Loggers

MoTeC L1 Series Enclosed Loggers

M L120

The L120 Enclosed Logger is a multipurpose device that can be used in a range of applications depending upon which options are enabled.

USES

D Series Display Controller

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

Fully Featured Logger (with optional upgrades 29601 and 29619)

With the I/O and logging upgrades, the L120 can log any CAN and RS232 bus, as well as inputs wired directly to the box. This powerful logger can be placed anywhere in the vehicle, ensuring that the weight can be kept low and wiring to a minimum.

CAN and RS232 Logger (with optional upgrade 29619)

With the logging upgrade only, the L120 can be placed anywhere in the vehicle, and used to log any channels from both of the L120 CAN busses, as well as the RS232 bus. With only Power, CAN and RS232 connections, this is a simple to use enclosed logger.

T2 Telemetry Box (with optional upgrade 29621)

Using the L120 as a T2 box (optional upgrade) incorporates MoTeC's T2 telemetry system when you don't have a MoTeC colour display in the vehicle. The L120 with the T2 upgrade can receive messages from most other CAN units (such as non MoTeC ECUs and data loggers), convert it to a T2 data stream and transmit it out to the Radio for the pit side T2 system.

Can Bus Bridge

When the L120 is used without any upgrades, it can be used as a device that can take messages from one bus and pass it onto another. This is very useful where a vehicle has information that needs sharing, but the two CAN busses are incompatible, such as different bus speeds.

FEATURES

Suitable for bikes, cars, marine and industrial applications
Supports Wideband Lambda from MoTeC PLMs or LTCs
Easily integrates with MoTeC CAN based products such as ECUs and expanders. Full I/O expansion available with use of E888, E816 expanders.

- GPS Lap Timing
- Supports T2 Telemetry

Web	Item Number	Description
	M L120	ENCLOSED LOGGER

COMPATIBILITY

MoTeC ECUs: M4*, M48*, M8*, M84, M400, M600, M800, M880, M1
MoTeC Accessories: E816, E888, SLM, PLM, LTC, BR2, PDM, GPS, VCS etc.
Many non-MoTeC devices
** For some ECUs, an additional cable/adaptor may be required in conjunction with the RS232 adaptor.*

Logging - optional (requires logging upgrade)

120 MB logging memory
Logging rates up to 500 samples per second
Fast Ethernet download
Includes i2 Standard data analysis software (Pro Analysis upgrade available)
Inputs
2 Digital and 3 Speed inputs
Inputs -optional (requires I/O upgrade)
6 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 analogue temperature inputs
0 to 15 V, 3.66 mV resolution
Outputs - optional (requires I/O upgrade)
4 low side outputs PWM or switched operation
0.5 Amp max, current limited and thermal overload protected

Expanders

Compatible with E816 and E888 expanders (providing full functional use)

Internal Sensors

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

Communications

2 configurable CAN buses, with individually programmable CAN bus speeds.
One can be used as RS232 Receive.
2 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 in free air: -20 °C to 65 °C

Physical

Size: 134.5 x 103.9 x 20.2 mm excluding connector and tab
Weight 289 g
1 x 34 pin waterproof connector

MoTeC L1 Series Enclosed Loggers

M L120 USB

The L120 (USB) Enclosed Logger is a multipurpose device that can be used in a range of applications depending upon which options are enabled.

USES

D Series Display Controller
Any L120 (USB) can be used as a controller for any MoTeC D series display. The L120 (USB) can forward all of the channels required for the driver to the D153 or D175 , including lap timing, CAN and RS232 channels and much more.

Fully Featured Logger (with optional upgrades 29601)
With the I/O and logging upgrades, the L120 (USB) can log any CAN and RS232 bus, as well as inputs wired directly to the box. This powerful logger can be placed anywhere in the vehicle, ensuring that the weight can be kept low and wiring to a minimum.

