G4+

Link Engine Management

Toyota Altezza 3SGE 98-01

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1 Introduction

Thank you for purchasing your Link Plug-In Engine Control Unit (ECU). Link G4+ ECUs are an advanced, fully programmable microprocessor controlled Engine Management System.

The G4+ software platform boasts an impressive list of features giving a new level of user adjustment. This flexibility allows the tuner to have complete control over the engine management system. G4+ software employs high resolution fuel and ignition tables with configurable load and RPM centres. When coupled with up to six dimensional fuel and ignition mapping, barometric pressure compensation and intake air temperature correction this gives an unprecedented level of tuning accuracy. All Link G4+ ECUs are in field upgradeable, there is no need to return the unit for software updates.

All Link G4+ Plug-In Engine Management Systems are designed with flexibility and ease of installation in mind. Link Plug-In systems are designed to either replace the circuit board inside the factory ECU enclosure, or entirely replace the factory ECU. This provides an invisible install that requires minimal modification to vehicle wiring and ECU mounting.

Link Engine Management Systems are designed with the final result in mind. Not only do they boast an impressive range of performance features, but are designed with a focus on safety, reliability and drive-ability. However, the ultimate success of your engine management upgrade is determined by how well the system is installed and tuned.

Installing and tuning any after market engine management system is not to be taken lightly. G4+ ECUs give the tuner the control & flexibility that only top after-market engine management systems in the world can provide. While every effort has been made to keep G4+ ECUs as user friendly as possible, it should be recognised that added features bring added complexity.

The complete setup of your ECU can be divided into two important tasks:

1. This manual covers the installation of your G4+ ECU. While it is not strictly essential that this work is performed by an automotive electrician, the knowledge and tools available to these professionals makes it highly recommended. Regardless of who does the installation, it is of utmost importance that instructions provided in this manual are followed exactly throughout the installation.
2. Once the G4+ ECU has been installed it will need to be tuned using a laptop computer with PCLink software. Information on the configuration and tuning of the G4+ ECU is detailed in the online help section of PCLink. G4+ ECUs are shipped pre-loaded with a base configuration that should be close enough to get most engines running after a few application specific adjustments have been made. While hearing the engine running on the new ECU for the first time is always a satisfying feeling, it is important to realise that the job is not complete. The amount of tuning performed and the experience of the tuner are the two most important factors in determining how happy you will be with your engine management system.

1.1 Safety Notice

Your Link Plug-In ECU is designed to enhance the performance of your vehicle. However in all cases, your vehicle must be operated in a safe manner. Do not tune your vehicle while operating it on public roads. Obey road rules at all times.

WARNING!

Failure to follow all installation and operating instructions may result in damage to the Link ECU, personal injury, or harm to property.

1.2 Disclaimer

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

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1.3 Support Options

Should any issues arise during installation, the following options exist for technical support:

1. PCLink help, press F1 while running PCLink
2. Contact your nearest Link dealer. A Link dealer list is available on our website.
3. Link website: www.LinkECU.com
4. Technical Support Email: tech@LinkECU.com
5. Online Discussion Forum: Available from the Link website.

The majority of questions received by the technical support team are clearly answered in the manuals. To speed up your technical inquiry please consult the manuals to make sure that your question has not already been answered.

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2 Installation

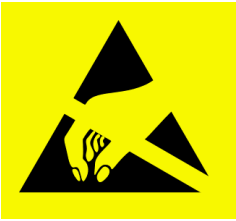
This guide provides information on correctly and safely installing your new Link G4+ Plug-In ECU.

2.1 ECU Handling Procedures

WARNING!!!

The following installation process will require handling of both the Link ECU and factory ECU. Both of these are highly sensitive to electrostatic discharge and are easily damaged. Follow the anti-static precautions given in this manual carefully to avoid damaging electronic components. Warranty claims for ECUs damaged by electrostatic discharge will NOT be accepted.

ANTI-STATIC HANDLING GUIDELINES



Your body builds up an electrical charge as you move around. This charge can reach very high voltages. Whenever given the opportunity this energy will attempt to discharge (usually through your finger tips!). This can be fatal to most electronic components. Most people have experienced an electrostatic discharge when they step out of their car or touch a metal bench top.

