




14POINT7 SLC Free 2 Sigma Lambda Controller User Manual

[Home](#) » [14POINT7](#) » 14POINT7 SLC Free 2 Sigma Lambda Controller User Manual 



Contents

- 1 SLC Free 2 Manual
 - 1.1 Warning
 - 1.2 Package Contents
 - 1.3 Component Soldering
 - 1.4 Cable Construction
 - 1.4.1 4 Pin Molex Pinout
 - 1.4.2 6 Pin Molex Pinout
 - 1.5 Sensor Exhaust Installation
- 2 Documents / Resources
- 3 Related Posts

SLC Free 2 Manual

Warning

- Do not connect or disconnect the Lambda Sensor while SLC Free 2 is powered, only do so when SLC Free 2 is unpowered.
- The Lambda Sensor gets very hot during normal operation, be careful when handling it.

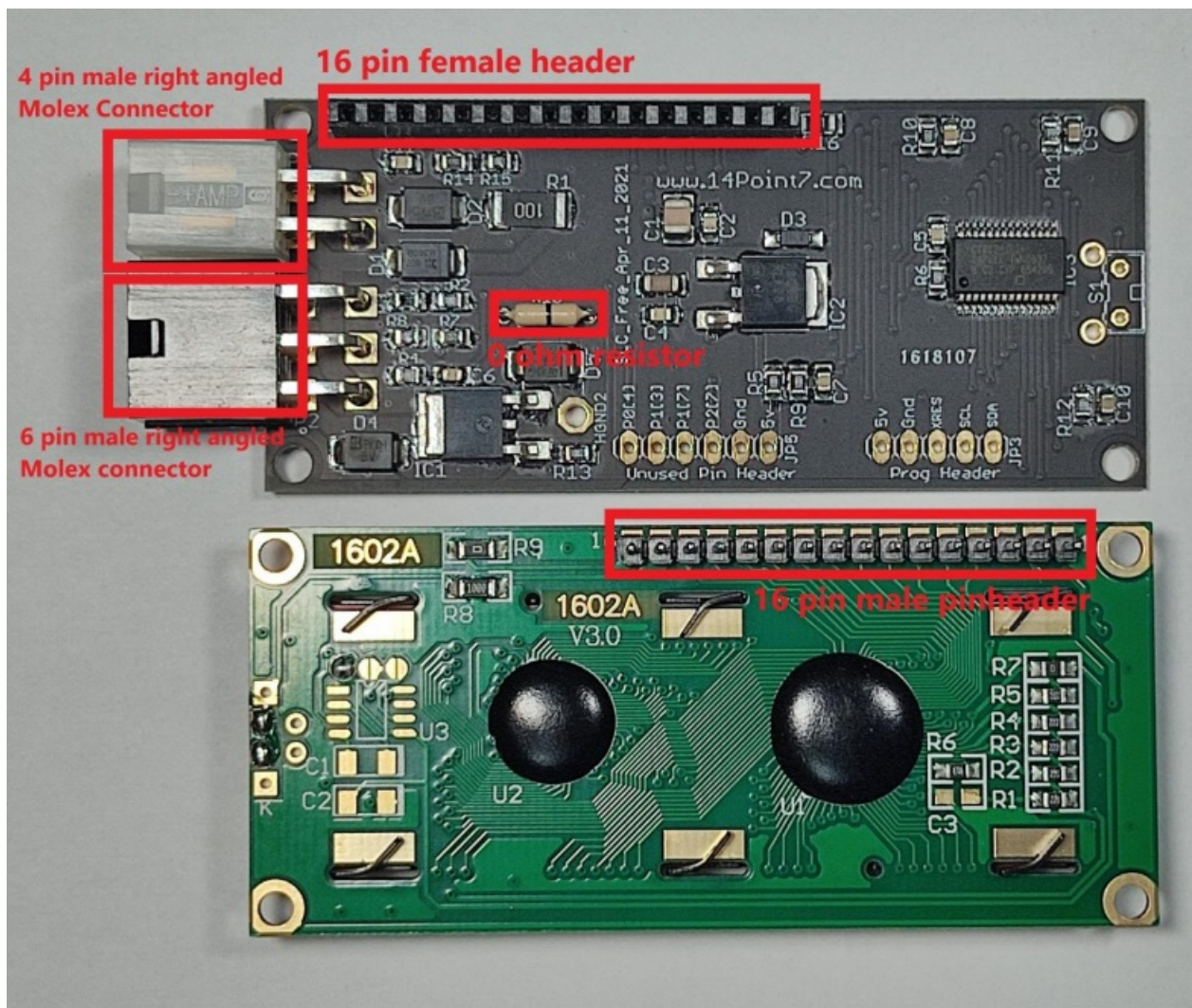
- It takes roughly 30 seconds to 1 minute for SLC Free 2 to warm up the sensor. Once the sensor is warmed up an engine start could move condensation to the sensor, this may cause thermal shock and damage the sensor. It is best to power SLC Free 2 off a power source that is “live” when the engine starts, the fuel pump relay is typically the best place for 12v power.
- While the Lambda Sensor is in an active exhaust stream, it must be controlled by SLC Free 2. Carbon from an active exhaust can easily build up on an unpowered sensor and ruin it.
- Lambda sensor life when used with leaded fuels is between 100-500 hrs. The higher the metal content the shorter the life of the Lambda sensor.

