



Data Recorder for Racing Purposes

Installation / User Manual 1.0

General Features:

- **CAN interface**
- **Records on a MicroSD card with FAT32 file system**
- **8 analogous sensor inputs**
- **GPS receiver to record the coordinates, date and time**
- **3 axis accelerometer**
- **Backup battery**



The ASMoto DataLogger is a prime solution for logging data from different units of the car. Records on a MicroSD card, which later can be read out in a PC and data can be displayed with a software, capable of analyzing files with .csv extension, e.g.: MegaLogViewer.

It contains an in-built GPS receiver, which just after connecting an antenna, it ready to record GPS coordinates and time, which can be a great help during later analyses.

Further it contains an integrated triple-axis accelerometer, clock and calendar module. A backup battery provides power for all these.

Besides of logging data arriving through CAN bus from ECU, DashBoard and other units there is possibility to connect sensors on 8 analogous inputs.

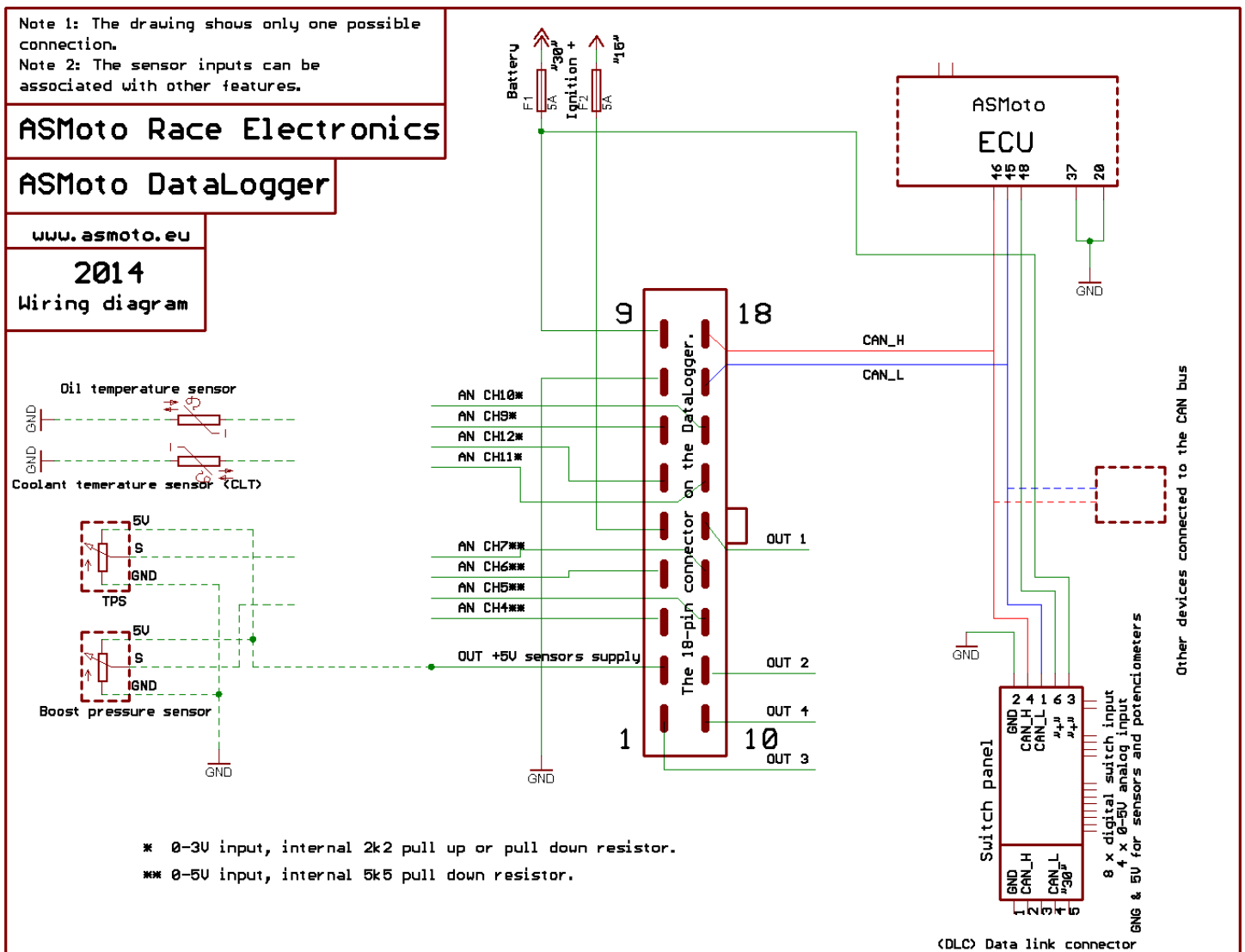
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2. Technical details:

Electrical:	Min.:	Norm.:	Max.:	Unit:
Supply voltage:	8	14	20	V
Standby power: (without sensors, in case of 12V)	2	120	200	mA
Load on supply output of + 5V „2 pin” sensors	-	-	50	mA
Mechanical:	Min.:	Norm.:	Max.:	Unit:
Width:		55		mm
Length: (without connector)		116		mm
Height:		33		mm
Mass:			200	g
Usage conditions:	Min.:	Norm.:	Max.:	Unit:
Operational temperature:	-30	-	70	°C
Storage temperature:	-40	-	90	°C

3. Circuit diagram:



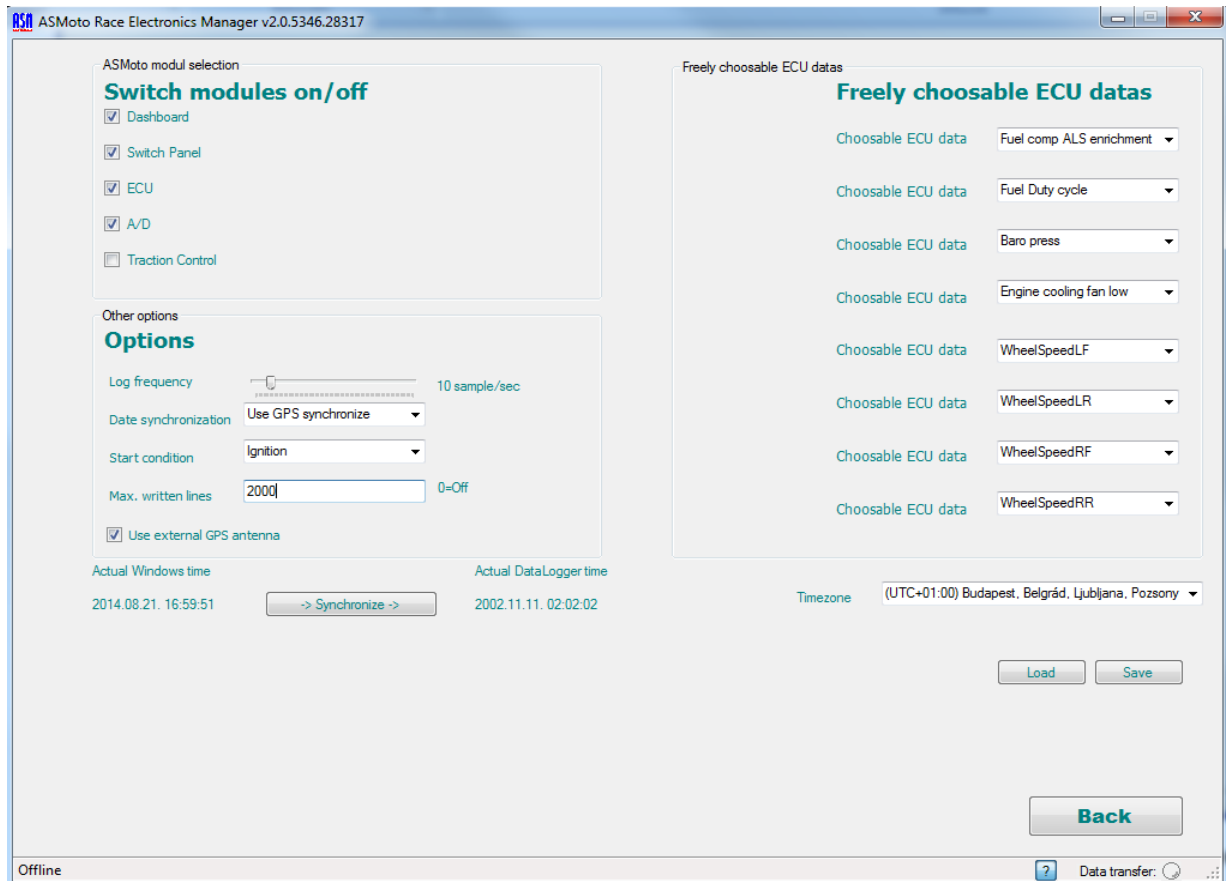
Picture no. 3.10

(A bigger resolution, printable version of the picture can be found on the website www.asmoto.eu under menu item titled "Download".)

4. Operation:

4.1. AREM DataLogger:

DataLogger operation setup can be found in *setup.properties* saved on the MicroSD card. In case on startup it cannot find a file such named on the card one will be created with default settings. We can also create such a file, or we can open it and change it with the AREM /ASMoto Race Electronics Manager/.



ASMoto modul selection:

We can toggle logging of data from various modules by removing the tickmarks from the tickboxes.

Other options:

Log frequency:

Frequency of data logging can be selected. Recommended value is 10 samples / second.

Date synchronization:

Chooseable, whether the date/time setting is automatically done, in case of GPS signal reception is possible.

Start condition:

Triggering condition for logging to start can be selected. E.g.: With selecting "Ignition" it will result continuous logging during ignition is switched on. In case of selecting "RPM_ECU // Vehicle_speed" logging will be started if RPM and speed are both bigger than 0. The process is signaled by slow blinking of LOG LED. 5 seconds after the triggering condition is not met already, the logging will be stopped.

Max. written lines:

The maximum number of samples in 1 file. After this new file will be created by the DataLogger with incremented number in the name of the file.

Use external GPS antenna:

Usage of external GPS antenna. Always use external antenna to ensure safe reception.

Freely choosable ECU data:

Besides of logging data automatically sent by ECU, it is also possible to request 8 more channels from the ECU.

We can set DataLogger's internal clock based on the PC's clock with the *Synchronise* button.

