Parts Catalogue

Revision 1.24

February 2007

Contents

Introduction

Introduction
Welcome to the MoTeC Product Catalogue. We are pleased to present this detailed list of our quality products with information to help you make the best choice for your application. Our range includes more items than you will probably ever need, but if you can't find what you're after, we may be able to source it for you.

MoTeC products are sold through an exclusive network of authorised dealers, all qualified to advise, install and tune MoTeC systems. This service is also backed up with MoTeC factory support. For assistance from our technical support team please email your enquiry to support@motec.com.au or call MoTeC Research Centre in Australia on +61 3 9761 5050.

Software for your MoTeC products is always available on our website. As upgrades or improvements are made to the software, they are released and are available for free download to enhance the operation of your system. Visit **http://www.motec.com.au/software.htm** to download the latest or archival versions of MoTeC software at any time. To ensure that you stay up to date with the latest releases, join our Release mailing list by emailing announce-subscribe@motec.com.au. Once registered, we will send you an email to announce new releases of software, ready to download.

Technical drawings of all of our products are also available on the MoTeC website. These drawings show the product, its connections to other products and configuration details. This catalogue lists the technical drawing number with each of our products and can be found by drawing number at **http://www.motec.com.au/drawings.htm**.

Disclaimer.

Please Note: all information in this catalogue is correct at the time of publication (June 2006) and may change at any time without notice. All information contained is meant as a guide only; the responsibility rests with the reader to ascertain its accuracy. All images are for illustration purposes only. All images and information are the copyright of MoTeC Pty Ltd and may not be reproduced in any way without prior written consent.

MoTeC Engine Control Units

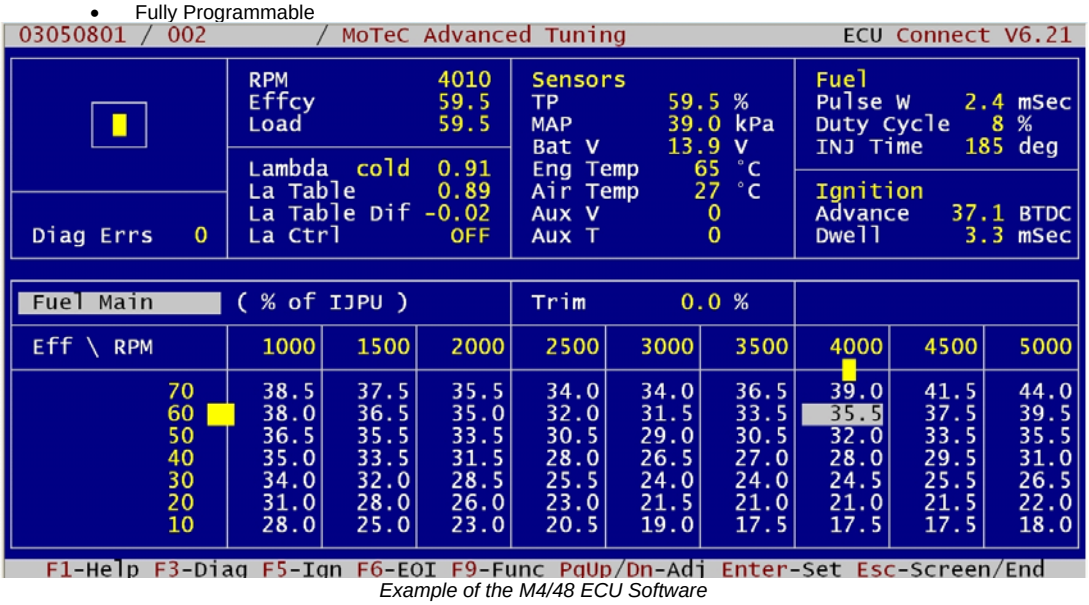
M4 CLUBMAN ECU

Specifications:
The M4 is our 4 cylinder/rotary Engine Control Unit (ECU) designed to provide you with the power and quality of our Pro series but at lower cost by letting you option in only the features you require. Though it is designed primarily for performance street cars and bikes, by choosing the optional features it is perfect for competition use, especially its sequential injection capability.

Technical Drawing: M4

Standard Features:
10002 M4 Engine Control Unit

- 6 HRS FREE WIDEBAND LAMBDA and LOGGING
- Factory Ref and Sync Triggers compatibility
- 3 Temperature inputs
- 3 Voltage inputs
- Narrowband Lambda sensor inputs
- Hi/Low Injection control
- 2 Digital inputs
- 4 injector drivers
- 4 ignition drivers (3 ignition drivers are re-assigned Auxiliary outputs)
- 4 aux outputs
- 32bit Microprocessor
- Field upgradeable
- Fully Programmable



Example of the M4/48 ECU Software

Options include:

M4 loom, sensor Kit contents.

61001 M4 wiring loom*
- Generic wiring loom to be terminated to suit your installation. Loom approximately 3m in length

61004 M4 loom and sensors (Normally aspirated)*
- Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 1Bar Map sensor

61005 M4 loom and sensors (Turbo)*
- Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 3Bar Map sensor

63003 Cable, PCI
- Interface cable for connecting an ECU to a PC. (Only required for M4s with serial number < 3000)

26004 ADVANCED Tuning & Logging (512K) = PRO
- Logging (512k), Fuel and Ignition Individual Cylinder 3D Tables, Fuel Timing 3D Table, Start or End of Injection, Fuel Second Load Table, Ignition Accel/Decel, Ignition Dwell Table, Wideband Lambda Control, Gear Change Ignition Cut, Overrun Boost Enhancement (Anti Lag), Ground Speed Limiting, Traction Control & Launch Control

26005 LOGGING (512K) (included as part of 26004)
- Allows logging of the ECU sensors and operating parameters to the internal data logging memory. The logged data may then be analysed by the ***MoTeC* i2 Standard** Software. Data Logging option is enabled for an evaluation period of 6 hrs (engine running time) from new.

26006 SINGLE WIDEBAND LAMBDA
- Allows Wideband Lambda (Air Fuel Ratio) measurement, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.75 to 1.2 Lambda (11:1 to 18:1) when used with the ***MoTeC*** Wideband exhaust gas sensor. Lambda is enabled for an evaluation time of 6 hours (of engine running time) from new. (Advanced Functions also required for Wideband closed loop Lambda control)

26008 TELEMETRY
- Gives 'in the pits' viewing of real time data of a vehicle in action. The user can define a multiple page setup to view the data as text, warning alarms, numerics, bar charts, gauges, steering wheel, and scrolling charts.

26009 REMOTE LOGGING (requires 26008)

- *MoTeC* Telemetry allows the viewing of live data transmitted from an M4 via modem to a PC. This data is stored by writing a telemetry “image” file to the hard disk when the program is closed. This contains all of the information received during that session. *MoTeC* Telemetry Image File Converter software can be used to change image file into normal log file for viewing in *MoTeC* i2 software.

*MoTeC wiring looms do not include a wire for every input/output check technical drawings for details.

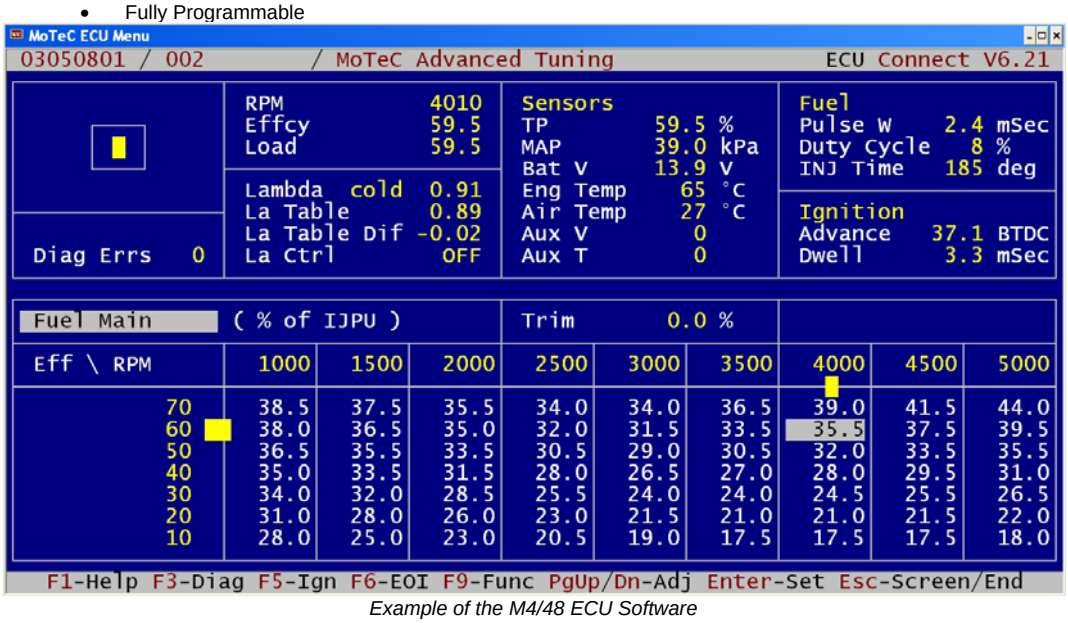
M48 CLUBMAN ECU

Specifications:
The M48 is our Engine Control Unit (ECU) with the ability to provide sequential injection and individual cylinder fuel/ignition trims for up to 8 cylinder engines. It is designed to provide you with the power and quality of our Pro series but at lower cost by letting you option in the features you require. Though designed primarily for performance street cars & bikes, by choosing the optional features it is perfect for competition use.

Technical Drawing: M4-8

Standard Features:
11002 M48 Engine Control Unit

- 6 HRS FREE WIDEBAND LAMBDA and LOGGING
- Factory Ref and Sync Triggers compatibility
- 3 Temperature inputs
- 3 Voltage inputs
- Narrowband Lambda sensor inputs
- 2 Digital inputs
- 8 injector drivers
- High/Low injector control
- 2 ignition drivers (second ignition driver is re-assigned Auxiliary output)
- 4 aux outputs
- 32bit Microprocessor
- Field upgradeable
- Fully Programmable



Example of the M4/48 ECU Software

Options include:

M48 loom, sensor kit contents

61002 M48 wiring loom*
Generic wiring loom made to be customised to suit your installation. Loom approximately 3m in length.

61006 M48 loom and sensors (Normally aspirated)*
Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 1Bar Map sensor

61007 M48 loom and sensors (Turbo)*
Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 3Bar Map sensor

63003 Cable, PCI
Interface cable to suit your ECU for connecting to a PC.

27004 ADVANCED/LOGGING (512K) = PRO
Logging (512k), Fuel Timing 3D Table, Start or End of Injection, Fuel Second Load Table, Ignition Accel/Decel, Ignition Dwell Table, Wideband Lambda Control, Gear Change Ignition Cut, Overrun Boost Enhancement (Anti Lag), Ground Speed Limiting, Traction Control & Launch Control

27005 LOGGING (512K) (included as part of 27004)
Allows logging of the ECU sensors and operating parameters to the internal data logging memory. The logged data may then be analysed by the ***MoTeC* i2 Standard** Software. Data Logging option is enabled for an evaluation period of 6 hrs (engine running time) from new.

27006 SINGLE WIDEBAND LAMBDA
Allows Wideband Lambda (Air Fuel Ratio) measurement, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.75 to 1.2 Lambda (11:1 to 18:1) when used with the ***MoTeC*** Wideband exhaust gas sensor. Lambda is enabled for an evaluation time of 6 hours (of engine running time) from new. (Advanced Functions also required for Wideband closed loop Lambda control)

27008 TELEMETRY
Gives 'in the pits' viewing of real time data of a vehicle in action. The user can define a multiple page setup to view the data as text, warning alarms, numerics, bar charts, gauges, steering wheel and scrolling charts

27009 REMOTE LOGGING (Requires 27008)
MoTeC Telemetry allows the viewing of live data transmitted from an M48 via modem to a PC. This data is stored by writing a telemetry “image” file to the hard disk when the program is closed. This contains all of the information received during that session. *MoTeC* Telemetry Image File Converter software can be used to change image file into normal log file for viewing in *MoTeC* i2 software.

* MoTeC wiring looms do not include a wire for every input/output, check technical drawing for details

M2R / MLS ECU

Specifications:
MLS ECU dedicated to LS1 and Lexus V8s
M2R ECU dedicated to 2 Rotor engines
Both products are derivatives of the existing M4 ECU and have software limitations that dictate their use on the specified engines only. These ECUs provide price competitive solutions for a limited range of popular engines while retaining the benefit of performance and reliability associated with the MoTeC brand. Apart from the limitations on engine set up, the ECU tuning software has the same functionality as the normal M4 software. This includes all upgrades and the initial free lambda and logging time.

Technical Drawing: M4

Standard Features:
10005 MLS Engine Control Unit
10006 M2R Engine Control Unit

- 6 HRS FREE WIDEBAND LAMBDA and LOGGING
- 3 Temperature inputs
- 3 Voltage inputs
- Narrowband Lambda sensor inputs
- Hi/Low Injection control
- 2 Digital inputs
- 4 injector drivers
- 4 ignition drivers (3 ignition drivers are re-assigned Auxiliary outputs)
- 4 aux outputs
- 32bit Microprocessor
- Field upgradeable
- Fully Programmable

Options include:
The Options for these ECUs are the same options available for the M4 ECU.

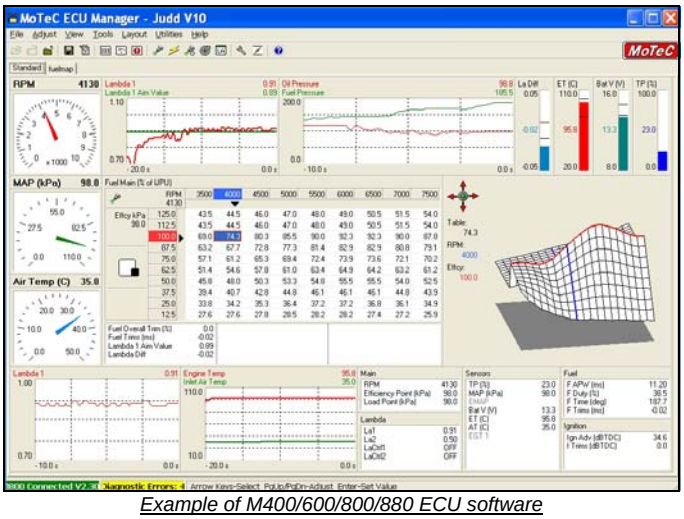
M400 ECU

Specifications:
The MoTeC M400 ECU is a powerful engine control unit providing sophisticated controls for today's highly evolved engines. With four injector drivers and four ignition outputs, the M400 is ideal for running sequential injection and multicoil ignition systems on twin rotor and 4 cylinder engines. Offering optional control of both infinitely variable valve timing and Drive by Wire (DBW), the M400 can enhance even the most advanced engines. Logging and Wideband Lambda upgrades are also available.

Technical Drawing: M400

Standard Features:
13040 M400 Engine Control Unit

- Includes 8 HRS FREE WIDEBAND LAMBDA and LOGGING
- Factory Ref and Sync Triggers compatibility
- 6 Temperature inputs
- 8 Voltage inputs
- Narrowband Lambda sensor inputs
- Hi/Low Injection control
- 4 Digital inputs
- 4 injector drivers
- 4 ignition drivers
- 8 aux outputs
- 32bit Microprocessor
- Field upgradeable
- Fully Programmable
- High/Low injection
- Closed loop Lambda control (when used with an external meter (PLM) or Lambda option)



Example of M400/600/800/880 ECU software

Options Include:

M400 loom, sensor kit contents

61017 M400 wiring loom*
- Generic wiring loom made to be customised to suit your installation. Loom approximately 3m in length

61018 M400 loom and sensors (Normally aspirated)*
- Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 1Bar Map sensor

61019 M400 loom and sensors (Turbo)*
- Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 3Bar Map sensor

61021 CAN Interface Cable
- High speed CAN interface cable for communications from the ECU to a laptop or personal computer.

61059 USB to CAN adapter (UTC)
- Communications adapter that connects using USB instead of using a CAN cable on a Parallel port.

24101 LOGGING (512kB)
- Allows logging of the ECU sensors and operating parameters to the internal data logging memory. A custom logging list can be set by the user with up to 64 parameters at logging rates from 1 to 200 times a second. The logged data may then be analysed by the ***MoTeC* i2** Software. Data Logging option is enabled for an evaluation period of 8 hrs (engine running time) from new.

24102 SINGLE WIDEBAND LAMBDA
- Allows Wideband Lambda (Air Fuel Ratio) measurement, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.70 to 32 Lambda (10.3 to 470 AFR petrol) when used with the ***MoTeC*** Wideband exhaust gas sensor. Uses latest Bosch or NTK dual cell Lambda sensors. Lambda is enabled for an evaluation time of 8 hours (of engine running time) from new.