1. The following guidelines describe precautions that can be taken to reduce the possibility of damaging your ECU:
2. Work only on a conductive surface. A clean steel bench is suitable.
3. Always wear a wrist strap that is electrically connected to the conductive working surface.
4. Touch the working surface regularly.
5. Do NOT touch components on the circuit board.
6. Where possible, only handle the ECU by its plastic header.
7. Do NOT carry the ECU around without anti-static packaging.
8. Do NOT touch the bare terminals in the ECU header.

Observing the above procedures will minimise the chance of damaging the ECU. Note that failure due to static damage often does not appear until well after it was caused.

2.2 Fitting the ECU

Information is provided to assist in fitting the ECU into the vehicle.

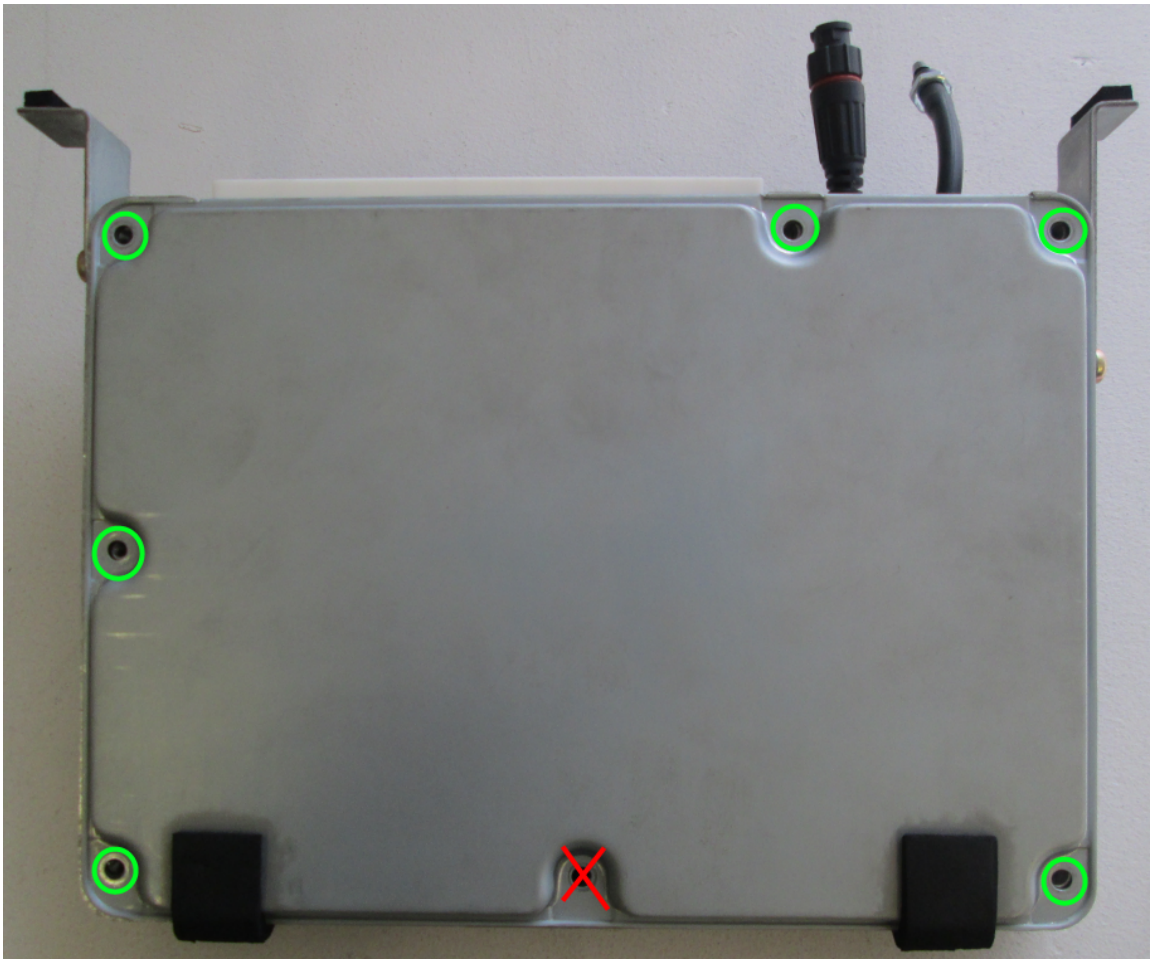
2.2.1 Fitting a Toyota Altezza SXE10 ECU

