

Updates to this document since the previous version have a light yellow background.



M1 GPA PACKAGE



MoTeC's M1 GPA Package is a versatile and adaptable platform for the operation of port-injected engines. This single product can be configured over a huge range of complexities, from controlling a simple engine to a multi-throttle, quad cam boosted engine. Configurable engine synchronisation modes accommodate most modern engine triggering systems.

Included are numerous ancillary features, such as driver switches (pit switch, boost limit etc.), knock control, intercooler sprays and gearbox coolant pumps. It also caters for many systems found on modified road vehicles, such as air conditioning control and four definable control outputs.

This Package is available across MoTeC's range of M1 port injection ECUs (M130, M150, M170, and M190). It seamlessly integrates with other MoTeC products and provides pre-defined CAN messaging for all current Display Loggers, Enclosed Loggers, Power Distribution Modules and other devices including E888, VCS, GPS, ADR, BR2 and SLM. Example wiring schematics are provided for basic operation with each ECU variant.

► FEATURES

- Operates port injected engines from 1 to 12 cylinders (M150 or M190) or 1 to 8 cylinders (M130 or M170).
- Configurable engine synchronisation modes for many common engine types. Refer to the Engine Synchronisation Modes section for current details.
- Configurable top dead centre for each cylinder allows for odd-fire engines.
- Configurable ignition output pin for each cylinder allows for coil-on-plug or wasted spark and distributor ignition systems.
- Configurable on-board knock for each cylinder with up to 4 assignable knock sensors (hardware dependant) and selectable centre frequencies.
- Configurable camshaft control from 1 to 4 cams, plus 1 switched camshaft.
- Dual bank lambda control supported; requires optional LTC with Bosch LSU4.9 sensor or LTCN with NTK sensor.
- Physical settings for engine displacement, fuel density + molar mass, stoichiometric ratio and injector characteristics allow for simplified engine start-up prior to tuning.
- Easy and fast engine tuning using engine efficiency map.
- Engine load modelling based on inlet manifold pressure and inlet manifold temperature. Alternatively, for example, when using individual throttle bodies, throttle position can be used.
- Control of one port injector (peak&hold or saturated) per cylinder.
- Sensor calibrations available for many common automotive sensors.
- Transient fuelling compensation using physical modelling of fuel film.
- Nitrous system with two activation stages and additional fuel pumps, bottle heater control and pressure sensor.

- Transmission brake control ('bump') functionality for perfect positioning of cars.
- Support of MoTeC devices: ADR, E8XX, PDM, SLM, VCS
- Test settings for most outputs, including injection and ignition outputs, for easier setup.
- Turbocharger wastegate pressure control with pressure sensor and two PWM outputs.
- Configurable turbocharger boost control (using a normal and inverted solenoid output).
- Support of a turbocharger bypass valve control.
- Support of two coolant fan outputs (PWM controlled).
- Air conditioner support with switched output control.
- Coolant temperature compensations for engine speed limit, ignition timing, fuel mixture, boost limit.
- Coolant pump output with PWM control.
- Coolant pump after-run functionality, optionally with additional pump output.
- Engine speed limiting with ignition cut and/or fuel cut.
- Fuel pump switched output.
- Fuel Flow Supply Sensor and Fuel Flow Return Sensor.
- Gearbox position detection via optional dual sensor or engine speed / wheel speed estimate.
- GPS acquisition and logging via CAN or RS232 (hardware dependent).
- Intercooler temperature and spray control.
- Differential temperature control with dedicated temperature sensor and switched pump output.
- Engine Charge Temperature calculation, allows for correction of Inlet Air Temperature (compensation of heat soak effect etc.).
- Lap distance, time and number via BR2, GPS or switched input, with split and sector options.
- Race time system with trim tables for ignition timing compensation, fuel mixture aim, boost limit and throttle limit.
- Idle closed loop control system using ignition, drive by wire actuation or idle solenoid.
- Idle bypass control with stepper motor supported.
- Engine Load Average channel with tables for engine speed limit, ignition timing trim, fuel mixture aim, boost limit and throttle limit.
- Inlet Manifold Flap support (actuator with 2 bank position feedback).
- Inlet Manifold Runner support (actuator with position feedback).
- Assisted engine start with dedicated fuel volume and idle compensations during crank and post start.
- Closed loop Alternator control.
- Engine run time total for engine hour logging.
- Configurable security for multiple users.
- Configuration of brake state using a switch or a pressure sensor.
- Brake Vacuum control system with dedicated switched pump.
- Configuration of clutch state using a switch, a position sensor or a pressure sensor.
- Calculation of clutch slip.
- ECU-internal G-force (acceleration) – longitudinal, lateral, vertical
- ECU CAN receive from a defined CAN ID for data reception from MoTeC devices. Support of 1 (M130/M170) or 3 (M150/M190) CAN buses.
- ECU CAN transmit of the most common channels using standard MoTeC CAN templates.
- 8 configurable switches and 8 rotary switches (wired or CAN input) with each of 9 positions simultaneously mappable to Pit Switch, Auxiliary Time, Race Time Reset, Engine Speed Limit Maximum, Throttle Pedal Translation, Ignition Timing, Fuel Mixture Aim, Boost Limit.
- Analogue tachometer output with configurable output pin and scaling.
- Dual bank drive by wire throttle servo control.
- Throttle Pedal sensor with translation table.
- Use of a Throttle Pedal sensor or a Throttle Position sensor in case of a cable throttle.
- Transmission pump output with transmission temperature threshold and hysteresis control.
- Vehicle speed measurement using wheel speed sensors, estimation or GPS.
- Vehicle Speed Limit Control system (DBW-throttle based), which can also be used for pit speed limiting.
- Configurable warning system with light and CAN output.
- Auxiliary time system with tables for ignition timing compensation, fuel volume trim and fuel mixture aim.
- 4 auxiliary outputs for PWM control of added actuators:
 - Duty cycle tables using Engine Speed and Throttle or Manifold Pressure Axis'
 - Activation based on inlet manifold pressure or throttle position
 - Auxiliary Output 1 includes tables for Ignition Timing Compensation, Fuel Volume Trim and Fuel Mixture Aim

