ECUMASTER DL1
Logger and Bluetooth transciver

User manual
Preliminary version

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General information

Data logger module allows to save data stream on SDHC card using serial communication, designed to work with EMU and EMU BLACK using serial communication. All channels available when logging to PC are also recorded by ECUMASTER DL1 device.
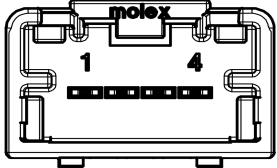
Additionally device is equipped with Bluetooth module allowing for one way communication with Dashboard application working on Android based devices.

SDHC card 4GB or bigger should be used (logging time is about 11 hour per 1GB). File format is FAT32.

Logger installation

DL1 device required power in range 5-20V and connection to serial outputs of EMU or EMU BLACK.
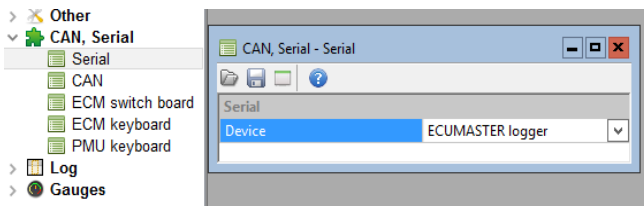
Important: Shielded cable should be used for RXD and TXD signals.

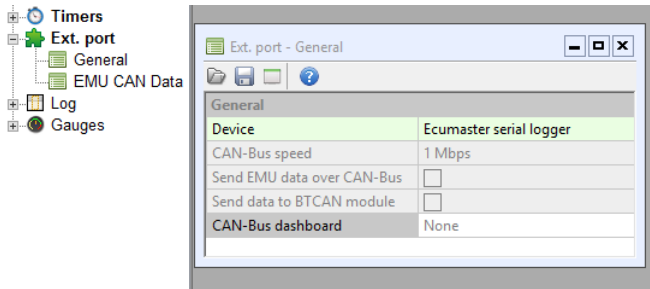|	
	1 Ground
	2 RXD
	3 TXD
	4 Power supply (5-20V)

Data logging

To save data on SD card *ECUMASTER logger* data stream must be selected in EMU / EMU BLACK ECU.

EMU BLACK

CAN, Serial / Serial / Device / ECUMASTER logger

EMU CLASIC

Configuration → Ext. port / Device / ECUMASTER serial logger

Logger LED Diagnosis

	Red LED flashing fast – boot loader 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 – incomming is saving
	Blue LED off – no communication with BT module **Blue LED** on – communication with BT module **Blue LED** flashing – communication error

Upgrading Logger firmware

When new version of firmware is released, device firmware could be upgraded.
To upgrade firmware, unpack and save *firmware.bin* file on SDHC card in the root directory and insert card into the slot. Software upgrade will start automatically. During upgrading procedure LED will flash.

Time and date set up

DL1 device has built in real time clock and backup battery to keep time and date when the main power is off.
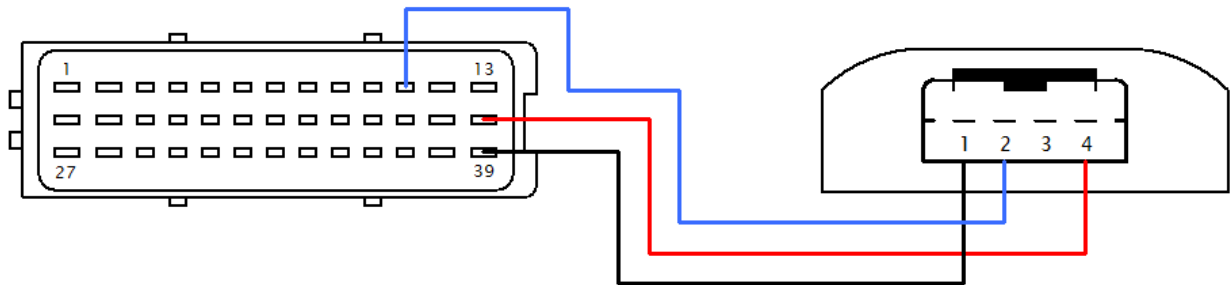To setup new time and date, device needs to be connected to EMU / EMU BLACK and powered. In menu Tools in EMU client application select **Set datalogger time** function. The current PC system date will be set (status diode will blink blue).
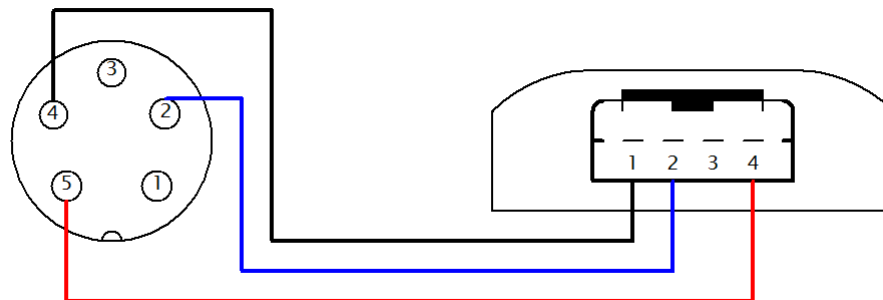
Importing data to PC client

