

LEM^{G3} – Mazda ECU AdaptaLink ALMX

This adapter is designed to reduce installation effort by allowing an almost direct plug-in of a Link LEM^{G3} ECU to the following vehicles:

- Mazda MX5 1800
- Mazda MX5 1600
- Mazda Familia GTX

The adapter must be configured for each application by fitting the jumpers in the correct locations. To do this, remove one end plate from the adapter enclosure then slide out the top cover. In some cases additional modifications are required.

Disclaimer

All care has been taken to ensure the pin outs and interconnections of this ECU AdaptaLink board are correct. However due to variations between vehicle models it is the installers responsibility to check wiring connections BEFORE installing the AdaptaLink. Link ElectroSystems Ltd. will not be held responsible for any damage caused by the incorrect installation of this product.

Warning

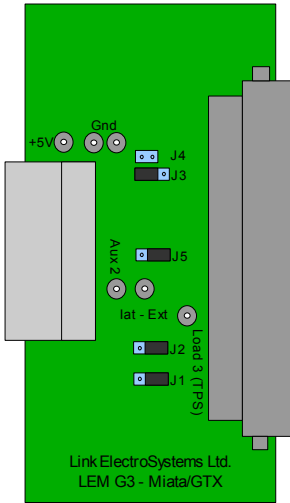
This AdaptaLink has been designed to be used with HIGH impedance (greater than 6 Ohms) injectors. Ballast resistors must be wired if low impedance injectors are to be used. Consult the ECU's Wiring and Installation manual for more information on injector wiring.

Limitations

- This AdaptaLink has been designed for use with manual transmissions only. Use of this AdaptaLink with an automatic transmission may cause unexpected transmission operation.
- As the LEM^{G3} has a limited number of inputs and outputs, not all of the sensors and actuators used by the factory ECU can be used. If a sensor/actuator is required that is not used wiring modification may be required.
- This AdaptaLink has been designed to be used with HIGH impedance (greater than 6 Ohms) injectors. Ballast resistors must be wired if low impedance injectors are to be used. Consult the ECU's Wiring and Installation manual for more information on injector wiring.

AdaptaLink Options

MX5 1600



Jumper Setting

Install the jumpers as shown to the left. Note that J4 is left unconnected.

Throttle Position Sensing

Throttle position can be used by the Link ECU for calculation of idle speed, acceleration enrichment, boost control and various other parameters. From factory, MX5 1600 models do not have a suitable Throttle Position Sensor (TPS).

To use features requiring a TPS, one will need to be fitted to the engines throttle body. Wire the TPS using the adapter boards +5V, Gnd and Load 3 (TPS) pads. Generic wiring information for throttle position sensors can be found in the LEM^{G3}'s Wiring and Installation Manual.

An Load 3 must be configured for TPS and a TPS Calibration must be performed using PCLink after installing a TPS.

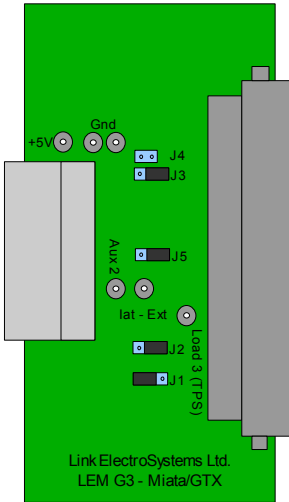
Removing the Air Flow Meter

MX5 1600 applications use a switch in the Air Flow Meter (AFM) to activate the fuel pump. If the air flow meter is to be retained then this can be left untouched. If removing the air flow meter, the fuel pump will need to be controlled by the ECU. To do so, it will be necessary to run a wire from the adapter boards Aux 2 pad to the air flow meters fuel pump terminal. Aux 2 must then be configured as 'Fuel Pump' in

PCLink.

Intake air temperature is measured using a sensor in the air flow meter. If removing the air flow meter, an intake temperature sensor must be fitted. Wire this sensor to the adapter boards IAT – Ext pad. Wire to the Gnd pad for the sensors ground terminal. J5 must be placed in the IAT-External position. Configure AN Temp 2 for your temperature sensor using PCLink.

MX5 1800



Jumper Setting

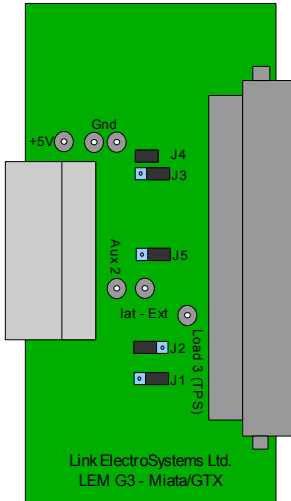
Install the jumpers as shown to the left. Note that J4 is left unconnected.

