EFI TECHNOLOGY - EURO-1

Presentation

EFI Technology srl is a specialist company in advanced electronics for motor racing and high performance road cars. It is founded in 1985, initially to design and develop the early electronic engine management systems for Cosworth.
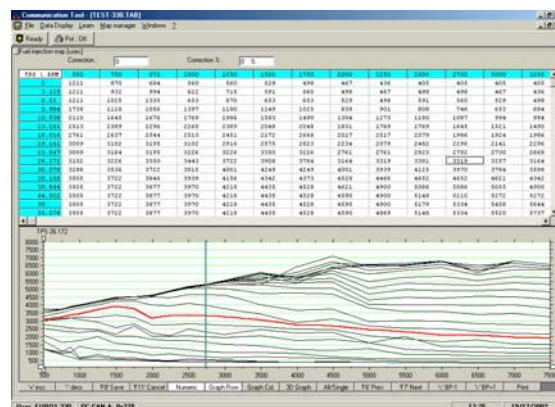
Today, EFI Technology is a highly specialised company involved in developing high tech engine control systems for use in the highest classes in motorsport and in high profile sports cars and motorbikes. EFI Technology manages and supports the complete project, from customer specification through hardware and software development, to production and testing of final products.

In addition, EFI Technology offers a standard range of racing products - branded "EFI Technology" - including ECU's capable of handling engines with 1..12 cylinders, ignition coils, sensors and wiring looms.

Main Features

- Up to 8 cylinders aspirated or turbo charged with built-in ignition modules, distributor-less spark distribution on 4-cylinder engines – standard or logic coil driver versions available.
- 6 and 8 cylinder engines with distributor.
- Up to 8 high impedance fuel injector drivers.
- Engine speed in excess of 16,000 RPM.
- Automatic self-mapping of fuel injection.
- Engine load selectable as either TPS or MAP.
- Trigger disc configuration:
  - 3 or 4 teeth - 6 and 8 cylinder engines
  - 12+1 - Honda Civic R
  - 36-1 - typically Ford
  - 36-4 - Rover K-series
  - 44-4 - Renault Clio
  - 60-2 - typically Bosch
  - 4+1 - EFI standard (4-cylinder engines)
  - Ducati
  - 8 teeth - Suzuki
  - 4 teeth - Yamaha R6
- Communication via CAN line.
- Full Windows95 / 98 / NT / XP software on-line editing

ECU Inputs for Engine Management

- 2 electromagnetic or Hall effect engine speed sensors.
- 3 linear 0..5 Volt analogue inputs.
- 1 built-in 1 bar air pressure sensor.
- 1 lambda sensor input, standard or linear selectable.
- 2 NTC temperature sensor inputs.
- 1 vehicle speed sensor input.
- 2 switches.
- All sensor inputs are user configurable.

Breakpoints

- All breakpoints are user configurable

Fuel Injection

- 32 x 32 breakpoints in basic fuel map.
- Individual cylinder pair fuel trim (4-cyl only).
- Comprehensive fuel injection trims including programmable fuel injection phase.
- Programmable fuel cut-off.
- Programmable soft and hard cut engine RPM limiter.
- Separate fuel injection strategy during cranking.
- Transient fuel trims.

Map Overview with 2-dimensional Graphics
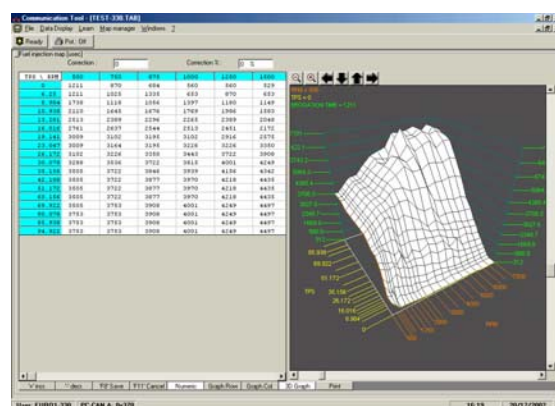
Map Overview with 3-dimensional Graphics

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Ignition
- 32 x 32 breakpoint basic spark advance map.
- 2 built-in ignition power drivers with individual trim.
- Comprehensive spark advance trims.
- Separate spark advance strategy during cranking.
- Separate spark advance strategy in idle speed.
- Catalyst light off in some versions.
- Programmable ignition coil dwell time.
- Programmable hard and soft cut engine RPM limiter.