The following steps outline the installation procedure:

1. Remove the factory ECU from the vehicle: Ensure the key is in the OFF position. The factory Altezza ECU is located in the engine bay on the left side of the vehicle. Remove the plastic cover (3 x 10mm head bolts) Unplug the wiring harness from the factory ECU. Remove the nuts that retain the ECU mounting structure and remove the ECU from the vehicle. DO NOT touch the exposed pins in the factory ECU connector.
2. Remove the factory ECUs circuit board from its enclosure: Ensure you are following the given anti-static guidelines and ARE WEARING A CONDUCTIVE WRIST STRAP connected to a conductive working surface. Remove the top cover by removing the screws. Remove the circuit board by removing the

screws. Hold it only by the plastic header and place it aside.

3. Modify the case if required: It may be necessary to file three holes in the edge of the case for the tuning cable, expansion connector cable, and MAP hose to exit through. Ensure that any modifications are de-burred to prevent cutting into cable insulation.
4. Connect the ECU USB tuning cable and the expansion loom to the Link Plug-In ECU if required.
5. Fit the Link Plug-In ECU: Place the Link ECU into the case, carefully make sure the ECU is sitting flat in the case. Refit the top cover and fit the screws as shown in the image below.
6. Place the factory ECU in the packaging your Link ECU came in for protection.



7. Fit the ECU back to the vehicle.
8. Connect the ECU to the factory wiring loom.
9. Do NOT attempt to start the vehicle. Proceed to read through the remaining sections of this manual first.

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3 Additional Sensors

G4+ Plug-In ECUs offer various options for the installation of additional sensors and devices. As a minimum it is recommended that all ECUs are installed with a Manifold Absolute Pressure (MAP) sensor and Intake Air Temperature (IAT) sensor. These parts can be purchased if required from your nearest Link dealer.

3.1 MAP Sensor

It is important that the pressure source for a MAP sensor be taken from a stable pressure source after the throttle body. It is common to 'T' into the fuel pressure regulators pressure signal. Do NOT share this signal with other devices such as boost gauges or blow off valves.

3.1.1 Toyota Altezza SXE10

To ease installation the Link G4+ Toyota Altezza SXE10 ECU is fitted with an internal MAP sensor. This sensor is rated to 2.5 Bar absolute pressure. The internal MAP sensor is wired to An Volt 11.

Make sure that the correct An Volt channel has been selected as MAP sensor in PCLink and a MAP calibration has been performed before attempting to start the vehicle.

3.2 IAT Sensor

It is highly recommended that an IAT sensor be fitted in all applications to provide an input for correction of fuel and ignition based on the engines air charge temperature.

An IAT sensor should be fitted in the intake system in a location that accurately represents intake temperature. The most common location is just prior to the throttle body. Installing in the manifold is not recommended due to heat soak issues. A fast response sensor must be used in all forced induction applications.

3.2.1 Toyota Altezza SXE10

The Link G4+ Toyota Altezza SXE10 Plug-In ECU supports the following options for fitting of an IAT sensor:

1. Factory IAT Sensor – Models supported by this ECU are factory fitted with an IAT sensor. The factory IAT sensor is wired to An Temp 2 and the IAT sensor is built into the AFM (Air Flow Meter). The IAT sensor in the AFM is wired to pin A16 on the ECU, if the AFM is removed this connection can be used for an aftermarket IAT sensor.
2. IAT Through Expansion Connector - The expansion connector provides ground and An Temp 4 for the connection of an IAT sensor.

3.3 Expansion Connector

The expansion connector is provided to allow easy connection of additional ECU inputs. An “expansion cable” needs to be purchased from your Link dealer.

Important points when wiring to the expansion connector:

- Do not overload the +5V Out pin. Although this is protected against ECU damage the +5V out signal also provides power for other sensors.
- Do not connect the ground pin to chassis ground. This could cause ground loops and introduce unnecessary interference. Use this pin only to ground external sensors that are isolated from chassis ground.

