

Data Gateway Installation

The following tables list the parameters which are translated from MEFI4A, MEFI4B, MoTeC, and J1939 CAN messages received from the engine ECU. Parameters translated from J1939 messages will be used in place of the MEFI4 A/B, if available. If the ECU does not transmit these J1939 messages, the parameters will be read from the MEFI4 A/B message.

Engine speed is updated more rapidly by J1939 messages than MEFI4 A/B messages allowing for a smoother tachometer signal.

The MEFI4 A/B messages transmit the raw sensor voltage for the Engine Oil Pressure and Fuel Pressure parameters. The J1939 parameter is preferred as it is transmitted in engineering units.

Translated MEFI4A Parameters

- Engine Speed
- Engine Coolant Temperature (transmitted as Engine Temp)
- Battery Potential (transmitted as Alternator Voltage)
- Engine Oil Pressure
- Engine Oil Temperature (taken from J2-26, Fuel Temperature input on MEFI4)
- Barometric Pressure (taken from MAP at 0 RPM)
- Boost Pressure (taken from MAP)
- Air Temperature (taken from MEFI4 MAT)
- Vessel Speed (transmitted as Speed, Water Referenced)
- Engine Fuel Rate
- Engine Hour Meter
- Fuel Pressure
- Engine Discrete Status flags:
 - Check Engine
 - Rev Limit Exceeded
 - Low Oil Pressure
 - Low System Voltage
 - Low Oil Level
 - General Warning 1
 - General Warning 2
 - Low Fuel Pressure
 - Emergency Stop Mode
 - Engine Over Temp

Translated MEFI4B Parameters

- Engine Speed
- Engine Coolant Temperature (transmitted as Engine Temp)
- Battery Potential (transmitted as Alternator Voltage)
- Engine Oil Pressure
- Engine Oil Temperature (taken from J2-26, Fuel Temperature input on MEFI4)
- Barometric Pressure (taken from MAP at 0 RPM)
- Boost Pressure (taken from MAP)
- Air Temperature (taken from MEFI4 MAT)
- Vessel Speed (transmitted as Speed, Water Referenced)
- Engine Fuel Rate
- Engine Hour Meter
- Fuel Pressure
- Engine Discrete Status flags:
 - Check Engine
 - Rev Limit Exceeded

Translated J1939 Parameters

- EEC1 – Electronic Engine Controller 1
 - Engine Speed
- EFL/P 1 – Engine Fluid Level / Pressure 1
 - Fuel Pressure
 - Engine Oil Pressure

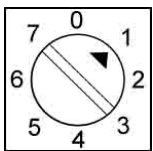
Translated MoTeC Parameters

- Engine Speed
- Boost/Manifold Pressure
- Ambient Air Temperature
- Engine Water Temperature
- Fuel Pressure
- Engine Oil Temperature
- Engine Oil Pressure
- Battery/Alternator Voltage
- Water/Ground Speed
- Fuel Used Rate

Optional MEFI5/6 and J1939 Parameters (available upon request)

- Boost/Manifold Pressure
- Engine Oil Temperature
- Engine Coolant Temperature
- Engine Coolant Pressure
- Alternator Voltage
- Engine Fuel Rate
- Engine Hours
- Engine Percent Load (Throttle Position)
- Engine Percent Torque

Selection Switch



The Selection Switch is used to select the Engine Instance when multiple engines are used as well as to select whether the engine is naturally aspirated or boosted.

For off road use with a single engine, switch positions 0, 4, or 5 would be used depending on whether the engine is boosted and whether it is desired to display the Boost as an absolute pressure or as a gauge pressure.

Switch Position Usage:

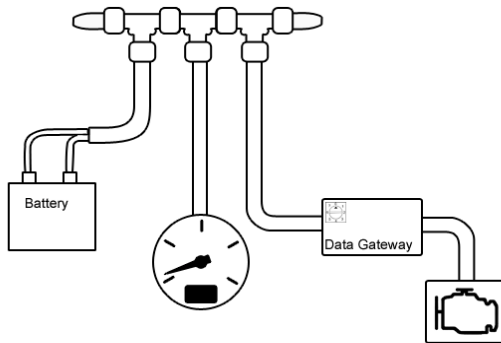
Switch Setting	Engine Instance	MAP Sensor Type	Barometric Pressure	Boost Pressure
0	0	Standard	Filtered MAP, at 0 RPM	MAP (absolute value)
1	1	Standard	Filtered MAP, at 0 RPM	MAP (absolute value)
2	2	Standard	Filtered MAP, at 0 RPM	MAP (absolute value)
3	3	Standard	Filtered MAP, at 0 RPM	MAP (absolute value)
4	0	Extended	Filtered MAP, at 0 RPM	MAP-BP (gauge value)
5	0	Extended	Filtered MAP, at 0 RPM	MAP (absolute value)
6	1	Extended	Filtered MAP, at 0 RPM	MAP-BP (gauge value)
7	1	Extended	Filtered MAP, at 0 RPM	MAP (absolute value)

MEFI 4/B Engine Connection

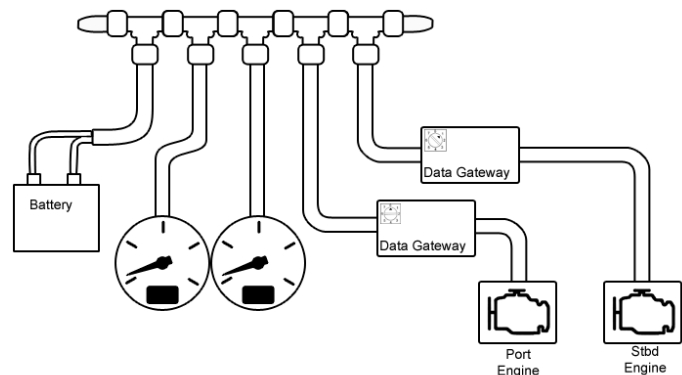
The cable between the Engine ECU and the Data Gateway must be twisted pair, with 22 AWG or heavier wire, have at least 15 twists per meter, and have a 120-Ohm terminating resistor at each end. Some ECUs (MEFI4) may have an internal terminating resistor on the CAN bus. This may allow test communications but a second terminating resistor is required at the connection to the Data Translator to stabilize the data signal. The MoTeC ECU has no internal terminating resistor on the CAN bus, so one 120-Ohm resistor should be added on the CAN bus near the ECU and one 120-Ohm resistor should be added on the CAN bus near the Gateway.

- Data Gateway Blue wire = CAN_LO (-)
- Data Gateway White wire = CAN_HI (+)
- MEFI4A/B Pin J2-9 = CAN_LO (-)
- MEFI4A/B Pin J2-24 = CAN_HI (+)
- MoTeC M800 Pin B24 = CAN_LO (-)
- MoTeC M800 Pin B23 = CAN_HI (+)

Instrument Network Connection



Single engine configuration



Twin engine configuration

NMEA 2000 Instrument networks require a 120-Ohm terminating resistor at each end of the physical bus to stabilize the data signal. No device is permitted to contain a terminating resistor. This design requires one T, or a separate connection to the Instrument backbone, for each device connected to the network.