24105 ADVANCED FUNCTIONS*
- Traction Control, Launch Control, gear change ignition cut, Overrun boost enhancement.

24112 DRIVE BY WIRE(by application to *MoTeC* only)
- Drive by Wire technology uses an electronic throttle instead of the traditional mechanical system, interpreting pedal input from the driver via sensors while controlling a throttle actuator. The M400 caters for this high-tech function, employing sophisticated software and hardware that is compatible with most OEM Drive by Wire units.

24116 VARIABLE CAMSHAFT CONTROL
- The M400 provides the capability to control fully variable camshaft timing using factory trigger wheels and sensors. Each cam can be independently adjusted in 0.5 degree increments based on RPM and load. This allows users to optimise engine tuning across a wide range of operating conditions to achieve better high end performance and low speed torque. Other benefits include enhanced idle, fuel economy and emissions control.

24117 OVERRUN BOOST ENHANCEMENT

Overrun Boost Enhancement (ORB), or as it is commonly called, Anti Lag (ALS), is most commonly used with turbo cars participating in rally events. ORB is used to reduce turbo lag and improve throttle response in tight and twisty stages. ORB can also be used in a variety of other racing categories including drag applications.

MoTeC wiring looms do not include a wire for every input/output, check technical drawing for details

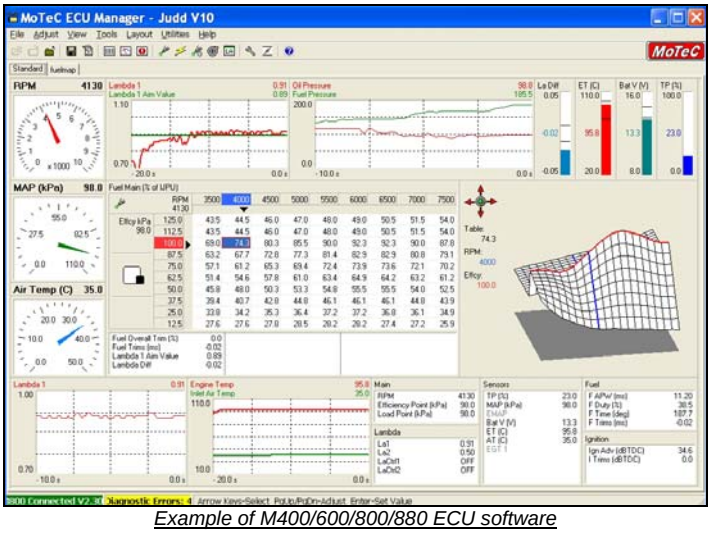
M600 ECU

Specifications:
Featuring six injector drivers and six ignition outputs, the M600 is intended for six cylinder and triple rotary engines. Using the same sophisticated technology as the ground breaking M800, the M600 is the ideal system for late model, high tech applications. Infinitely variable cam control and Drive by Wire (DBW) control are just two of the advanced options available. Single or dual Wideband Lambda may also be enabled for fine tuning and closed loop control.

Technical Drawing: M600

Standard Features:
13060 M600 Engine Control Unit

- Includes 8 HRS FREE WIDEBAND LAMBDA and LOGGING
- Factory Ref and Sync Triggers compatibility
- 6 Temperature inputs
- 8 Voltage inputs
- 2 Narrowband Lambda sensor inputs
- Hi/Low Injection control
- 4 Digital inputs
- 6 injector drivers
- 6 ignition drivers
- 8 aux outputs
- 32bit Microprocessor
- Field upgradeable
- Fully Programmable
- High/Low injection
- Closed loop Lambda control (when used with an external meter (PLM) or Lambda option)



Example of M400/600/800/880 ECU software

Options Include:

M600 loom, sensor kit contents

61017 M600 wiring loom*
- Generic wiring loom made to be customised to suit your installation.

61018 M600 loom and sensors (Normally aspirated)*
- Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 1Bar Map sensor

61019 M600 loom and sensors (Turbo)*
- Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 3Bar Map sensor

61021 CAN Interface Cable
- High speed CAN interface cable for communications from the ECU to a laptop or personal computer.

61059 USB to CAN adapter (UTC)
- Communications adapter that connects using USB instead of using a CAN cable on a Parallel port.

26101 LOGGING (512kB)
- Allows logging of the ECU sensors and operating parameters to the internal data logging memory. The logged data may then be analysed by the ***MoTeC* i2** Software. Data Logging option is enabled for an evaluation period of 8 hrs (engine running time) from new.

26102 SINGLE WIDEBAND LAMBDA
- Allows Wideband Lambda (Air Fuel Ratio) measurement, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure 0.70 to 32 Lambda (10.3 to 470 AFR petrol) when used with the ***MoTeC*** Wideband exhaust gas sensor. Uses latest Bosch or NTK dual cell Lambda sensors. Lambda is enabled for an evaluation time of 8 hours (of engine running time) from new

26103 DUAL WIDEBAND LAMBDA ***
- Allows two Wideband Lambda (Air Fuel Ratio) measurements, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.70 to 32 Lambda (10.3 to 470 AFR petrol) when used with the ***MoTeC*** Wideband exhaust gas sensor.

26105 ADVANCED FUNCTIONS*
- Traction Control, Launch Control, gear change ignition cut, Overrun boost enhancement.

26112 DRIVE BY WIRE(by application to *MoTeC* only)
- Drive by Wire technology uses an electronic throttle instead of the traditional mechanical system, interpreting pedal input from the driver via sensors while controlling a throttle actuator. The M600 caters for this high-tech function, employing sophisticated software and hardware that is compatible with most OEM Drive by Wire units.

26116 VARIABLE CAMSHAFT CONTROL
- The M600 provides the capability to control fully variable camshaft timing using factory trigger wheels and sensors. Each cam can be independently adjusted in 0.5 degree increments based on RPM and load. This allows users to optimise engine tuning across a wide range of operating conditions to achieve better high end performance and low speed torque. Other benefits include enhanced idle, fuel economy and emissions control.

26117 OVERRUN BOOST ENHANCEMENT

Overrun Boost Enhancement (ORB), or as it is commonly called, Anti Lag (ALS), is most commonly used with turbo cars participating in rally events. ORB is used to reduce turbo lag and improve throttle response in tight and twisty stages. ORB can also be used in a variety of other racing categories including drag applications.

* MoTeC wiring looms do not include a wire for every input/output, check technical drawing for details

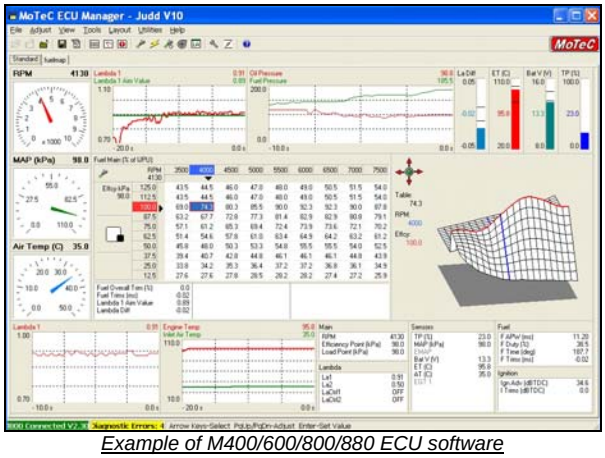
M800 ECU

Specifications:
MoTeC's M800 sets the benchmark for leading edge aftermarket engine management. The result of rigorous research and practical field-testing, this new generation ECU has been developed with advanced technology and sophisticated software to deliver unsurpassed tuning power and flexibility. Single or dual Wideband Lambda, Logging and Pro Analysis are just a few of the optional upgrades that can be enabled quickly and easily with a password when required. Control of infinitely variable valve timing and Drive by Wire (DBW) are also options on the M800.

Technical Drawing: M800

Standard Features:
13001 M800 Engine Control Unit

- Includes 8 HRS FREE WIDEBAND LAMBDA and LOGGING
- Factory Ref and Sync Triggers compatibility
- 6 Temperature inputs
- 8 Voltage inputs
- 2 Narrowband Lambda sensor inputs
- Hi/Low Injection control
- 4 Digital inputs
- 8 injector drivers
- 6 ignition drivers
- 8 aux outputs
- 32bit Microprocessor
- Field upgradeable
- Fully Programmable
- High/Low injection
- Closed loop Lambda control (when used with an external meter (PLM) or Lambda option)



Example of M400/600/800/880 ECU software

Options Include:

M800 loom, sensor kit contents

61017 M800 wiring loom*

- Generic wiring loom made to be customised to suit your installation.

61018 M800 loom and sensors (Normally aspirated)*

- Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 1Bar Map sensor

61019 M800 loom and sensors (Turbo)*

- Generic wiring loom made to be customised to suit your installation. Includes Air temp sensor, Water Temp sensor and 3Bar Map sensor

61021 CAN Interface Cable

- High speed CAN interface cable for communications from the ECU to a laptop or personal computer.

61059 USB to CAN adapter (UTC)

- Communications adapter that connects using USB instead of using a CAN cable on a Parallel port.

28101 LOGGING (1 MB)

- Allows logging of the ECU sensors and operating parameters to the internal data logging memory. The logged data may then be analysed by the ***MoTeC* i2** Software. Data Logging option is enabled for an evaluation period of 8 hrs (engine running time) from new.

28102 SINGLE WIDEBAND LAMBDA

- Allows Wideband Lambda (Air Fuel Ratio) measurement, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.70 to 32 Lambda (10.3 to 470 AFR petrol) when used with the ***MoTeC*** Wideband exhaust gas sensor. Uses latest Bosch or NTK dual cell Lambda sensors. Lambda is enabled for an evaluation time of 8 hours (of engine running time) from new

28103 DUAL WIDEBAND LAMBDA (Requires 28102)

- Allows two Wideband Lambda (Air Fuel Ratio) measurements, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.70 to 32 Lambda (10.3 to 470 AFR petrol) when used with the ***MoTeC*** Wideband exhaust gas sensor.

28104 PRO ANALYSIS (Requires 28101)

- Enables advanced data analysis with Multiple Graph Overlays, XY Plots, and Maths Functions

28105 ADVANCED Functions

- Launch control, traction control, ground speed limiting, gear change ignition cut Overrun boost enhancement

28107 TELEMETRY

- Gives 'in the pits' viewing of real time data of a vehicle in action. The user can define a multiple page setup to view the data as text, warning alarms, numerics, bar charts, gauges, steering wheel, and scrolling charts.

28109 REMOTE LOGGING (requires 28107)

- *MoTeC* Telemetry allows the viewing of live data transmitted from an M800 via modem to a PC. This data is stored by writing a telemetry “image” file to the hard disk when the program is closed. This contains all of the information received during that session. *MoTeC* Telemetry Image File Converter software can be used to change image file into normal log file for viewing in *MoTeC* i2 software.

28111 10/12 CYL SEQUENTIAL

- Up to twelve injectors may be driven fully sequentially by the ECU if the injectors are high resistance types. (uses 4 ignition outputs)

28112 DRIVE BY WIRE (by application to *MoTeC* only)

- Drive by Wire technology uses an electronic throttle instead of the traditional mechanical system, interpreting pedal input from the driver via sensors while controlling a throttle actuator. The M800 caters for this high-tech function, employing sophisticated software and hardware that is compatible with most OEM Drive by Wire units.

28113 SERVO MOTOR CONTROL

- Servo Motor Control Option enables *MoTeC* ECU control of a DC motor using a 3D table. These fast response, high torque motors have a wide range of functions, including Variable Inlet/Exhaust/Trumpet control, Diesel Fuel Flow control, RX8 oil pump control and many more.

28115 MULTISPARK IGNITION / MULTIPULSE INJECTION

- Multipulse includes - Multi Strike Ignition. Ignition may be set to fire multiple times and Multi Pulse Injection. The injectors may fire twice per cycle.

28116 VARIABLE CAMSHAFT CONTROL

- The M800 provides the capability to control fully variable camshaft timing using factory trigger wheels and sensors. Each cam can be independently adjusted in 0.5 degree increments based on RPM and load. This allows users to optimise engine tuning across a wide range of operating conditions to achieve better high end performance and low speed torque. Other benefits include enhanced idle, fuel economy and emissions control.

28117 OVERRUN BOOST ENHANCEMENT

- Overrun Boost Enhancement (ORB), or as it is commonly called, Anti Lag (ALS), is most commonly used with turbo cars participating in rally events. ORB is used to reduce turbo lag and improve throttle response in tight and twisty stages. ORB can also be used in a variety of other racing categories including drag applications.

* MoTeC wiring looms do not include a wire for every input/output, check technical drawing for details

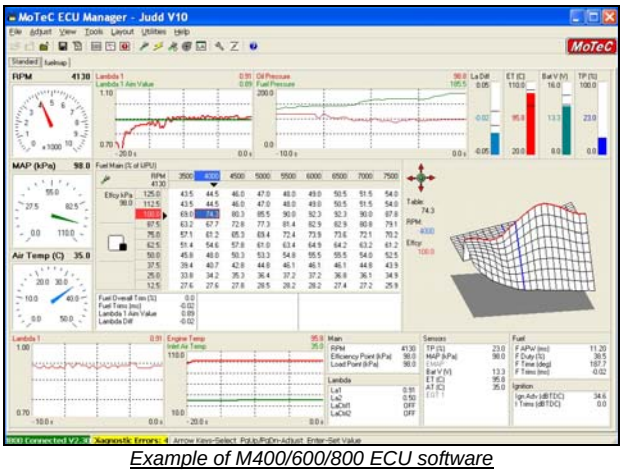
M880 ECU

Specifications:
The M880 offers the same package of features and flexibility as the M800 with an Autosport (military type) connector, Advanced Functions as standard and 4Mb of logging as an option.

Technical Drawing: M880

Standard Features:
13002 M880 Engine Control Unit includes ADVANCED Functions*

- Includes 8 HRS FREE WIDEBAND LAMBDA and LOGGING
- Factory Ref and Sync Triggers compatibility
- 6 Temperature inputs
- 8 Voltage inputs
- 2 Narrowband Lambda sensor inputs
- Hi/Low Injection control
- Launch control
- Traction control
- Ground Speed limiting
- Gear change ignition cut
- Overrun boost enhancement
- 4 Digital inputs
- 8 injector drivers
- 6 ignition drivers
- 8 aux outputs
- 32bit Microprocessor
- Field upgradeable
- Fully Programmable
- Closed loop Lambda control (when used with an external meter (PLM) or Lambda option)



Example of M400/600/800 ECU software

Options Include:

61021 CAN Interface Cable
- High speed CAN interface cable for communications from the ECU to a laptop or personal computer.

61059 USB to CAN adapter (UTC)
- Communications adapter that connects using USB instead of using a CAN cable on a Parallel port.

28101 LOGGING (1 MB)
- Allows 1mb logging of the ECU sensors and operating parameters to the internal data logging memory. The logged data may then be analysed by the ***MoTeC* i2** Software. Data Logging option is enabled for an evaluation period of 8 hrs (engine running time) from new.

28108 LOGGING (4 MB) (requires 28101)
- Allows 4mb logging of the ECU sensors and operating parameters to the internal data logging memory. The logged data may then be analysed by the ***MoTeC* i2** Software.

28102 SINGLE WIDEBAND LAMBDA
- Allows Wideband Lambda (Air Fuel Ratio) measurement, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.75 to 1.2 Lambda (11:1 to 18:1) when used with the ***MoTeC*** Wideband exhaust gas sensor. Uses latest Bosch or NTK dual cell Lambda sensors. Lambda is enabled for an evaluation time of 8 hours (of engine running time) from new.

28103 DUAL WIDEBAND LAMBDA (requires 28102)
- Allows two Wideband Lambda (Air Fuel Ratio) measurements, which may be used for data logging or closed loop control of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.75 to 1.2 Lambda (11:1 to 18:1) when used with the ***MoTeC*** Wideband exhaust gas sensor.

28104 PRO ANALYSIS (Requires 28101)
- Enables advanced data analysis with Multiple Graph Overlays, XY Plots, and Maths Functions.

28105 ADVANCED Functions (Included as standard)
- Launch control, traction control, Ground Speed limiting, gear change ignition cut Overrun boost enhancement

28107 TELEMETRY
- Gives 'in the pits' viewing of real time data of a vehicle in action. The user can define a multiple page setup to view the data as text, warning alarms, numerics, bar charts, gauges, steering wheel, and scrolling charts.

28109 REMOTE LOGGING (requires 28107)

- *MoTeC* Telemetry allows the viewing of live data transmitted from an ADL via modem to a PC. The Remote Logging option allows this data to be converted into a normal log file for viewing in *MoTeC* i2 software.

