Hardware Installation

Please read the entire contents of this document before commencing installation.

Installation should only be carried out by a competent person familiar with aircraft systems and electronic instrumentation.

In the Box:

- AeroSpy TemperatureSpy control unit
- LED Waning module
- Test module
- Double-sided sticky pad for fixing LED
- Velcro to fix the control box
- Optional second LED module and cable

Not in the box, but may be required

- Power switch
- Fuse
- Buzzer (5V dc, max 250 mA)
- Wire to extend any leads as necessary
- Cable ties to retain wires and possibly the control box
- Crimps to connect to your Thermistor / temperature sender as needed for your installation

Tools

- 5mm drill bit
- Electric drill
- Crimpers
- Cutters
- Wire strippers
- Connectors as required

Disconnect power from the aircraft.

Stage 1 – Power Connection

1. Connect the TemperatureSpy control box to a suitable switch and fuse.
2. Plug the LED board into the control unit using the 3-pin JST-PH plug marked PI. If necessary, connect the optional LED extension lead first.
3. If you are using the optional second LED, connect it to the PO plug on the first LED module and the PI plug on the second LED module.
4. Briefly power the unit on and confirm it flashes Red, Green, Blue, and White in sequence, followed by a Red flashing.
5. Note: If using two LEDs, only one may flash Red at this stage, but both will display the startup sequence.
6. **Assuming all is working, proceed to Stage 2.**

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Stage 2 - Sensor connection

Re-isolate the power to the aircraft.

1. Connect channel 1 (Water) — yellow wire — to the sensor input on the back of the Water temperature gauge, normally marked with an ‘S’.
2. Connect channel 2 (Oil), if used — yellow wire with a black ring — to the sensor input on the back of the Oil temperature gauge, normally marked with an ‘S’.
3. You may wish to delay fitting the LED until after calibration to confirm compatibility with your system.
4. Drill a 5mm hole in the panel at your chosen location, ensuring the area behind is clear. Catch all swarf during drilling.
5. The LED will fit into the hole and can be secured using the supplied double-sided pad or a small drop of glue, if preferred.
6. Secure the control box and cables as required.

Stage 3 – Preparing for configuration and calibration

Test Module Setup and Initial Calibration

AeroSpy comes preloaded with default settings suitable for a Rotax 912 engine. However, these must be confirmed and calibrated to your specific installation. Since overheating the engine for testing is not acceptable, a small test module is supplied to simulate temperature inputs safely.

The test module can be temporarily connected either to the back of the gauges or to the sensor wires in the engine bay.

Option 1: test module connected to the gauge

Important: The test module must be removed and the original sensor connections restored before any flight or ground run testing.

1. The test module wires are short; you may extend them to suit your installation.
2. Connect the black wire on the test module to a ground, such as the -V on the back of a gauge.
3. Disconnect the sensor lead going to the thermistor from each gauges’ sender input, normally marked ‘S’ (Water and Oil). You are temporarily removing these wires.
4. Connect sensor 1 (yellow wire from the test module) to the water gauge’s sensor terminal.
5. Connect sensor 2 (red wire from test module) to the oil gauge’s sensor terminal.
6. Power up the aircraft electrics, **ensure magnetos are OFF**. **Do not start the engine**.
7. Carefully and slowly turn each potentiometer. There is no risk of shock; the system operates at a maximum of 12V.
8. You should observe the temperature gauges sweeping through their full range.
9. Now, carefully turn both potentiometers so that both gauges read the lowest temperature.

Note: after calibration, remove the test module and reconnect the thermistor wires.

Option 2: test module connected to the thermistor wire.

Important: The test module must be removed and the original sensor connections restored before any flight or ground run testing.

1. The test module wires are short; you may extend them to suit your installation.

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2. Connect the black wire to a solid ground point on the engine.
3. Disconnect the single lead from each thermistor or temperature sender (Water and Oil). Each sender should have only one wire.
4. Connect sensor 1 (yellow wire from the test module) to the water sensor lead.
5. Connect sensor 2 (red wire from the test module) to the oil sensor lead.
6. Power up the aircraft electrics — ensure magnetos are OFF. Do not start the engine.
7. Carefully and slowly turn each potentiometer. There is no risk of shock; the system operates at a maximum of 12V.
8. You should observe the temperature gauges sweeping through their full range.
9. Now, carefully turn both potentiometers so that both gauges read zero — the lowest temperature.

Note: after calibration, remove the test module and reconnect the thermistor wires.

