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MOTORSPORT ELECTRONICS PLUG-IN LOOMS

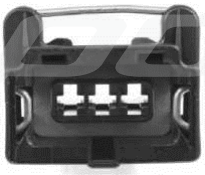
DATASHEET REV002 1.26

(This document is REFERENCE ONLY. If in doubt refer to Motorsport Electronics)

To help you work out if the Motorsport Electronics loom is right for you, the below details the loom connectors which you can cross referenced with your current ones. Note in some cases they may differ, and, when that happens, you can simply cut the plugs off and use the plugs from your OEM loom.

Ford Duratec Plug-In (ME221 P/N 512-102-00001/ME442 P/N 512-102-00006)

We have specific looms for the Ford Duratec with VVT engine. The details of the connectors are shown below:

2 Pin Mini Timer IAT/Air and Coolant sensors	3 Pin Mini Timer Throttle sensor, 3 Bar MAP sensor	Ford coil pack connector
		
OEM Cam & Crank sensor	**Fuel Injectors OEM 2 Pin connectors**	**OEM VVT Connector**
		

The connections provided in our FORD DURATEC loom are:

- 4x 2 Pin OEM for the injectors
- 1x Ford OEM Cam sensor for cam sensor
- 1x 2 Pin OEM Type crank sensor
- 1x 2 Pin for VVT solenoid
- 1x 2 Pin Mini-Timer for IAT and Coolant sensor (Note may need to extend/change depending on the engine type. Use OEM connectors if preferred from the donor engine)
- 1x Ford Coil pack connector for a Wasted spark coil pack
- 1x 3 Pin Mini-Timer for throttle sensor (Typical if using throttle bodies - may need to change if keeping the OEM throttle sensor though this is rare)
- 1x 3 Pin Mini-Timer MAP sensor (suits our 3 Bar sensor)
- Auxiliary flying wires for spare outputs, tachometer, knock and O2/Lambda
- Relays pre-fitted for main power, and fuel pump

ME221

Recommended for Cable Pull Setup

The ME221 Wire-In ECU is a feature rich and future proof four cylinder injection engine management system. Built from the ground up using the latest control strategies means a modern, powerful, VE based ECU, with enhanced feature set including closed loop boost, in-built Wideband Lambda Control, DSP Knock Control, on-board data Logging and VVT control – all in a compact form factor. Massive IO means the ME221 can handle anything thrown at it, and custom tables means any specific algorithms required can be easily derived.

The ECU comes complete with a fully terminated Ford Duratec loom to get your throttle bodies up and running in no time.

ME360

Recommended for Drive-By-Wire Setup

The ME360 Wire-In ECU is a feature rich and future proof four and six cylinder injection engine management system. Built from the ground up using the latest control strategies means a modern, powerful, VE based ECU, with enhanced feature set including closed loop boost, in-built Wideband Lambda Control, DSP Knock Control, on-board data Logging and VVT control – all in a compact form factor. Massive IO means the ME360 can handle anything thrown at it, and custom tables means any specific algorithms required can be easily derived.

The ECU comes complete with a fully terminated Ford Duratec 2.0/2.3L loom to get your throttle bodies up and running in no time.

Specification

Tuning Software (MEITE)

- Intuitive, developed with real-world feedback from 100's of tuners
- Everything real-time adjustable
- Diagnostics and analysis functionality
- Custom layouts, tabs and functions
- In-built firmware update tool for ease-of-use
- Custom "part calibration" import – use settings from other maps in a current map
- Offline Editing of calibrations
- Real-time tracing
- Data-logging of all variables and Auto-Tune

Analogue/Digital Inputs

- Configurable "HRT"s for every analogue channel – use any sensor. Basemaps pre-set for factory sensors.
- **Wide-band O2 LSU4.9 Controller Built In**
- TPS, IAT, CLT, MAP, Lambda standard inputs
- Selectable feature for digital/analogue inputs
- Spare/unused analogue lines can be used for general purpose tables or digital switches