28111 10/12 CYL SEQUENTIAL

- Up to twelve injectors may be driven fully sequentially by the ECU if the injectors are high resistance types. (uses 4 ignition outputs)

28112 DRIVE BY WIRE (by application to *MoTeC* only)
- Drive by Wire technology uses an electronic throttle instead of the traditional mechanical system, interpreting pedal input from the driver via sensors while controlling a throttle actuator. The M800 caters for this high-tech function, employing sophisticated software and hardware that is compatible with most OEM Drive by Wire units.

28113 SERVO MOTOR CONTROL
- Servo Motor Control Option enables *MoTeC* ECU control of a DC motor using a 3D table. These fast response, high torque motors have a wide range of functions, including Variable Inlet/Exhaust/Trumpet control, Diesel Fuel Flow control, RX8 oil pump control and many more.

28115 MULTISPARK IGNITION / MULTIPULSE INJECTION
- Multipulse includes - Multi Strike Ignition. Ignition may be set to fire multiple times and Multi Pulse Injection. The injectors may fire twice per cycle.

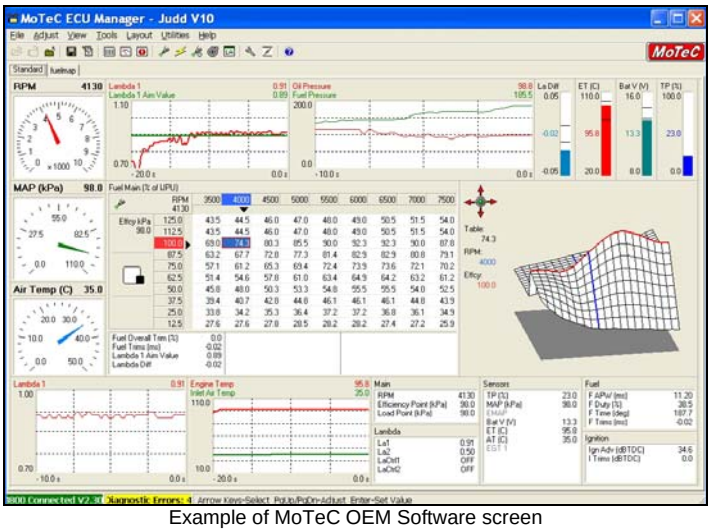
28116 VARIABLE CAMSHAFT CONTROL
- The M800 provides the capability to control fully variable camshaft timing using factory trigger wheels and sensors. Each cam can be independently adjusted in 0.5 degree increments based on RPM and load. This allows users to optimise engine tuning across a wide range of operating conditions to achieve better high end performance and low speed torque. Other benefits include enhanced idle, fuel economy and emissions control.

28117 OVERRUN BOOST ENHANCEMENT
- Overrun Boost Enhancement (ORB), or as it is commonly called, Anti Lag (ALS), is most commonly used with turbo cars participating in rally events. ORB is used to reduce turbo lag and improve throttle response in tight and twisty stages. ORB can also be used in a variety of other racing categories from fast road to drag applications.

M800 Plug & Play ECU (OEM)

Also available amongst MoTeC's wide range of engine management options are the discreet M800 Plug & Play systems. These ECUs are designed as plug in boards to replace the OEM computers in a number of high performance late model vehicles. These units provide the flexibility and performance of a MoTeC M800 ECU without the necessity of rewiring the car or building adaptor looms.
M800 Plug & Play ECUs are built with the same options as a standard M800, though there are some limitations due to factory plug designs. To assist with the tuning of your vehicle they can also be supplied with a start up engine map. Currently available are:

13004A M800 OEM ECU for WRX/STi V5/6
13007A M800 OEM ECU for EVO8 GSR
13008A M800 OEM ECU for WRX/STi V78 + 2006 2lt model only (some models require Cam Control upgrade (28116))
13009A M800 OEM ECU for EVO 4 – 8
13010A M800 OEM ECU for EVO 9 (some models require Cam Control upgrade (28116))



Example of MoTeC OEM Software screen

MoTeC ECU Upgrade Path summary

Below is a summary table of MoTeC ECUs and their associated upgrade codes. It shows you what is available for your particular ECU, and what the part number is that you should order when purchasing a particular upgrade.

Description	M4	M48	M8	M400	M600	M800	M880
Hours free logging &wideband lambda	**6**	**6**	N/A	**8**	**8**	**8**	**8**
Single Wideband Lambda	**26006**	**27006**	N/A	**24102**	**26102**	**28102**	**28102**
Dual Wideband Lambda	N/A	N/A	**28006**	N/A	**28103**	**28103**	**28103**
Logging 512K	**26005**	**27005**	**28005**	**24101**	**26101**	N/A	N/A
Logging 1 MB	N/A	N/A	N/A	N/A	N/A	**28101**	**28101**
Logging 4MB (Must have 1MB logging)	N/A	N/A	N/A	N/A	N/A	N/A	**28108**
Dual Wideband Lambda & Logging (512K)	X	X	**28007**	X	X	X	X
Advanced Functions & Logging: Launch ctrl, Traction Ctrl, Ground speed limiting, Gear change ign cut, Over run boost, Individual cylinder tables	**26004**	**27004**	N/A	N/A	N/A	N/A	N/A
Advanced Functions: Launch ctrl, Traction Ctrl, Gear change ign cut, Over run boost.	N/A	N/A	N/A	**24105**	**26105**	**28105**	**STD**
Drive by Wire	N/A	N/A	N/A	**24112**	**26112**	**28112**	**28112**
Cam control	N/A	N/A	N/A	**24116**	**26116**	**28116**	**28116**
Multipulse / Multispark	N/A	N/A	N/A	N/A	N/A	**28115**	**28115**
Servo Control	N/A	N/A	N/A	N/A	N/A	**28113**	**28113**
Over run boost (without adv functions)	N/A	N/A	N/A	**24117**	**26117**	**28117**	**28117**
Pro Analysis: XY plots, Multiple overlays, Advanced maths functions, Rainbow mapping, Lap reports, Section times. (2 additional graphs, 5 traces per graph)	N/A	N/A	**28008**	N/A	N/A	**28104**	**28104**
Telemetry	**26008**	**27008**		N/A	N/A	**28107**	**28107**
Remote Logging (requires telemetry)	**26009**	**27009**	N/A	N/A	N/A	**28109**	**28109**

N/A = Not Available. X= Not applicable. NLA= No Longer Available. STD= Standard. Numbers refer to MoTeC upgrade and enable code part numbers.

Subaru Diff Controller (SDC and SDC2)

The Subaru Diff Controller (SDC) is a direct replacement for the driver controlled centre diff (DCCD) controller in the 2003 WRX Sti and similar vehicles, the SDC2 is for the 2004 and onwards WRX Sti. The SDC is a fully programmable diff controller, used to make the most of your WRX in all conditions. The late model Sti has a thumbwheel, used to adjust the amount of front to rear lock up from the centre diff. The *MoTeC* diff controller uses this thumbwheel to allow you to have multiple diff control strategies, and quickly move between them as required. The unit is an easy direct plug into the original loom, and easy to fit and setup.

14009 Subaru Diff Controller (SDC)
14010 Subaru Diff Controller2 (SDC2)

Mitsubishi Diff Controller

The Mitsubishi Diff Controller (MDC) is a direct replacement for the Active Centre Diff (ACD) controller for the EVO 7, 8 and 9 models. The MDC is a fully programmable centre diff controller. Six different diff control mode are selectable from the standard ACD button located on the dash board. The modes include 0% and 100% lock and four user programmable modes. The MDC can be used on vehicles fitted with Active Yaw Control (AYC) but the AYC will be disabled.

14012 Mitsubishi Diff Controller (MDC)

Subaru Diff controller, TCMUX

Traction Control Multiplexer (TCMUX)

Specifications:
The traction control multiplexer takes 4 individual wheel speed signals, and turns them into one coded signal for an ECU to read as driven speed (wheels that have power), undriven speed (rolling wheels) and slip (% difference between driven and undriven wheels.)

Technical Drawing: A01

14002 Traction Control Multiplexer (TCMUX)

ECU Accessories

These software update units are required for upgrading the firmware in some *MoTeC* ECUs.

63008 SOFTWARE UPDATE UNIT - M4 (serial number less than 3000)/M48
63009 SOFTWARE UPDATE UNIT - M8

M4/48 SUU, M8 SUU

Dual Mag Converters

The DMCs are used to convert a typical Magnetic sensor signal (sine wave) into a square wave or Hall Effect sensor type signal suitable for use with MoTeC ECUs and ADLs. A single DMC can convert two independent magnetic sensor signals. This allows magnetic sensors to be used in applications where previously a Hall sensor was required, eg: when using the Digital inputs on an ECU to measure wheel speed. It comes in 4 versions, A, B, C & D which are intended for different purposes and will have different trigger levels. The Trigger Levels are frequency dependent and listed below for each model.

53111 Dual Mag Converter A
Purpose: Fuel Flow Sensors which have very low output voltages
For fuel flow application the polarity of the sensor connection is generally not important since the signal is generally a sine wave. The measuring equipment should be configured to use the negative going edge if possible but positive going will generally work satisfactorily also. To minimise the possibility of interference at the very low trigger levels this model includes heavy filtering resulting in significant variation of the trigger level with frequency. The variation is tailored to match a typical flow sensor where the output signal increases as the frequency increases.

Input Resistance: 56k
Maximum Input Voltage: 80Vpp
Minimum input signal level required for triggering:

Frequency (Hz) Trigger Level	(mV Peak to Peak)
<=10	40
100	65
500	240
1000	490

The DMC-A is calibrated during production to suit most fuel flow meters or sensors. If the DCM-A calibration does not suit a particular fuel flow sensor, please contact the MoTeC Research Centre.

53114 Dual Mag Converter B
Purpose: Engine Trigger sensor that has insufficient amplitude to trigger a logic level input.
This model has minimal filtering to avoid delays in the signal. The delay from input to output is approx 20usecs. The sensor should be connected in a falling edge configuration and the measuring equipment should be configured to use the negative going edge. Note that the trigger level does not vary significantly at normal operating frequencies. In some applications this could lead to false triggering as the sensor signal level increases and is therefore not suitable for these situations.

Input Resistance: 43k
Maximum Input Voltage: 120Vpp
Minimum input signal level required for triggering:

Frequency (Hz) Trigger Level	(V Peak to Peak)
100	0.8
1000	0.8
5000	1.0
10000	1.5

53117 Dual Mag Converter C
Purpose: Conditioner for ignition system input
(Typically used in Drag Racing for measuring ignition timing) AC Coupled (Removes DC offset). The sensor should be connected in a falling edge configuration and the measuring equipment should be configured to use the negative going edge.

Input Resistance: 43k
Maximum Input Voltage: 80Vpp
Minimum input signal level required for triggering:

Frequency (Hz) Trigger Level	(V Peak to Peak)
100	1.6
1000	1.6
5000	1.9
10000	2.9

53118 Dual Mag Converter D

Purpose: This model is intended for use on magnetic Wheel Speed sensors.

The signal should be symmetrical about zero volts. The polarity of the sensor connection is generally not important. For sensors that have a distinct positive or negative going waveform then negative going is preferred for more accurate detection. The measuring equipment should be configured to use the negative going edge if possible but positive going will generally work satisfactorily also. To minimise the possibility of interference at the low trigger levels this model includes heavy filtering resulting in significant variation of the trigger level with frequency. The variation is tailored to match a typical sensor where the output signal increases as the frequency increases.

Input Resistance: 43k
MoTeC Pty Ltd IPS0004 DMC
Maximum Input Voltage: 120Vpp
Minimum input signal level required for triggering:

Frequency (Hz) Trigger Level	(V Peak to Peak)
<=10	0.4
100	0.5
200	0.7
500	1.6
1000	3.0
2000	5.8
5000	14.0

Data Loggers and Displays

ACL (Advanced Central Logger)

Specifications:
The ACL performs data logging, data communications and sophisticated calculations, as well as acquiring sensor data via the VIM expander modules. It also collects data from other connected devices such as an ECU or Dash Logger. The ACL has a very large logging capacity (1GB+) with fast download via an Ethernet connection. It provides all the advanced features of MoTeC 's ADL2 Dash Logger, including warning alarms, fuel prediction, engine logs, timers, tables, user conditions, telemetry and more.

Separate display devices can be connected to the ACL, including the MDD, ADL2 and SDL.

18105 ACL Advanced Central logger
Standard Features
- High performance microprocessor
- 1GByte+ logging memory
- Very fast download via Ethernet
- Very fast logging rates, with combined rates of greater than 20MBytes per minute
- 200+ sensor inputs (using multiple VIM expanders)
- Compatible displays include MoTeC ADL2/SDL Dash Loggers & MDD (Mini Digital Display)
- Comms interfaces: 2 x CAN, 2xRS232
- Dimensions: 154 x 128 x 28mm / 6.1 x 5.0 x 1.1 inches

Options include:
25020 ACL PRO ANALYSIS
- Enables analysis tools including XY Plots, Video analysis, Multiple overlays, Maths Functions, Rainbow mapping, Lap reports/statistics

25021 ACL TELEMETRY
- Gives 'in the pits' viewing of real time data of a vehicle in action. Supports continuous and 'end of lap' data transmission. The user can define a multiple page setup to view the data as text, warning alarms, numerics, bar charts, gauges, steering wheel, scrolling charts and moving track maps

29122 ACL REMOTE LOGGING (requires 25021)

- *MoTeC* Telemetry allows the viewing of live data transmitted from an M800 via modem to a PC. This data is stored by writing a telemetry "image" file to the hard disk when the program is closed. This contains all of the information received during that session. *MoTeC* Telemetry Image File Converter software can be used to change image file into normal log file for viewing in *MoTeC* i2 software.

ADL2 (Advanced Dash Logger)

Specifications:
The ADL2 is the second evolution of MoTeC's original Advanced Dash Logger (ADL). This fully featured and self-contained digital display and programmable data logger offers MoTeC's trademark versatility, making it suitable for a broad range of applications, including 4 wheel, 2 wheel, marine and industrial.

While separate products are often used to perform logging, controlling and display functions, the MoTeC ADL2 offers seamless integration of all three. All aspects of this sophisticated Dash Logger are fully configurable, including the allocation of sensors to inputs, which channels to log and display, logging speeds, warning alarms and control outputs such as pumps, valves and solenoids.

The ADL2 uses a high speed 32 bit microprocessor and incorporates a 79 pin Autosport connector, plus USB for speedy download of data. An adjustable backlight is also available as an option for night time or low light conditions. Built to internationally recognised quality and manufacturing standards, it is backed by a full 2 year worldwide warranty.