- Optional channels for additional sensors via input pin and/or CAN message, including:
 - Airbox Mass Flow, Pressure and Temperature
 - Ambient Pressure and Temperature
 - Boost Pressure
 - Brake Pressure Front and Rear
 - Brake Switch
 - Clutch Pressure and Position
 - Clutch Switch
 - Coolant Pressure and Temperature
 - Engine Oil Pressure and Temperature
 - Engine Crankcase Pressure
 - Exhaust Pressure Bank 1 and Bank 2
 - Exhaust Temperature (EGT) via TCA Thermocouple Amplifier, Generic CAN, or E888 for Collector, Bank 1 and 2 Collector, and Cylinders 1 to 8 (M150/M190: 12)
 - Exhaust Lambda via LTC, LTCN, or PLM for Collector, Bank 1 and 2 Collector, and Cylinders 1 to 8 (M150/M190: 12)
 - Fuel Pressure and Temperature
 - Fuel Tank Level
 - Intercooler Temperature
 - Steering Angle and Pressure
 - Transmission Pressure and Temperature
 - Turbocharger Speed
 - Turbocharger Inlet/Outlet Temperature
 - Turbocharger Wastegate Position
 - G-Force (acceleration) – Longitudinal, Lateral, Vertical
 - Wheel Speed sensors front/rear left/right, wired or CAN input.

