

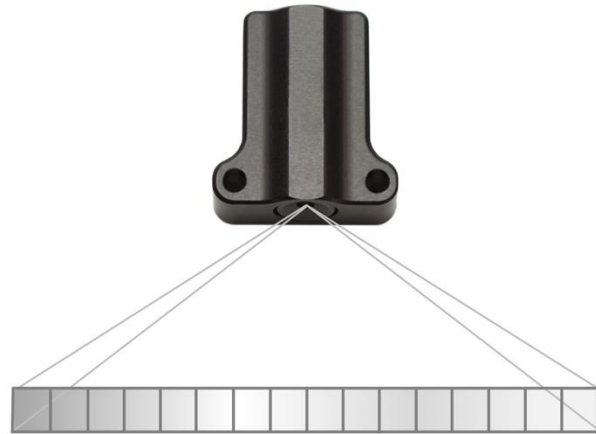


## Infrared Tyre Temperature Sensor (IRTS)

The tyre temperature sensor is specifically designed to measure the highly transient surface temperature of a tyre with spatial fidelity, providing invaluable information for chassis tuning, tyre exploitation, compound selection, and driver development.

The sensor is capable of measuring temperature at 16, 8, or 4 laterally-spaced points, at a sampling frequency of up to 100Hz, object temperature between -20 to 300°C, using CAN 2.0A protocol, Sensor configuration is available using the Brightwater setup tools and enclosed is a compact IP66 rated aluminum enclosure.

The sensor is available with two field-of-views: ultra-wide (120°) or wide (60°).



### SENSOR SPECIFICATIONS

Temperature Measurement Range, $T_o$	-20 to 300°C
Package Temperature Range, $T_p$	-20 to 85°C
Accuracy (Central 10 Channels, Nominal) (16-Ch Sensor)	±1.0°C for $0^\circ\text{C} < T_p < 50^\circ\text{C}$ ±2.0°C for $T_p < 0^\circ\text{C}$ and $T_p > 50^\circ\text{C}$
Accuracy (First & Last 3 Channels, Nominal) (16-Ch Sensor)	±2.0°C for $0^\circ\text{C} < T_p < 50^\circ\text{C}$ ±3.0°C for $T_p < 0^\circ\text{C}$ and $T_p > 50^\circ\text{C}$
Noise Equivalent Temperature Difference, NETD	0.5°C at 16Hz, $\epsilon = 0.85$ , $T_o = 25^\circ\text{C}$
Field of View, FOV	60°x 8° (wide) 120°x 15° (ultra-wide)
Number of Channels	16, 8, or 4
Sampling Frequency	100 <sup>1</sup> , 64 <sup>1</sup> , 32, 16, 8, 4, 2, or 1Hz
Thermal Time Constant	2 ms
Effective Emissivity	0.01 to 1.00 (default = 0.78)
Spectral Range	8 to 14 $\mu\text{m}$

1 – Optional Extra, 64Hz limit available

### ELECTRICAL SPECIFICATIONS

Supply Voltage, $V_s$	5 to 8 V
Supply Current, $I_s$ (typ)	30 mA
Features	<ul style="list-style-type: none"> <li>Reverse polarity protection</li> <li>Over-temperature protection (125°C)</li> </ul>

### MECHANICAL SPECIFICATIONS

Weight	< 20.0 g
L x W x H (max, 60° FOV)	36.6 x 26.0 x 12.3 mm
L x W x H (max, 120° FOV)	31 x 29.0 x 12.3 mm
Protection Rating	IP66