Technical Drawing: ADK-K001

18006 ADL2 Advanced dash logger
18008 ADL2 Enclosed Logger
18007 ADL2 Advanced dash logger Backlit
Standard Features:

- 4 0-5.5v High Resolution Analog Voltage inputs
- 6 0-15v Analog Voltage inputs
- 4 Analog Temperature inputs
- 2 Low voltage Analog inputs
- 2 Digital inputs
- 4 Speed inputs
- 4 Switch inputs
- 4 Auxiliary outputs
- 79 pin Autosport connector
- USB, RS232 and Can bus communications support
- 8meg of memory
- Dash manager and i2 software

Options include:
61035 ADL Backlit Inverter kit (only for use with 18007)

61099 ADL2 Loom*

- Generic wiring loom made to be customised to your requirements

*MoTeC wiring loom does not include wires for every input/output, check technical drawing for details

29101 ADL2 50 Input/Output upgrade

- 8 0-5.5v High Resolution Analog Voltage inputs
- 12 0-15v Analog Voltage inputs
- 8 Analog Temperature inputs

- 2 Low voltage Analog inputs
- 4 Digital inputs
- 4 Speed inputs
- 4 Switch inputs
- 8 Digital outputs

29115 ADL2 16mb logging

- Upgrades logging memory from 8mb to 16mb

29120 ADL2 PRO ANALYSIS

- Enables analysis tools including XY Plots, Multiple overlays, Maths Functions, Rainbow mapping, Lap reports/statistics

29102 ADL2 DUAL WIDEBAND LAMBDA

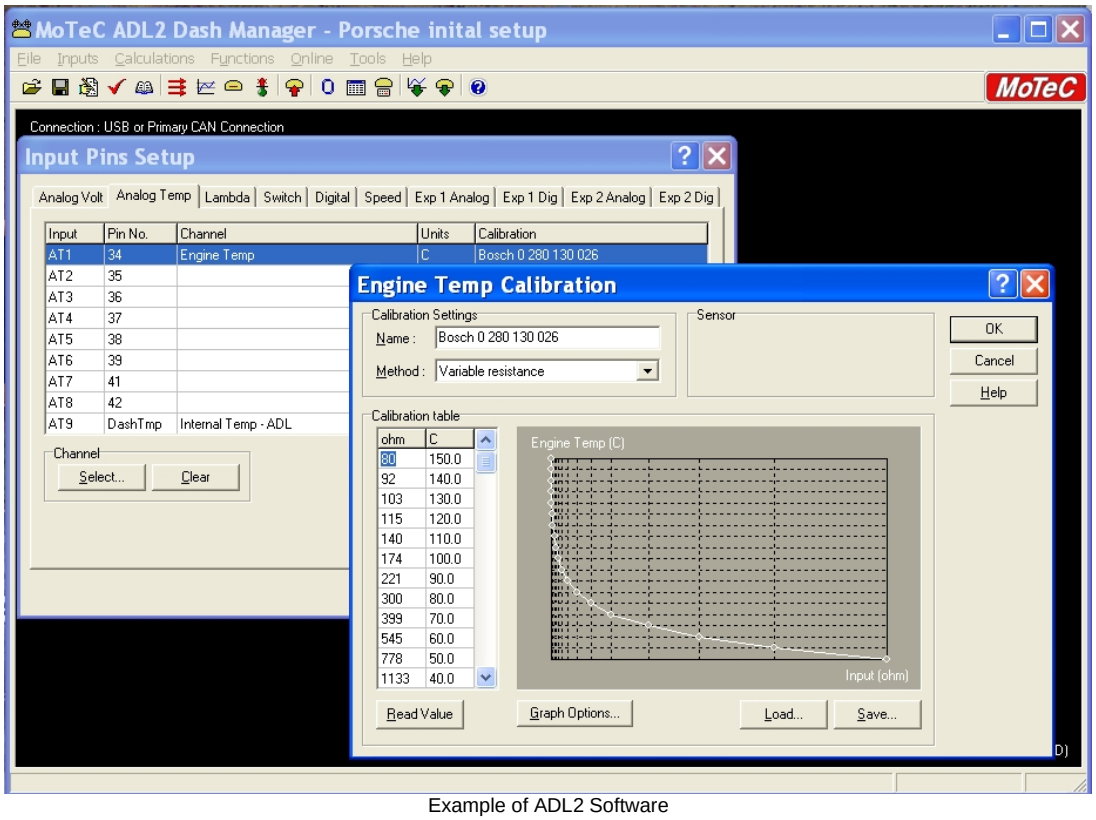
- Allows two Wideband Lambda (Air Fuel Ratio) measurements, which may be used for data logging of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.75 to 1.2 Lambda (11:1 to 18:1) when used with the ***MoTeC*** Wideband exhaust gas sensor.

29121 ADL2 TELEMETRY

- Gives 'in the pits' viewing of real time data of a vehicle in action. Supports continuous and 'end of lap' data transmission. The user can define a multiple page setup to view the data as text, warning alarms, numerics, bar charts, gauges, steering wheel, scrolling charts and moving track maps

29122 ADL2 REMOTE LOGGING (requires 29121)

- *MoTeC* Telemetry allows the viewing of live data transmitted from an M800 via modem to a PC. This data is stored by writing a telemetry “image” file to the hard disk when the program is closed. This contains all of the information received during that session. *MoTeC* Telemetry Image File Converter software can be used to change image file into normal log file for viewing in *MoTeC* i2 software.



Example of ADL2 Software

SDL (Sport Dash Logger)

Specifications:
Recognising that not all customers need the full functionality of the ADL2, MoTeC has developed the Sport Dash Logger (SDL). This innovative Dash Logger can be purchased with or without the 8Mb logging memory enabled, and display-only units can be upgraded at anytime using a simple password system. The SDL is the perfect replacement for analogue gauges in both road and race cars, giving users the flexibility to customise their screen layout as required, with the additional benefit of programmable warning messages and alarms.

With logging enabled the SDL becomes a powerful tool for monitoring and improving performance on and off the track, utilising MoTeC's i2 software for comprehensive data analysis. The SDL is equipped with RS232, CAN and USB communications for fast downloads. An adjustable backlight is also available as an option for night time or low light conditions. Built to internationally recognised quality and manufacturing standards, it is backed by a full 2 year worldwide warranty.

18010 SDL Sports dash logger Backlit

18009 SDL Sports dash logger (Display only as standard, option 29214 to enable logging)
Standard Features:

- 4 0-5.5v High Resolution Analog Voltage inputs
- 4 0-15v Analog Voltage inputs
- 4 Analog Temperature inputs
- 2 Digital inputs
- 2 Speed inputs
- 2 Switch inputs
- 4 Auxiliary outputs
- Internal +/- 5g Lateral and Vertical G Force sensor
- 37 pin Autosport connector
- USB, RS232 and Can bus communications support
- Dash manager and i2 software

Options include:
62201 SDL Loom*

- Generic loom made to be customised to your requirements

29202 SDL SINGLE WIDEBAND LAMBDA

- Allows Wideband Lambda (Air Fuel Ratio) measurements, which may be used for data logging of the Air Fuel Ratio. The measurement is fully temperature compensated and will accurately measure ratios of 0.75 to 1.2 Lambda (11:1 to 18:1) when used with the ***MoTeC*** Wideband exhaust gas sensor.

29214 SDL 8MB LOGGING

- Turns a Display only SDL into a Data Logger with 8Mb of memory.

29220 SDL PRO ANALYSIS

- Enables analysis tools including, XY Plots, Multiple overlays, Maths Functions, Rainbow mapping, Lap reports/statistics

*MoTeC wiring loom does not include wires for every input/output, check technical drawing for details

MDD (Mini Digital Display)

Specifications:
The MoTeC Mini Digital Display allows you to remotely display Dash Logger or ECU data and lap time information from our BR2 Beacon Receiver. It is especially useful for applications where space is minimal, such as smaller cars, single seaters and motorbikes. The MDD is a lightweight, compact unit that can be steering wheel mounted. It has a high definition backlit LCD display and provides two main operating modes with multiple screen layouts. A number of pre-programmed displays are available.
When used in conjunction with a BR2 and BTX Beacon system, the MDD can act as a stand alone lap time display. The MDD can also be supplied in a form suitable for fitment into a custom steering wheel housing – contact MoTeC for details. Clever engineering, robotic manufacture and extensive field-testing ensure quality and reliability.

18011 Mini Digital Display

Mini Digital Display

61115 MDD Input Kit

The MDD input kit includes a new machined anodised aluminium back panel that provides the extra room required to fit the wiring required for the MDD analogue voltage input pins. The loom has included in it, 5v, 0v and 5 AV inputs that are transmitted back to the MoTeC device using the CAN bus. This feature enables users to have buttons and dials on their steering wheel with wiring only required to go back to the MDD rather than the ECU, ADL or ACL. This makes creating a steering wheel with a MoTeC SLM, MDD and buttons simple with only four wires required to be wired along the steering column.

SLM (Shift Light Module)

The MoTeC Shift light module contains 8 Full Colour (RGB) LEDs that can be used for Shift lights, Warning Lights or other functions. The SLM is connected to MoTeC displays, logging devices and ECUs via CAN communications, which means that you don't use up your auxiliary outputs running lights. Each LED is fully independent as to the purpose, colour and brightness, and the same light can be used for multiple functions.

VIM (Versatile Input Module)

The VIM is a compact and versatile input expander module with high resolution inputs. It has 24 Analog inputs of various types including eight differential inputs with programmable gain which are suitable for strain gauges and isolated thermocouples.

The VIM also has 2 Digital Inputs with programmable trigger levels which are generally used for wheel speed measurement. Multiple VIMs may be connected to the ACL Central Logger via a two wire CAN connection, allowing for more than 200 sensor inputs. The distributed nature of the VIMs wired onto the CAN bus allows them to be located close to the connected sensors, minimizing wiring complexity and weight.

Feature Summary:
- 2 x 16bit single ended inputs (1kHz)
- 8 x 16bit single ended inputs (500Hz)
- 8 x 16bit differential inputs with programmable gain (500Hz)
- 6 x 12bit high speed inputs (1kHz)
- 2 x Digital inputs with programmable trigger levels
- Dimensions: 90 x 38 x 26mm / 3.5 x 1.5 x 1.0 inches

VIM Module

E888/E816 CAN Expansion units

The E816 and E888 CAN Expansion Units are designed to increase the I/O capacity of the MoTeC ADL2 Dash Loggers and M400/600/800/880 ECUs from version 3.1 onwards. The following specification describes the functionality of the E816/E888 Expander modules, which are the perfect solution for installations requiring up to 8 K-type thermocouples such as V8 race engines. When used with an SDL, the E888 is works only as an 8 thermocouple amplifier unit.

E816, E888

Specifications:
The E816 has the following inputs and outputs:

- 16 Analogue voltage inputs
- 2 Thermistor inputs
- 4 Digital inputs
- 8 PWM outputs

14008 E816B I/O Expander

The E888 has the following inputs and outputs:

- 8 Analogue voltage inputs
- 8 K Type Thermocouple inputs
- 2 Cold junction compensation thermistor inputs
- 4 Digital inputs
- 8 PWM outputs

14007 E888A I/O Expander

DBW4 4 channel Drive By Wire Controller

The DBW4 is a Drive by Wire (DBW) expander witch can be used with a MoTeC M400/600/800 ECU to drive multiple drive by wire throttles. DBW throttle requests points are received from the MoTeC ECU over the CAN bus and are separate inputs for each Controller. Each controller can be individually configured for use with a Drive By Wire throttle.

14008 DBW4 Drive by Wire Controller

Ignition Products

CDI versus inductive ignition systems, which should you use?

In an inductive ignition system, the coil is charged at battery voltage for a period of time (the dwell time) prior to firing. The dwell or charge time is controlled by the ECU, and this has to be set to match the coil being used so that the coil is not over or under charged. Undercharging reduces available spark energy, while overcharging can cause overheating of the coil and/or ignition module. Inductive ignition systems produce a long spark, at a voltage lower than that of a CDI system.

A Capacitor Discharge Ignition (CDI) system is constantly charging itself and sends a large voltage charge to the coil 380-450v. CDI systems are most often used on boosted or nitrous injected engines. These engines create tremendous cylinder pressures that increase resistance to lighting the ignition spark. Generally, higher cylinder pressures require more voltage to initiate a spark. The arc generated at the spark plug by a CDI system is extremely short in duration, but it is delivered at a much higher voltage than an inductive setup.

With an inductive ignition system at higher RPM, it is possible that the time available to charge the coil is less than the time required for a full charge. In this situation you lose coil power and performance, and a CDI setup may be required. The CDI spark is very short, so at leaner mixtures, it can have trouble lighting enough of the intake charge to make the flame front continue though the whole cylinder (this can cause drivability problems). The duration of an inductive spark is longer, enabling it to ignite lots of the mixture to get it started.

The basic answer of which setup is best for your engine is, if your engine can run correctly on an inductive setup, then it is better to leave it that way. Install a CDI system only when your engine, due to high RPM or cylinder pressure, requires that you do so.

MoTeC Ignition Expander

Specifications:
The ignition expander uses one ignition output from a *MoTeC* ECU to send a coded signal that is converted to up to 8 ignition signals. Used for multiple coil situations where ECU outputs are limited.

Technical Drawing: A02

14001 IEX – Ignition Expander

Ignition expander

Capacitor Discharge Ignition Systems

MoTeC CDI-8

Specifications:
The *MoTeC* CDI-8 answers the call for world-class ignition capability in a compact, rugged package. Designed to drive up to eight low-impedance CDI coils. Reliable, refined circuitry can deliver full 450-volt primary voltage at 15,000 revs (30,000 RPM for 4 cyl). Output stages can deliver up to 200 amps into a CDI coil primary without damage. The CDI8 receives a coded signal, similar to the ignition expander, and turns it into eight individual ignition signals.

14004 ***MoTeC*** **CDI-8** (Technical Drawing: CDI8)

Row 1: CDI Rotary 4, CDI 4 channel, CDI-8,
Row 2: CDI single, CDI Twin and Porsche CDI

Capacitor Discharge Ignition

Specifications:
For Single and Dual coil CDI applications using conventional distributed spark or for Rotary applications, *MoTeC* recommends our proven single, dual and four channel CDI boxes. Over 100 millijoules of energy is available per spark and the hardware is produced to withstand this kind of operating condition in a racing environment. Single and dual channel systems simply need an ignition output per channel from the ECU.

41002 **CDI Rotary four channel**
41011 **CDI four channel (including connector)** (Technical Drawing: M44)
41009 **CDI Single Channel (including connector)** (Technical Drawing: M33)
41010 **CDI Twin Channel (including connector)** (Technical Drawing: M40)
41006 **CDI Porsche replacement**

Important Note

MoTeC CDIs have been changed. Newer versions of the Single, Dual and Four channel CDIs (not Rotary or Porsche) are not direct plug in replacements for the earlier versions, some wiring changes are required.

Older CDIs:

- **41004 Single Channel**
- **41005 Dual Channel**
- **41003 Four Channel**

MoTeC drawing numbers M33, M40 and M44 are now two pages to include both new and old versions of the CDIs. The different pages of the drawings are noted as to which CDI part number they are for. Drawing M33 pages are not marked due to the difference in connectors between old and new Single Channel CDIs.

Inductive ignition modules

Operation:
An Inductive ignition module is an amplifier that converts a low current signal into a high current signal. In this case the Ignition output (trigger) coming from the ECU signals the igniter to trigger the coil itself, which requires high current. This type of setup is used for most vehicles including high performance road and race applications. Although the spark power is not as high as a CDI setup, the spark duration is much longer, making it more suitable for engines operating on leaner mixtures for emissions or economy.

Row 1: *008, 124, 200,*
Row 2: 209 and 211 modules

41008 **008 single channel ignition module (includes Tacho output)** (Technical Drawing M11)
41124 **124 single channel ignition module** (Technical Drawing M12)
41200 **200 2 channel ignition module** (Technical Drawing M29)
41209 **209 3 channel ignition module** (Technical Drawing M36)
41211 **211 4 channel ignition module** (Technical Drawing M37)

Ignition Coils

Coils can be set up in many configurations, one per cylinder, multi coil with wasted spark or a single coil with a distributor. A wasted spark coil set-up is where one coil has two outlets, connected to opposing cylinders. When the coil pack is triggered, both outlets are fired at once, with one pole sparking on the induction stroke, as you would wish, the other on the exhaust stroke. The advantage of this set-up is that you need only half as many coils, half the ignition outputs from the ECU, and less space than individual coils.

CDI Coils

Capacitor Discharge Ignition coils are the perfect partners to MoTeC's Capacitor discharge ignition systems. These high output coils are used in high boost, high RPM applications where an inductive ignition coil would be inadequate.

42024 **Mercury CDI coil** (Technical Drawing: M13)
42020 **PS92 CDI Coil** as used on V8 Supercars
42021 **Dual outlet single (wasted spark)** CDI coil CDI coil with 2 outlets
42022 **Dual outlet Twin CDI coil (wasted Spark)** CDI coil with pair of dual outlets (4 outlets total**)**

Row 1: Mercury Coil, PS92 coil,
Row 2: dual outlet single coil, dual outlet twin coil

Inductive Coils

Row 1: *MEC718, MEC717, Denso,*
Row 2: 4cyl, 6cyl

42001 **MEC718 Coil (Male End)**
42014 **MEC717 Coil (Female End)**
42015 **Denso Coil, including Module** (Technical Drawing M32)
42009 **4 cylinder coil pack including ignitor (wasted spark)**
42010 **6 cylinder coil pack (wasted spark)** (Technical Drawing C01)

Distributors

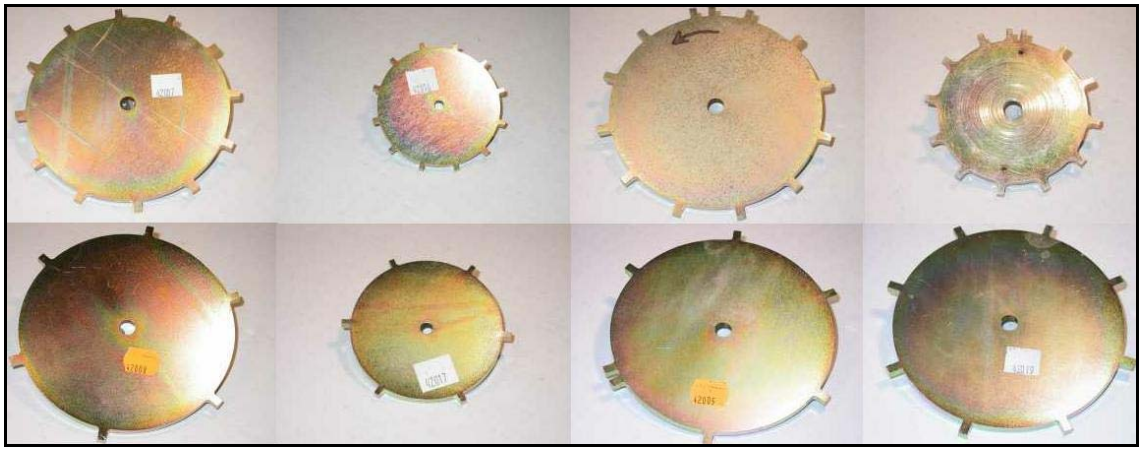
Dual sensor distributors designed to suit specific engine applications for use with *MoTeC* ECUs. These distributors include both an 8 tooth and single tooth chopper wheel and sensors. By using these distributors, you remove the need to install a crankshaft or camshaft driven chopper wheel, speeding up installations of *MoTeC* ECUs on applicable engines.