▶ ENGINE SPEED MODES

As of M1 System 1.4.00.0019

- BMW M54
- BMW N55 - BMW N55 and N52 engines
- BMW S1000RR MY2015
- BMW S50 - BMW S50B32 (E36M3)
- BMW S62 - BMW E36 M3 S52B32, BMW E46 M3 S64B32, BMW E39 M5 S62B50 NOTE: not tested - please contact MoTeC before running this engine
- BMW S85 - BMW E60 M3 S85B50, BMW E90 M3 S65B40
- Bosch 140 40 - General Motors LLT, Audi BXA / Lamborghini LP560, Mazda L3-VDT
- Chrysler SRT8 2005 - Chrysler 6.1l Hemi 2005-2010 (eg Chrysler 300C SRT-8, Dodge Challenger SRT-8)
- Chrysler SRT8 2011 - Chrysler "Apache" 6.4l Hemi with variable camshaft timing 2011- (eg Chrysler 300C SRT-8, Dodge Challenger SRT-8)
- Camshaft One Missing Four Stroke
- Camshaft Two Missing Four Stroke
- Corvette C4 ZR1 - GM LT5 (1990 - 1995)
- Crankshaft One Missing Four Stroke
- Crankshaft One Missing Two Stroke
- Crankshaft Two Missing Four Stroke
- Crankshaft Two Missing Two Stroke
- Custom EJ20G - Subaru GC8 WRX and STi (EJ20G, EJ20K, EJ207 etc.) from MY95 - MY00 with the MY01 crankshaft sprocket (part number 13021AA141)
- Denso 270 90
- Dodge Viper - Experimental mode for Dodge Viper pre 2008
- Dodge Viper MY2008 - Experimental mode for 2008-
- Fiat TwinAir
- Ford Coyote
- Ford Duratec Synchronisation - Duratec, EcoBoost, BA cams
- Ford Sigma TiVCT
- Ford Windsor - with 'PIP' sensor in the distributor
- General Motors DMAX LMM - General Motors 6.6L Duramax LMM diesel engines (late 2007 - early 2011) when the eighth digit of the VIN number is 6.
- General Motors LS1 - (Gen 3 V8)
- General Motors LS7
- Honda 20FC (Honda S2000)
- Honda Bike Synchronisation
- Hyundai Gamma T GDI
- Honda K20
- Honda K20C1 - Civic Type R 2015+
- Hyundai Lambda II RS GDi Engine (Hyundai Genesis V6)
- Lamborghini V10 - Experimental mode for 5.0L port injected Gallardo 2003 - 2007
- Mazda L3 - Mazda L3 VVTi (example Mazda 3 SPorts SP23, Mazda 6), Ford Duratec 23EW iVCT (e.g. Ford Fusion CD338)
- Mazda MX-5 2006: Mazda LF (MZR family) in MX5 NC (2006-), Suzuki M16A VVT in Swift Sport (2012-)
- Mazda RX8 - Mazda Renesis 13B-MSP
- Mazda SkyActiv G - Mazda6 GJ 2012+, MX5 ND 2015+, Mazda3 BM 2014+, Mazda2 DJ 2014+
- Mercedes M120 - 6.0l V12 (S600 1992 - 2001)
- Mitsubishi 4B11 - Lancer Evolution X
- Mitsubishi 4G63T
- Mitsubishi 6A12 - 6A12, 6A13, 6G74, 6G75
- Mitsubishi Fuso 4P10 (also Agco Sisu Power 49G)
- Mitsubishi Fuso 6M60 - 2015 Fuso TKG-FK61F
- Multi Tooth Four Stroke
- Multi Tooth Two Stroke
- Nissan RB26 - Nissan RB26 and other six cylinder engines with 360 degree optical trigger on camshaft
- Nissan SR20 - Nissan SR20, CA18DET and other four cylinder engines with 360 degree optical trigger on camshaft
- Nissan One wide slot - Nissan RB30 and other engines with 360 degree optical trigger on camshaft
- Nissan VK50VE
- Nissan VK56DE - Nissan VK56DE engine and others
- Nissan VQ35 - Nissan VQ35HR engine, Nissan VR38DETT engine as used in the R35 GTR 2007
- Porsche 997: Porsche Direct Injected engine, 2009 Porsche GT2 with 3.6 Lt engine (Variocam PLUS)
- PSA EP6DTS - Mini Cooper S Turbo (2007-2010) and Peugeot 207 RC/GTI (2006-2010)
- Scania DC16
- Scania SGL12A
- Subaru EJ207AVCS - Subaru EJ205, EJ207, EJ255, EJ257 from MY01 to MY05
- Subaru EJ20G - Subaru GC8 WRX and STi (EJ20G, EJ20K, EJ207 etc.) from MY95 - MY00
- Subaru EZ30 - EZ30D with Dual AVCS

- Subaru FA20D - Subaru EJ205, EJ207 etc. with dual AVCS (MY06-), Subaru FA20D for BRZ and FT86 (2012-)
- Subaru FA20DIT - Subaru Forester 2014, WRX 2015
- Toyota 1FZ FE - Toyota Landcruiser
- Toyota 1UZ-FE
- Toyota 2GR-FE - Lotus Evora, 3GR-FE etc, V6 with dual VVT-i.
- Toyota 2JZ GE - Toyota 6 cylinder 2JZ-GE with VVT (example Lexus IS300)
- Toyota 2UR-GSE in Lexus RC-F 2015 MY (2014/09 -)
- Toyota 2ZZ - Toyota 2ZZ, 3GS and others with VVT.
- Volvo D11C - D11C truck engine (FM450 Platform)
- Yamaha FX SHO