3.3.1 Toyota Altezza SXE10

The following expansion connector inputs/outputs are provided:

Gnd	Sensor Ground Only

+5V Out	Low Current +5V Supply
DI 10	Digital Input for switching functions.
DI 9	Digital Input for switching functions.
An Volt 9	Analogue 0-5V input
An Volt 8	Analogue 0-5V input
An Temp 4	Temperature sensor input
Aux 8	Auxiliary output (2.0 amps maximum when driving to GND. 0.5 amps maximum when driving high.)

4 PC Tuning

G4+ ECUs require PC/laptop tuning using the PCLink Tuning Software application running on a Windows based computer. PCLink may be downloaded from www.LinkECU.com. Note that when new versions of PCLink are released they are posted on the website and may be downloaded at no cost. Also note that G4+ ECUs must be used with the correct version of PCLink.

IMPORTANT!

The G4+ ECU has on board USB.
BEFORE connecting the ECU to your laptop, the USB drivers must be installed. Failure to install the drivers on your laptop first may result in windows assigning incorrect drivers. These drivers will not work with the G4+ ECU and are difficult to uninstall. The correct USB drivers are installed as part of PCLink installation, as described in the following section. Should internet download not be practical, a copy of the drivers on CD can be obtained from your nearest Link dealer.

4.1 Installing PCLink

Due to the frequent updates PCLink is no longer shipped with each ECU. You will be required to download the latest version of PCLink from: www.LinkECU.com

Should access to an Internet connection be impractical, the latest version of PCLink can be requested from your nearest Link dealer on CD.

Installing from the web

1. Go to the above website and navigate to the downloads and software updates section.
2. Download the latest version of PCLink. When prompted to run or save the file, select save. It is recommended to save this file on the desktop.
3. Double click the saved file and follow on screen instructions.
4. When prompted to install USB drivers, select yes. This may take some time.
5. When installed, open PCLink by double clicking on the icon that has been placed on the desktop.

Installing from a CD

1. Insert the PCLink disk into you computer's CD ROM drive.
2. Open 'My Computer'
3. Double click your CD ROM drive.
4. Double click the file labelled PCLinkSetup.exe (or similar name).
5. Follow the on screen instructions.
6. When prompted to install USB drivers, select yes. This may take some time.
7. When installed, open PCLink by double clicking on the icon that has been placed on the desktop.

4.2 Communicating With Your ECU

After PCLink installation, you will be able to connect the G4+ ECU to the laptop to perform set-up and tuning work.

1. Connect the ECU to your laptop using a Link G4+ ECU USB Cable. If not supplied with the ECU, these can be purchased from a Link dealer. No other adapter or cabling is required. Connect the cable to the connector labelled USB.
2. If this is the first time you have connected a G4+ USB ECU to your laptop follow the driver installation instructions that appear. When prompted if you want to install drivers select 'Continue Anyway'.
3. Start PCLink by double clicking on the PCLink icon on the windows desktop.
4. Switch the key to the ON position. This will provide power to the ECU.
5. In PCLink, under the 'Options' menu, select 'Connection'. The connection options dialogue will open. Select the correct COM Port number from the drop down list or select auto for automatic com port detection.
6. PCLink offers both mouse and keyboard control. To establish a connection between the PC and ECU press the F3 key. The same process can be used to disconnect. If a successful connection is established, PCLink will download settings from the ECU, otherwise you will be warned that an error has occurred.

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7. Make sure the connection shows “ONLINE” in the top right corner of PCLink.
8. To permanently STORE any changes made to the ECU press F4. If this is not done before turning the ECUs power off all changes made will be lost.

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5 Pre-Start Configuration

Before starting the vehicle, important pre-start configurations need to be made.

5.1 Firmware Version

It is recommended that the Link G4+ ECU is running the most up to date firmware. Firmware version information can be obtained by connecting to the ECU with PCLink and selecting 'ECU Information' under the Help menu.

The latest firmware can be downloaded from our website with PCLink.

It is recommended that this is performed by an experienced Link dealer as new features may need to be properly configured.