Row 1: Chev small block, Cleveland, Windsor 289,
Row 2: Windsor 351, Rotor button, Rotor button and disk

43007 Chev small block distributor, dual sensor
43009 Ford Cleveland distributor, dual sensor
43008 Ford 289/302 Windsor distributor, dual sensor
43010 Ford 351 Windsor distributor
43006 Rotor Button, Wide
43005 Rotor Button and Disk

Chopper Disks

MoTeC chopper disks are multi tooth disks, laser cut to be adapted to your vehicle. These multi-purpose disks can be used for the measuring of engine rotation, wheel speeds, tail shaft speed, differential speed and other rotating device speeds. It is important that your chopper disk is accurately machined for both height and spacing, to ensure that all of your timing events are accurately measured. This is especially important when your disk is being used as a cylinder reference trigger.



Row 1: *12*145, 12*90, 12+1*145, 12+1*90,*
*Row 2: 6*145, 6*90, 6+1*145, 8*145*

42007 12 tooth X 145mm
42016 12 tooth X 90mm
42006 12 tooth + 1 X 145mm
42018 12 tooth + 1 X 90mm
45001 36-1 Ford Trigger
42008 6 tooth X 145mm
42017 6 tooth X 90mm
42005 6 tooth + 1 X 145mm
42019 8 tooth X 145mm

Lap Timing Sensors

BTX, BRX & BR2 Lap Beacon System
The ***MoTeC*** Lap Beacon consists of a Beacon Transmitter (BTX) and a Beacon Receiver (BR2). The Beacon Transmitter is mounted beside the track and the Beacon Receiver is mounted on the vehicle and connected to a display, data logging or an Engine Management System. The Lap Beacon system is used to mark the start and end of laps. This information can then be used by a display to show the driver lap times and lap numbers, while a MoTeC SDL or ADL2 Dash Logger can add extra functionality such as lap time gain/loss, running lap time and more. The lap beacon may also be used to generate split times by placing multiple transmitters around the race circuit.

The BR2 can run in either CAN or Switched modes. The BR2 CAN networking mode sends information about all detected beacon transmitters, numbers, noise levels, timing, diagnostic and other information to your ADL, and is essential in optimising your beacon set-up. Switched mode notifies only that the BR2 receiver has detected a matching transmitter.

Row 1: *BTX transmitter kit, BTX loom, BR2 beacon receiver,*
Row 2: BR2 loom, BR2 Comms loom

15500 BTX Lap Beacon Transmitter
- The Beacon transmitter emits a narrow infrared beam, which is encoded with a number that will only be detected by a receiver with the same number. When the receiver detects a transmitter with a matching number a signal is sent to the connected device in the vehicle, typically a ***MoTeC Dash Logger*** or a ***MoTeC ECU***.

61033 BTX loom

15512 BR2 Lap Beacon Receiver
- The BR2 lap beacon receiver reads the encoded BTX transmission and determines if it is a valid signal. Once a valid signal has been received, the BR2 outputs encoded data on CAN to the connected device for determining Lap/Split times.

61047 BR2 5 pin Mill loom (4m)
61048 BR2 Configuration loom

PLM (Professional Lambda Meter), Kits and Sensors

The *MoTeC* Professional Lambda Meter (PLM) accurately determines exhaust gas mixture strength over a wide range of engine operating conditions with a fast response time. This is quick and easy to use, whilst allowing a calibration engineer all of the power and configurability required for OE emissions development and certification work. The PLM can also be configured as a Lambda input into any MoTeC ECU for use in Quick Lambda, Lambda Was, Data Logging or Closed Loop Lambda control, instead of needing the ECU's Lambda option enabled.
Weighing only 135 gms and with a robust aluminium enclosure it can be conveniently mounted singularly, or in multiples, in almost any application. The operating range of the device is between 0.7 and 32.0 Lambda. For Gasoline/Petrol this equates to an Air/Fuel Ratio range of 10.3:1 to 470:1.
The display may be set to show Lambda, Air Fuel Ratio or Equivalence Ratio for any sensor compatible fuel (Gasoline/Petrol, Alcohol, Gas, Diesel or "blend" fuel as defined by the user). The resolution of the display (decimal points), display update rate, display filtering, backlight intensity may all be defined by the user with the Windows setup software provided.
The *MoTeC* Professional Lambda Meter provides an differential Analogue Voltage Output that may be connected to an ECU, Analog meter or other measurement instrument such as a Data Logger or Chart Recorder. The output may be defined by the user to be linear or non-linear in relation to the measured units. The PLM also supports 1mbit CAN and RS232 data links to devices such as *MoTeC* Dash Logger or ECU for transmission of sensor and diagnostic data. Comprehensive diagnostic and status channels are provided.

LSU PLM kit

NTK UEGO PLM kit

15004 PLM – Meter Only
15003 PLM – Pro Lambda Meter Kit with LSU, 2.5m
15003LL PLM – Pro Lambda Meter Kit with LSU, 5m
15002 PLM – Pro Lambda Meter Kit with NTK, 2.5m
15002LL PLM – Pro Lambda Meter Kit with NTK, 5m
59001 Lambda bung, Mild Steel 18*1.5 Weld in
59002 Lambda bung, Stainless Steel 18*1.5 Weld in
61038 Loom – PLM (Bosch) 2.6m (old style)
61039 Loom – PLM (NTK UEGO) 2.6m (old style)
61040 Loom – PLM (Bosch) 6m (old style)
61041 Loom – PLM (NTK EUGO) 6m (old style)
61103 PLM loom to LSU Adapter
61104 PLM Loom to LSU 4.2 Adapter
61105 PLM Loom to NTK Adapter
61106 PLM common loom (2.6m)
61107 PLM common loom (6m)

Lambda Sensors

What is Wideband and Narrow Band Lambda?

Narrow Band Lambda - Narrow Band Lambda provides an output voltage between .1v and 1.0v DC based on the oxygen differential between the exhaust pipe and the atmosphere. This can give an indication of the air fuel ratio at which the engine is running, however the sensor range is limited to air/fuel ratios of about 14.0:1 (1.0v) and 15.4:1(.1v). At ratios beyond this range the sensor output does not increase or decrease, making it virtually useless for tuning an engine for anything other than steady state cruising.
The advantage of Narrow Band Lambda comes into play while trying to keep emissions in check. The sensor provides a signal to the ECU which basically indicates either rich (output voltage above .5v air fuel less than 14.7) or lean (output voltage below .5v air fuel greater than 14.7) but really does not describe to what degree the mixture is either rich or lean. This fits perfectly with the need for 'perturbation' of today's 3 way catalysts which need excess air to catalyze Hydrocarbon and Carbon Monoxide, and excess fuel with which to reduce Oxides of Nitrogen. Because of this requirement by the catalyst, Narrow Band Lambda Control is constantly varying the air/fuel ratio both slightly above and below 14.7:1 in such a manner that the average air fuel ratio is maintained at 14.7:1. Most engines in use today produce peak power with air fuel ratios in the 12:1 - 13.5:1 range, well below the measuring capability of a Narrow Band Lambda sensor. It is for this reason that Narrow Band Lambda is insufficient for high loads and/or RPM.

Wideband Lambda - Wideband Lambda provides the ECU with a specific definition of the air fuel ratio at which the engine is currently running. Wideband sensors are able to detect air fuel ratios as rich as 10.5:1 and as lean as 18:1 and report the exact Lambda to the ECU. This is done in a number of ways. MoTeC M4 and M48 ECUs use Bosch 4 wire Wideband Lambda sensors to measure Wideband Lambda. MoTeC M400/600/800/880 ECUs use either the Bosch LSU or the NTK UEGO 5 Wire Wideband Lambda Sensor. MoTeC then uses this information to determine the actual Lambda and displays this on the console and/or uses it for Lambda Control if the ECU is set up to do so.

4 Wire Wideband Lambda Sensor - This technology takes advantage of the fact that a 4 Wire Wideband Lambda sensor's voltage output is based not only on the oxygen differential between the exhaust pipe and atmosphere, but is also dependant on the temperature of the sensor itself. Sensor impedance varies with temperature, so a MoTeC ECU measures not only Wideband Lambda Voltage, but also the sensor impedance.

NTK/LSU Wideband Lambda Sensor - This newer technology is used to determine the air fuel ratio of an engine by measuring Lambda sensor output and the current required to hold the sensor voltage output constant. An oxygen sensor produces voltage and a small amount of current as oxygen atoms pass across its substrate from high concentration to low concentration. The greater the flow of oxygen, the greater the voltage produced. This is the case when a rich mixture is encountered. Conversely, when current is applied to an oxygen sensor, oxygen atoms are moved from a low concentration to a high concentration or vice versa depending on the polarity of the current applied. The MoTeC M400/600/880/800 ECUs are capable of measuring this type of sensor input which offers increased speed and accuracy over the older technology 4 wire sensors. M4 and M48 ECUs can leverage the 5 wire technology by connecting a MoTeC PLM - which has a definable analogue voltage output - to the Lambda input on the ECU.

Row 1: Bosch 4 wire, Narrowband,
Row 2: NTK, Bosch LSU

57001 **Lambda sensor wideband, Bosch LSM (4 Wire)** (Technical Drawing X03)
57002 **Lambda sensor, narrow band Ford**
57003 **Lambda sensor wideband NTK UEGO** (Technical Drawing X27)
57004S **Lambda sensor wideband Bosch LSU** (Technical Drawing X25)
57005 **Lambda sensor Wideband Bosch LSU 4.2**

Fuel Delivery

MoTeC supplies a wide range of high quality fuel pumps, injectors, regulators, filters, fittings and adaptors to suit most applications, all tested to integrate with your MoTeC systems.

Fuel Pumps

In basic terms the amount of fuel you require to properly feed your engine depends on how much power you intend to produce and what rail pressure you wish to run. Remember that a pump capable of delivering 3000 cc/min free flowing is worthless unless it can deliver the proper amount of flow at the pressure you want to run. Typically increasing pressure decreases a pump's volume output.

Row 1: 400hp, 500hp,
Row 2: 600hp, 800hp fuel pumps

31033 400hp Fuel Pump, 3 bar, 2167cc/min, 12mm barb in, 8mm barb out
31979 500hp Fuel Pump, 4 bar, 2700cc/min, M14x1.5 in, M12x1.5(F) out
31984 600hp Fuel Pump, 3 bar, 3200cc/min, 12mm barb in, M12X1.5 out
31004 800hp Fuel Pump, 5 bar, 4300cc/min, M18x1.5 in, M12x1.5 out

Fuel Regulators

MoTeC supplies fuel regulators to suit many applications. The differences between regulators comes down to, size and type of fittings, number of inlet fittings, adjustable or fixed rate, vacuum compensation, body style and dimensions. Dual inlet regulators are suitable for engines with multiple fuel rails, or installations requiring the fitting of a gauge or sensor. Vacuum connections are available on some regulators. These fittings can be connected to the inlet manifold, and their job is to keep a constant unchanging pressure differential between the intake manifold and the fuel rail. This will, in turn, cause fuel rail pressure to be constantly changing, but will keep it in line with inlet manifold pressures.

Row 1: 2.5bar screw, 2.5bar single, 3bar dual, 3bar O ring,
Row 2: 3bar single, 2-4bar adjustable, 2-5bar adjustable

33230 2.5 Bar screw on Regulator vacuum compensated (Inlet M12 X 1.5 Outlet M14 X 1.5)
33289 2.5 Bar single Regulator vacuum compensated (Inlet M12 X 1.5 Outlet 8mm barb)
33003 3 Bar dual 8mm Barbs adjustable regulator (Inlet 2 X 8mm barb Outlet 8mm barb)
33249 3 Bar with O ring style inlet connection and vacuum compensation (Inlet 10mm O Ring Outlet 8mm Barb)
33001 3 Bar single 8mm barbs adjustable regulator (Inlet 8mm barb Outlet 8mm barb)
33740 2-4 bar single adjustable regulator with vacuum compensation (Inlet M14 X 1.5 Outlet 8mm barb)
33741 2-5 bar dual adjustable regulator with vacuum compensation (Inlet 2 X M14 X 1.5 Outlet 8mm barb)

Fuel Filters

MoTeC supplied fuel filters differ in both their design and their intended application. A 125 micron pre filter is available to protect your high pressure fuel pump when placed between the swirl pot and the high pressure pump. This filter has a washable element that is replaceable, and also has –8 fittings on either end. The other filters are high-pressure filters, designed to be able to take the pressure and flow requirements of high performance engines. These filters are usually installed after the high-pressure pump, filter down to 5 microns and are rated to individual maximum pressures.

Row 1: 8mm barbs fuel filter, M12x1.5 fuel filter,
Row 2: Blue fuel filter, fuel filter element

32030 Fuel filter 8mm barbs (inlet 8mm barb, outlet 8mm barb) Max pressure 3.0 bar
32203 Fuel filter (inlet Female M12X1.5 Outlet Male M14X1.5) Max pressure 5.0 Bar
32001 Fuel pre-filter, 125 Micron *MoTeC* Blue, dash 8 ends
32319 Filter element S/S for 32001

Fuel Injectors

The fuel injectors available from *MoTeC* are a wide range of the highest quality available. We have injectors to suit almost any application, from 34hp, right up to the Indy with 300hp per injector. The following horsepower ratings are determined at 40PSI fuel pressure, and 85% duty cycle. To choose a suitable injector, realistically decide your expected power output, and divide this by the number of Injectors that you intend having. So for a 400hp V8 with 8 injectors, you would like an injector able to produce around 65hp per injector.

Row 1: 007, 34035, 34036, 351, 403,
Row 2: 706, 775, 803, 842, 998,
Row 3: 945, 988, 989

34007 Bosch 007 Djet 50hp, 260cc/min
34035 Bosch 036 Djet 63hp, 320cc/min
34036 Bosch 036 Djet 75hp, 380cc/min
34215 Bosch 215 Ljet 34hp
34351 Bosch 363 Ljet 90hp
34403 Bosch 403 Ljet 80hp
34706 Bosch 706 Ljet 34hp
34775 Bosch 775 Ljet 44hp
34803 Bosch 803 Ljet 56hp, 290cc/min
34945 Bosch 945 Ljet 48hp
34998 Indy, Bosch 839 260hp
34842 Bosch 842 Ljet 300hp
34988 Rochester 988 128hp, 640cc/min
34989 Rochester 989 168hp, 840cc/min

Fuel Injector accessories

These are parts that are used to adapt injectors to your specific application.

Row 1: injector seal, Rochester oring, 351 oring, 351 pintle cap,
Row 2: alcohol pintle cap, 351 pintle kit, Ljet clip, 351 spacer

34002 Injector manifold seal – Square (ea)
34000 Injector O'Ring Ljet Rochester (ea)
34991 O'Rings for 363(351) injectors (ea)
34005 Pintle cap for 363(351) injectors (ea)
34004 Injector pintle caps alcohol black (ea)
34001 Pintle kit for 363(351) injectors (1 X Pintle cap, 1 X O Ring, 1 X Spacer)
35008 Retaining clip for Ljet Injector (ea)
35009 Spacer for 363(351) injectors (ea)

Adapters and Fittings

These adapters made to convert fittings from one size/type to another. Included in our range are weld on, screw on, brass, steel and aluminium fittings, generally used on the end of fuel systems.

