L120 - ENCLOSED LOGGER

The L120 Enclosed Logger is a versatile, multipurpose device that can be used in a range of applications depending on which options are enabled. The device is compact and robust, and can be upgraded with increased levels of functionality, in the field, at any time.

NOTE: An L120 Enclosed Logger with USB Logging is also available. (Part #18045)

▶ L120 USES

D Series Display Controller

– **No options required**

An L120 can be used as a controller for any MoTeC D series display. It can forward all of the channels required by the driver to the D153 or D175, including lap timing, CAN and RS232 channels and much more.

CAN and RS232 Logger

– **Requires optional 120 MB Logging upgrade (29619)**

By enabling just the logging upgrade, the L120 can be used to log any channels from the two CAN buses and the RS232 bus.

With only power, CAN and RS232 connections, it is a simple, user-friendly logging solution.

Fully Featured Logger

– **Requires optional I/O upgrade (29601) and 120 MB Logging upgrade (29619)**

With the Input/Output (I/O) and Logging upgrades activated, the L120 can log data from any CAN and RS232 bus, as well as inputs wired directly to the box. In this form, the L120 is a powerful logger that can be placed anywhere in the vehicle, ensuring weight and wiring is kept to a minimum.

T2 Telemetry Box

– **Requires optional T2 Telemetry (29624)**

With the T2 option enabled, the L120 can be used as a Telemetry box that receives information from other CAN devices, such as ECUs and Display Loggers. It converts this data to a T2 Telemetry stream and transmits it via radio to the corresponding T2 system in the pits.

A T2 Telemetry box is particularly useful if there is no MoTeC Colour Display in the vehicle to perform this task.

CAN Bus Bridge

– **No options required**

Without any upgrades, the L120 can be used as a bridging device to pass messages from one CAN bus to another. This is very useful for sharing information when the two CAN busses are incompatible, such as having different bus speeds.

▶ FEATURES

- Suitable for bikes, cars, marine and industrial applications
- USB Logging
- 120 MB internal logging memory
- GPS Lap Timing
- Supports Wideband Lambda from MoTeC PLMs or LTCs
- Easily integrates with MoTeC CAN based devices, such as ECUs and expanders.
- Full Input/Output (I/O) expansion with E888 and E816

▶ ACCESSORIES

- 62206: L120 LOOM

▶ OPTIONAL UPGRADES

- 29601: L120 I/O
- 29621: L120 PRO ANALYSIS
- 29624: L120 T2 TELEMETRY

▶ SPECIFICATIONS

Logging – optional (requires Logging upgrade)

- 120 MB internal logging memory
- Logging rates up to 500 samples per second
- i2 Standard data analysis software included (Pro Analysis upgrade available)

Inputs

- 2 x Digital and 3 x Speed inputs

Inputs - optional (requires I/O upgrade)

- 6 x Analogue voltage inputs
- 4 x 0 to 5.46 V, 1.33 mV resolution
- 2 x 0 to 15.0 V, 3.66 mV resolution
- 2 x Analogue temperature inputs
- 0 to 15 V, 3.66 mV resolution

Outputs - optional (requires I/O upgrade)

- 4 x low side outputs PWM or switched operation
- 0.5 Amp max, current limited, thermal overload protected

Expanders

- The L120 is fully compatible with E816 and E888 expanders.

Internal Sensors

- 3-axis accelerometer, detection range: +/- 5G
- Dash temperature sensor
- Sensor supply voltage
- Battery voltage

Communications

- 2 x configurable CAN buses, with individually programmable CAN bus speeds. One can be used as RS232 Receive.
- 2 x RS232 ports, one with transmit and receive, one with receive only.

Power Supply

- Operating voltage: 6 to 32 V DC
- Operating current: 0.4 A typical at 14 V (excluding sensor currents)
- Reverse battery protection
- Battery transient protection

Sensor Supply Currents

- 5 V sensor supply: 0.25 A maximum
- 8 V sensor supply: 0.25 A maximum

Operating Temperature

- Internal: -20°C to 80°C
- Typical ambient temperature range (free air): -20°C to 65°C

Ingress Protection (IP) Rating

- IP67 dust tight, protected against water immersion (up to 30 minute submersion to depth of at least 15 cm)

> ⇨ IP rating is dependent upon the user ensuring that the connector entries are waterproof, which, as a minimum, requires all unused wire cavitites on the connector to be plugged.