Package Contents

Your SLC Free 2 should include the following Items:

- 1x SLC Free 2 circuit board with soldered surface mount components
- 1x 3d printed case and cap
- 1x character LCD screen
- 1x 0 ohm resistor (needed for newer version of SLC Free with black and gold pcb)
- 1x 16 pin male pinheader
- 1x 16 pin female pinheader
- 1x 6 pin male right angled Molex connector
- 1x 4 pin male right angled Molex connector
- 1x 6 pin Female Molex receptacle
- 1x 4 pin Female Molex receptacle
- 10x contacts for Molex receptacle
- 2x 5 Amp fuses
- 1x fuse holder
- 1x LSU 4.9 receptacle **(black)**
- 1x gasket for LSU 4.9 receptacle **(Orange)**
- 6x contacts for LSU 4.9 receptacle
- 6x grommets for LSU 4.9 receptacle **(Grey)**
- 1x locking tab for LSU 4.9 receptacle **(Purple)**

Component Soldering



Solder the 5 components highlighted in red to the circuit boards. Older versions of SLC Free 2 with green PCB does not require R18 (0 ohm resistor) to be soldered.

Cable Construction



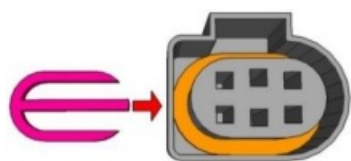
4 Pin Molex Pinout

Molex Pin #	Name	Connects to	Note
1	12v	12v	Use 5A Fuse
2	Ground	Ground	Ground where Linear Output interfacing device is grounded
3	Linear Output	Gauge, ECU, data logger	0.68 Lambda @ 0v linear to 1.36 Lambda @ 5v
4	Simulated Narrowband Output	Stock ECU	Switch Point @ 1 Lambda



6 Pin Molex Pinout

Molex Pin #	Connects to Pin # LSU 4.9 Receptacle	Note
1	3	Pin# marked on LSU connector
2	2	Pin# marked on LSU connector
3	5	Pin# marked on LSU connector
4	4	Pin# marked on LSU connector
5	6	Pin# marked on LSU connector
6	1	Pin# marked on LSU connector



Once Contacts are loaded into the LSU 4.9 Receptacle, insert the orange gasket and then insert the purple locking tab

Sensor Exhaust Installation



- The Lambda Sensor should be installed between the 10 o'clock and the 2 o'clock position, less than 60 degrees from vertical, this will allow gravity to remove water condensation from the sensor.
- For all Oxygen sensor installations the sensor must be installed before the catalytic converter.

For normally aspirated engines the sensor should be installed about 2ft from the engine exhaust port. For Turbocharged engines the sensor should be installed about 3ft from the engine exhaust port after the

turbocharger. For Supercharged engines the sensor should be installed 3ft from the engine exhaust port. Installing the sensor too close to the engine exhaust port may overheat the sensor, installing the sensor too far from the exhaust port may leave the sensor too cool, both will cause damage to the sensor and lead to wrong measurements.

SLC Free 2 LCD

The top row of the LCD displays Lambda, the range is 0.68 to 1.36 Lambda.

The bottom row of the LCD displays Lambda sensor temperature. The normal operating temperature of the Bosch LSU 4.9 is 780[C]. Lambda Accuracy is heavily dependent on sensor temperature, only when the sensor is at proper temperature is Lambda accurate, +/- 25C from normal operating temperatures is considered acceptable. If the Lambda sensor is too cool; readings will tend to look “leaner”, if the sensor is too hot; readings will tend to look “richer”. If you notice that the Lambda sensor is consistently too hot, then it is a good idea to move the sensor location farther from the engine exhaust port. If you notice that the Lambda sensor is consistently too cool, then it is a good idea to move the sensor location closer to the engine exhaust port. When SLC Free 2 is initially powered on, it will go through a sensor heatup routine to gently bring the Lambda sensor to proper temperature, this takes approximately 1 minute. It is normal during the heatup routine for the sensor temperature to exceed the normal operating temperature of 780[C], the temperature should quickly drop to normal operating temperature once the heatup routine is over.

Warranty


14Point7 provides no warranty for SLC Free 2.

Disclaimer

14Point7 is liable for damages only up to the purchase price of its products. 14Point7 products should not be used on public roads.

SLC Free 2 Manual, Release date: Aug 3 2021

Documents / Resources

	<p>14POINT7 SLC Free 2 Sigma Lambda Controller [pdf] User Manual SLC Free 2, Sigma Lambda Controller, SLC Free 2 Sigma Lambda Controller</p>
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