▶ **EXAMPLE GPR M150 PINOUT – COYOTE V8****M150 Connector A - 34 Way**

Mating Connector: Tyco Superseal 34 Position Keying 2 – MoTeC #65067

| Pin | Designation | Full Name | OE Pin | Function | Description |
|-----|-------------|------------------------------|--------|------------------------|-------------|
| A01 | AT5 | Analogue Temperature Input 5 | | 1k Pull up to SEN_5V_C | |
| A02 | AT6 | Analogue Temperature Input 6 | | 1k Pull up to SEN_5V_C | |
| A03 | AV15 | Analogue Voltage Input 15 | | | |
| A04 | AV16 | Analogue Voltage Input 16 | | | |
| A05 | AV17 | Analogue Voltage Input 17 | | | |
| A06 | IGN_LS9 | Low Side Ignition 9 | | | |
| A07 | IGN_LS10 | Low Side Ignition 10 | | | |
| A08 | IGN_LS11 | Low Side Ignition 11 | | | |
| A09 | IGN_LS12 | Low Side Ignition 12 | | | |
| A10 | SEN_5V0_C1 | Sensor 5.0V C | | | |
| A11 | LA_NB1 | Lambda Narrow Input 1 | | | |
| A12 | LA_NB2 | Lambda Narrow Input 2 | | | |
| A13 | KNOCK3 | Knock Input 3 | | | |
| A14 | KNOCK4 | Knock Input 4 | | | |
| A15 | DIG2 | Digital Input 2 | | | |
| A16 | DIG3 | Digital Input 3 | | | |
| A17 | DIG4 | Digital Input 4 | | | |
| A18 | SEN_5V0_C2 | Sensor 5.0V C | | | |
| A19 | SEN_5V0_B2 | Sensor 5.0V B | | | |
| A20 | LIN | LIN Bus | | | |
| A21 | RS232_RX | RS232 Receive | | | |
| A22 | RS232_TX | RS232 Transmit | | | |
| A23 | DIG1 | Digital Input 1 | | | |
| A24 | BAT_NEG3 | Battery Negative | | | |
| A25 | BAT_NEG4 | Battery Negative | | | |
| A26 | SEN_0V_C1 | Sensor 0V C | | | |
| A27 | SEN_0V_C2 | Sensor 0V C | | | |
| A28 | CAN3_HI | CAN Bus 3 High | | | |
| A29 | CAN3_LO | CAN Bus 3 Low | | | |
| A30 | CAN2_HI | CAN Bus 2 High | | | |
| A31 | CAN2_LO | CAN Bus 2 Low | | | |
| A32 | BAT_NEG5 | Battery Negative | | | |
| A33 | SEN_0V_B1 | Sensor 0V B | | | |
| A34 | SEN_0V_A1 | Sensor 0V A | | | |

M150 Connector B - 26 Way

Mating Connector: Tyco Superseal 26 Position Keying 3 – MoTeC #65068

| Pin | Designation | Full Name | OE Pin | Function | Description |
|-----|-------------|----------------------------|--------|----------|---------------------|
| B01 | OUT_HB9 | Half Bridge Output 9 | | | |
| B02 | OUT_HB10 | Half Bridge Output 10 | | | |
| B03 | UDIG8 | Universal Digital Input 8 | | | |
| B04 | UDIG9 | Universal Digital Input 9 | | | Engine Run Switch |
| B05 | UDIG10 | Universal Digital Input 10 | | | |
| B06 | UDIG11 | Universal Digital Input 11 | | | |
| B07 | UDIG12 | Universal Digital Input 12 | | | |
| B08 | INJ_LS5 | Low Side Injector 5 | | | |
| B09 | INJ_LS3 | Low Side Injector 3 | | | |
| B10 | AV9 | Analogue Voltage Input 9 | | | |
| B11 | AV10 | Analogue Voltage Input 10 | | | |
| B12 | AV11 | Analogue Voltage Input 11 | | | |
| B13 | BAT_POS | Battery Positive | | | ECU Battery Voltage |
| B14 | INJ_LS6 | Low Side Injector 6 | | | |
| B15 | INJ_LS4 | Low Side Injector 4 | | | |
| B16 | AV12 | Analogue Voltage Input 12 | | | |
| B17 | AV13 | Analogue Voltage Input 13 | | | |
| B18 | AV14 | Analogue Voltage Input 14 | | | |
| B19 | BAT_POS | Battery Positive | | | ECU Battery Voltage |
| B20 | OUT_HB7 | Half Bridge Output 7 | | | Fuel Pump Output |
| B21 | OUT_HB8 | Half Bridge Output 8 | | | |
| B22 | INJ_PH9 | Peak Hold Injector 9 | | | |
| B23 | INJ_PH10 | Peak Hold Injector 10 | | | |
| B24 | INJ_PH11 | Peak Hold Injector 11 | | | |
| B25 | INJ_PH12 | Peak Hold Injector 12 | | | |
| B26 | SEN_5V0_A | Sensor 5.0V A | | | |