The firmware can be updated by selecting 'Update Firmware' under the 'ECU Controls' menu in PCLink. Follow the on screen instructions to complete the firmware update process.

5.2 Base Configuration

All G4+ Plug-In ECUs are shipped with base configuration settings. Note that these are provided to reduce initial setup and tuning times. They are NOT recommended tuning values. PCLink includes base configurations for various models. Download the appropriate base configuration into your ECU with PCLink by connecting to the ECU (described in the Connecting To PCLink section of this manual), then selecting 'Open' under the 'File' menu. Select the appropriate .pcl file and then select 'Open'. Downloading large configuration files can take up to a few minutes. Be patient and acknowledge any messages PCLink shows.

5.3 MAP Sensor Calibration

At key on and engine not running the Manifold Absolute Pressure (MAP) Sensor should always match the Barometric Absolute Pressure (BAP) Sensor. As well as providing altitude correction, the BAP sensor also allows the MAP sensor to be calibrated prior to tuning.

Link G4+ ECUs use an on-board barometric sensor that is calibrated prior to dispatch. This ensures that all PCLink Tuning Software programs (pcl Files) give a consistent state of tune throughout the ECU range. This allows a PCL file to be transferred between G4+ based ECUs giving an equivalent state of tune providing all factors affecting volumetric efficiency are equal.

Without the ability to calibrate all the available types of MAP Sensors to the BAP Sensor there would be significant affects on the accuracy of the resulting tune, especially when tuning with Manifold Gauge Pressure (MGP) as a load index.

To calibrate the MAP sensor:

1. Connect a laptop/notebook PC to the ECU and connect to the ECU using PCLink.
2. Under the Analog Channels menu, select the An Volt channel that has been wired to the MAP sensor. Select the correct MAP Sensor Type.
3. Under the 'Options' menu, select 'MAP sensor calibration'.
4. Follow the on screen instructions.
5. Select the 'Analog Inputs' tab in the runtime values section of PCLink (lower part of the screen).
6. Compare the MAP and BAP values and ensure they have a similar reading (within 1 kPa).
7. Perform a 'Store' by pressing F4.

5.4 TPS Calibration

The Throttle Position Sensor (TPS) is used by the ECU to calculate various engine management parameters used by functions such as idle speed control,acceleration enrichment and motor sport features. It is important that the ECU knows when the throttle is open and closed (or part way in between). The following procedure calibrates the ECU to match the TPS:

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1. Connect a laptop/notebook PC to the ECU and connect to the ECU using PCLink.
2. Under the Analog Channels menu, ensure that the correct An Volt channel is set to 'TPS (Main)'. Refer to the pin functions section of this manual for details.
3. Under the 'Options' menu, select 'TPS calibration'.
4. Follow the on screen instructions.
5. Select the 'Analog Inputs' tab in the runtime values section of PCLink (lower part of the screen).
6. Ensure the Throttle Position value reads 0% when the throttle is closed and 100% when fully open.
7. Perform a 'Store' by pressing F4.

5.5 IAT Sensor Selection

This section only applies when an Intake Air Temperature (IAT) sensor has been wired and fitted to the intake system. It is important that the ECU is calibrated to match the sensor installed in the engine. This procedure is as simple as selecting the correct sensor type as follows:

1. Connect a laptop/notebook PC to the ECU and connect to the ECU using PCLink.
2. Click on 'Analogue Channel' in the configuration tree.
3. Select the An Temp channel the sensor has been wired to.
4. Ensure that channel (and only that channel) is set to 'Inlet Air Temperature'.
5. Select the correct 'Temp Sensor Type'.
6. Select the 'Analog Inputs' tab in the runtime values section of PCLink (lower part of the screen).
7. Ensure that IAT reads the correct temperature.
8. Perform a 'Store' by pressing F4.

5.6 Input and Output Setup

As the Link G4+ Plug-In ECUs are designed to run several models there are a few items that must be set-up to make the ECU specific to your model.

The Pin Functions section of this manual gives a list of the functions of each channel based on the target vehicle.

It is the tuners responsibility to make sure that the following channels are set-up correctly for the vehicle model the ECU is fitted to:

All Auxiliary Output Channels

Use the 'Test On' or 'Test PWM' (at 10 Hz) functions to test the wiring of channels.