Optional Buzzer Connection

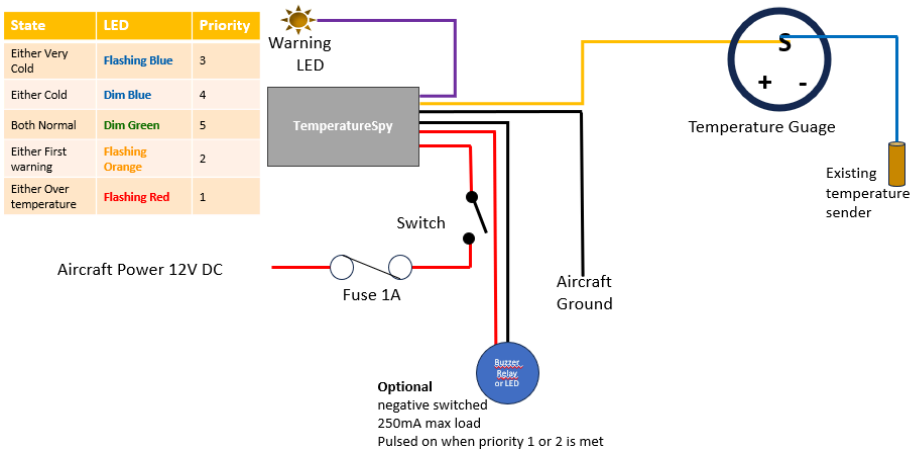
1. The optional buzzer is powered from the +5V buzzer output from AeroSpy.
2. The buzzer's negative should be connected to the switched ground output from AeroSpy.
3. Maximum current draw must not exceed 250mA.

Ensure the buzzer is securely mounted and that wiring is protected from vibration and abrasion. Confirm correct operation during system simulation or warning condition testing.

You are now ready to begin system configuration.

Electrical Diagrams:

Example wiring diagram single channel



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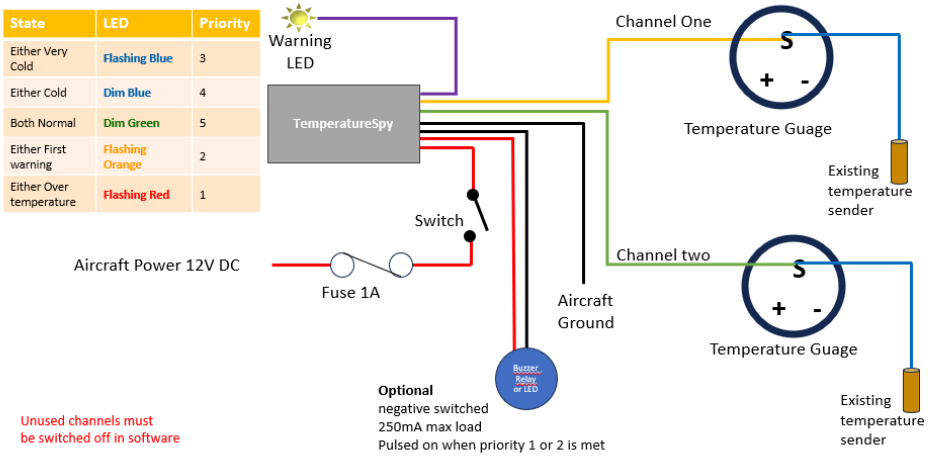
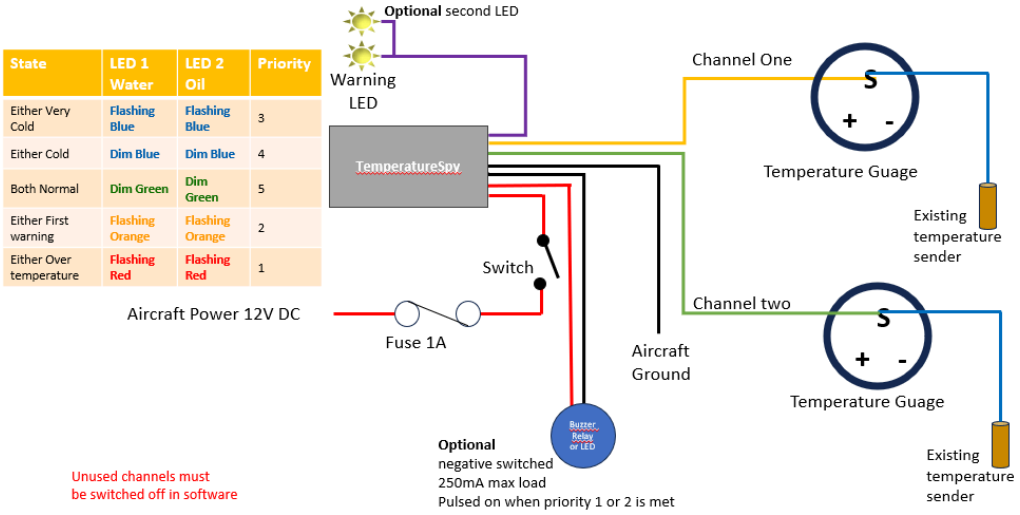
Example wiring diagram two channel

State	LED	Priority
Either Very Cold	Flashing Blue	3
Either Cold	Dim Blue	4
Both Normal	Dim Green	5
Either First warning	Flashing Orange	2
Either Over temperature	Flashing Red	1



Example wiring diagram two channel with two warning LEDs

State	LED 1 Water	LED 2 Oil	Priority
Either Very Cold	Flashing Blue	Flashing Blue	3
Either Cold	Dim Blue	Dim Blue	4
Both Normal	Dim Green	Dim Green	5
Either First warning	Flashing Orange	Flashing Orange	2
Either Over temperature	Flashing Red	Flashing Red	1