M150 Connector C - 34 Way

Mating Connector: Tyco Superseal 34 Position Keying 1 – MoTeC #65044

| Pin | Designation | Full Name | OE Pin | Function | Description |
|-----|-------------|--------------------------|--------|----------|---|
| C01 | OUT_HB2 | Half Bridge Output 2 | | | Throttle Servo Bank 1 Motor Output |
| C02 | SEN_5V0_A | Sensor 5.0V A | | | |
| C03 | IGN_LS1 | Low Side Ignition 1 | | | Ignition Cylinder 1 Output |
| C04 | IGN_LS2 | Low Side Ignition 2 | | | Ignition Cylinder 2 Output |
| C05 | IGN_LS3 | Low Side Ignition 3 | | | Ignition Cylinder 3 Output |
| C06 | IGN_LS4 | Low Side Ignition 4 | | | Ignition Cylinder 4 Output |
| C07 | IGN_LS5 | Low Side Ignition 5 | | | Ignition Cylinder 5 Output |
| C08 | IGN_LS6 | Low Side Ignition 6 | | | Ignition Cylinder 6 Output |
| C09 | SEN_5V0_B | Sensor 5.0V B | | | |
| C10 | BAT_NEG1 | Battery Negative | | | |
| C11 | BAT_NEG2 | Battery Negative | | | |
| C12 | IGN_LS7 | Low Side Ignition 7 | | | Ignition Cylinder 7 Output |
| C13 | IGN_LS8 | Low Side Ignition 8 | | | Ignition Cylinder 8 Output |
| C14 | AV1 | Analogue Voltage Input 1 | | | Throttle Servo Bank 1 Position Main |
| C15 | AV2 | Analogue Voltage Input 2 | | | Inlet Manifold Pressure Sensor |
| C16 | AV3 | Analogue Voltage Input 3 | | | Throttle Servo Bank 1 Position Tracking |
| C17 | AV4 | Analogue Voltage Input 4 | | | |
| C18 | OUT_HB1 | Half Bridge Output 1 | | | Throttle Servo Bank 1 Motor Output |
| C19 | INJ_PH1 | Peak Hold Injector 1 | | | Fuel Cylinder 1 Output |
| C20 | INJ_PH2 | Peak Hold Injector 2 | | | Fuel Cylinder 2 Output |
| C21 | INJ_PH3 | Peak Hold Injector 3 | | | Fuel Cylinder 3 Output |
| C22 | INJ_PH4 | Peak Hold Injector 4 | | | Fuel Cylinder 4 Output |
| C23 | INJ_LS1 | Low Side Injector 1 | | | |
| C24 | INJ_LS2 | Low Side Injector 2 | | | |
| C25 | AV5 | Analogue Voltage Input 5 | | | |
| C26 | BAT_POS | Battery Positive | | | ECU Battery Voltage |
| C27 | INJ_PH5 | Peak Hold Injector 5 | | | Fuel Cylinder 5 Output |
| C28 | INJ_PH6 | Peak Hold Injector 6 | | | Fuel Cylinder 6 Output |
| C29 | INJ_PH7 | Peak Hold Injector 7 | | | Fuel Cylinder 7 Output |
| C30 | INJ_PH8 | Peak Hold Injector 8 | | | Fuel Cylinder 8 Output |
| C31 | OUT_HB3 | Half Bridge Output 3 | | | Inlet Camshaft Bank 1 Actuator Output |
| C32 | OUT_HB4 | Half Bridge Output 4 | | | Inlet Camshaft Bank 2 Actuator Output |
| C33 | OUT_HB5 | Half Bridge Output 5 | | | Exhaust Camshaft Bank 1 Actuator Output |
| C34 | OUT_HB6 | Half Bridge Output 6 | | | Exhaust Camshaft Bank 2 Actuator Output |

