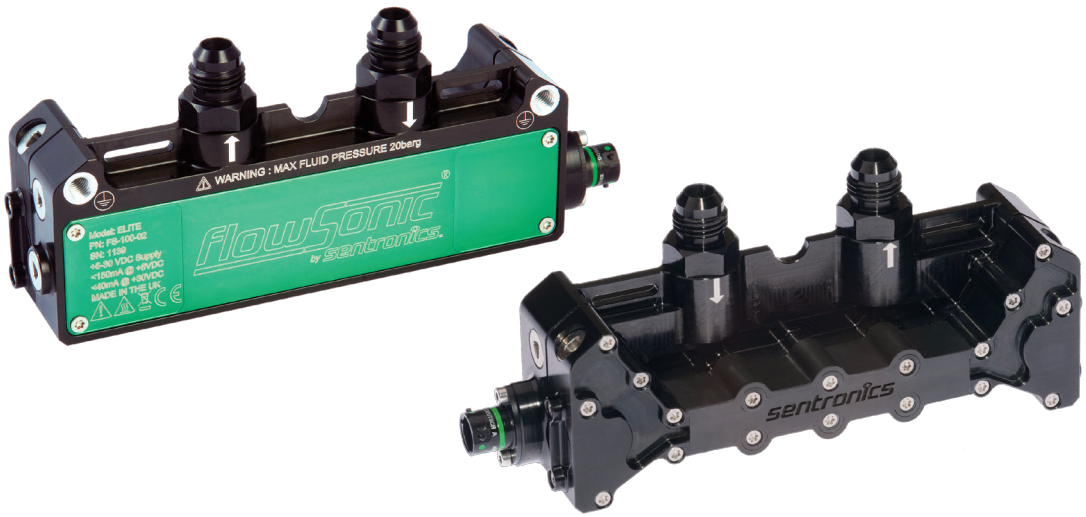
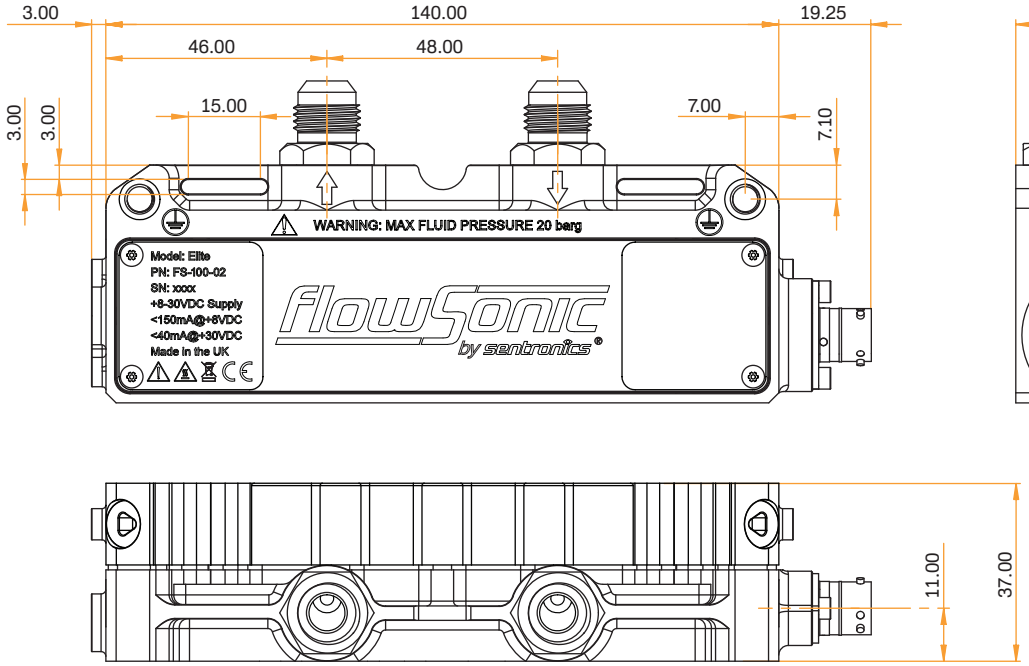
Motorsport Fuel Flow Sensor Series



The FlowSonic® range of ultrasonic fuel flow sensors from Sentronics™ is designed for both performance (optimising fuel use and strategy) and regulatory (balancing performance and limiting peak engine power) applications in motorsport. Three models – Elite, Super, and Pro – are available to suit the full spectrum of racing categories, fuels, and budgets. Key features and advantages include:

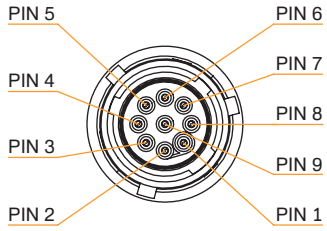
- Compact, lightweight, no moving parts
- Highly accurate and repeatable
- -20 to +120°C temperature range
- Internal processing and diagnostics
- Fast measurement rate for dynamic flows
- Extremely robust and vibration-tolerant
- Compatible with wide range of fuel types
- Minimal operating and maintenance cost

FlowSonic® Dimensions (mm)



Complete general assembly drawing and CAD data available for download at www.sentronics.com

FlowSonic® Pin Out Functions



Pin 1	Supply +
Pins 2 / 3	CAN High 1 (CANH1) / CAN Low 1 (CANL1)
Pins 4 / 5	CAN High 2 (CANH2)* / CAN Low 2 (CANL2)*
Pins 6 / 7	Comms A / Comms B
Pin 8	CAN Select**
Pin 9	Ground (GND)

** Elite models only – not connected on other models*

*** Loom-detect resistor on Elite and Super models only*

FlowSonic® Common Features

Flow Measurement	
Operating flow range	+/- 8000 ml/min
Measurement range	500-8000 ml/min
Flow outputs and functions	Calibrated volumetric flow rate (ml/min)
	Calibrated cumulative volumetric flow (ml)
	Elapsed time counter (power on, ETI)
	Run-time (flow time, RTI)
	Speed of sound (m/s)
	Diagnostics via CAN
Pressure drop @ 25ºC	WEC E20: 5 kPa @ 2000ml/min, 15kPa @ 4000 ml/min
	Diesel: 70 kPa @ 8000 ml/min
Temperature Measurement	2 x 1000 ohm RTD (1/3 DIN standard)
Mechanical	
Dry weight	330 g
Fuel capacity	15 ml
Wetted materials	FPM, anodised aluminium alloy, stainless steel
Fluid operating pressure	50 kPa to 2000 kPa, 8000 kPa maximum burst
Fuel line connectors	-6AN fittings 9/16-inch UNF thread
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
Configuration Interface	3.3V serial interface
Environmental	
Storage temperature	-40°C to 85°C
External pressure rating	300 kPa

Specifications subject to change without prior notice

FlowSonic® Model-Specific Features

	Elite FS-100-02	**Super** FS-200-02	**Pro** FS-300-02
			
Flow Measurement			
Repeatability	+/- 0.05% of reading	+/- 0.15% of reading	+/- 0.25% of reading
Uncertainty*	+/- 0.25% of reading	+/- 0.50% of reading	+/- 0.75% of reading
Flow outputs and functions			
Calibrated mass flow rate (g/min)	✓	Optional	
Calibrated cumulative mass flow (g)	✓	Optional	
Max/min logging	✓		
Firmware security check-sums	✓	Optional	
Measurement rate	2.2 kHz	1.0 kHz	1.0 kHz
Mechanical			
O-ring seal elastomer	FPM fluorocarbon	FPM fluorocarbon	FPM fluorocarbon
Deutsch sensor connector	ASDD006-09PD-FI-952K	ASDD006-09PC-HE	ASDD006-09PN-HE
Deutsch mating connector	ASDD606-09SD-FI-952K	ASDD606-09SC-HE	ASDD606-09SN-HE
Fuel Compatibility			
Pump petrol or diesel	✓	✓	✓
WEC standard E20	✓		
F1 petrol blends	✓		
Neat butanol or neat methanol	✓	✓	✓
Neat ethanol	✓		
Methanol/petrol or ethanol/petrol	✓		
CAN Communications			
Number of outputs	2	1	1
Loom-detect resistor	✓	✓	
Environmental			
Fluid operating temperature	-20 to +120°C	0-85°C	0-85°C
Environmental protection	IP68	IP67	IP67
Immersibility	✓		

** Calculated according to ISO/TR using root-sum square method yielding 95% confidence*

Sentronics Limited
Unit 40, Downton Business Centre
Downton, Salisbury
Wiltshire SP5 3HU England

Telephone +44 (0)1725 513703
Email info@sentronics.com
Web www.sentronics.com

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