Physical

- Size: 134.5 x 103.9 x 20.2 mm excluding connectors
- Weight 310 g
- 1 x 34 pin waterproof connector

▶ COMPATIBILITY

- MoTeC ECUs: All models (some earlier models may require an additional adaptor in conjunction with the RS232 adaptor).
- MoTeC Accessories: VIM, SVIM, E816, E888, SLM, PLM, LTC, BR2, PDM, GPS, VCS etc.
- Many non-MoTeC devices

▶ SOFTWARE

Windows-based Manager software for device setup and management of the data logging system, providing:

- Configuration of the inputs, outputs, data logging and calculations
- Offline generation of a configuration file that can then be sent to the device.
- Channel monitoring
- Firmware updating and extensive help screens
- i2 Data Analysis software (Standard or optional Pro) provides the tools for comprehensive data analysis.

▶ ETHERNET WIRING

Ethernet Connector		MoTeC Loom Colour	C125	
Pin	Function		Pin	Function
1	Ethernet TX +	Orange/White	11	Ethernet RX +
2	Ethernet TX -	Orange	10	Ethernet RX -
3	Ethernet RX +	Green/White	2	Ethernet TX +
6	Ethernet RX -	Green	1	Ethernet TX -

⇨ The wiring specified is the preferred cross-over configuration. However, the wiring can also be configured as straight-through. Cat 5 Ethernet cable must be used.
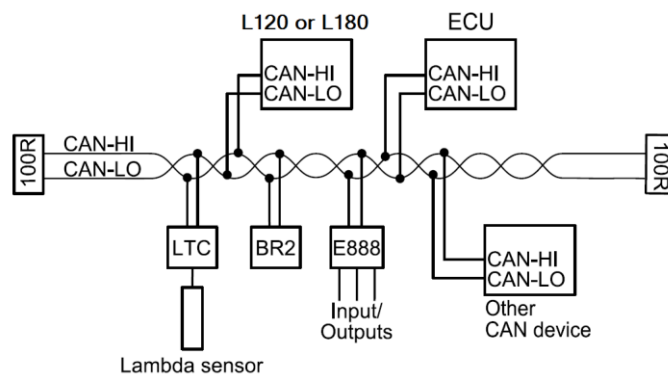
Pin Numbering

