GEN3 PRO SEFI

DAE Option - User Manual

April 2005

Table of Contents

Introduction

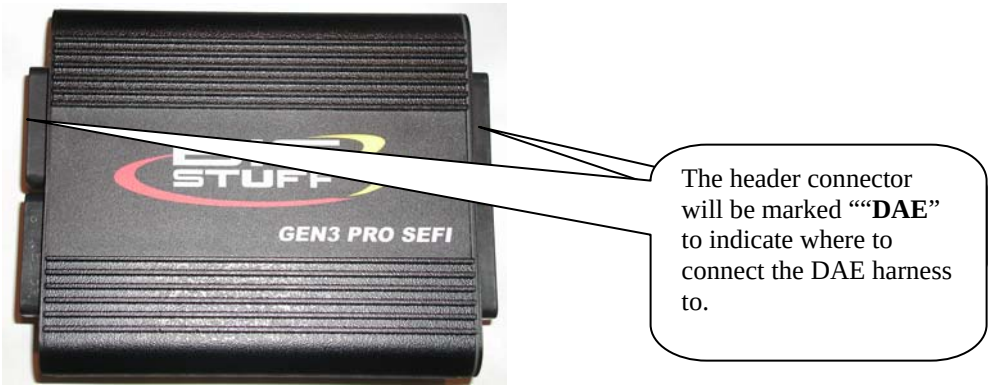
Thank you for purchasing BigStuff3's GEN3 PRO SEFI system with the DAE, data logging option!

The acronym DAE stands for; Data Acquisition - External. External refers to data logging key variables like, turbo shaft speed & back pressure and drive shaft speed (and more, described later) which are not directly related to engine or transmission control. All GEN3 PRO SEFI systems sold with DAE, also include the high speed internal data logging capability referred to as **DAI**, Data Acquisition - Internal

DAE – System Contents

The DAE option is sold with this user's manual and the standalone DAE wire harness, shown below. The remaining DAE control functionality is contained within the GEN3 ECU when it is ordered with the DAE option.

GEN3 ECU's sold with the DAE control option will have two (2) header connectors one at each end of the ECU (vs. one header connector for the fuel and spark only ECU's). **It is essential that the DAE main wire harness connector be installed in the correct header location on the ECU! Installing the DAE Harness_Main_Connector to the incorrect header location on the GEN3 ECU will damage the ECU and void the warranty!!** The header connector at one end of the GEN3 ECU will be marked **"DAE"** to indicate the header location where the transmission wire harness must be connected to!



DAE System Installation Overview

Hyperlinks (underlined, blue wording) in the column titled "Further Details" below were included to further assist with the DAE wire harness installation. Left clicking the PC's mouse on the hyperlink will immediately link to a photo of the connector along with additional installation information.

Harness Label	Wire Color / Connector Type	Label Definition	Connect To	Further Details
ECU Header Connector	Black 30-Way Connector	N/A	GEN3 ECU Header Connector Marked "**DAE**"	See Harness_Main_Connector
Analog Trigger	Yellow wire	Used to trigger the DAE data logging	An On/Off switch (not provided)	See Analog_Trigger
Turbo Shaft Speed	Gray, 2-way Packard connector with a separate ground wire (3/8" ring terminal)	Turbo(shaft) Speed Sensor	Two (2) wire VR style speed sensor (not a Hall-effect device).	See Turbo_Shaft_Speed
Turbo Back Pressure	Black 3-way Packard connector with a purple seal	A Pressure transducer which measure back pressure	1/8" pipe thread, 0 – 150-psi pressure transducer Available separately from BigStuff3	See Turbo_Back_Pressure
Input Shaft Speed	Gray, 2-way Packard connector with a separate ground wire (3/8" ring terminal)	Input (shaft) Speed Sensor	Two (2) wire VR style speed sensor (not a Hall-effect device).	See Input_Shaft_Speed
Drive Shaft Speed	Gray, 2-way Packard connector with a separate ground wire (3/8" ring terminal)	Drive-shaft Speed Sensor	Two (2) wire VR style speed sensor (not a Hall-effect device).	See Drive_Shaft_Speed
Pan Vacuum	Orange 3-way connector with an green seal	Measures positive and negative pressures in the engine oil pan	+/- 2 Bar MAP sensor. Available separately from BigStuff3	See Pan_Vacuum
Fuel Pressure	Black 3-way Packard connector with a purple seal	Measures fuel rail pressure	1/8" pipe thread, 0 – 150-psi pressure transducer. Available separately from BigStuff3	See Fuel_Pressure
Oil Pressure	Black 3-way Packard connector with a purple seal	Measures engine oil pressure	1/8" pipe thread, 0 – 150-psi pressure transducer. Available separately from BigStuff3	See Oil_Pressure

Harness Main Connector

The 30-way harness side main connector mates with the GEN3 ECU header connector marked with "**DAE**". This connector will only fit in one direction, but must be mated with the ECU header connector marked "**DAE**".

Note: It is essential that the DAE wire harness main connector be installed in the correct header connector location on the ECU! Installing the DAE harness main connector to the incorrect header location on the GEN3 ECU will damage the ECU and void the warranty!!