Lambda Control - closed loop self mapping
- Self learning fuel injection strategy with lambda target map.

Lambda Control - environmental control
- Closed loop lambda 1 control with self-learn.
- User defined matrix sets open loop fuel control.
- Programmable proportional and integral fuel trims.

Turbo Charged Engines
- Closed loop boost control with proportional and integral corrections.

Idle Speed Control
- Control strategy for air valve and stepper motor.
- Separate idle speed spark advance control.
- Closed loop PI idle speed control.

External Switches
- Power shift.
- Launch control.
- Kill switch.

Auxiliary Outputs
- Programmable universal driver.
- Drivers for fuel pump relay and tachometer.
- Power latch.

Special Features
- Variable camshaft timing and valve lift control for Honda Civic R engine.

Logging
- CAN link to external memory module having a 32 Mb memory capacity (optional).

Data Link
- Data export via CAN to external data acquisition systems and dashboards.

Diagnostics
- 15 channels monitored, high/low limits and timeout for each sensor channel set by user.
- Highest 16 engine speed levels and the first 16 error levels for each channel are stored in memory.

Enclosure and Components
- Sealed plastic housing, 35 pin AMP main connector.
- Dimensions 152 x 122 x 44 mm; weight 340 grams.

Mapping software
- Software is easy to understand and logic to operate.
- Alterations in real-time of injection, spark advance, boost pressure, idle speed and target lambda value by use of a mapping controller or via the keyboard.
- ECT communication software runs under Windows 95/98/ME/2000/NT/XP. It is very easy to design individual displays with text, data, potentiometers, LED's, strip charts etc.
- Full on-line editing of complete map. ECU map is password protected.
- Data logging during the mapping procedure with adjustable sampling rate is available.
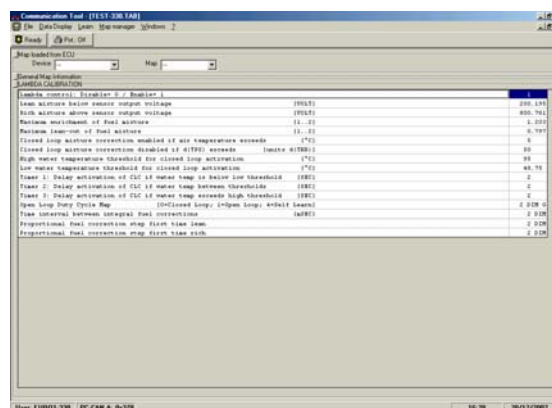
Lambda Control Calibration
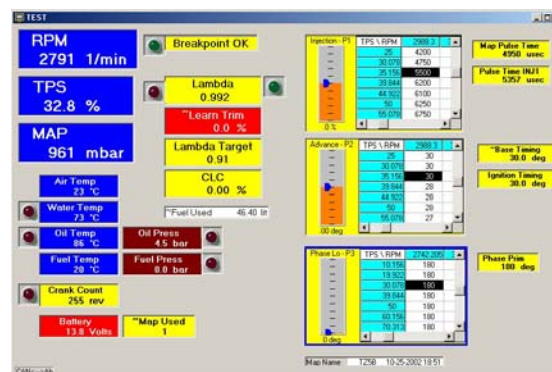
Example of User Defined Display Screen
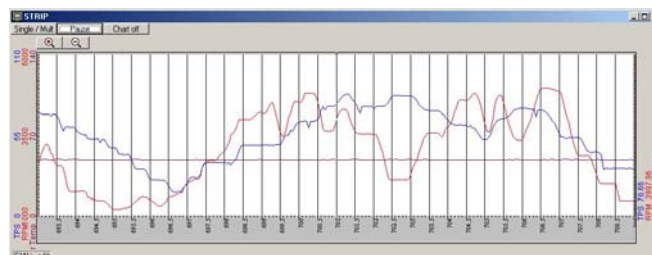
Easy Configuration of Strip Charts