M150 Connector D — 26 way

Mating Connector: Tyco Superseal 26 Position Keying 1 – MoTeC #65045

| Pin | Designation | Full Name | OE Pin | Function | Description |
|-----|-------------|------------------------------|-----------------------|------------------------|-----------------------------------|
| D01 | UDIG1 | Universal Digital Input 1 | | | Engine Speed Sensor |
| D02 | UDIG2 | Universal Digital Input 2 | | | |
| D03 | AT1 | Analogue Temperature Input 1 | | 1k Pull up to SEN_5V_A | Inlet Manifold Temperature Sensor |
| D04 | AT2 | Analogue Temperature Input 2 | | 1k Pull up to SEN_5V_A | Coolant Temperature Sensor |
| D05 | AT3 | Analogue Temperature Input 3 | | 1k Pull up to SEN_5V_B | Engine Oil Temperature Sensor |
| D06 | AT4 | Analogue Temperature Input 4 | | 1k Pull up to SEN_5V_B | |
| D07 | KNOCK1 | Knock Input 1 | | | Knock Sensor 1 |
| D08 | UDIG3 | Universal Digital Input 3 | | | Inlet Camshaft Bank 1 Position |
| D09 | UDIG4 | Universal Digital Input 4 | | | Exhaust Camshaft Bank 1 Position |
| D10 | UDIG5 | Universal Digital Input 5 | | | Inlet Camshaft Bank 2 Position |
| D11 | UDIG6 | Universal Digital Input 6 | | | Exhaust Camshaft Bank 2 Position |
| D12 | BAT_BAK | Battery Backup | | | |
| D13 | KNOCK2 | Knock Input 2 | | | Knock Sensor 1 |
| D14 | UDIG7 | Universal Digital Input 7 | | | |
| D15 | SEN_0V_A | Sensor 0V A | | | |
| D16 | SEN_0V_B | Sensor 0V B | | | |
| D17 | CAN1_HI | CAN Bus 1 High | | | |
| D18 | CAN1_LO | CAN Bus 1 Low | | | |
| D19 | SEN_6V3 | Sensor 6.3V | | | |
| D20 | AV6 | Analogue Voltage Input 6 | | | |
| D21 | AV7 | Analogue Voltage Input 7 | | | Throttle Pedal Sensor Main |
| D22 | AV8 | Analogue Voltage Input 8 | | | Throttle Pedal Sensor Tracking |
| D23 | ETH_TX+ | Ethernet Transmit+ | Ethernet Green/White | | |
| D24 | ETH_TX- | Ethernet Transmit- | Ethernet Green | | |
| D25 | ETH_RX+ | Ethernet Receive+ | Ethernet Orange/White | | |
| D26 | ETH_RX- | Ethernet Receive- | Ethernet | | |

