



USER MANUAL

Ecumaster Data Logger EDL-1

Document version: 2.8

Firmware version: 1.27 or later

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1. Device description

The data logger module is designed to work with **EMU Classic** and **EMU Black** using serial communication and allows saving data streams on an SDHC card.

**Note:**

This device is NOT compatible with EMU PRO. EMU PRO uses a different logging system and logs data directly to a USB drive.

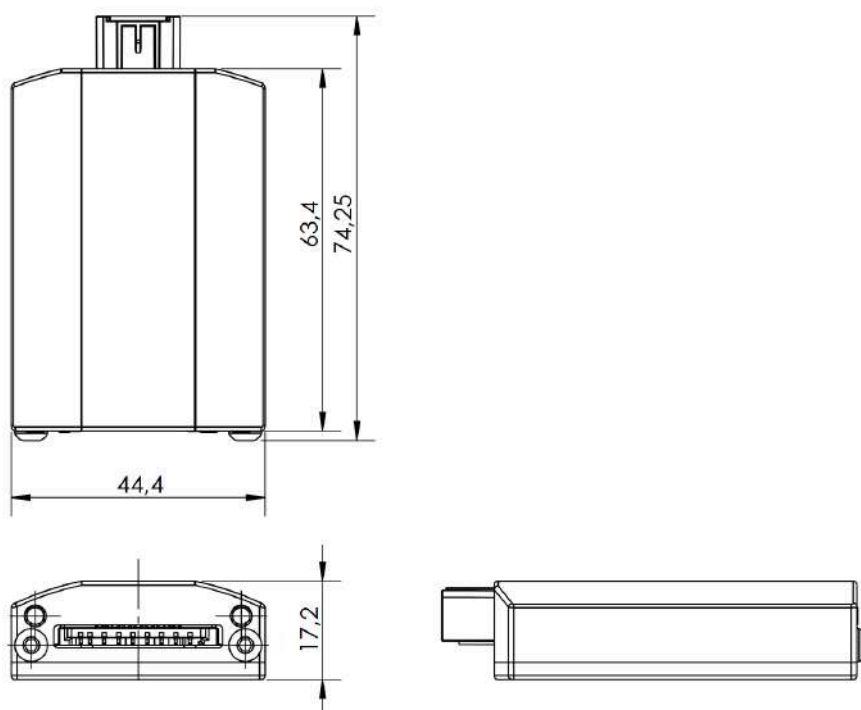
When using EMU Classic and EMU Black, all channels available when logging to a PC are also recorded by the EDL-1 device. Additionally, the EDL-1 features a Bluetooth module, enabling live data streaming to Android devices.

An SDHC card of 4 GB or larger should be used (logging time is approximately 11 hours per 1 GB). The file format is FAT32.

2. Specification

Specification	
Dimensions	64 x 45 x 18 mm
Weight	50 g
Connector	Molex 34793-0040
Status indicator	2 LEDs
Temperature range	-40 to +85 °C
Operating supply voltage	5-20 V
SDHC memory cards format	FAT32
Supported SDHC memory card size	Maximum 32 GB, 4GB recommended
Bluetooth communication	Yes, live data transmission
Real-time clock	Yes, battery powered

All dimensions in mm



3. Installation

The EDL-1 device requires power in the range of 5-20V and a connection to the serial outputs of EMU Classic or EMU Black.

The EDL-1 can be powered with a +12V supply and chassis ground or with 5V supply and sensor ground of the ECU as in the following examples.



Important:

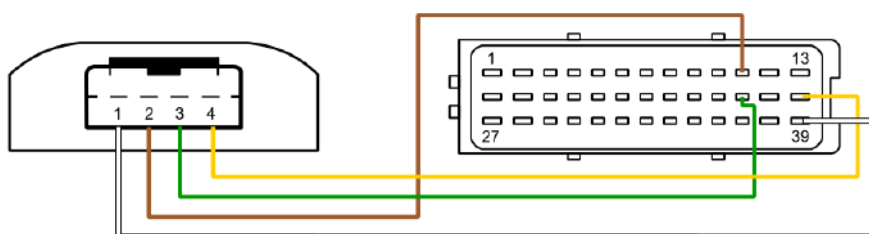
A shielded cable should be used for the RXD and TXD signals.