All Digital Inputs

Look at the Digital Inputs runtime values (lower section of the PCLink screen) to confirm each channels operation.

All Analogue Volt and Temperature Inputs

Look at the Analogue Inputs runtime values (lower section of the PCLink screen) to confirm each channels operation.

5.7 Trigger Calibration

The following instructions assume that all pre-start set-up instructions given in previous sections have been completed. Only after all pre-start checks have been made should an attempt be made to crank the engine. The following steps must be performed before an attempt is made to start the engine to ensure the G4+ ECU is calibrated to precisely measure engine position.

1. Connect the ECU to PCLink.
2. Select 'Fuel', then 'Fuel Set-up':
   a. Set ‘Injection Mode’ to OFF. This will prevent the engine from trying to start while the triggers are calibrated.
   b. Perform a Store (press F4) to make sure fuelling is not re-enabled if power to the ECU is lost.

3. Click on ‘Triggers’ then ‘Calibrate Triggers’.
4. Perform the correct trigger calibration procedure specific to your vehicle as described in the PCLink online help (Press F1).

Note that trigger calibration must be performed again once the engine is running. Due to the acceleration and deceleration of the crankshaft at low speeds, an inaccurate measurement of engine timing is usually made. Also it is often harder to see timing marks with a timing light at slow engine speeds. Trigger calibration should be checked again at between 2000-4000 RPM where engine speed is stable and a more consistent timing reading can be obtained.

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6 First Time Startup

After performing all set-up instructions given in previous sections, including trigger calibration, the engine is now ready to be started. The following procedure should be used for first time start-up.

1. Turn the ignition key OFF then ON. The fuel pump should prime momentarily upon power up.
2. Connect the ECU to PCLink.
3. Access the runtimes values by pressing the F12 Key, click the 'Analog' tab:
   a. TPS – spans from 0 to 100% when throttle is pressed. If not, perform a TPS Calibration.
   b. MAP – should read approx 101 kPa (at sea level) with the engine not running. If not, check the MAP Sensor Type setting and perform a MAP Calibration.
   c. ECT – should read current engine temperature.
   d. IAT – should read current intake air temperature.
   e. Digital Inputs (click the 'Digital' tab) – Operate switches connected to any digital inputs while watching the runtime value to ensure they operate as expected.
4. Rectify any faults found in Step 3.
5. Locate the 'Master Fuel' setting. This can be found in the ECU Settings Menu under: *Fuel* > *Fuel Setup* > *Fuel Main*.
   a. This will need to be adjusted during or just after start-up.
6. Crank the engine until it starts. Some throttle may be required for first time start-up due to imperfect tuning. If necessary adjust the Master setting to enrich/lean the engine (increase to enrich).
7. If the engine fails to start after several attempts, do not crank it endlessly. Stop and determine the problem before continuing.
8. Check the Trigger Error Counter (found under the Triggers runtime values tab). If this value increases during cranking/running then there is a trigger setup fault. It is not unusual for this number to count one or two on the first engine revolution.
9. Once the engine starts, adjust the ‘Master’ (under fuel settings) setting to achieve best possible running.
10. The engine should now be allowed to fully warm up. It may be necessary to readjust ‘Master’ several times to maintain smooth running. Don’t forget to keep an eye on engine temperature.
11. Once the engine is warmed up and running well, perform another trigger calibration (known “as setting the base timing”).
12. Perform a Store by pressing F4.

6.1 Final Checks

To avoid potential engine damage and wasted time, the adjustments presented in the following sections must be made before attempting to start the engine.

For further help on any of the settings discussed below, consult the online Help in the PCLink Tuning Software. Online help can be invoked by pressing F1, or right clicking any item and selecting ‘What’s this?’.

Pre-set-up Checks

Before attempting to configure the ECU, ensure the following tasks have been completed:

1. Ensure the ECU and all associated components are connected and correctly wired/installed.
2. Fully charge the vehicle’s battery, as the engine will be required to be cranked during the set-up procedure.
3. Check all oil and water levels are correct.