▶ **EXAMPLE GPR M130 4 CYLINDER GENERIC PINOUT****M130 Connector A — 34 way**

Mating Connector: Tyco Superseal 34 Position Keying 1 – MoTeC #65044

| Pin | Designation | Full Name | OE Pin | Function | Description |
|-----|-------------|--------------------------|--------|----------|--------------------------------------|
| A01 | OUT_HB2 | Half Bridge Output 2 | | | |
| A02 | SEN_5V0_A | Sensor 5.0V A | | | |
| A03 | IGN_LS1 | Low Side Ignition 1 | | | Ignition Cylinder 1 and 4 Output |
| A04 | IGN_LS2 | Low Side Ignition 2 | | | Ignition Cylinder 2 and 3 Output |
| A05 | IGN_LS3 | Low Side Ignition 3 | | | |
| A06 | IGN_LS4 | Low Side Ignition 4 | | | |
| A07 | IGN_LS5 | Low Side Ignition 5 | | | |
| A08 | IGN_LS6 | Low Side Ignition 6 | | | |
| A09 | SEN_5V0_B | Sensor 5.0V B | | | |
| A10 | BAT_NEG1 | Battery Negative | | | |
| A11 | BAT_NEG2 | Battery Negative | | | |
| A12 | IGN_LS7 | Low Side Ignition 7 | | | |
| A13 | IGN_LS8 | Low Side Ignition 8 | | | |
| A14 | AV1 | Analogue Voltage Input 1 | | | Throttle Servo Bank 1 Position Main |
| A15 | AV2 | Analogue Voltage Input 2 | | | Inlet Manifold Pressure Sensor |
| A16 | AV3 | Analogue Voltage Input 3 | | | |
| A17 | AV4 | Analogue Voltage Input 4 | | | Airbox Mass Flow Sensor |
| A18 | OUT_HB1 | Half Bridge Output 1 | | | |
| A19 | INJ_PH1 | Peak Hold Injector 1 | | | Fuel Cylinder 1 Output |
| A20 | INJ_PH2 | Peak Hold Injector 2 | | | Fuel Cylinder 2 Output |
| A21 | INJ_PH3 | Peak Hold Injector 3 | | | Fuel Cylinder 3 Output |
| A22 | INJ_PH4 | Peak Hold Injector 4 | | | Fuel Cylinder 4 Output |
| A23 | INJ_LS1 | Low Side Injector 1 | | | Fuel Pump Output |
| A24 | INJ_LS2 | Low Side Injector 2 | | | |
| A25 | AV5 | Analogue Voltage Input 5 | | | |
| A26 | BAT_POS | Battery Positive | | | ECU Battery Voltage |
| A27 | INJ_PH5 | Peak Hold Injector 5 | | | |
| A28 | INJ_PH6 | Peak Hold Injector 6 | | | |
| A29 | INJ_PH7 | Peak Hold Injector 7 | | | |
| A30 | INJ_PH8 | Peak Hold Injector 8 | | | |
| A31 | OUT_HB3 | Half Bridge Output 3 | | | |
| A32 | OUT_HB4 | Half Bridge Output 4 | | | |
| A33 | OUT_HB5 | Half Bridge Output 5 | | | Tachometer Output |
| A34 | OUT_HB6 | Half Bridge Output 6 | | | Idle Actuator Solenoid Normal Output |

M130 Connector B — 26 way

Mating Connector: Tyco Superseal 26 Position Keying 1 – MoTeC #65045

| Pin | Designation | Full Name | OE Pin | Function | Description |
|-----|-------------|------------------------------|-----------------------|------------------------|-----------------------------------|
| B01 | UDIG1 | Universal Digital Input 1 | | | Engine Speed |
| B02 | UDIG2 | Universal Digital Input 2 | | | Engine Synchronisation |
| B03 | AT1 | Analogue Temperature Input 1 | | 1k Pull up to SEN_5V_A | |
| B04 | AT2 | Analogue Temperature Input 2 | | 1k Pull up to SEN_5V_B | Coolant Temperature Sensor |
| B05 | AT3 | Analogue Temperature Input 3 | | 1k Pull up to SEN_5V_A | Fuel Temperature Sensor |
| B06 | AT4 | Analogue Temperature Input 4 | | 1k Pull up to SEN_5V_B | Inlet Manifold Temperature Sensor |
| B07 | KNOCK1 | Knock Input 1 | | | Knock Sensor 1 |
| B08 | UDIG3 | Universal Digital Input 3 | | | Wheel Speed Rear Drive Sensor |
| B09 | UDIG4 | Universal Digital Input 4 | | | |
| B10 | UDIG5 | Universal Digital Input 5 | | | |
| B11 | UDIG6 | Universal Digital Input 6 | | | |
| B12 | BAT_BAK | Battery Backup | | | |
| B13 | KNOCK2 | Knock Input 2 | | | |
| B14 | UDIG7 | Universal Digital Input 7 | | | |
| B15 | SEN_0V_A | Sensor 0V A | | | |
| B16 | SEN_0V_B | Sensor 0V B | | | |
| B17 | CAN_HI | CAN Bus 1 High | | | |
| B18 | CAN_LO | CAN Bus 1 Low | | | |
| B19 | SEN_6V3 | Sensor 6.3V | | | |
| B20 | AV6 | Analogue Voltage Input 6 | | | |
| B21 | AV7 | Analogue Voltage Input 7 | | | |
| B22 | AV8 | Analogue Voltage Input 8 | | | |
| B23 | ETH_TX+ | Ethernet Transmit+ | Ethernet Green/White | | |
| B24 | ETH_TX- | Ethernet Transmit- | Ethernet Green | | |
| B25 | ETH_RX+ | Ethernet Receive+ | Ethernet Orange/White | | |
| B26 | ETH_RX- | Ethernet Receive- | Ethernet Orange | | |