FST 3SGTE Breakout Board v1.0 Information

The FST 3SGTE breakout board makes it easy to connect any stand-alone Engine Management System to a 2nd or 3rd-Generation 3SGTE engine. The board maps the essential 3SGTE ECU pins to a set of solder pads, and uses a series of jumpers to account for the differences in 3SGTE models. Circuitry for an onboard 3- or 4-bar MAP sensor is included, as is circuitry for dual VR-conditioning ICs. This board is designed to be used with the onboard MAP sensor or a separate aftermarket MAP sensor – no provision has been made for factory MAP sensors¹.

Dimensions: the nominal size of the board is 6.3" x 2.85" It is sized to fit in ½ of a standard Eurocard slot. Dotted lines indicate cut lines to fit it in a 6" case (e.g. LMB EAS-500). The output solder holes are sized for 18awg (injectors, 12V power & ground) and 20awg (sensors) un-tinned wire.

MAP Sensor – The board is set up for either a Freescale MPXH6300AC6U-ND (3-bar) or MPXH6400 (4-bar) MAP sensor, mounted on a small proprietary daughterboard and attached using a 4-pin 90 degree header. The MAP sensor is powered by the ECU's +5V sensor power. Components C1 (47pF), C2 (100nF) and R1 (51KOhm) need to be populated to use the MAP sensor.

VR Sensor Circuits – For certain applications, dual VR signal conditioning circuit traces have been provided on the board. These circuits are isolated from the main board by jumpers (for G0, G1, G2 and Ne). For most applications, these jumpers, as well as components C3-C10, R2-R13, and ICs 1 & 2 are not used and should be left unpopulated.

Breakout Board Jumpers

Jumper	Output	Notes			
J1	EGR	A23 (1991), A6 (1993+)			
J2	RSO (IAC)	A22 (1991), A10 (1993+)			
J3	G2 (CAM Sensor)	A2 (1991), A5 (1993+)			
J4	Ne (Crank Sensor)	A1 (1991), A4 (1993+)			
J5	TPC1 (TVSV)	A6 (1991), A2 (1993+)			
J6	TVIS	A18 (1991), A1 (1993+), NA(Gen 3)			
J7	THA (air temp sensor)	B3 (Gen 2), B10 (Gen3)			
J8	G0 (Timing Ground)	B16 (1991), A17 (1993+)			
J9	Knock Sensor	B5 (1991), B13 (1993+)			
J10	FP hi/lo	D6 (1991), NA (1993+)			
J11	PSCT	D14 (1991), D6 (1993), NA(Gen 3)			
J12	Fuel Pump Circuit	A17 (1991), D14 (1993+)			
J13	Trigger VR Circuit Mode				
J14	Home VR Circuit Mode				

¹ If you wish to use the stock MAP sensor, consult the pinout chart at the end of the document. Generally, the unused pin of JP9 will provide the factory PIM signal.

Jumper Settings:

1991-1992 USDM Mr2 Turbo, 1990-1991 JDM MR2 Turbo, 1990-1991 Celica All-Trac: ALL jumpers set to pins 2 &3 <u>EXCEPT_J1</u> (set to 1 & 2)

1993+ USDM Mr2 Turbo, 1992-1993 Gen 2 JDM MR2 Turbo, 1992-1993 Celica All-Trac: All jumpers set to pins 1&2 EXCEPT J10, *J1* and J7 (set to 2 & 3)

Gen 3 (all): All jumpers set to 1&2 EXCEPT J6 & J11 (no jumpers /leave open), J1 set to 2 & 3

MAT input: Gen 2 – use MAT pin on output edge of the board. Gen 3 uses B10. Output goes to THA hole on output side.

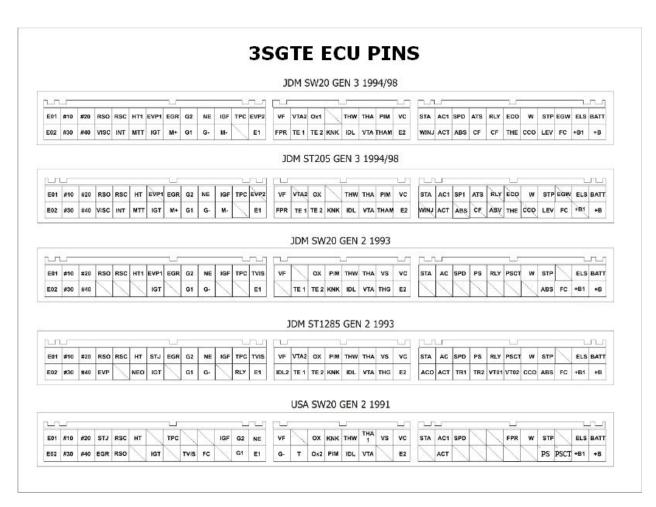
BOARD ADDENDA:

VR Circuits:

If you are populating the VR circuit(s), please note the following:

- Pins 3 & 4 are swapped. To fix you can either bridge pin 3 to pin 4 or cut pin 4 and bend pin 3 to fit in the pin 4 pad on the circuit board.
- Pin 14 should be tied to ground.

IMPORTANT NOTE FOR GEN 3 3SGTE APPLICATIONS: Pins B2 and B10 are switched on the board at the main ECU connector. To fix, bend pin B2 and extend pin B10 to fit the solder hole for B2. *If you wish to use the factory MAP sensor*, wire it directly to the bent pin – otherwise, you can trim the pin.



A13	 A1	B8	 B1	C11	 C1
A26	 A14	B16	 В9	C22	 C12