty	+/- 0.5% of reading (calculated according to ISO/TR using root-sum square method giving 95% confidence)
Turndown ratio	500:1
Fluid temperature range	-20°C to +120°C
Ambient temperature range	-40°C to +120°C
Temperature Measurement	
	2 x 1000 Ohm RTD (1/3 DIN standard)
Mechanical	
Wetted materials	FPM, anodised aluminium alloy, stainless steel
Deutsch sensor connector	ASDD006-09PC-HE
Deutsch mating connector	ASDD606-09SC-HE
Electrical Supply	
Voltage	8V to 30V DC
Current	< 70 mA @ +12V DC
Voltage protection	Over-voltage 45V DC, reverse polarity -45V DC
CAN Communications	
Design standard	ISO 11898-2 (high-speed applications)
Message format	2.0A (11-bit identifier)
Baud rate	1 Mbit/sec
CAN termination resistor	No
TTL Pulse Output	
Voltage output range	0-5V
Pulses per cc	3000 for LF Low-Flow, 30 for HF High-Flow
Duty cycle	50%
Output resistance	1.0 kOhm
Analog Output	
Voltage output range	0-10V DC
Resolution	16-bit
Output resistance	47.0 Ohm
Load resistance	> 1.0 kOhm
Configuration Interface	
	3.3V serial interface
Environmental	
Storage temperature	-40°C to 85°C
External pressure rating	300 kPa
Environmental protection	IP69K (when mated to connector)

FlowSonic® Model-Specific Features

	LF Low-Flow DP-010-01	HF High-Flow DM-010-01
		
Flow Measurement		
Operating flow range	+/- 0-4000 ml/min	+/- 0-360 l/min
Measurement flow range	8-4000 ml/min	0.7-360 l/min
Measurement rate	2.2 kHz	500 Hz
Maximum operating pressure	20 barg (20,000 kPag)	8 barg (8000 kPag)
Pressure drop at maximum flow	< 20 kPa (4000 ml/min for pump petrol @ 20°C)	No pressure drop
Mechanical		
Dry weight	330 g	950 g
Fluid capacity	15 ml	140 ml
Fluid line connectors	-6AN fittings 9/16-inch UNF thread	1-inch Wiggins (W991-16DE)
Fluid Compatibility		
	Petrol, diesel, bio-diesel, ethanol, methanol <i>please contact us about other fluids</i>	Petrol, diesel, oil, bio-diesel, ethanol, methanol, engine coolant, water

FlowSonic® Pin Out Functions



Pin 1	Supply +
Pin 2	CAN High
Pin 3	CAN Low
Pin 4	TTL Pulse Output
Pin 5	Analog Output
Pin 6	Comms A
Pin 7	Comms B
Pin 8	CAN Select
Pin 9	Ground (GND)

Notes

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