To import logged data, use option **Files/Import log/ Ecumaster log** function.
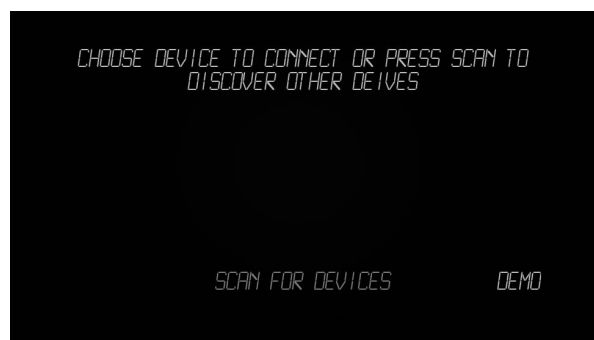
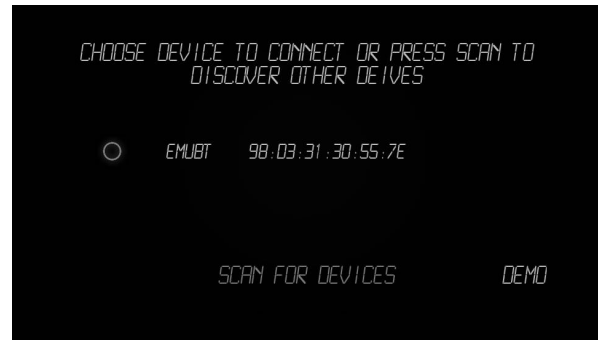## Wiring diagrams

EMU BLACK

EMU CLASIC

ECUMASTER Dashboard application installation and settings

Dashboard application could be downloaded from Google Play store.

When the application is started the list of available EMU BT devices will appear. If there is no available devices, press scan for devices.

After several seconds a list of available Bluetooth devices should appear.
If *EMULOGGER* device will not appear on the list, check connection between EMU ECU and Bluetooth module and LED status.

When the communication will be established password will be required to continue connection. Type password: 1234 and press OK button.
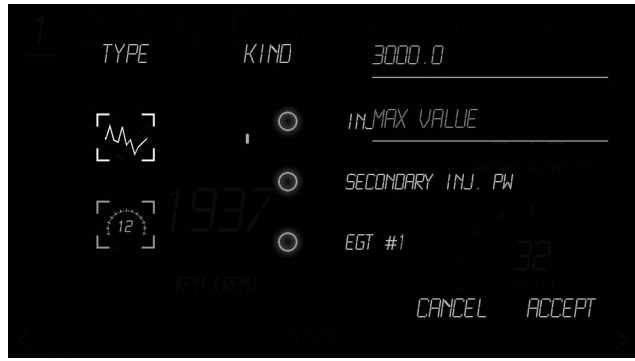
Dashboard navigation

Allows to navigate between six different full customized desktops (**1**). Each desktop can display up to 6 parameters of the engine in three different types of gauges (analog, digital, graph). It is possible to set different alarm values to each gauge. Application also inform about sensors failures, engine knocking (**2**).

Option menu (**3**) allows to change display color (blue, amber), display mode (three or six channels on desktop), units(metric, imperial).

Gauge submenu is open when gauge is touched and hold for 1 second. Different type of gauge layout can be selected, also channel type (RPM, MAP, CLT ...etc), it's maximal and alarm values.

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