CAN and RS232 Logger
The L120 (USB) can be placed anywhere in the vehicle, and used to log any channels from both of the L120 (USB) CAN busses, as well as the RS232 bus. With only Power, CAN and RS232 connections, this is a simple to use enclosed logger.

T2 Telemetry Box
Using the L120 (USB) as a T2 box (optional upgrade) incorporates MoTeC's T2 telemetry system when you don't have a MoTeC colour display in the vehicle. The L120 (USB) with the T2 upgrade can receive messages from most other CAN units (such as non MoTeC ECUs and data loggers), convert it to a T2 data stream and transmit it out to the Radio for the pit side T2 system.

Can Bus Bridge
When the L120 (USB) is used without any upgrades, it can be used as a device that can take messages from one bus and pass it onto another. This is very useful where a vehicle has information that needs sharing, but the two CAN busses are incompatible, such as different bus speeds.

FEATURES
Suitable for bikes, cars, marine and industrial applications
Supports Wideband Lambda from MoTeC PLMs or LTCs
Easily integrates with MoTeC CAN based products such as ECUs and expanders. Full I/O expansion available with use of E888, E816 expanders.
GPS Lap Timing
Supports T2 Telemetry

Web	Item Number	Description
	M L120 USB	ENCLOSED LOGGER

COMPATIBILITY

MoTeC ECUs: M4*, M48*, M8*, M84, M400, M600, M800, M880, M1
MoTeC Accessories: E816, E888, SLM, PLM, LTC, BR2, PDM, GPS, VCS etc.
Many non-MoTeC devices
** For some ECUs, an additional cable/adaptor may be required in conjunction with the RS232 adaptor.*

Logging
120 MB logging memory + USB logging
Logging rates up to 500 samples per second
Fast Ethernet download
Includes i2 Standard data analysis software (Pro Analysis upgrade available)

Inputs
2 Digital and 3 Speed inputs
Inputs -optional (requires I/O upgrade)
6 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 analogue temperature inputs
0 to 15 V, 3.66 mV resolution

Outputs - optional (requires I/O upgrade)
4 low side outputs PWM or switched operation
0.5 Amp max, current limited and thermal overload protected

Expanders
Compatible with E816 and E888 expanders (providing full functional use)

Internal Sensors
3-axis accelerometer, detection range: +/-5G
Temperature sensor
Sensor supply voltage
Battery voltage

Communications
2 configurable CAN buses, with individually programmable CAN bus speeds.
One can be used as RS232 Receive.
2 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 in free air: -20 °C to 65 °C

Physical
Size: 134.5 x 103.9 x 20.2 mm excluding connector and tab
Weight 289 g
1 x 34 pin waterproof connector

MoTeC L1 Series Enclosed Loggers

M L180 USB

The L180 Enclosed Logger is a powerful control device and fully programmable data logger with 250 MB memory. USB logging is optional and increases the internal memory to 500 MB.
It acquires data from devices such as an ECU can be used in a range of applications.

Features

Suitable for bikes, cars, marine and industrial applications
Can be used as a controller for any MoTeC D series display, forwarding all required channels to the display, including lap timing, CAN and RS232 channels and much more.

Can be placed anywhere in the vehicle and log any CAN and RS232 bus, as well as inputs wired directly to the box. The T2 Telemetry optional upgrade adds the T2 Telemetry system into the vehicle. The L180 with the T2 upgrade can receive messages from most other CAN units (such as non MoTeC ECUs and data loggers), convert it to a T2 data stream and transmit it out to the radio for the pit side T2 system.
Supports Wideband Lambda from MoTeC PLMs or LTCs
Easily integrates with MoTeC CAN based products such as ECUs and expanders. Full I/O expansion available with use of E888, E816, VIM and SVIM expanders.
GPS Lap Timing
Tell Tales
Diagnostic Logging
Preserved Channels
Running Min/Max, Timers, PID Control, Engine Log.