PLUG   SOCKET
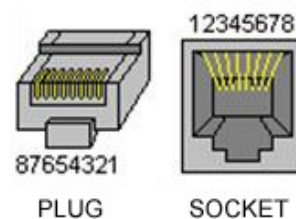
▶ ECU WIRING

When using an M4, M48 or M8 ECU, the L180 should be connected via RS232. For some ECUs, a PCI cable may also be required.
The Display Logger should be connected via the CAN bus when using an M1 or 'Hundred Series' ECU (M400/M600/M800/M880) or M84, and any number of other CAN devices.
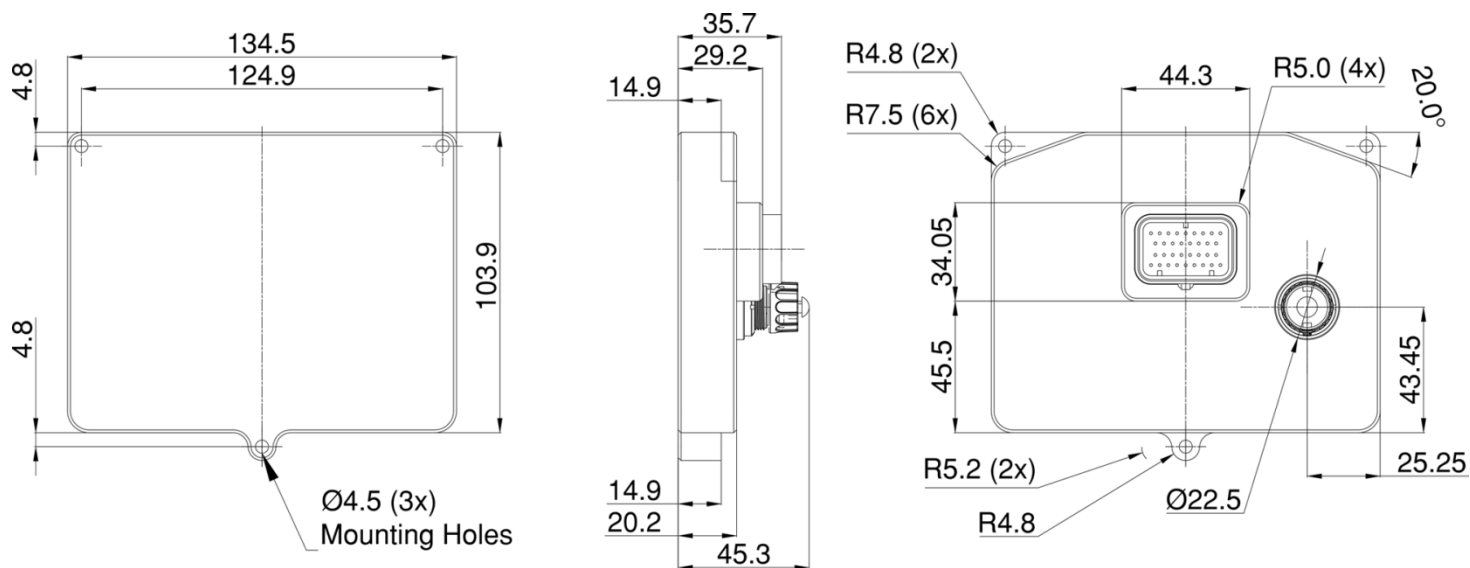
Example:

Detailed wiring information is available in the user manual at www.motec.com/downloads.

▶ DIMENSIONS AND MOUNTING

Measurements in mm.

⇨ **Note:** Do not remove any part of the casing. The case provides electromagnetic screening to avoid interference with other equipment, and is also essential for thermal management. Thermal management may be compromised if mounted in a confined space, refer to the operating specifications.

Ensure product is not stressed when mounted.

▶ PINOUT

Mating Connector: Part number 65044

Pin	Name	Standard Function	Optional Function (12 I/O upgrade #29500)
1	E-TX-	Ethernet Transmit -	
2	E-TX+	Ethernet Transmit +	
3	AV1		Analogue Voltage Input 1
4	AV2		Analogue Voltage Input 2
5	AV3		Analogue Voltage Input 3
6	AV4		Analogue Voltage Input 4
7	8 V	Sensor 8 V	
8	5 V	Sensor 5 V	
9	0 V	Sensor 0 V	
10	E-RX-	Ethernet Receive -	
11	E-RX+	Ethernet Receive +	
12	AV5		Analogue Voltage Input 5
13	AV6		Analogue Voltage Input 6
14	DIG1	Digital Input 1	
15	DIG2	Digital Input 2	
16	AT1		Analogue Temp Input 1
17	AT2		Analogue Temp Input 2
18	CAN1L	CAN1 Low	
19	CAN1H	CAN1 High	
20	RS232-1 TX	RS232-1 Transmit Output	
21	SPD1	Speed Input 1	
22	SPD2	Speed Input 2	
23	SPD3	Speed Input 3	
24	Not used	Not used	
25	RS232-2 RX	RS232-2 Receive Input	
26	CAN2L	CAN2 Low/RS232 Ground Input	
27	CAN2H	CAN2 High/RS232 Receive Input	
28	RS232-1 RX	RS232-1 Receive Input	
29	AUX1		Auxiliary Output 1
30	AUX2		Auxiliary Output 2
31	AUX3		Auxiliary Output 3
32	AUX4		Auxiliary Output 4
33	BAT+	Battery Positive	
34	BAT-	Battery Negative	