e-LOOP Test Mode

The e-loop has a test mode that can be entered by activating the test pins on startup, or by connecting a diagnostics remote and running the device test function.

This document describes what the tests are, what their error displays mean, and what steps can be taken to resolve the error.

Test Mode Display

The e-loop displays a solid yellow LED while test mode is active.

Magnetometer Communications Test

Tests the communication lines to the magnetometer sensor by requesting a known value from the sensor.

🟢 **Pass:** The sensor returns the correct value.

🔴 **Fail:** The sensor sends back the wrong value, or doesn't respond.

Error Display: All LEDs turned on.

Troubleshooting: Try resetting the e-loop. If this doesn't work, the e-loop needs to be returned for repair.

Timer Test

Tests if the low-power timer is working correctly by starting a timer to run for a set amount of time and waiting for it to complete.

🟢 **Pass:** The timer completes.

🔴 **Fail:** The timer never completes and the system resets.

Error Display: System will reset and perform a fast flash of both LEDs, followed by a long slow flash of both LEDs.

Troubleshooting: Try resetting the e-loop. If this doesn't work, there may be an issue with the firmware, and the e-loop's firmware will need to be upgraded.

Axis Reading Test

Tests if the magnetometer sensor is continually returning the same value on an axis.

🟢 **Pass:** All of the axis' are returning varied results on each measurement.

🔴 **Fail:** At least one of the axis' are returning the same result continually.

Error Display: Both LEDs are solid.

Troubleshooting: Try resetting the e-loop. If this doesn't work, the magnetometer may not be seated properly. This can be rectified by gently heating the magnetometer sensor.

Radar Test

Runs the radar assembly test that checks if the radar communication lines and supporting hardware are functioning correctly.

🟢 **Pass:** All of the assembly tests pass.

🔴 **Fail:** The radar reports that at least one of the assembly tests failed.

Error Display: Both LEDs rapidly flash.

Troubleshooting: There is a fault with the radar hardware and the board needs to be returned for repair.

Battery Detection Test

The test checks to see if the system voltage is reading at an expected level.

NOTE: This test requires that the voltage supply / battery level be over the e-loop's low battery trip level.

● **Pass:** The voltage is reading within the expected range.

● **Fail:** The voltage reading is above or below the expected range.

Error Display: Both LEDs rapidly flash.

Troubleshooting: Check that the supply voltage is over the low battery trip level. If the supply voltage is correct, there is an issue with the voltage detection circuit and the board needs to be returned for repair.

Radio Test

This test receives and responds to any radio packets transmitted using the e-loop radio protocol. When the e-loop receives a packet, the red LED flashes once.
When the e-loop responds to a received packet, the yellow LED flashes once.

NOTE: Requires an external device that can transmit using the e-loop radio protocol to send a packet.

● **Pass:** The e-loop receives the packet and transmits a response.

● **Fail:** The e-loop fails to receive a packet and doesn't flash the red or yellow LED.

Error Display: There is no error display for this test.

Troubleshooting: If the e-loop fails to receive any packets, or only receives a packet when the transmitting device is close to the e-loop, the board needs to be returned for repair as there is an issue with the radio section.