Removing the Air Flow Meter

Intake air temperature is measured using a sensor in the air flow meter. If removing the air flow meter, an intake temperature sensor must be fitted. Wire this sensor to the adapter

boards IAT – Ext pad. Wire to the Gnd pad for the sensors ground terminal. J5 must be placed in the IAT-External position. Configure AN Temp 2 for your temperature sensor using PCLink.

Familia GTX



Jumper Setting

Install the jumpers as shown to the left. Note that J4 is connected.

Removing the Air Flow Meter

Intake air temperature is measured using a sensor in the air flow meter. If removing the air flow meter, an intake temperature sensor must be fitted. Wire this sensor to the adapter boards IAT –

Ext pad. Wire to the Gnd pad for the sensors ground terminal. J5 must be placed in the IAT-External position. Configure AN Temp 2 for your temperature sensor using PCLink.

IO Connections

The following tables describe how the LEM^{G3} is connected to the engines sensors and actuators. Note that all unused I/O is available for wiring to other accessories (As all I/O is configurable using PCLink).

MX5 1600		
LEM ^{G3} Function	Sensor / Actuator	Note
Inj 1	Injectors 1 and 3	
Inj 2	Injectors 2 and 4	
Ign 1	Ignition Cylinders 1 and 3	
Ign 2	Ignition Cylinders 2 and 4	
Ign 3	Air Con. Out	
Ign 4	Check Engine Light	
Aux 1	Idle Speed Control Solenoid (ISC)	
Aux 2	N/C	Spare pad on adpater board
Aux 3	N/C	
DI 1 / Aux 4	Air Con. Request	Used as input (DI 1)
Aux 5	N/C	
Aux 6	N/C	
Aux 7	N/C	
Aux 8	N/C	
An Temp 1	Engine Coolant Temperature (ECT)	
An Temp 2	Intake Air Temperature (IAT)	Either from AFM or External IAT
An Volt 1	Oxygen Sensor	
An Volt 2	N/C	
An Load 3 (TPS)	Throttle Position	Must be wired to adapter

MX5 1800

LEM ^{G3} Function	Sensor / Actuator	Note
Inj 1	Injectors 1 and 3	
Inj 2	Injectors 2 and 4	
Ign 1	Ignition Cylinders 1 and 3	
Ign 2	Ignition Cylinders 2 and 4	
Ign 3	Air Con. Out	
Ign 4	Check Engine Light	
Aux 1	Idle Speed Control Solenoid (ISC)	
Aux 2	N/C	Spare pad on adapter board
Aux 3	Fan Relay	
DI 1 / Aux 4	Air Con. Request	Used as input (DI 1)
Aux 5	Trans Controller	Not used. Disable in PCLink.
Aux 6	Fuel Pump Relay	
Aux 7	PRC Solenoid	
Aux 8	Condensor Fan Relay	
An Temp 1	Engine Coolant Temperature (ECT)	
An Temp 2	Intake Air Temperature (IAT)	Either from AFM or External IAT
An Volt 1	Oxygen Sensor	
An Volt 2	EGR Valve Position	Not used. Disable in PCLink.
An Load 3 (TPS)	Throttle Position	

Familia GTX

LEM ^{G3} Function	Sensor / Actuator	Note
Inj 1	Injectors 1 and 3	
Inj 2	Injectors 2 and 4	
Ign 1	Ignition Cylinders 1 and 3	
Ign 2	Waste Gate Solenoid	
Ign 3	Air Con. Out	
Ign 4	Fuel Pump Relay	
Aux 1	Idle Speed Control Solenoid (ISC)	
Aux 2	N/C	Spare pad on adapter board
Aux 3	N/C	
DI 1 / Aux 4	Air Con. Request	Used as input (DI 1)
Aux 5	FP Speed Relay	
Aux 6	Pressure Regulator Solenoid	
Aux 7	Turbo Light	
Aux 8	Fan Relay	
An Temp 1	Engine Coolant Temperature (ECT)	
An Temp 2	Intake Air Temperature (IAT)	Either from AFM or External IAT
An Volt 1	Oxygen Sensor	
An Volt 2	Knock Signal from Knock Controller	For display and logging only
An Load 3 (TPS)	Throttle Position	