Logging
250 MB logging memory (500 MB + USB optional)
Logging rates up to 1000 samples per second
Fast Ethernet download
Includes i2 Standard data analysis software (Pro Analysis upgrade available)

Inputs
10 (20 with I/O upgrade*) analogue voltage inputs:
4 (8*) x 0 to 5.46 V, 1.33 mV resolution 6 (12*) x 0 to 15.0 V, 3.66 mV resolution
2 x 0 to 15.0 V, 3.66 mV resolution
4 (8 with I/O upgrade) analogue temperature inputs
0 to 15 V, 3.66 mV resolution
4 Digital inputs
2 Switch inputs
4 Speed inputs

Outputs
6 low side outputs PWM or switched operation
1.0 Amp max, current limited and thermal overload protected

Expanders
Compatible with E816 and E888 expanders (providing full functional use), VIM & SVIM

Internal Sensors
3-axis accelerometer, detection range: +/-5G
Temperature sensor
Sensor supply voltage
Battery voltage

Communications
4 configurable CAN buses, with individually programmable CAN bus speeds. One can be used as RS232 Receive. Only 2 of the CAN buses support VIM/SVIM Expanders.
2 dedicated RS232 ports

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 in free air: -20 °C to 65 °C

Physical
Size: 134.5 x 103.9 x 20.2 mm excluding connector
Weight 343 g
1 x 79 pin Autosport connector

Accessories

62206 – C185 LOOM

Optional Upgrades

29715 – L180 500MB + USB LOGGING
29702 – L180 44 I/O
10 extra analogue voltage inputs (AV11 to AV20, see pinout)
4 extra analogue temperature inputs (AT5 to AT8, see pinout)
29721 – L180 PRO ANALYSIS
29724 – L180 T2 TELEMETRY (2nd generation Telemetry)
29706 – L180 ADVANCED FUNCTIONS

Advanced Functions provides:

Advanced Maths
Channel Maths
16 x 2D Tables (instead of 4)
16 x 3D Tables (instead of 4)
50 User Conditions (instead of 20)

Web	Item Number	Description
	M L180 USB	ENCLOSED LOGGER

Advanced Central Logger (ACL)

The Advanced Central Logger (ACL) is a highly configurable data acquisition and communications tool that is well suited to professional teams who place serious demands on their data equipment. With 1 GB of logging memory it forms the heart of MoTeC's Central Logging System, which also includes multiple VIMs Versatile Input Modules for high resolution sensor inputs.
The ACL performs data logging, data communication and sophisticated calculations, acquiring data from other MoTeC devices such as an ECU, Dash Logger and up to eight VIMs, which enable it to log more than 200 inputs. It provides all the advanced features of the ADL3, including warning alarms, fuel prediction, engine logs, timers, tables, user conditions and telemetry. For maximum flexibility the ACL connects to any MoTeC display.
MoTeC's Central Logging System follows a modular concept, employing separate dedicated devices for inputs, and logging, thereby allowing customers to tailor a solution to their application. The system is simple to set up as most connected devices are configured and upgraded from one software application.
The ACL comes as standard with Pro Analysis enabled, allowing unrestricted use of MoTeC's professional level i2 Pro data analysis software.

Web	Item Number	Description
	M ACL	ADVANCED CENTRAL LOGGER

ACL Upgrades

Several options are available as upgrades to customise and grow your system. These additional features are activated through a simple password system, at any time when you need it.

For the ACL data logger the following upgrades are available:

Telemetry
Enables transmission of live data from the vehicle to the pit where it can be viewed in real time using the MoTeC Telemetry Monitor software. Requires radio modems or other means of transmission.

Remote Logging
Enables converting telemetry data into a log file to use with i2 analysis software. Requires the Telemetry upgrade.