Pinout

	1 Ground
	2 RXD
	3 TXD
	4 Power supply

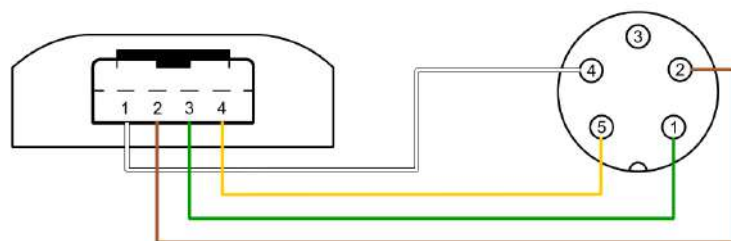
Connection to EMU Black

EDL-1	EMU Black
1 Ground	B39 Sensor Ground
2 RXD	B11 RS232 TXD
3 TXD	B24 RS232 RXD
4 Power supply	B26 +5V supply



Connection to EMU Classic

EDL-1	EMU Classic
1 Ground	4 Ground
2 RXD	2 TXD
3 TXD	1 RXD
4 Power supply	5 +5V supply



4. Data logging

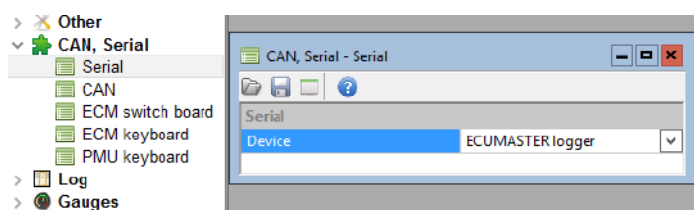
The EDL-1 creates a new log file each time it is power cycled or the ECU is power cycled. In other words, both the ECU and the EDL-1 must be powered on in order to start logging. It organizes these logs by creating folders for each date, which contain the logs for that specific day. This method provides a convenient way to access logged data without needing to carry a laptop.

The SD card is the only method available for transferring logged data from the EDL-1 to a PC; (alternative connection methods, such as direct PC connection or Bluetooth, are not supported for data transfer.)

To save data on the SD card, the Ecumaster logger data stream must be selected in the EMU Classic or EMU Black ECU.

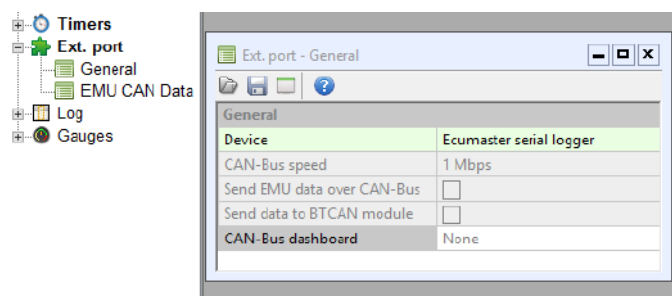
EMU Black

In **CAN, Serial/Serial**, for **Device** set ***Ecumaster logger***



EMU Classic

In **Configuration/Ext. port**, for **Device** set ***Ecumaster serial logger***



To open a log file, use the **Graph log** window and load the log via the **Open log** icon, as you would with a normal log file. In EMU Classic and EMU Black V2, it is also possible to import logs via the **Files/Import log/Ecumaster log** function.

For logging, an SDHC card of 4 GB or larger should be used. The file format must be FAT32. The logging time per 1 GB varies depending on the version of the EMU:

- **EMU Classic:** 40 hours per 1 GB
- **EMU Black V2:** 35 hours per 1 GB
- **EMU Black V3:** 20 hours per 1 GB

For more informations about the SD cards, go to [Appendix A - EDL-1 Supported SD Cards \(on page 10\)](#)

5. LED status

LED	Description
	Red LED flashing fast – bootloader mode Red LED double flash - SDHC card error
	Orange LED on – no SDHC card inserted
	Blue LED on – date and time set
	Green LED on – SDHC card inside, device ready to work Green LED flashing fast – saving to SDHC card
	Blue LED off – no communication with BT module Blue LED on – communication with BT module Blue LED flashing – waiting for pairing / BT communication error

6. Firmware upgrade

When a new version of firmware is released, the device firmware can be upgraded. The latest firmware is available on <https://www.ecumaster.com/products/data-logger-dl-1/>.

1. Copy the `firmware.bin` file to the root directory of an SDHC card.
2. Insert the SDHC card into the EDL-1.
3. The firmware upgrade will start automatically.
4. During the upgrade, the LED will flash.
5. When the upgrade is complete, the LED will turn solid green.
6. Turn off the power to the EDL-1.
7. Remove the SD card and connect it to your PC.
8. Delete the `EDL-INFO.TXT` file from the SD card.
9. Insert the SD card back into the EDL-1.
10. Turn the power to the EDL-1 back on.

The firmware upgrade is now complete and the device is ready to use.

7. Time and date setup

The EDL-1 device has a built-in real-time clock and a backup battery to maintain the time and date when the main power is off.

To set a new time and date, the device must be connected to the EMU Classic or EMU Black and powered on. In the EMU Client application's **Tools** menu, select the **Set datalogger time** function. The current system date from the PC will be set (the status LED will blink blue).