Connecting to PCLink Tuning Software

Use the following procedure to establish a connection between your Link ECU and PCLink Tuning Software tuning software.

1. Make sure your laptop battery is fully charged or plugged in to mains power.
2. Connect the ECU to your laptop and connect to PCLink Tuning Software as described in the 'Communicating with your ECU' section of this manual.

6.2 Essential Tuning Adjustments

It is assumed that at this stage all set-up procedures described in previous sections have been completed and the engine is running. The following steps detail correct set-up procedures for some of the more critical ECU parameters (note that MAP Sensor Calibration should have already been completed by now):

Injector Voltage (Dead-time) Correction

There is always a delay between the injector being energised and the injector actually opening. Likewise, there is a small delay between the injector being de-energised and the injector closing. The opening time is considerably longer than the closing time, however the overall result is that less fuel will flow for a given pulse width than would be expected with an 'ideal injector'. To compensate for this the injector pulse widths are increased to compensate for this 'dead-time'. The dead-time for a given injector is a function of the battery voltage, differential fuel pressure and the type of injector driver (saturated or peak and hold). A typical dead-time at 3 Bar differential fuel pressure and 14 volts is just under 1ms (ms = millisecond = 1 thousandth of a second).

In applications with a linear 1:1 fuel pressure regulator (i.e. not a rising rate regulator), the differential fuel pressure (difference between manifold pressure and fuel pressure) will be constant. Therefore the only variable that is changing will be the battery voltage (this changes with electrical load and sometimes engine speed). Without correction, the changes in dead-time will cause the engine to run lean when the voltage drops. If the Injector Voltage Correction is properly set-up then changes in the battery voltage will not affect the air/fuel ratio.

The injector dead-time table allows the dead-time for different battery voltages to be entered. The values represent the dead-time in milliseconds. These should increase with falling system voltage.

Injector dead-time for a particular set of injectors can be determined using a flow bench or on a running engine.

To determine the injector dead-time using a flow bench, the injectors need to be operated at the intended operating pressure (normally three bar) and at a constant duty cycle as well as a set voltage. Vary the supply voltage to the injector and measure minimum pulse width at which the injectors will flow for a particular voltage. This is the required dead-time for that injector at that tested voltage.

To determine injector dead-time on a running engine, with the engine fully warmed and operating at stable air/fuel ratios (a very precise AFR meter is required – a narrow band O2 sensor will not suffice), electrical drain needs to be applied to the system; the preferred method is disconnecting the alternator main fuse. Battery load testers are also useful here too.

Watching the air fuel ratios change while the battery voltage drops, the dead-time table can be trimmed to maintain the same stable air/fuel ratio. Injector dead-time can be viewed as a row graph. A smooth curve needs to be maintained at all times.

NOTE: any change to the fuel pressure or injectors will require a recalibration of the injector dead-times.

Master

Master should be set so that the numbers in the middle of the fuel table end up around a value of 50. This is to allow sufficient span of the numbers in the main fuel table.

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7 Pin Functions

A list of pin functions is provided, this is useful when configuring your ECU through PCLink.

7.1 Toyota Altezza SXE10

	Toyota Altezza SXE10 V1.0-1.1
Auxiliary Outputs	
Aux 1	VVT solenoid - Inlet
Aux 2	VVT solenoid - Exhaust
Aux 3	Tacho Output
Aux 5	Variable Intake Control (Some models).
Aux 6	Evaporator purge.
Aux 7	E-throttle clutch
Aux 8	Expansion connector
Aux 9	E-throttle motor +
Aux 10	E-throttle motor -
Aux 11	Check Engine light
Aux - Ignition Outputs	
Aux Ign 5	Fuel pump relay
Aux Ign 6	Engine fan relay
Aux Ign 7	Air Conditioning compressor clutch
Aux - Injection Outputs	
Aux Inj 5	O2 sensor heater
Aux Inj 6	O2 sensor heater (some models only)
Analog Channels	
An Volt 1	Narrow band O2 sensor
An Volt 2	FPS (Sub)
An Volt 3	FPS (Main)
An Volt 4	Air Flow Meter
An Volt 5	TPS (Sub)
An Volt 6	TPS (Main)
An Volt 7	Narrow Band O2 sensor #2 (some models only)
An Volt 8	Expansion connector
An Volt 9	Expansion connector
An Temp 1	ECT
An Temp 2	IAT (in Air Flow Meter)
An Temp 3	Ambient Air Temp
An Temp 4	Expansion connector
Digital Inputs	
DI 1	Power Steering Switch
DI 2	VVT position sensor - Exhaust
DI 3	Vehicle Speed input
DI 4	Start signal
DI 5	Alternator Input
DI 6	Brake pedal switch

