ALCATEK CONTROL SYSTEMS LTD

Technical Bulletin 971

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TITLE: 'Wideband Lambda' display on E1S97 using LC-1

Classification: This Technical Bulletin details an enhanced feature.

Confidentiality: For release to dealers only.

Applicability: ECUs model type E1S97 running FV 1.11.0 onwards

Background: This TB explains the physical connection details needed to link an E1S97 ECU running Firmware Version 1.11.0 to an Innovate Motorsport LC-1. It also details the method to verify that the connection has been made correctly.

Installation Procedure:

The LC-1 should be installed as per the instructions supplied with the unit. Particular attention should be paid to the grounding requirements of the LC-1.

The E1 ECU range do not use the 'Analogue Out' connections from the LC-1. Instead, they communicate digitally using the 'Serial Out' connection. Therefore, the Yellow and Brown wires, should be insulated, as they are not required.
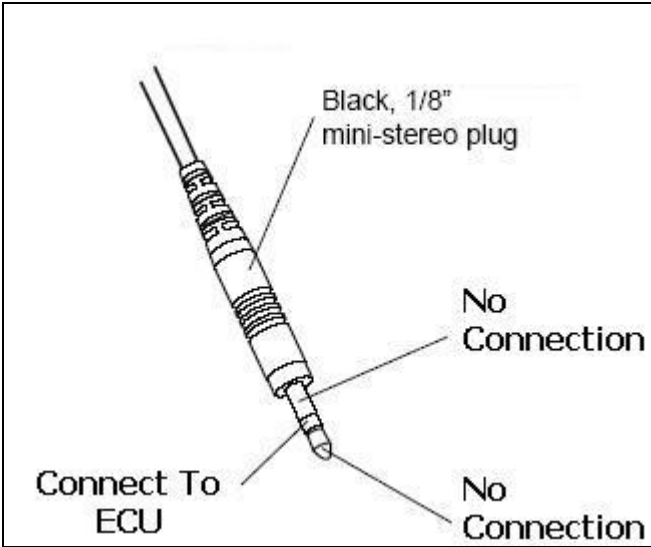
Insert the 2.5mm stereo (male) 'Terminator Plug' (Innovate P/N 3750) supplied with the LC-1 into the 'Serial IN' connection of the LC-1

The short 'Patch Cable' (Innovate P/N 3789) supplied with the LC-1, requires modification. You should cut ONE of the 2.5mm plugs off the cable. Then strip the remaining cable back, to reveal the two internal conductors. You only need to connect to one of these; the one that connects to the 'Ring' on the 2.5mm plug. The other wire, and the screen should be insulated, as they are not required. See the diagram on Page 2 for details. On the cable we tested, this was the Brown wire; but you should confirm the connection using a continuity tester.

The wire from the 'Ring' terminal, should connect to pin 'C4' on the ECU.

Insert the 2.5mm stereo (male) end of the modified cable into the 'Serial OUT' connection of the LC-1

Diagram of modified cable

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Verification Procedure:

To verify that the LC-1 and ECU are communicating correctly, proceed as follows.

Connect to the ECU using either a 'Customer Programming Kit' or have an authorised AlcaTek Dealer connect for you.

Once connected, select the 'Innovate Serial' Dashboard.

You will see a parameter on the dashboard called 'ISP State'

This shows the state of both the communication link with the LC-1 and the state of the Lambda Sensor. If it shows 'No Comms' then you should recheck the installation procedure.

The other possible states are as follows …

'Normal'   The value in 'ISP Lambda' is valid.

'O2 %'   The level of Oxygen is too great. Engine not running ?

'FAC in Prog' The sensor is in 'Free Air Calibration' mode, please wait.

'Needs FAC' The sensor is in need of 'Free Air Calibration' Please proceed as
            per the instructions supplied with the LC-1

'Warm Up'   The sensor is warming up, please wait.

'Htr Calib'   The Sensor Heater is being calibrated, please wait.

'ERROR'   The LC-1 is reporting an error with the sensor. Check the
            connections between the sensor and the LC-1. The sensor may
            need replacing.

'No Comms' The LC-1 and ECU are not in communication. Check the
            connections and power supply.