8. Bluetooth support

The EDL-1 is equipped with a built-in Bluetooth module. The ECUMaster mobile application is currently in beta phase. The application is available for both **iOS and Android devices** and allows you to create custom dashboards tailored to your vehicle setup. To learn more, see <https://www.ecumaster.com/products/edash/>.

When used with EMU Black V3 or EMU Classic V3 firmware, the application also supports two-way communication with the ECU, allowing both monitoring and configuration changes directly from your mobile device.



EDL-1 devices manufactured in 2026 are guaranteed to support both Bluetooth SPP and BLE. This means they work with both Android (SPP + BLE) and iOS (BLE).

Older EDL-1 devices may also support both protocols, but this is not guaranteed.

If you are unsure, the best way to verify it is to test the device with an Android 11+ phone or tablet. Install the eDash application on your Android device (<https://www.ecumaster.com/products/edash/>). On the *Available Devices* screen, you can try connecting using both BLE and SPP. If your device appears and connects via BLE, it supports iOS as well.

9. Document history

Version	Date	Changes
Preliminary	2016.11.08	Initial release
2.0	2024.10.14	Document layout changed to the Ecumaster standard format The text has been refined and improved for better readability and clarity
2.1	2024.11.14	Added information about one-way communication in Device description chapter Added clarification on power supply in Installation chapter Added details on log file creation and data transfer method in Data logging chapter
2.2	2025.04.01	Updated the <i>Data logging</i> section with information on log import for EMU Black V3
2.3	2025.06.09	The connection description for EMU Black and EMU Classic includes both RX and TX lines
2.4	2025.08.01	Added <i>Appendix A - EDL-1 Supported SD Cards</i>
2.5	2026.03.30	Updated wire colors in the schematics in the <i>Installation</i> chapter
2.6	2026.05.12	Updated firmware upgrade procedure description
2.7	2026.06.15	Bluetooth support - description of eDash application Added information about 'EDL-INFO.TXT' file to firmware upgrade section
2.8	2026.07.22	Added information about Bluetooth protocol support

