SINGLE-POINT IR TEMPERATURE SENSOR

IRTS-SP-V2

The Izze-Racing single-point infrared sensor is designed for non-contact temperature measurement in motorsport and automotive applications. Common uses include the temperature measurement of tires, asphalt, belts, and cabin interiors. The sensor is capable of measuring temperatures from -70 to 380˚C and data is broadcasted digitally via CAN.

SENSOR SPECIFICATIONS

Temperature Measurement Range, T_o	-70 to 380˚C
Package Temperature Range, T_p	-40 to 85˚C
Accuracy	< ±1% Full-Scale (typ. ±1.0˚C)
Noise Equivalent Temperature Difference, NETD	0.18˚C
Field-of-View, FOV	35˚
Sampling Frequency	8Hz
Spectral Range	8 to 14 µm

ELECTRICAL SPECIFICATIONS

Supply Voltage, V_{in}	5 to 8 V
Supply Current, I_s (typ)	30 mA
Features	• Reverse polarity protection • Over-temperature protection (125˚C)

MECHANICAL SPECIFICATIONS

Weight	15 g
L x W x H (max)	33 x 29 x 13 mm
Protection Rating	IP66

CAN SPECIFICATIONS

Standard	CAN 2.0A (11-bit identifier), ISO-11898
Bit Rate (Default)	1 Mbit/s
Byte Order	Big-Endian / Motorola
Data Conversion	0.1˚C per bit, -100˚C offset, unsigned
CAN ID (Default)	1240 (Dec) / 0x4D8 (Hex)
Termination	None

CAN ID: 0x4D8 (Default)

Infrared Temperature		Sensor Temperature		Unused		Unused	
Byte 0 (MSB)	Byte 1 (LSB)	Byte 2 (MSB)	Byte 3 (LSB)	Byte 4 (MSB)	Byte 5 (LSB)	Byte 6 (MSB)	Byte 7 (LSB)

WIRING SPECIFICATIONS:

Wire	26 AWG M22759/32, DR25 jacket
Cable Length (typ.)	500 mm
Connector	None

Supply Voltage, V_s	Red	(twisted)
Ground	Black	
CAN +	Blue	(twisted)
CAN -	White	

SENSOR CONFIGURATION:

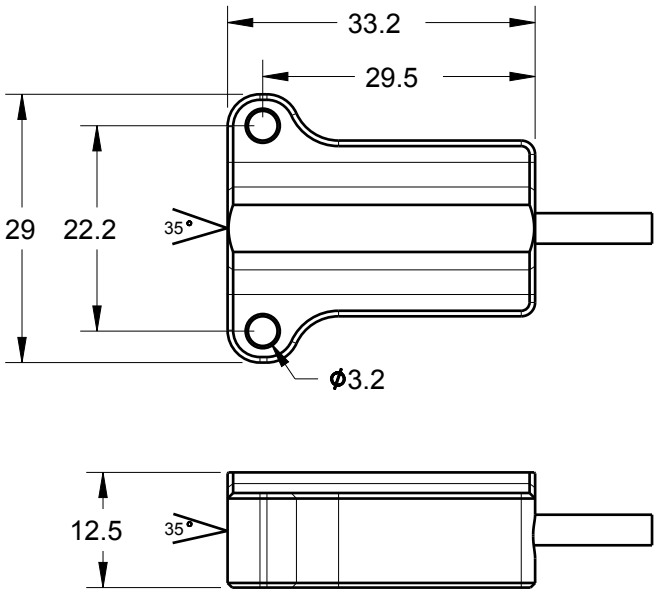
To modify the sensor's base CAN ID or bit rate, send the following CAN message at 1Hz for at least 10 seconds and then reset the sensor by disconnecting power for 5 seconds.

CAN ID = Base ID (Default = 0x4D8)

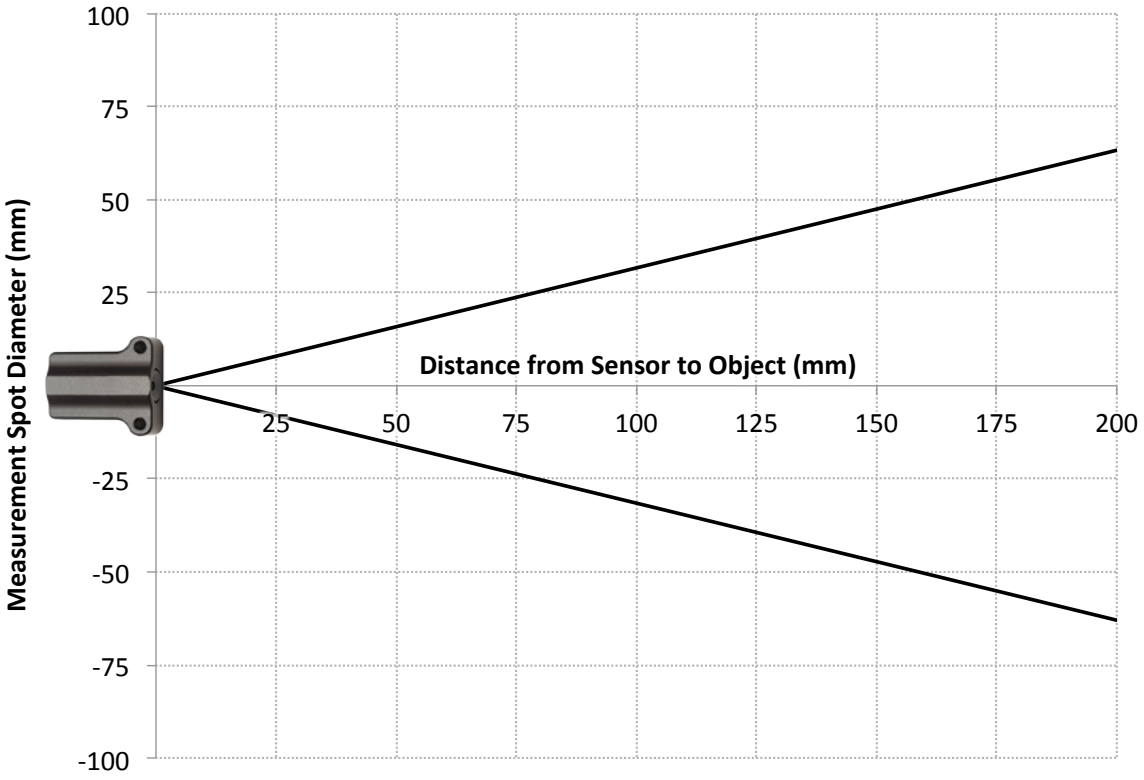
Programming Constant		New CAN Base ID (11-bit)		Bit Rate			
Byte 0 (MSB)	Byte 1 (LSB)	Byte 2 (MSB)	Byte 3 (LSB)	Byte 4	Byte 5	Byte 6	Byte 7
30000 = 0x7530		1 = 0x001 ⋮ 2047 = 0x7FF		1 = 1 Mbit/s 2 = 500 kbit/s 3 = 250 kbit/s 4 = 100 kbit/s	0	0	0

CAN messages should only be sent to the sensor during the configuration sequence.
DO NOT continuously send CAN messages to the sensor.

DIMENSIONS:



FIELD-OF-VIEW (FOV):



ADDITIONAL INFORMATION:

- Stated accuracy is under isothermal package conditions; for utmost accuracy, avoid abrupt temperature transients and gradients across the sensor's package.

- Point the sensor in the downstream direction (e.g., facing the front face of a tire) to avoid contamination, pitting, and/or destruction of the sensor's lens from debris.