Row 1: *35001, 35002, 35006, 35003,*
Row 2: 35007, Dash 6 weld on, Dash 8 weld on

35001 Adapter M12 X 1.5 Female to –6 Male fits regulator 33740
35002 Adapter M12 X 1.5 Male to –6 Male
35006 Adapter M14 X 1.5 Female to –6 Male
35003 Adapter M14 X 1.5 Male to –8 Male fits fuel pump 31979
35007 Adapter M16 X 1.5 Female to –6 Male fits regulator 33741
35004 Dash 6 weld on fitting
35005 Dash 8 weld on fitting

Fuel Dampers

Used to help eliminate fuel pressure fluctuations seen at the fuel rail in high performance engine configurations.

fuel damper

36001 Damper, fuel
32003 Copper washer for fuel damper
36000 Aluminium fuel shaft for damper

Control Valves

Turbocharger Boost Control Valve

The boost control valve is a pressure bleed off, which allows the ECU to control the boost of a turbocharged engine. The valve uses a duty cycle controlled shuttle to ensure that the standard wastegate pressure is still used to control boost, with the valve bleeding off the rest to achieve the desired boost level. See drawing V14 for more details.

Boost control Valve

58001 Boost control valve

Idle Valve

This is an idle-up valve that is used on engines with either no idle control or an ECU without enough Aux outputs available to run the standard idle control setup. This part uses only one Aux output to control the idle, and is set up to bypass the throttle body with differing amounts of air to maintain idle. The idle valve has 14mm barb fittings on each end for easy installation. See Drawing V12 for more details.

Idle valve

36715 Idle valve

Pressure Sensors

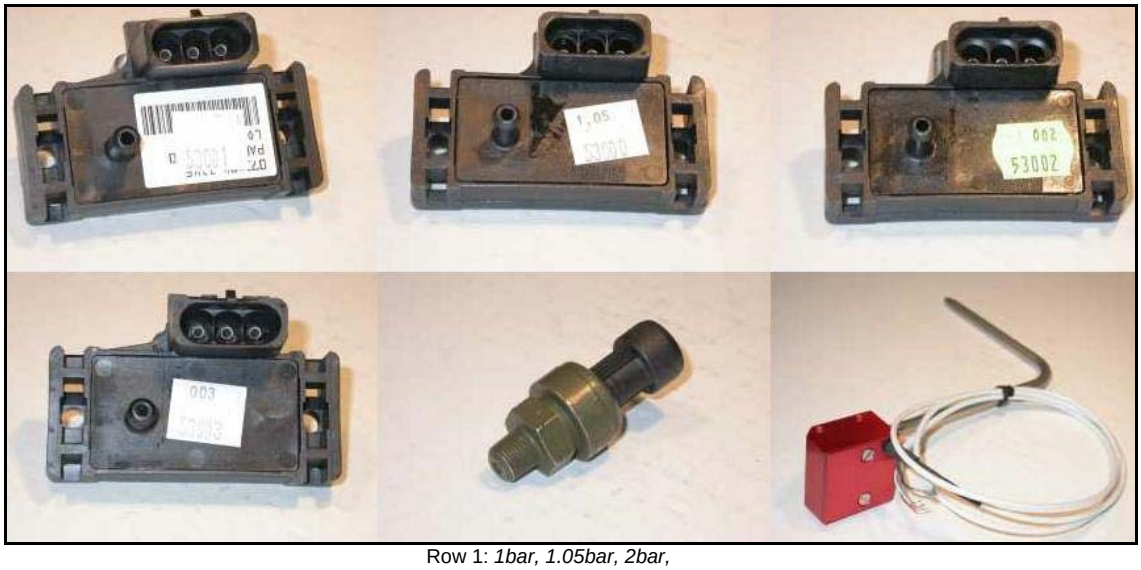
MoTeC supply a wide variety of quality pressure sensors, all of which have been tested and calibrated to suit *MoTeC Dash Loggers* and ECU's. Sensors come in a variety of pressure ranges, and can be viewed within the Dash Logger or ECU in many forms, including PSI G, PSI A, kPa G, kPa A and Bar. Some sensors are available to suit specific applications such as Nitro methane compatible sensors.

What pressure am I measuring?
The standard atmosphere (atm) is a unit of pressure that varies constantly from place to place and moment to moment. It is approximately equal to typical air pressures at sea level and defined to be 101.325 kPa, 0 PSIG, 14.7 PSIA, and 1.01 Bar. A given pressure can therefore be measured including or excluding this atmospheric pressure.

Gauge Pressure – *A given pressure is sometimes measured not as an absolute pressure, but as the excess of that above atmospheric, this is called* ***gauge pressure****. An example of this is the air pressure in a tire of a car, which might be said to be "thirty PSI", but is actually thirty PSI above atmospheric pressure. In technical work, this would be written as "30 PSIG".*

Sealed Gauge - *Some manufacturers seal the backside of the sensor to prevent contamination and improve the repeatability of readings. The zero point of the transducer is usually set to air pressure at sea level, and may not be zero where you are. Changes in altitude and barometer will affect the pressure reading, but that is an accurate measurement of actual gauge pressure above atmospheric. Sealed Gauge references are abbreviated as SG or S, example: PSIS, PSISG. The readings from a sealed gauge sensor are generally similar to those of a standard gauge pressure, with allowance for your location's atmospheric pressure above or below pressure at sea level.*

Absolute *– is a pressure, measured relative to absolute zero pressure. This is the pressure that would occur at absolute vacuum. A reading of absolute pressure from a sensor held out in normal air will show around 101kpa, 14.7psia and 1.01bar at sea level. This is often used as a Manifold Pressure sensor as MAP sensors are required to read both Vacuum and pressure.*



Row 1: *1bar, 1.05bar, 2bar,*
Row 2: 3bar, 5bar, Pitot Sensor

53001 Map sensor, 1 Bar Abs (Delco) (Connector 64002, Drawing # X18)
53000 Map sensor, 1.05 Bar Abs (Delco) (Connector 64007)
53002 Map sensor, 2 Bar Abs (Delco) (Connector 64003, Drawing # X18)
53003 Map Sensor, 3 Bar Abs (Delco) (Connector 64003, Drawing # X18)
53006 Map sensor, 5 Bar Abs Tl 1/8 npt (Drawing # X30,Sheet 1)
52007 Pitot Sensor

Row 1: 100 TI, 200 HW, 2000 TI, 250TI, 300HW,
Row 2: 500HW, 500TI, 500 TI Nitro, 10bar VDO, 5bar VDO

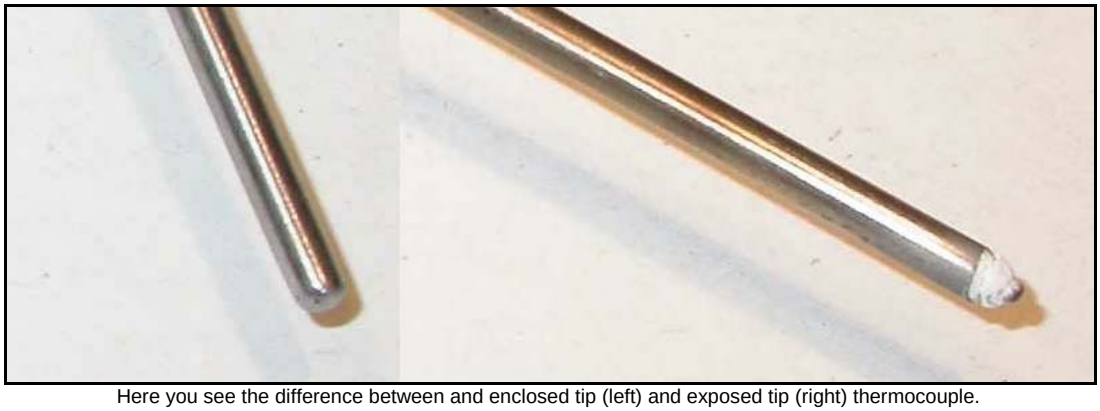
58020	**100 (0-100psig) PSIS Honeywell pressure sensor 1/8 npt**
58031	**100 (-15-85psig) PSIA TI pressure sensor 1/8 npt**
58021	**200 (0-200 psig) PSIS Honeywell pressure sensor 1/8 npt**
58023	**2000 (0-2000 psig) PSIS Honeywell pressure sensor 1/8 npt**
58036	**2000 (0-2000 psig) PSIS TI pressure sensor 1/8 npt (Drawing # X30,Sheet 4)**
58032	**250 (-15-235psig) PSIA TI pressure sensor 1/8 npt (Drawing # X30,Sheet 2)**
58022	**300 (0-300 psig) PSIS Honeywell pressure sensor 1/8 npt**
58024	**500 (0-500 psig) PSIS Honeywell pressure sensor 1/8 npt**
58033	**500 (-15-485psig) PSIA TI pressure sensor 1/8 npt (Drawing # X30,Sheet 3)**
58037	**500 (-15-485 psig) PSIA TI pressure sensor, Nitro Methane 1/8 npt**
58003	**10 Bar Gage VDO pressure transducer 1/8 npt (requires VDO Adapter loom 62010)**
58002	**5 Bar Gage VDO pressure transducer 1/8 npt (requires VDO Adapter loom 62010)**

Temperature sensors

MoTeC supplies temperature sensors specifically tested and calibrated for use with SDL/ADL2 Dash Loggers or MoTeC ECUs. One of the temperature sensors listed is the K type thermocouple. With a heat range of -200 to 1260 deg c, these sensors are suitable for the hottest applications such as brake rotor and exhaust temperatures. K-type thermocouples come in either an exposed tip or an enclosed tip. Exposed tip is faster in measuring change in temperature but is more susceptible to breakage from vibration or shock waves. Enclosed tip thermocouples are more reliable but deliver a slower update rate of between three to eight times per second. Infrared temperature sensors are fast, non-contact sensors that are great for a multitude of temperature measuring applications, including tyre, road surface, brake, block, oil can and more. These sensors are especially useful as an alternative to pyrometer testing. Mount them on a wheel to immediately measure inside, middle and outside tyre temps.

Row 1: Air Temp, Water Temp, Tire Temp, Brake Temp, Rubbing temp,
Row 2: TC Amp, Enclosed TC, Exposed TC, Stick on TC, 100deg TC

54001 Air Temp Sensor, 3/8 NPT Delco. (15-100 deg c) (Drawing #X19)
55001 Water temp sensor, Bosch M12X1.5 (-40-130 deg c) (Drawing #X20)
52004 Infrared tyre temp sensor (0-350 deg c) (Drawing X23)
52006 Infrared brake temp sensor (150-1000 deg c) (Drawing #X29)
58010 Rubbing brake disk temperature k-type sensor
58008 Thermocouple Amplifier, DTM
58009 Thermocouple K-Type enclosed
58005 Thermocouple K-Type exposed
58007 Thermocouple, non adhesive
58006 Thermocouple, stick on adhesive
58011 THERMOCOUPLE Angled 100 1/4X1/8 TIP 2m L



Here you see the difference between and enclosed tip (left) and exposed tip (right) thermocouple.

Crank, Cam and Speed Sensors

These sensors are used for measuring rotational position and speeds, they are most commonly used to measure crankshafts, camshafts, and wheel speeds. The sensors come in two main varieties, Magnetic and hall, they can be distinguished from one another by the number of wires connecting to them, with 2 pin sensors being magnetic, and 3 pin sensors being hall.

Hall Sensors.
Hall Sensors contain a semiconductor Hall effect IC and a magnet. The IC detects changes in the field strength as the vane passes through the sensor gap or a tooth passes the sensor tip. The output voltage changes from low to high when the leading edge of the tooth passes the centre of the sensor. The vane or tooth material must be magnetically soft (such as mild steel), do not use stainless steel. There are styles of hall sensor available that can be used with a tooth (gear) style chopper wheel for crank angle or wheel speed sensor, or types that use a vaned rotor passing through a hall sensor gap (51121).

Magnetic sensors.
Magnetic sensors must use shielded wire to help eliminate unwanted electrical noise. The magnetic sensor generates a voltage between the coil wires when the magnetic field strength changes as the tooth passes by the sensors. The sensor may be wired for either a Rising or Falling waveform by reversing the wires. The output voltage amplitude increases with increased RPM. The output voltage amplitude also depends on the gap between the sensor and the tooth. The tooth material must be magnetically soft (such as mild steel), do not use stainless steel. May have a large number of teeth due to the sensor's small magnetic pole size, and are often used as crank or wheel speed sensors. The ECU needs to know whether the wave form is rising or falling must be mounted rigidly as any vibration can cause false signals. Refer to drawing number T02 for more details.

Ignition Combiner.
The MoTeC ignition combiner takes the ignition output from your ECU, and splits its output into two, one output for your ignition system, and another to drive your tachometer. This frees up an Aux output on your ECU, useful for applications where they are limited.

Row 1: Hall sensor, GT101 term, GT101 unterminated*, GT101 mount, HKZ101,*
Row 2: HD board, Ignition combiner, right angle mag, straight mag, small mag

57102 7/16 X 20 thread hall wheel speed sensor
57100 GT101 terminated hall sensor (Drawing X02)
57101 GT101 unterminated hall sensor (Drawing X02)
57099 Mount for GT101 hall sensor
51121 HKZ101 hall switch to suit vaned rotor (Drawing T01)
51009 Harley Davidson trigger board and ring to suit 1340 Evo Engine
53110 Ignition combiner with tacho output (Drawing A10)
52001 Right angle Delco magnetic sensor (Drawing X01)
51004 Straight Delco magnetic sensor (Drawing X01)
52002 Small grey magnetic sensor

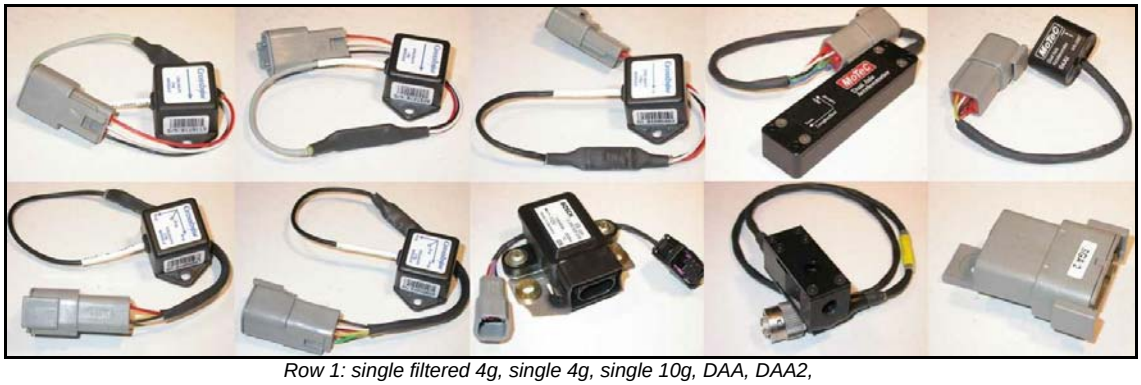
Force and Motion Sensors

MoTeC ADLs and ECUs are capable of more than controlling and monitoring the running of your engine. Using these force and motion sensors, you can quantify the characteristics of your vehicle. By measuring how fast, how far and how much can tell you a great deal about how and where to best improve your vehicle.

- **G Force** sensors are most useful in determining acceleration of the vehicle, braking, Cornering force, understeer, oversteer, and for drawing track maps. For most vehicles, a 4G sensor has more than enough measuring range for all but accidents peaks. The filtering on a G force sensor is to reduce high frequency noise from the readings to give you a better indication of actual vehicle G force without it being compromised by noise.

- The **yaw rate sensor** can be used to determine how fast a car is sliding when cornering by measuring its rotation speed. This is most useful when used at both ends of a car with G Force sensors to determine whether a car is understeering or oversteering and to what degree it is happening, and at what force it begins.

- *MoTeC* ADLs and ECUs are able to accept **strain gauge** sensor inputs for the logging of forces through various parts of a vehicle, including wing, shock, brake pedal, and steering forces. The signals from strain gauges are usually very low, so they must be wired in to a **Strain Gauge amplifier** for the ADL to be able to accept its output. Part# 53113 already has an amplified signal and can be wired straight into an ADL.



Row 1: single filtered 4g, single 4g, single 10g, DAA, DAA2,
Row 2: 3axis filtered, 3axis, Yaw sensor, Gearshift SG, SGA

57205 Single Axis +/- 4G G sensor (ADL filtered) (Drawing X17)
57202 Single Axis +/- 4G G sensor (ECU unfiltered) (Drawing X17)
57207 Single Axis +/-10G G sensor (Drawing X16)
57208 DAA Dual Axis +/- 4G G Sensor (Drawing A14)
57210 DAA2 Dual Axis +/- 4G G Sensor (Drawing A14)
57206 Three Axis +/- 4G G sensor (ADL Filtered) (Drawing X15)
57203 Three Axis +/- 4G G sensor (ECU unfiltered) (Drawing X15)
57209 Yaw rate sensor, Gyro
53113 Gear Shift Strain Gauge to suit Sequential Gbox.10v, M10 thread at each end.
53112 Strain gauge Amplifier

Linear and Rotary Position Sensors

Both linear and rotary position sensors can be used with MoTeC Dash Loggers and ECUs for measuring of movements. Their possible applications are many and varied, including throttle position, suspension position, brake position, steered angle and brake balance bar position. All linear pot drawing numbers are X24, all steering sensor drawing numbers are X21 and all throttle position sensor drawing numbers are X05. We also have spare parts to repair your linear potentiometers, call for details.