DI 7	Air Conditioning pressure switch
DI 8	Air Conditioning compressor sensor
DI 9	Expansion connector
DI 10	Expansion connector
Knock Inputs	
Knock 1	Knock sensor input

Notes: If adding a turbo setup to the 3SGE Aux 5 or 6 could be used for the wastegate control solenoid.

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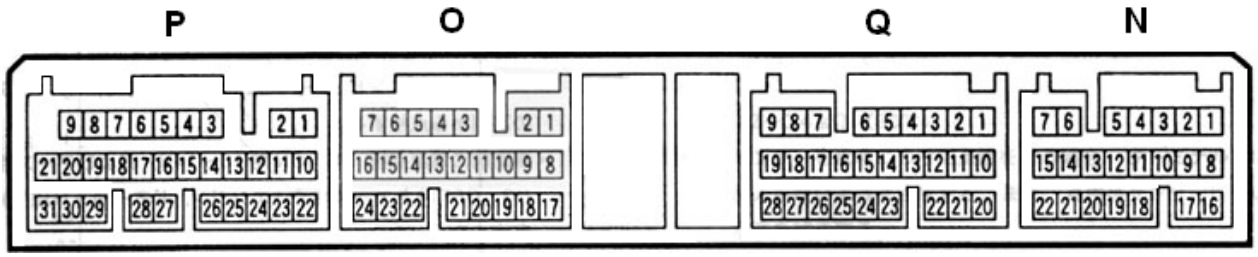
8 Pinouts

Pin information is provided to assist when troubleshooting. All pinouts are looking into the ECU (wire side).

8.1 Toyota Altezza SXE10



Pin	ECU Function	Pin	ECU Function
P1	Inj 1	Q1	Ign 7
P2	Inj 2	Q10	An Volt 7
P3	Inj 3	Q11	Inj 6
P4	Inj 4	Q14	An Temp 3
P5	Aux 5	Q19	Digital Input 3
P7	Aux 6	Q26	Aux 3
P10	Ign 1	Q27	Digital Input 6
P11	Ign 2	Q28	Digital Input 4
P12	Ign 3		
P13	Ign 4	N3	Ignition 5
P15	Digital Input 1	N4	Ignition 6
P16	An Temp 2	N6	Digital Input 7
P17	An Temp 1	N7	Aux 11
P19	Aux 10	N11	An Volt 10
P22	Digital Input 5		
P27	Knock 1		
P28	Volt 1		
P29	Aux 9		
P30	Aux 7		
O3	Inj 5		
O4	Aux 1		
O6	Aux 2		
O8	Digital Input 8		
O14	Digital Input 2		
O15	Trig 2		
O16	Trig 1		
O19	An Volt 2		
O20	An Volt 3		
O21	An Volt 4		
O22	An Volt 5		
O23	An Volt 6		

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9 Known Issues

All plug-in ECUs are fully tested on a range of relevant vehicles, although there are often variations that have not been tested. For this reason issues can arise.

WARNING: Always download the latest Installation Manual from LinkECU.com and check the latest status of known issues before installing the ECU.

Please contact your nearest Link dealer when suspecting a compatibility issue.

9.1 Toyota Altezza SXE10

Current known issues with the Link G4+ Toyota Altezza SXE10 Plug-In ECU:

- The Link G4+ Altezza SXE10 ECU does not support traction control, when the ECU is fitted to the vehicle the TRC light on the dash will flash. The only solution is to remove the bulb. It is worth noting that the vehicles ABS system will function as per normal.

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Link Engine Management

NZ
03 348 8854

Australia
07 4755 0000

USA
(949) 485 5023

For more information, contact your local Link Engine Management dealer

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