

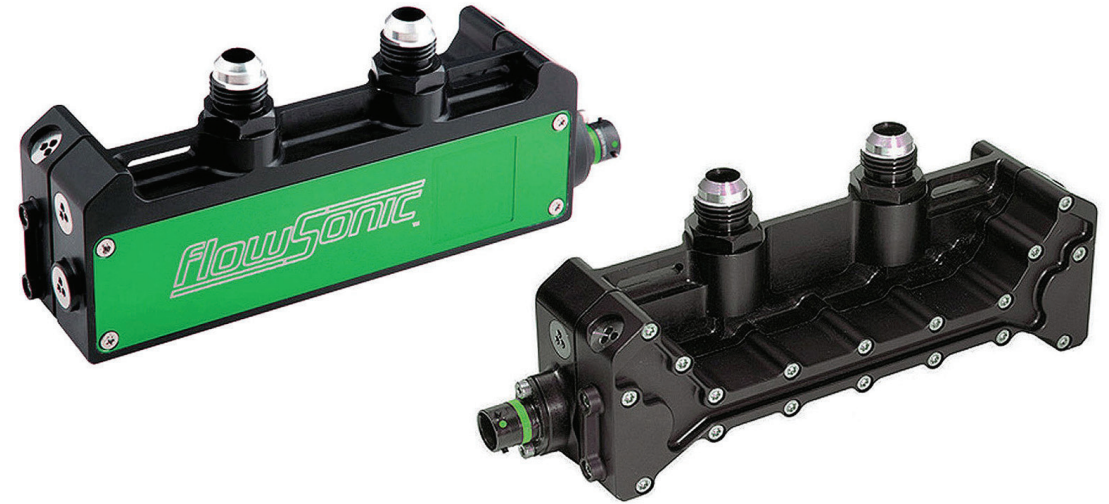
# FlowSonic<sup>®</sup>

by sentronics<sup>®</sup>

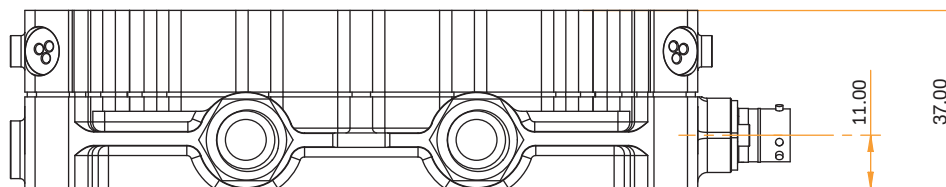
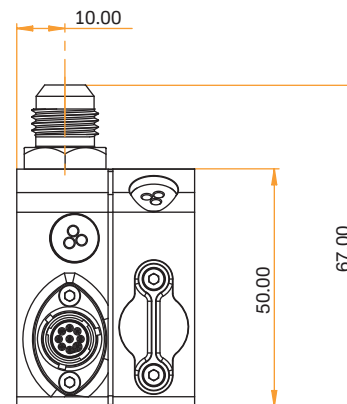
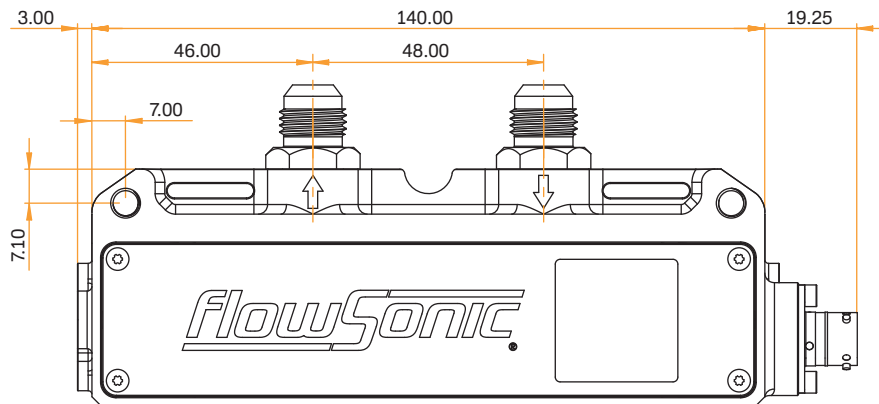
## Ultrasonic Fuel Flow Sensor Series

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

- ✔ Compact, lightweight, no moving parts
- ✔ Outstanding accuracy and repeatability
- ✔ -20 to +120°C temperature range
- ✔ Internal processing and diagnostics
- ✔ Fast measurement rate for dynamic flows
- ✔ Exceptionally robust and vibration tolerant
- ✔ Compatible with wide range of fuel types
- ✔ Minimal operating and maintenance costs

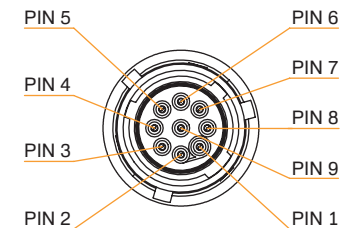


### FlowSonic<sup>®</sup> Dimensions (mm)



Complete general assembly drawing and CAD data available for download at [www.sentronics.com](http://www.sentronics.com)

### FlowSonic<sup>®</sup> 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 @ 25°C	WEC E20: 5 kPa @ 2000ml/min, 15kPa @ 4000 ml/min
	WEC 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 2500 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
Fluid operating pressure	50 kPa to 2500 kPa
External pressure rating	300 kPa
<i>Specifications subject to change without prior notice</i>	

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

Telephone +44 (0)1725 513703  
Fax +44 (0)1725 513399  
Email [info@sentronics.com](mailto:info@sentronics.com)  
Web [www.sentronics.com](http://www.sentronics.com)

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## FlowSonic® Model-Specific Features

	Elite FS-100-01 / FS-100-01E	Super FS-200-01	Pro FS-300-01
			
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 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	0-85°C	0-85°C	0-85°C
	E model: -20 to +120°C		
Environmental protection	IP68	IP67	IP67
Immersibility	✓		

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

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