Row 1: 10-turn kit, 3 turn kit, 24tooth pulley, 60tooth pulley, 3turn,
Row 2: 5turn, 10turn, belt, 9 position switch

59006 Steering angle sensor kit, 10 turn
59007 Steering angle sensor kit, 3 turn
59100 Steering pulley, 24 teeth
59101 Steering pulley, 60 teeth
59005 Steering sensor, 1 turn
59008 Steering sensor, 3 turns
59104 Steering sensor, 5 turns
59103 Steering sensor, 10 turns
59102 Steering sensor belt
56100 9 position rotary switch

Row 1: 75mm gefran, 100mm gefran, 150mm gefran, 75mm motec,
Row 2: 100mm motec, 125mm motec, 150mm motec, 200mm motec

57152 Gefran 50mm linear pot
57153 Gefran 75mm linear pot
57151 Gefran 100mm linear pot
57150 Gefran 150mm linear pot

MoTeC Linear Pots, and their dimensions

Part #	Travel	Extended Length	Closed Length	Exposed Shaft	Spherical Bearing ID
57154	75mm	297mm	222mm	50mm	5mm
57156	100mm	348mm	248mm	50mm	5mm
57157	125mm	397mm	272mm	50mm	5mm
57155	150mm	447mm	297mm	50mm	5mm
57158	200mm	547mm	347mm	50mm	5mm

Row 1: LH blade, RH blade, D drive LH,
Row 2: D Drive RH, Kinsler AC, Kinsler CW

56006 Blade throttle position sensor, LH
56005 Blade throttle position sensor, RH
56002 D Drive white throttle position sensor, LH
56001 D Drive black throttle position sensor, RH
56007 Kinsler lever drive throttle position sensor, Anticlockwise
56004 Kinsler lever drive throttle position sensor, Clockwise

Telemetry Equipment

Telemetry is an optional feature on MoTeC's ACL, ADL2 and some ECUs. Below are two ways of running it with the parts required for the installation. Radio telemetry is short range but is acceptable for most racing circuits. GSM Telemetry can be run from any location that has GSM mobile phone range. This could include watching your race car's telemetry as far afield as interstate or even overseas, across the mobile phone network.

Radio telemetry modem parts
MoTeC Telemetry provides a technique to transfer information in real time from a moving vehicle back to the mechanics, technicians and team manager in the pits using a set of Spread Spectrum Radio modems. These can transmit data at up to 115200 baud providing enough information to give an accurate picture of vehicle performance and sophisticated diagnostics of engine operating conditions.

61101 Radio Telemetry Kit (includes 2 X 61064, 2 X 61065, 2 X 61066 and 1 each of 61060, 61061, 61062, 61063, 61070 and 61073)

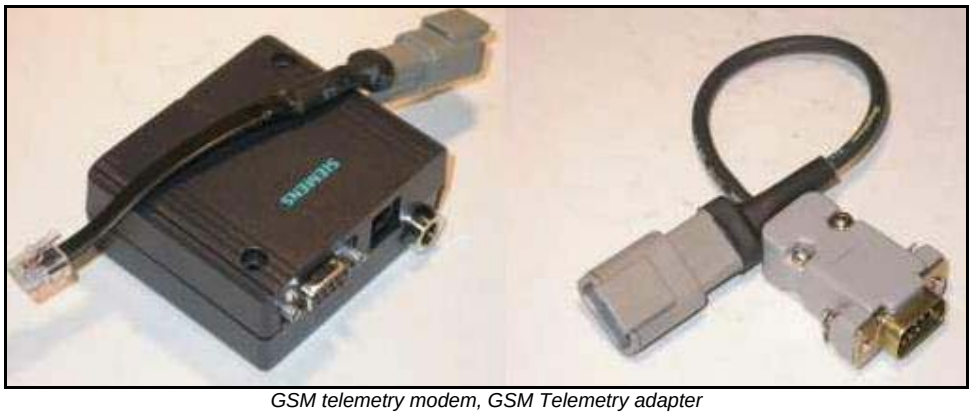
Row 1: car aerial, base aerial, aerial extension, Radio Modem,
Row 2: FME connector, Power cable, BNC adapter, Serial cable, Power supply

61060 Vehicle Aerial including mount and lead
61061 Base Station Aerial
61062 Aerial Extension
61063 FME/FME Connector
61064 Radio Modem
61065 Cables Power/Data
61066 Aerial Adaptor BNC/FME
61070 Serial Cable Straight Through
61073 Power Supply (1amp)

**Example of MoTeC Telemetry Software*

GSM Telemetry modem parts

MoTeC Telemetry also provides another technique to transfer information in real time from a moving vehicle back to the pits, that is *MoTeC* GSM telemetry, implemented using the digital mobile phone network. The phone network supports data communications at speeds up to 9600baud, approximately 1.2kbytes per second. This allows more than 20 channels of information to be transmitted 20 times per second.



GSM telemetry modem, GSM Telemetry adapter

61050 GSM Modem Module
61060 Vehicle Aerial
61061 Base Station Aerial
61062 Aerial Extension
61063 FME/FME Connector
61070 Serial Cable Straight Through
61071 GSM Telemetry Adaptor
61073 Power Supply (1amp)

Adapters and Looms

MoTeC supplies many looms to help adapt our parts to your application. These are high quality looms using only the best pins, connectors and heatshrink. Looms listed as “wire in” are pinned wires that you need to push into the ADL or ECU plug. Plug-in looms already have plugs on them that connect directly to an existing socket, eg. M800 OEM on board sockets. Other looms are generally sold complete with appropriate connectors already attached.

Row 1: Thermocouple ext., AFM Bosch 4 wire loom, M800 OEM Lambda, M800 OEM comms can,
Row 2: M800 OEM comms D9, M800 OEM Lambda, PLM Aux, M400/600/800 wire in D9 comms

62010 VDO pressure sensor adapter loom (drawing #X07)
61034 K-Type thermocouple extension wire, 1 meter
62001 AFM Lambda meter loom, Bosch 4 wire
62002 AFM Lambda meter output loom
61047 BR2 5 pin mil 4m loom
61048 BR2 Configuration loom
61033 BTX transmitter power loom
61051 M800 OEM Lambda extension plug-in loom, 2.5m for Bosch LSU
61046 M800 OEM CAN comms plug in loom
61043 M800 OEM D9 comms plug in loom, CAN and RS232
61044 M800 OEM plug in Lambda loom
61038 Bosch PLM loom 2.5m
61040 Bosch PLM loom 5m
61045 Bosch PLM loom 10m
61039 NTK PLM loom 2.5m
61041 NTK PLM loom 10m
61042 PLM Aux output adapter that splits the 0-5v aux out from the D9 plug
61036 M400/600/800 D9 comms wire in loom, with RS232 and CAN pinned into D9.*
61020 ADL Basic loom with CAN and Beacon plug, other wires unterminated 2.5m. (Drawing ADL-L1) *
61014 ADL loom for Formula Ford, suits Van Diemen, Spectrum and Mygale plus others. Fully pinned and plugged ready to go
61001 M4 wiring loom, 2.5m with D9 comms*
61002 M48 wiring loom, 2.5m with D9 comms*
61003 M8 wiring loom, 2.5m with D9 comms*
61017 M400/600/800 wiring loom, 2.5m with D9 RS232 and round CAN comms plugs*
61103 PLM loom to LSU Adapter
61104 PLM Loom to LSU 4.2 Adapter
61105 PLM Loom to NTK Adapter
61106 PLM common loom (2.6m)
61107 PLM common loom (6m)

LSU Adapter, LSU4.2 Adapter, and NTK Adapter

***MoTeC looms do not have wires for all inputs/outputs**

MoTeC Device Communications summary

Most of MoTeC's devices can talk to one and other, and also to a laptop. Determining how you go about communicating to particular device can be confusing, so below, is a chart, showing which communication method is applicable to which MoTeC Device. Below the chart are notes to further explain that particular communications method.

	M4	M48	M8	M4/6/800	ADL- 8	ADL2	SDL	PLM	BR2	MDD	MDC	SDC\SDC2	E888
Serial	**1**	**2**	**2**	X	5	6	X	**5**	X	X	X	X	X
Parallel	X	X	X	**3**	**3**	3	3	X	**3**	X	**3**	**3**	X
USB	9	9	9	8	8	**7**	**7**	9	X	X	X	X	X
PCMCIA	X	X	X	4	4	4	4	X	4	X	**4**	**4**	X
UTC	X	X	X	8	8	7	7	X	UD	X	UD	UD	X

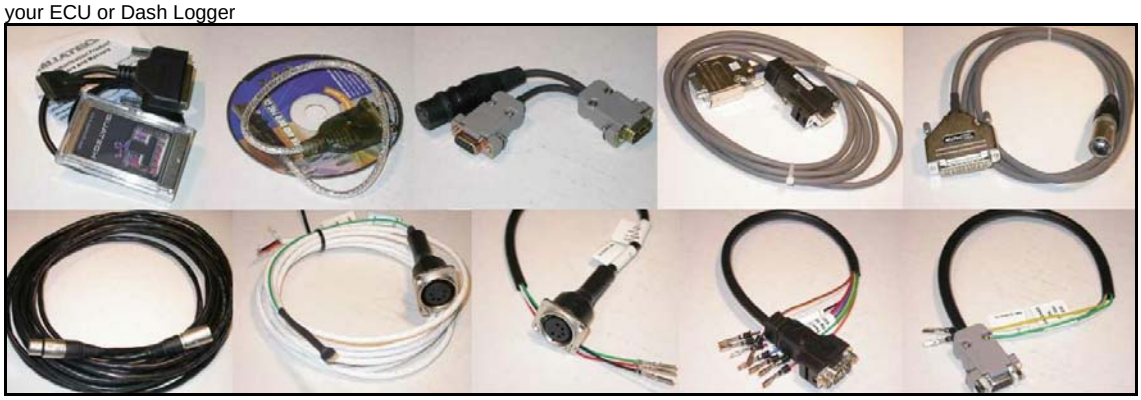
NOTES:

1. Serial no. 3000 and below need to use PCI Cable (63003 or 63004) or CIM module (61026), 3000 and above use standard serial cable
2. Use PCI Cable (63003 or 63004) or CIM module (61026)
3. Use MoTeC CAN Cable (61021) Suitable CAN connector must be present on wiring.
4. Use PCMCIA to Parallel port adaptor (61093) (For computers without parallel port)
5. Use standard serial communication cable
6. Use standard serial communication cable (cannot be used if wired for USB)
7. Use standard USB cable
8. With UTC (ADL requires version 3.20D or later software, ECU requires v2.3S or later software)
9. USB to serial adaptor required (Recommend MoTeC part no. 61092)

- **UD**. Under development
- **BOLD** Preferred method.

Communication Leads, Modules and Adapters

These leads used to connect your *MoTeC* products to a variety of PCs to communicate between the *MoTeC* software and your ECU or Dash Logger



Row 1: PCMCIA to parallel, USB to serial, RS232/can adapter, PCI cable, CAN cable,
Row 2: CAN cable extension, wire in can cable, M400/600/800 CAN, M48 RS232 Comms, M4 RS232 Comms

61093 PCMCIA to Parallel adapter to connect a Can Cable to PC without a parallel port
61016 M400/600/800/880 RS232 to CAN, takes your D9 RS232 plug, and adapts it to have both a D9 and a CAN plugs
61049 ADL to Car CAN cable, .5m loom for wiring up your own can cable to the ADL 79 pin plug
63003 Serial PCI cable to suit M8, M48, and older M4 ECUs, 2m
63004 Serial PCI cable to suit M8, M48, and older M4 ECUs, 6m
61021 CAN interface cable, 2m for communicating to ECU s and ADLs on CAN
61032 CAN extension cable, 10m
61022 CAN cable, 3m open wires at car end.
61037 M400/600/800 to car CAN wire in loom .5m
61010 M4 Comms wire in loom D9 – PCI and RS232
61012 M48 Comms wire in loom D9, RS232 only
61015 M4 Comms wire in loom D9, RS232 only

USB Equipment next page.

USB Equipment

MoTeC UTC

The MoTeC USB to CAN adapter (UTC, part number 61059) is used to replace the CAN interface cable (part number 61021) in instances where a computer needs to use USB rather than a parallel port for communications. The M800 requires ECU manager version 2.3 or later, the ADL requires Dash manager 3.2 or later. (UTC includes 61102)

USB to serial, Short USB A to B, Long USB A to B
Unterminated USB cable, USB to Autosport Short, USB to Autosport Long

61059 USB to CAN adapter (UTC)
61092 USB to serial adapter for PCs without serial ports
61102 Cable USB A plug to B Plug 0.9m
61069 Cable USB A plug to B Plug 1.8m
61108 USB Panel Mount cable 3m, unterminated
61067 USB to Autosport short 1mtr
61068 USB to Autosport Long 1.8mtr

Computer Interface Module

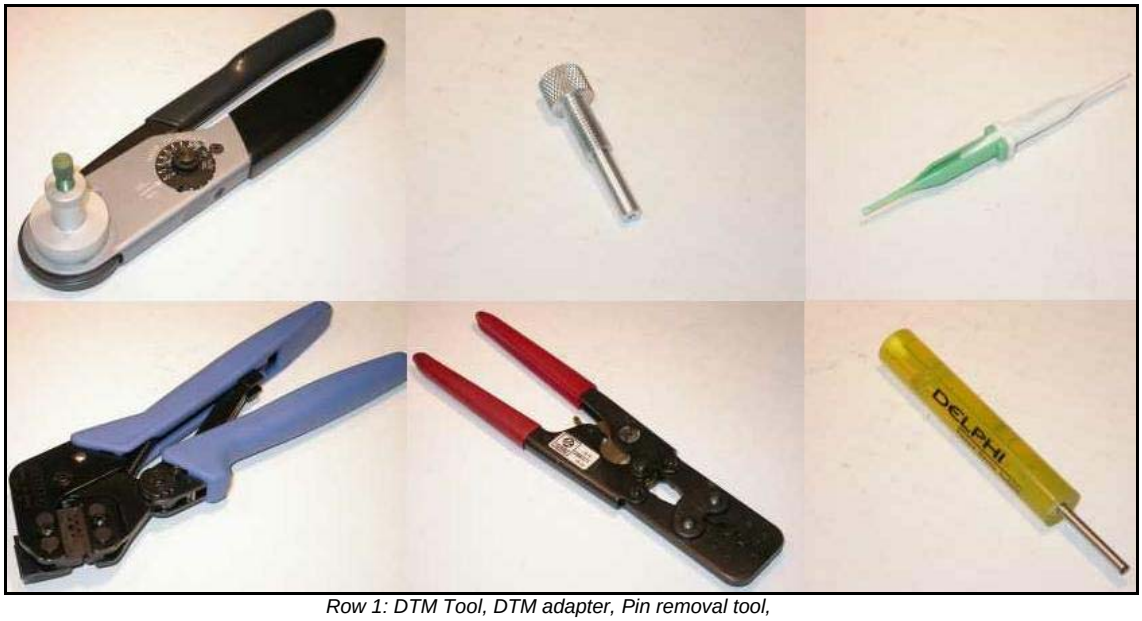
CIM is a computer interface module, which converts the ECU output to straight RS232 on all M48 and M8 ECUs. If you have an early M4 (serial number lower than 3000) then the CIM is also for you. This module is used when connecting an ECU that normally requires a PCI cable to an ADL, or a Telemetry radio so you don't have to leave your PCI cable wired in the car. It also means that you no longer need a PCI cable, just a CIM car cable will then be needed to connect to your PC. (Drawing A06)

Row 1: CIM assembly, CIM car cable, CIM D9 loom,
Row 2: CIM module, CIM pc cable

61027 CIM Assembly, including 61030, 61026 and 61029
61030 CIM car cable, wiring to plug your CIM into an ADL, and a plug for cable 61029
61025 CIM, D9 cable, loom to make your CIM use a straight serial cable instead of 61029
61026 CIM, Module only
61029 CIM, PC cable, 4 pin Neutrik connector to D9 for connection to your ECU

Tools

The tools we supply are highest quality tools used in the building of reliable vehicle looms for both your ECU and ADL. Many of the required crimping jobs can only be done with these tools, making them a necessary part of any good installation.



