

FTC1-019D Fuel/Timing Calibrator for Jeep 4.0

Use and Installation Instructions for models from 1996 through 2004

Wire colors below are for the 1997 Wrangler. See the table on the following page for the specific wire colors used on all models from 1996 to 2004.

The identifiers for the ECU connectors are as follows:

Connector C1 Black
Connector C2 White
Connector C3 Grey

- 1) Use with R4 software
- 2) Select Vac/Pressure and Programmable Signal Calibrator under system settings.
Refer to the FTC1 data sheet for more information.
- 3) Select one cylinder and 4 stroke under Options and Engine settings
- 4) Program the fuel in Map table A
- 5) A cell value of 10 is neutral. Reduce the cell value to lean the mixture. Increase the cell value to make the mixture richer.
- 6) The highest cell value is 20.
- 7) Cell values can have one decimal place. For example 10.1. There are a total of 200 levels available for cell value
- 8) Program timing retard in Map table B
- 9) The cell values can range from 0 to 20. A value of 20 will result in 20 degrees of retard.
- 10) Cell values can have one decimal place. For example 10.1. There are a total of 200 levels available for cell value
- 11) Disconnect the battery before making connections to the factory wiring harness.
- 12) Connect the **RED** wire (B+) to the red/green wire on C1 pin 2
- 13) Connect the **BLACK** wire (B-) to the brown/yellow wire on C1 pin 4
- 14) Cut the green/red MAP sensor wire leading from the stock MAP sensor to the ECU on C1 pin 27
- 15) Connect the **VIOLET** wire to the green/red MAP sensor wire leading to the ECU on C1 pin 27. The output of the stock maps sensor is left disconnected.
- 16) Cut the grey/black crank sensor wire leading to C1 pin 8
- 17) Connect the **GRAY** wire to the wire leading to the crank sensor
- 18) Connect the **GRAY/BLACK** wire to the wire leading to the ECU crank sensor input
- 19) Cut the tan/yellow cam sensor wire leading to C1 pin 18
- 20) Connect the **TAN** wire to the wire leading to the cam sensor
- 21) Connect the **TAN/YELLOW** and the **YELLOW/BLACK** wire to the wire leading to the ECU cam sensor input
- 22) Cut the black/green O2 Bank 1 sensor wire leading to C1 pin 24
- 23) Connect the **PINK** wire to the wire leading to the O2 sensor
- 24) Connect the **PINK/BLUE** wire to the wire leading to the ECU O2 sensor input
- 25) The next three steps are skipped on the 1997, but apply to 2000 and later model vehicles. On earlier models, the **WHITE** and **WHITE/GREEN** wires are not used
- 26) Cut the green/red O2 Bank 2 sensor wire leading to C1 pin 26
- 27) Connect the **WHITE** wire to the wire leading to the O2 sensor
- 28) Connect the **WHITE/GREEN** wire to the wire leading to the ECU O2 sensor input

- 29) If you would like to control an external load with the R4 software connect the **ORANGE** wire as follows
- 30) Connect the **ORANGE** relay driver wire to the negative side of the relay coil
- 31) Connect the coil positive to a fused B+ circuit
- 32) Switch the load through the relay contacts
- 33) Set up the turn-on threshold for the relay under options, output settings and output B
- 34) The threshold can be set according to any combination of RPM and pressure set points
- 35) Reconnect the battery

Wire colors by function for 1997 through 2004 Wrangler (*California model)

Function	Pin#	1997	1998	1999	2000	2001	2002	2003	2004
IGN	C1-2	RD/LG	RD/LG	DB	DB	DB	DB	DB	DB
Ground	C1-4	BR/YL	BR/YL	BR/YL	BR/YL	BK/LB	BK/LB	BK/LB	BK/LB
Map	C1-27	DG/RD	DG/RD	DG/RD	DG/RD	DG/RD	DG/RD	DG/RD	DG/RD
Crank	C1-8	GY/BK	GY/BK	GY/BK	GY/BK	GY/BK	GY/BK	GY/BK	GY/BK
Cam	C1-18	TN/YL	TN/YL	TN/YL	TN/YL	TN/YL	TN/YL	TN/YL	TN/YL
O2 B1	C1-24	BK/DG	BK/DG	BK/DG	BK/DG	BK/DG	BK/DG	BK/DG	BK/DG
O2 B2	C1-26	-	-	-	LG/RD*	LG/RD	LG/RD	LG/RD	LG/RD

Wire colors by function for 1996 through 2004 Cherokee (*California Model)

Function	Pin#	1996	1997	1998	1999	2000	2001
IGN	C1-2	DB	DB/WT	DB/WT	DB/WT	DB/WT	DB/WT
Ground	C1-4	BK/LB	BR/YL	BR/YL	BR/YL	BR/YL	BR/YL
Map	C1-27	DG/RD	DG/RD	DG/RD	DG/RD	DG/RD	DG/RD
Crank	C1-8	GY/BK	GY/BK	GY/BK	GY/BK	GY/BK	GY/BK
Cam	C1-18	TN/YL	TN/YL	TN/YL	TN/YL	TN/YL	TN/YL
O2 B1	C1-24	BK/DG	BK/DG	BK/DG	BK/DG	BK/DG	BK/DG
O2 B2	C1-26	-	-	-	-	LG/RD*	LG/RD*

Wire colors by function for 1996 through 2004 Grand Cherokee (*California model)

Function	Pin#	1996	1997	1998	1999	2000	2001	2002	2003	2004
IGN	C1-2	OR	OR	OR	OR/DB	OR/DB	DB/WT	OR/DB	OR/DB	OR/DB
Ground	C1-4	BK/LB	BK/LB	BK/LB	BK/LB	BK/LB	BR/YL	BK/LB	BK/LB	BK/LB
Map	C1-27	RD/WT	RD/WT	RD/WT	DG/OR	DG/RD	DG/RD	DG/RD	DG/RD	DG/RD
Crank	C1-8	RD/LG	RD/LG	RD/LG	GY/BK	GY/BK	GY/BK	GY/BK	GY/BK	GY/BK
Cam	C1-18	GY/BK	GY/BK	GY/BK	TN/YL	TN/YL	TN/YL	TN/YL	TN/YL	TN/YL
O2 B1	C1-24	BK/OR	BK/OR	BK/OR	LG/RD	LG/RD	LG/RD	BK/DG	BK/DG	BK/DG
O2 B2	C1-26	-	-	-	TN/WT*	TN/WT*	TN/VT	LG/RD	LG/RD	LG/RD

Color Code

Abbreviation	Color	Abbreviation	Color
BL	Blue	OR	Orange
BK	Black	PK	Pink
BR	Brown	RD	Red
DB	Dark Blue	TN	Tan
DG	Dark Green	VT	Violet
GY	Grey	WT	White
LB	Light Blue	YL	Yellow
LG	Light Green		