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. 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
- Fast measurement rate for dynamic flows
- Outstanding accuracy and repeatability
- Exceptionally robust and vibration tolerant
- -20 to +120°C temperature range
- Compatible with wide range of fuel types
- Internal processing and diagnostics
- Minimal operating and maintenance costs

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

Complete general assembly drawing and CAD data available for download at www.sentronics.com
## FlowSonic® Common Features

### Flow Measurement
- Operating flow range: +/- 8000 ml/min
- Measurement range: 500-8000 ml/min
- Flow outputs and functions:
  - 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 @ 2000 ml/min, 15 kPa @ 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

### FlowSonic® Model-Specific Features

<table>
<thead>
<tr>
<th>Elite FS-100-01 / FS-100-01E</th>
<th>Super FS-200-01</th>
<th>Pro FS-300-01</th>
</tr>
</thead>
<tbody>
<tr>
<td>Repeatability</td>
<td>+/- 0.05% of reading</td>
<td>+/- 0.15% of reading</td>
</tr>
<tr>
<td>Uncertainty*</td>
<td>+/- 0.25% of reading</td>
<td>+/- 0.50% of reading</td>
</tr>
</tbody>
</table>

### Flow Measurement
- Repeatability
- Uncertainty*

### 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
- Loom-detect resistor

### Environmental
- Fluid operating temperature
- E model: -20 to +120°C
- Environmental protection: IP67

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

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