Row 1: DTM Tool, DTM adapter, Pin removal tool,
Row 2: M800 pin crimper, Packard universal crimper, Packard pin removal tool

67021 Stop for ratchet wire stripper (not shown)
68073 DTM Crimping Tool to suit ADL, and Deutsch plug pins
68074 DTM Adapter tool to suit *MoTeC* ADL Pins
68085 Green/White motorsport connector pin removal tool
67024 *MoTeC* M800, M600, M400 pin ratchet crimping tool, 16-24 gauge
67023 Packard pin crimping tool, for Delco Map sensor style pins.
67022 Packard universal ratchet crimping tool, red, 5 crimping sizes
68001 Packard pin removal tool, yellow handle

Wire and Glue Heatshrink

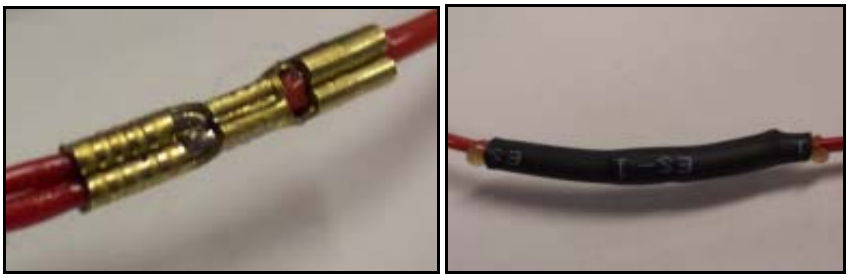
Wire

MoTeC supplies a wide range of wire with different specifications, depending on your application. The Tefzel wire is the highest grade wiring, and is the only wire suitable for our military connectors. Wire is measured in Gauge, and our vehicle wiring sizes range from 16g right down to 22g, where the smaller number denotes a larger diameter wire. We can supply non Tefzel 16 gauge wire that is for the more general purpose applications where military spec connectors are not being used. Small gauge wire is best for high performance applications where weight of a loom is critical, where as the heaver gauge wire is mechanically stronger for harsh environments. Typical applications for types of wire include:
16 Gauge: Power supplies, Relays
18 Gauge: Fuel pumps, injectors, ignition wiring
20 Gauge: ignition wiring, Injectors, sensors
22 Gauge: Military plugs(ADL, M880, E816, BR2 etc), sensors Injectors, Ignition

61000	**3 CORE SHIELDED BLACK - per metre**
61013A	**BLACK 16G - per metre**
61013B	**RED 16G - per metre**
61013C	**VIOLET 16G - per metre**
61013D	**ORANGE 16G - per metre**
61013E	**GREEN 16G - per metre**
61013F	**YELLOW 16G - per metre**
61013G	**BLUE 16G - per metre**
61013H	**GREY 16G - per metre**
61013I	**BROWN 16G - per metre**
61013J	**WHITE 16G - per metre**
61013K	**RED / WHITE 16G - per metre**
61013L	**WHITE / GREEN 16G - per metre**
61013M	**WHITE / YELLOW 16G - per metre**
61013N	**WHITE / ORANGE 16G - per metre**
61013O	**WHITE / VIOLET 16G - per metre**
61013P	**WHITE / BLACK 16G - per metre**
61013Q	**WHITE / RED 16G - per metre**
61013R	**WHITE / GREY 16G - per metre**
61013S	**WHITE / BLUE 16G - per metre**
62003A	**WHITE 22G TEFZEL per metre**
62003AR	**WHITE 22G TEFZEL 100m REEL**
62003B	**BLACK 22G TEFZEL per metre**
62003BR	**BLACK 22G TEFZEL 100m REEL**
62003C	**RED 22G TEFZEL per metre**
62003CR	**RED 22G TEFZEL 100m REEL**
62003D	**GREY 22G TEFZEL per metre**
62003DR	**GREY 22G TEFZEL 100m REEL**
62003E	**GREEN 22G TEFZEL per metre**
62003ER	**GREEN 22G TEFZEL 100m REEL**
62003F	**VIOLET 22G TEFZEL per metre**
62003FR	**VIOLET 22G TEFZEL 100m REEL**
62003G	**BROWN 22G TEFZEL per metre**
62003GR	**BROWN 22G TEFZEL 100m REEL**
62003H	**BLUE 22G TEFZEL per metre**
62003HR	**BLUE 22G TEFZEL 100m REEL**
62003I	**YELLOW 22G TEFZEL per metre**
62003IR	**YELLOW 22G TEFZEL 100m REEL**
62003J	**ORANGE 22G TEFZEL per metre**
62003JR	**ORANGE 22G TEFZEL 100m REEL**
62004	**SHIELDED TEFZEL 3 CORE per metre**
62005A	**BLACK 20G TEFZEL per metre**
62005AR	**BLACK 20G TEFZEL 100m REEL**
62005B	**GREY 20G TEFZEL per metre**
62005BR	**GREY 20G TEFZEL 100m REEL**
62005C	**BLUE 20G TEFZEL per metre**
62005CR	**BLUE 20G TEFZEL 100m REEL**
62005D	**GREEN 20G TEFZEL per metre**
62005DR	**GREEN 20G TEFZEL 100m REEL**
62005E	**RED 20G TEFZEL per metre**
62005ER	**RED 20G TEFZEL 100m REEL**
62005F	**ORANGE 20G TEFZEL per metre**
62005FR	**ORANGE 20G TEFZEL 100m REEL**
62005G	**YELLOW 20G TEFZEL per metre**
62005GR	**YELLOW 20G TEFZEL 100m REEL**
62005H	**BROWN 20G TEFZEL per metre**
62005HR	**BROWN 20G TEFZEL 100m REEL**
62005I	**VIOLET 20G TEFZEL per metre**
62005IR	**VIOLET 20G TEFZEL 100m REEL**
62005J	**WHITE 20G TEFZEL per metre**
62005JR	**WHITE 20G TEFZEL 100m REEL**
62000	**WIRE, SHIELDED TEFZEL 4 CORE per metre**

Glue Heatshrink

Glue heatshrink is available in the standard sizes from ES1 through to ES4. Its uses include joining standard heat shrink together at joins, acting as a strain relief at splices and joins and also as strain relieve and sealing where wiring joins on to connectors.



Wire can be crimped as above can be sealed and strain relieved with glue heatshrink like this.

61202 Clear heatshrink, Ideal for wiring labels.
61203 ES1 Glue heatshrink
61204 ES2 Glue heatshrink
61205 ES3 Glue heatshrink
61206 ES4 Glue heatshrink

The ES range of glue heatshrink (ES4, ES3, ES2, ES1 and Clear)

Connectors

MoTeC supplies connectors to suit the wiring required for the components that we sell. The connectors listed below come with the necessary pins, unless stated.

Row 1: 65045, 65044, 65043, 66004, 64002, 64007,
Row 2: 64003, 65018, 67002, 65021, 67011, 67006,
Row 3: 65023, 67007, 68086, 68080, 68004, 65010,
Row 4: 66111, 65033, 64008, 65040, 65034, 65013.

65045	**M800 26 PIN**
65044	**M800 34 PIN**
65043	**M880 66 PIN**
66004	**CONNECTOR LOCK, W/PROOF RELAY**
64002	**1 BAR MAP – GREEN CONNECTOR**
64007	**1.05 BAR MAP CONNECTOR**
64003	**2 & 3 BAR MAP – BLACK CONNECTOR**
65018	**18 PIN - CDI 2/4, IEX, TCMUX CONNECTOR**
67002	**2 PIN CONNECTOR– GREEN**
65021	**4 PIN CONNECTOR fits 211 MODULE**
67011	**4 PIN CONNECTOR fits 42015 DENSO COIL**
67006	**5 PIN DFI SMART CONNECTOR**
65023	**5 PIN CONNECTOR fits 211 MODULE**
67007	**6 PIN CONNECTOR DFI SMART**
68086	**79 pin ADL with Tool**
68080	**79 pin ADL without Pins**
68004	**BOOST CONTROL VALVE CONNECTOR**
65010	**BOSCH 7 PIN IGN MOD CONNECTOR**
66111	**BOSCH RELAY 4973 CONNECTOR**
65033	**BR2 MIL CONNECTOR- 5 PIN inc TOOL**
64008	**CDI DUAL CHANNEL CONNECTOR - GREY**
65040	**CDI MIL 26 PIN**
65034	**CDI MIL 26 PIN without Pins**
65013	**DATA INSTRUMENTS & TI CONNECTOR**

Row 1: 65012, 64001, 65009, 68062, 68063, 68058,
Row 2: 68059, 68051, 68050, 68052, 68053, 68054,
Row 3: 68055, 68056, 68057, 68060, 68061, 65001,
Row 4: 64006, 65004, 65008, 65007, 65036, 68079

65012 D-DRIVE TPS CONNECTOR
64001 DELCO AIR TEMP CONNECTOR - GREY
65009 DJET CONNECTOR
68062 DT 2 PIN (F) 16G – TEGA CONNECTOR
68063 DT 2 PIN (M) 16G – TEGA CONNECTOR
68058 DTM 12 PIN (F)
68059 DTM 12 PIN (M)
68051 DTM 2 PIN (F)
68050 DTM 2 PIN (M)
68052 DTM 3 PIN (F)
68053 DTM 3 PIN (M)
68054 DTM 4 PIN (F)
68055 DTM 4 PIN (M)
68056 DTM 6 PIN (F)
68057 DTM 6 PIN (M)
68060 DTM 8 PIN (F)
68061 DTM 8 PIN (M)
65001 DUMB 4 CYL DFI CONNECTOR
64006 LAMBDA BOSCH LSU CONNECTOR
65004 LAMBDA FORD NARROW BAND CONNECTOR
65008 LJET 2 PIN (F) CONNECTOR
65007 LJET 2 PIN (M) CONNECTOR
65036 M4/48 ECU 36 PIN CONNECTOR
68079 M4/M48 MIL 32 PIN CONNECTOR
68089 CONNECTOR, SDL 37 WAY WITH PINS

Row 1: 65038, 36039, 65035, 64000, 65042, 65051,
Row 2: 65050, 65053, 65052, 65055, 65054, 65057,
Row 3: 65056, 65059, 65058, 65061, 65060, 67012,
Row 4: 65041, 65003, 65002, 65005, 66005, 64004

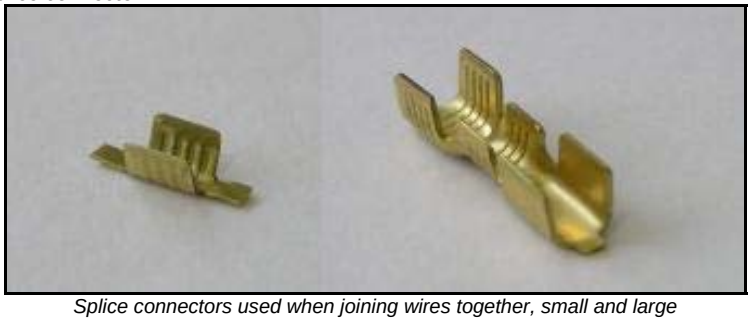
65038	**M8 MIL 10 PIN CONNECTOR**
65039	**M8 MIL 55 PIN CONNECTOR**
65035	**M880 MIL 66 PIN (Less Pins)**
64000	**MAGNETIC SENSOR CONNECTOR**
65042	**NTK UEGO 8 PIN CONNECTOR**
65051	**PACKARD 1 PIN (F)**
65050	**PACKARD 1 PIN (M)**
65053	**PACKARD 2 PIN (F)**
65052	**PACKARD 2 PIN (M)**
65055	**PACKARD 3 PIN (F)**
65054	**PACKARD 3 PIN (M)**
65057	**PACKARD 4 PIN (F)**
65056	**PACKARD 4 PIN (M)**
65059	**PACKARD 5 PIN (F)**
65058	**PACKARD 5 PIN (M)**
65061	**PACKARD 6 PIN (F)**
65060	**PACKARD 6 PIN (M)**
67012	**PS-92 COIL CONNECTOR**
65041	**RTC MIL 13 PIN CONNECTOR**
65003	**SMART 4 CYL DFI CONNECTOR**
65002	**SMART 6 CYL DFI CONNECTOR**
64005	**VT DISTRIBUTOR CONNECTOR**
66005	**W/PROOF RELAY CONNECTOR**
64004	**WATER TEMP (GOLD PIN) CONNECTOR**

Pins and Seals

Pins and seals are listed per item unless otherwise specified.

Row 1: 65063, 65062, 65024, 68081, 65028, 65026,
Row 2: 68003, 64013, 68087, 68069, 68068, 68071,
Row 3: 68070, 65014, 66003, 65011, 66007, 68088,
Row 4: 65046, 66006, 65015, 65025, 68002, 68008, 67001, 65064

65063	**PIN PACKARD (F)**
65062	**PIN PACKARD (M)**
65024	**PIN, 18/36 WAY ECU (F) GOLD**
68081	**PIN, ADL, 79 PIN CONNECTOR - 22G**
65028	**PIN, AIR TEMP (NOT WINGED)**
65026	**PIN, AIR TEMPERATURE (WINGED)**
68003	**PIN, BOOST CONTROL VALVE**
64013	**PIN, BR2 CONNECTOR (F) - 22G**
68087	**PIN, CDI-8, 26 PIN CONNECTOR - 20G**
68069	**PIN, DT GOLD (F) 16G - TEGA**
68068	**PIN, DT GOLD (M) 16G - TEGA**
68071	**PIN, DTM GOLD (F) - 20G**
68070	**PIN, DTM GOLD (M) - 20G**
65014	**PIN, fits 64004 & L JET (F) Gold**
66003	**PIN, FUSE WATERPROOF**
65011	**PIN, L JET & 7 PIN IGN MODULE (F)**
66007	**PIN, LJET (M)**
68088	**PIN, LSU CONNECTOR (F)**
65046	**PIN, M800 CONNECTORS (F)**
66006	**PIN, RELAY W/PROOF**
65015	**PIN, UEGO CONNECTOR 65042 (F)**
65025	**SEAL GOLD PIN - GREY**
68002	**SEAL, for BCV CONNECTOR 68004**
68008	**SEAL, for DUMB DFI CONNECTOR 65001**
67001	**SEAL, PACKARD - BLACK**
65064	**SEAL, PACKARD - GREEN**
65065	**SEAL, PACKARD - PURPLE/GREY**
61200	**Small splice connector**
61201	**Large splice connector**



Splice connectors used when joining wires together, small and large

Electrical components

***MoTeC* supplies many other electrical components, specially selected to work with our range of products.**

Row 1: 66112, 66120, 66002, 61031, 67008,
Row 2: 65006, 65027, 68072, 68009, 68082,
Row 3: 65066, 67034, 67033, 67031, 67032,
Row 4: 66001, 68010, 68006, 68011, 68007

66112	**RELAY BOSCH 033 201 4112**
66120	**RELAY BOSCH TACHOMETRIC**
66002	**RELAY, WATER PROOF**
61031	**RESISTOR, CAN TERMINATING**
65017	**BOOT, 36 WAY CONNECTOR - RED**
67008	**BOOT, 7 PIN IGNITION MODULE**
65006	**BOOT, LJET 2/3 PIN**
65027	**BUNG for 65036 ECU CONNECTOR (GREY)**
68072	**BUNG for DTM CONNECTOR (RED)**
68009	**BUNG for DUMB DFI 4 CYL (RED)**
65047	**BUNG, BLANKING M800 CONNECTOR (WHITE)**
68082	**BUNG, MOTORSPORT CONNECTOR**
65066	**BUNG, PACKARD fits 65064 (SEAL)**
67034	**BUTTON, WATERPROOF - BLUE**
67033	**BUTTON, WATERPROOF - GREEN**
67031	**BUTTON, WATERPROOF - RED**
67032	**BUTTON, WATERPROOF – YELLOW**
66001	**FUSE HOLDER WATERPROOF**
68010	**SHIFT LIGHT - RED (TERMIMINATED)**
68006	**SHIFT LIGHT - RED (UNTERMINATED)**
68011	**SHIFT LIGHT - RED/GREEN (TERMINATED)**
68007	**SHIFT LIGHT - RED/GREEN (UNTERMINATED)**

Mounts

68076 DT connector mount (F)
68075 DT connector mount (M)
63012 ECU mount, soft (COLOURS)
62011 PLASTIC - VDO pressure sensor mount

Manuals and Documentation

We can supply extra copies of our *MoTeC* manuals and documentation which are a useful tool when starting out with our products. Also available are *MoTeC* technical notes and Diagrams.

63018 USER MANUAL - ADVANCED DASH LOGGER 2
63020 USER MANUAL - i2
63019 USER MANUAL - LAP BEACON SYSTEM
63017 USER MANUAL - M4 & M48 ECU
63022 USER MANUAL - M400/600/800/880 ECU
63023 USER MANUAL - MINI DIGITAL DISPLAY
63021 USER MANUAL - PROFESSIONAL LAMBDA METER