Boost Control

- Closed/Open Loop Boost Control by 16×16 RPM and Throttle table
- Boost-by-Gear
- Switchable Boost Tables
- Over-Boost Protection
- Pre-Start Duties
- Anti-Lag Group-N

Variable Valve Timing

- Fully Closed Loop PWM (Throttle X RPM table)
- Dual Cam Support
- Locked Angle or Locked Duty testing modes
- Basic On/Off Mode (Honda V-Tec)
- Supported patterns include MX5 2001-2005 and Ford ST170, Ford Puma 1.7
- PID Tuning with Oil Temperature triggering & safeties
- Programmable Rest State & Offset compensation

General Purpose Tables

- 6x General Purpose Tables
- Custom Variables and Outputs
- Modify Fuel, Ignition, Boost and Idle strategies from the GPTs
- 3D and 2D tables with ability to "chain" tables together for create complex functions

Communications

- Industry Preferred RS232 for ECU mapping/communication (USB Adaptor available)
- CAN-Bus on some models
- USB on some models

Processing Power

- 120Mhz 32-bit RISC Processor
- Ignition Accuracy to 0.01 degrees, Fuelling to 0.001mS
- 32-bit maths and tables (Table entries can have 8 decimal places for very high resolution)
- ADCs/Analogue data reported to 16-bit accuracy
- 20,000+ RPM

Environmental & Physical

- Automotive -20 – 85*C
- Voltage 5.5-28V
- Operating Current Approx 120mA @ 13v
- Electrically isolated and protected inputs/outputs
- 90 Way Automotive Connector
- IP67 Sealed Alloy Casing

Drive-by-Wire (ME360 only)

- 6.5A Half bridge
- Closed loop, dual redundant DBW
- DBW Idle Control functions
- Software and Hardware fail-safes

DataLogging

- 4Gb On-board Data logging – over 2,000 Hours of all variables
- Unlimited PC based logging via MEITE
- User settable Triggers and markers

Please Note, This is designed to suit the Ford derived 2.0 Duratec as would be fitted in the fiesta ST150

Fuelling Control

- Configurable Load/RPM BINS 16×16, 32 bit floating point Tables
- Multiple Fuel Tables
- Injection Angle
- Priming Pulse Settings and Crank Pulse Settings
- Cranking Enrichment
- After-Start Enrichment and ASE Time Decay
- Warm-Up Enrichment
- Acceleration Enrichement TPS/MAP based with Coolant Modifier
- IAT Correction Table
- Idle Trims
- 16×16 AFR Target Table factored into VE Equation
- Speed-Density/Alpha-N with optional Blending
- Injector Voltage Offset Table
- Overrun Fuel Cut
- Closed Loop Narrow-band/Wide-band Lambda control with Bosch LSU4.9 Controller On-Board
- Flex-Fuel secondary tables

Ignition Control

- 16×16 32bit Table
- Closed Loop DSP Windowed Knock Control On-board
- Battery Voltage Dwell Correction 16×16 Table
- Individual Cylinder Trimming
- IAT and Coolant Trim
- Spark-Scatter Ignition Idle Control
- Flex-Fuel Control
- Switchable Ignition Tables

Crank/Cam Triggering

- VR/Hall/Opto Inputs as required
- Auto-scaling, Parametric Noise Rejection
- Range of OEM Patterns Supported

Idle Control

- PWM based Closed/Open/Manual Diagnostic Modes
- 4-wire Stepper based idle control
- Cranking/Return to idle Settings reference Open-Loop table for wide-control
- DBW Idle Control **where DBW is used*
- AC/Fan Auto-Idle Up Settings
- PID Based for Accuracy
- Fuel Modifiers
- Ignition Spark Scatter
- Jacked-Throttle Miss-Bang Idle Mode (Group-N ALS)

Knock Control

- DSP Angular Windowed Knock Control
- Settable Gains, Offset and Window Duration
- Step Retard and Fail-Safe