Display
ACL data can be displayed via a MoTeC display such as SDL or MDD

Communications
2 x CAN with individually programmable CAN bus speeds
1 x RS232
1 x RS485 which can also read data from RS232 devices

Physical
Dimensions 154 x 128 x 28 mm (excluding connector)
Weight 460 grams
1 x 5 pin and 1 x 22 pin Autosport connector

Logging
1 GB logging memory
Very fast download via Ethernet
Very fast logging rates up to 5000 samples/second
Combined logging rates greater than 20 MB/minute

Inputs
Data is read into the ACL via one or more input devices. These can include VIMs, E888, E816, SDL, PLM, ECU and GPS

Outputs
Outputs can be controlled by the ACL when connected to an output device such as an E888, E816 or SDL

Data Logger Chart

KEY:
table tick - standard available
table cross - not available
option - requires optional upgrade

Display					
Type	*Reflective Mono LCD*	*No display*	*Ultra Bright Color* *No display on L120(USB)*	*Ultra Bright Color* *No display on L180*	*No display*
Backlight	*table tick*	*No display*	*table tick* *table cross on L120(USB)*	*table tick* *table cross on L180*	*No display*
Display modes	*3*	*No display*	*3* *More with Display Creator* *table cross on L120(USB)*	*3* *More with Display Creator* *table cross on L180*	*No display*
Supports Display Creator	*table cross*	*table cross*	*Optional* *table cross on L120(USB)*	*Optional* *table cross on L180*	*table cross*
Data acquisition and telemetry					
Data Logging memory	*8 MB*	*120 MB* *(Optional)*	*L1 120 MB (Optional)* *L2 USB (Optional)* *table tick L2 included on L120(USB)*	*250 MB* *500 MB + USB* *(Optional)*	*1 GB*
Logging rate	*1 - 500Hz*	*1 - 500Hz*	*1 - 500Hz*	*1 - 1000Hz*	*1 - 5000Hz*
Analysis using i2 Standard	*Optional*	*Optional*	*Optional*	*Optional*	*table tick*
Analysis using i2 Pro	*Optional*	*Optional*	*Optional*	*Optional*	*table tick*
T2 Telemetry	*table cross*	*Optional*	*Optional*	*Optional*	*Optional*
Inputs					
Analogue voltage	*4*	*6 (Optional)*	*6 (Optional)*	*10* *20 (Optional)*	*via VIM, SDL, E888, E816*
Analogue temperature	*2*	*2 (Optional)*	*2 (Optional)*	*4* *8 (Optional)*	*via SDL*
Digital	*2*	*2 (Optional)*	*2 (Optional)*	*4*	*via VIM, SDL, E888, E816*
Speed	*3*	*3 (Optional)*	*3 (Optional)*	*4*	*via VIM, SDL*
Switch	*table cross*	*table cross*	*table cross*	*2*	*via SDL, E888, E816*
Wideband Lambda	*via PLM or LTC*	*via PLM or LTC*	*via PLM or LTC*	*via PLM or LTC*	*via PLM or LTC*
Expansion units	*E888* *(8 thermocouples only)*	*E888/816* *(full functionality)*	*E888/816* *(full functionality)*	*E888/E816* *SVIM/VIM*	*up to 8 x VIM and 2 x E888/816*
Outputs					
Digital, Switched, PWM	*4*	*4*	*4*	*6*	*via E888, E816*
Expansion units	*table cross*	*1 or 2 x E888/816*	*1 or 2 x E888/816*	*1 or 2 x E888/816* *1 or 2 x VIM/SVIM*	*1 or 2 x E888/816*
Communications					
CAN	*2*	*2*	*2*	*4*	*2*
RS232	*table tick*				
RS422, RS485	*table cross*	*table cross*	*table cross*	*table cross*	*table tick*
PC Connection					
Ethernet	*table tick*	*table tick*	*table tick*	*table tick*	*table tick*
	CDL3	**L120**	**C125/127/1212** **L120(USB)**	**C185/187/1812** **L180**	**ACL**