Analog Trigger

Connect the yellow wire to one end of a live (12V) two- pole On/Off switch. While logging data this wire **must** stay hot (12V)! Mount the switch in an easily accessible location.

Note: The On/Off switch must be cycled (turned off then on again) between logging events in order for a new log to be made!

When using DAE, the analog trigger wire becomes the data acquisition trigger.

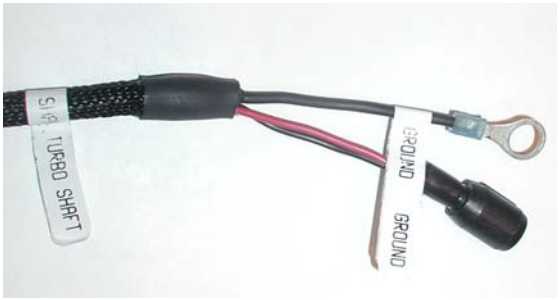
Note: Since the DEA option has its own data logging "trigger" wire, the (DAI) timer enable wire (L2) on the engine side wire harness can be reallocated to collect trans brake or clutch release data.

Reallocating the L2 wire becomes particularly useful for capturing a "time zero" point for each pass.

Turbo Shaft Speed

This connector must interface with a two (2) wire Variable Reluctance (VR) style sensor (not a hall-effect device). Calculates a 16 bit RPM with 1 pulse per revolution.

Contact BigStuff3 for more information on the interface required for this input.



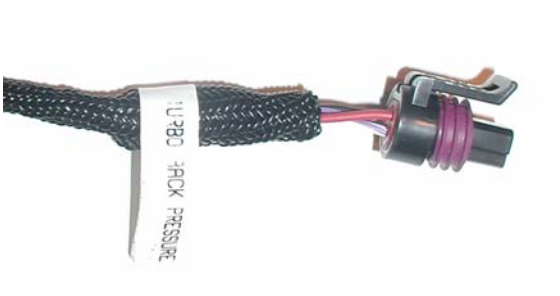
Turbo Back Pressure

This input is used to measure pressure on the turbine side of the turbo charger.

Note: A two (2) foot long section of ¼" copper tubing should be used to isolate the sensor from the very high exhaust temperatures. It is important that the interface between the tubing and the exhaust collector be perpendicular (at a 90^{o} angle of each other). The sensor should be mounted at the other end of the tubing, in parallel (not perpendicular) with the tubing.

BigStuff3 recommends using pressure sensor part number JMI-003-014 (1/8" pipe thread, 0 – 150-psi pressure transducer) for this application. The DAE Turbo Back Pressure harness connector was made to interface with part number JMI-003-014.

The same pressure sensor can be used for measuring fuel and oil pressure!



Input Shaft Speed

This connector must interface with a two (2) wire Variable Reluctance (VR) style sensor (not a hall-effect device).

Contact BigStuff3 for more information on the interface required for this input.

Drive Shaft Speed

Drive shaft speed can be logged for boost vs. RPM comparisons and for calculating the amount of torque converter slippage. The sensor calculates a 16 bit drive shaft RPM. The GEN3 ECU can accommodate input wheels with 1, 2, 4, or 40 teeth.

This connector must interface with a two (2) wire Variable Reluctance (VR) style sensor (not a hall-effect device).

Pan Vacuum

The pan vacuum or pressure can be logged using a 2 Bar MAP sensor, BigStuff3 part number JMI-003-004, which will read and record the pan vacuum/pressure in inches of mercury. A negative number represents vacuum and a positive number represents positive pressure in the crank case.

Fuel Pressure

The fuel rail pressure can be logged to ensure that the rail pressure differential remains constant. This is extremely important for turbo applications where rail pressure needs to increase with boost pressure. The logged fuel pressure data provides the user important insight into whether the fuel pump(s) is capable of maintaining a constant fuel rail pressure differential during critical boost events.

BigStuff3 recommends using pressure sensor part number JMI-003-014 (1/8” pipe thread, 0 – 150-psi pressure transducer) for this application. The Fuel Pressure harness connector was made to interface with part number JMI-003-014.

The same pressure sensor can be used for measuring turbo back pressure and oil pressure!

Oil Pressure

Engine oil pressure can be logged to ensure that the pressure remains constant across engine RPM range.

BigStuff3 recommends using pressure sensor part number JMI-003-014 (1/8” pipe thread, 0 – 150-psi pressure transducer) for this application. The Oil Pressure harness connector was made to interface with part number JMI-003-014.

The same pressure sensor can be used for measuring turbo back pressure and fuel pressure!

Pin-out Definition

For ECU Header Connector Marked "**Trans**"

ECU Pin		ECU Pin	Wire Name	ECU Pin	Wire Name
A1		A2		A3	
B1		B2		B3	
C1		C2		C3	
D1		D2		D3	
E1		E2		E3	
F1		F2		F3	
G1		G2		G3	
H1		H2		H3	
J1		J2		J3	
K1		K2		K3	
L1		L2		L3	
M1		M2		M3	
N1		N2		N3	
P1		P2		P3	
R1		R2		R3	
S1		S2		S3	
T1		T2		T3	
W1		W2		W3	
X1		X2		X3	
Y1		Y2		Y3	