



Product Description

The *Celsius* temperature sensor is a fast-response, high-accuracy temperature sensor that is sealed from the water, protected by an aluminum cage, and ready to install in a [watertight enclosure](#). Use it to make depth/temperature profiles, surface temperature profiles, and accurate measurements in any fluid.

The sensor is the Measurement Specialties TSYS01, which is accurate to $\pm 0.1^{\circ}\text{C}$ and communicates over I²C. It comes standard with a 4-pin DF13 connector and compatible with most [DroneCode](#) compatible boards including the APM2.6, PixHawk, and others.

The TSYS01 sensor itself has a fast time response and we designed the whole package to maintain that speed to allow accurate temperature profile measurements even while descending/ascending quickly. The *Celsius* sensor has a response time constant of 1 second (with 0.5 m/s flow) and 2 seconds (in still water).

An anodized aluminum cage around the sensor protects it from damage. The body of the sensor is designed around the cable penetrator design and is compatible with all of the [watertight enclosures](#).

The electrical schematic and board layout are open-source and the design files are available below. Feel free to adapt for your own needs.

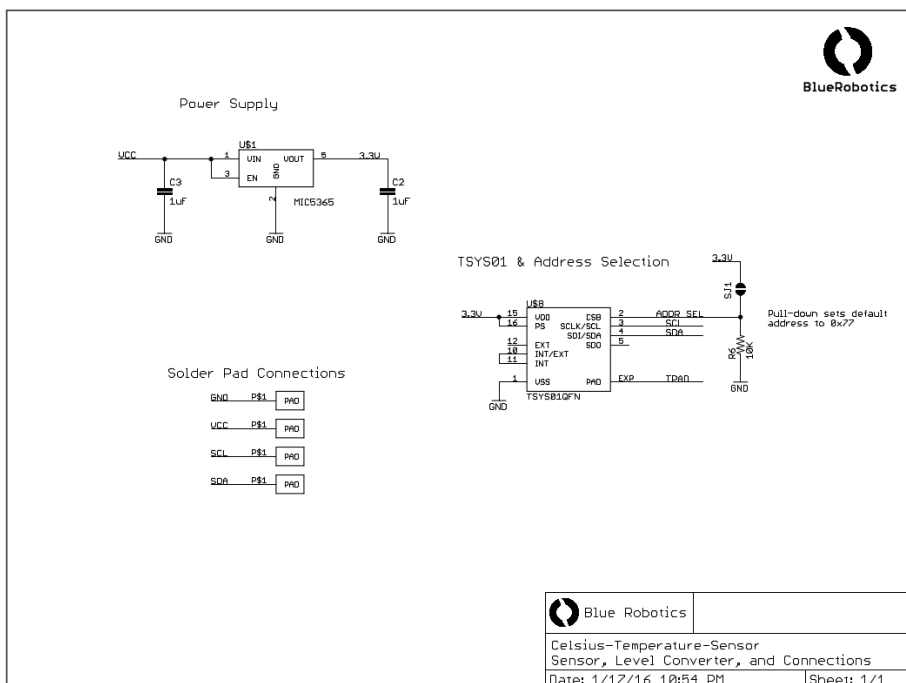
Contents

- 1 x *Celsius* Temperature Sensor
- 1 x O-ring
- 1 x Nut

Specification Table

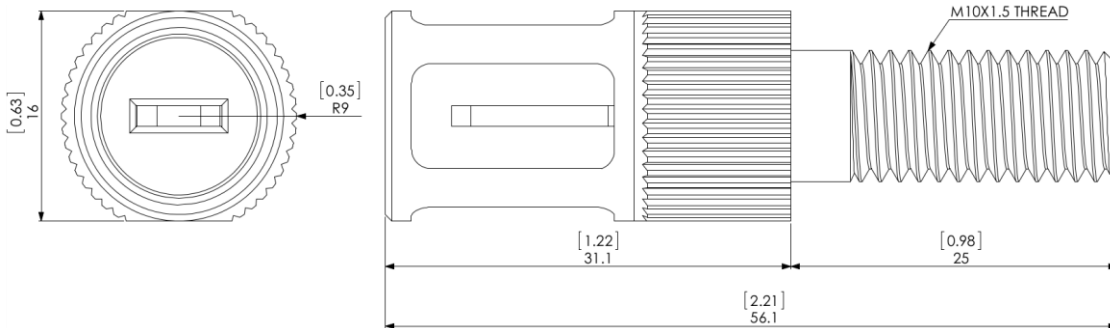
For further information please see the [TSYS01 Data Sheet](#).

Schematic





2D Drawing



Electrical

Item	Condition	Value
Supply Voltage	–	3.3 to 5.5 volts
I ² C Logic Voltage (SDA and SCL)	–	3.3 volts
Peak Current	–	1.4 mA

Temperature

Item	Condition	Value
Operating Temperature	–	-40 to +125°C
Storage Temperature	–	-55 to +150°C
Absolute Accuracy	From -5 to 50°C	+/- 0.1°C
	From -40 to 125°C	+/- 0.5°C

Physical

Wire Colors	Green - I ² C Clock (SCL, 3.3V)
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Temperature

	White - I ² C Data (SDA, 3.3V)
	Red - Positive (3.3-5.5V)
	Black - Ground
Overall Length	56.1 mm
Thread Size	M10x1.5 20 mm threaded
Recommended Through Hole Size	10-11 mm
Wrench Flats	16 mm

DF-13 Pinout

1 Δ	Red - Positive (3.3-5.5V)
2	Green - I ² C Clock (SCL)
3	White - I ² C Data (SDA)
4	Black - Ground