10. Appendix A - EDL-1 Supported SD Cards

10.1. Description

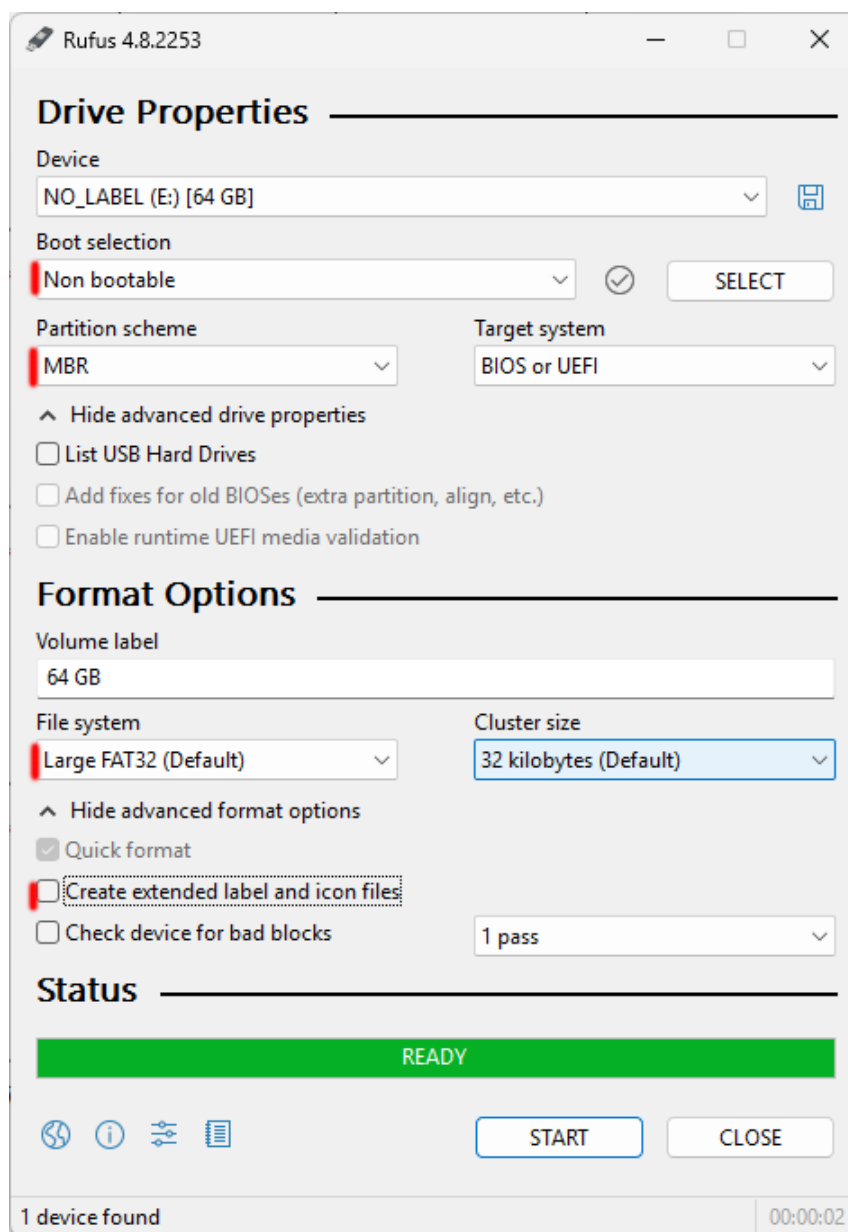


Important:

If your SD card has a capacity larger than 32 GB, you must reformat it to the **FAT32** file system. You can do this using free tools such as Rufus (<https://rufus.ie/>).

How to format your card with Rufus:

Set Rufus to format the SD card as FAT32, which is required for compatibility with the EDL-1 device.



Test Results Overview

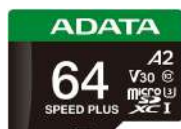
All SD card tests were performed using EDL firmware version 1.21.

Based on our tests:

- Lexar cards do not work with EDL-1
- One ADATA card model also failed
- We recommend choosing a card rated as having **Excellent** performance.

This list does not include all compatible cards — it only reflects the ones we tested.

ADATA

Card	Size	Requires formatting	Performance	Picture
HC I Class 10	32GB	No	Excellent	
XC I Class 10	64 GB	Yes	Excellent	
XC I Class 10	128 GB	Yes	Very good	
Speed plus	64 GB	Yes	Doesn't work	
High endurance	64 GB	Yes	Very good	

KIOXIA

Card	Size	Requires formatting	Performance	Picture
Exceria	32 GB	No	Excellent	
Exceria	64 GB	Yes	Excellent	

SAMSUNG

Card	Size	Requires formatting	Performance	Picture
PRO Endurance	32 GB	No	Very good	
PRO Endurance	64 GB	Yes	Very good	
EVO Plus	64 GB	Yes	Excellent	
EVO Plus	64 GB	Yes	Very good	
EVO Plus A2	128 GB	Yes	Very good	
EVO Plus For Creators	64 GB	Yes	Very good	
Pro ultimate	64 GB	Yes	Excellent	

SANDISK

Card	Size	Requires formatting	Performance	Picture
Ultra A1	32 GB	No	Excellent	
Ultra A1	64 GB	Yes	Excellent	

Card	Size	Requires formatting	Performance	Picture
Ultra	32 GB	No	Very good	
Ultra	64 GB	Yes	Very good	
Max endurance	32 GB	No	Excellent	
High endurance	32 GB	No	Excellent	
High endurance	128 GB	Yes	Excellent	
High endurance	128 GB	Yes	Excellent	
Nintendo Switch	128 GB	Yes	Excellent	
Extreme A1	32 GB	No	Very good	
Extreme A2	64 GB	Yes	Excellent	
Extreme A2	128 GB	Yes	Excellent	
Extreme Pro A1	32 GB	No	Excellent	
Extreme Pro A2	64 GB	Yes	Excellent	

Card	Size	Requires formatting	Performance	Picture
Extreme	32 GB	No	Excellent	
Extreme Pro	32 GB	No	Excellent	
SDHC	32 GB	No	Excellent	
Ultra SDXC	64 GB	Yes	Very good	
Ultra SDHC	32 GB	No	Excellent	
Ultra SDHC	32 GB	No	Excellent	
Ultra SDXC	64 GB	Yes	Excellent	

KINGSTON

Card	Size	Requires formatting	Performance	Picture
CANVAS Go! Plus SDCG4	64 GB	Yes	Very good	
High Endurance SDCE	32 GB	No	Very good	
CANVAS Select Plus SDCS2	64 GB	Yes	Excellent	
CANVAS Select Plus SDCS2	32 GB	No	Excellent	
CANVAS Select Plus	64 GB	Yes	Excellent	

LEXAR

Card	Size	Requires formatting	Performance	Picture
Silver Plus	64 GB	Yes	Doesn't work	
633x	32 GB	No	Doesn't work	
633x	64 GB	Yes	Doesn't work	
Silver Plus	64GB	No	Doesn't work	

Other

Card	Size	Requires formatting	Performance	Picture
HAMA	16 GB	No	Excellent	
Patriot LX series	16 GB	No	Very good	
Patriot LX series	32 GB	No	Very good	
Goodram CLASS 10 UHS-1	128GB	Yes	Excellent	
Goodram CLASS 10 UHS-1	256GB	Yes	Very good	
GOODRAM Industrial MLC	4 GB	No	Very good	