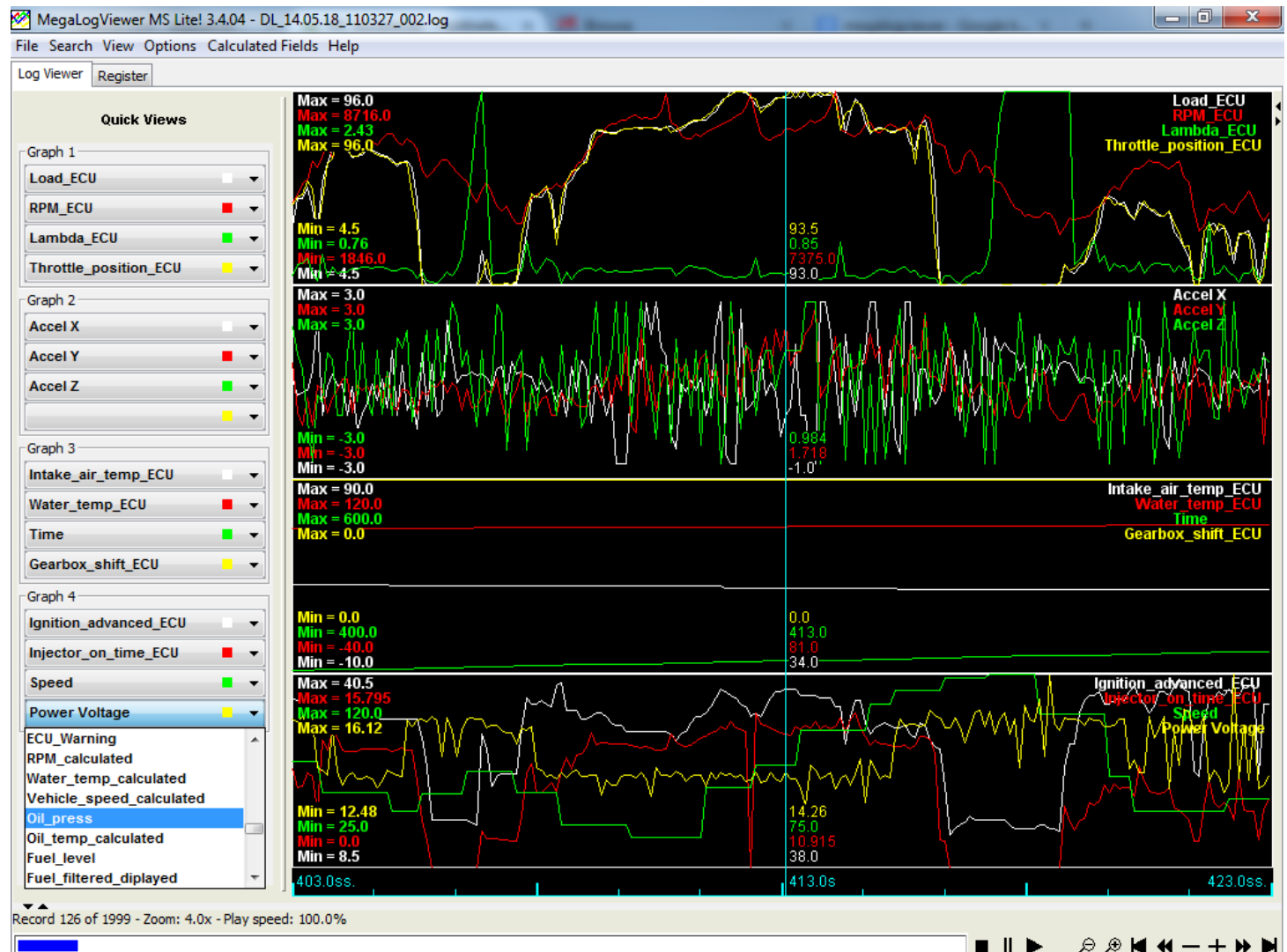
If GPS synchronized time turned on, UTC time is modified according to the current time zone.

4.2. Log files:

DataLogger employs the following naming convention when creating and saving files to the MicroSD card: *DL_year.month.day_timeMinuteSecond_ordinalnumber.log*. E.g.: *DL_14.05.17_093306_001.log* = 2014 Maj. 17. 09:33.06
Time always indicates the starting of logging. From this point if we are logging without interruption the time of newly created files will be the same, just the ordinal number will increase at the end of the filename. The ordinal number starts with 000.

After naming the extension *.log* to *.csv* the file can be opened in Excel and GPS coordinates from the *Coords* column can be copied to Google Maps.

Any software can be used for graphic display of data that is capable of interpreting semicolon delimited structured text files, such as MegaLogViewer that can be downloaded from <http://www.efianalytics.com/MegaLogViewer>.



4.3. LEDs:

On the DataLogger the green Power LED indicates the switched on state. While this is lit up do not disrupt electrical power source coming from the vehicle. The slow blinking of the red LOG LED indicates that data recording is taking place. During this do not remove the MicroSD card as the files on it might become unreadable. Fast blinking of the red LED indicates that the card is missing or it could not be properly initialized. In such cases try to remove it, put it back in again, if this still does not help install it by formatting to FAT32 file system.

4.4. Backup battery:

A CR2032 battery supports power for the calendar and clock modules of the DataLogger while the vehicle is parked with electric circuits powered off. In case the car is parked powered off for a longer time (for several weeks) remove the jumper marked *JMP* thus disrupting the circuit of the battery. Before switching on power put it back and set the time and date with the help of AREM or let it synchronize in case there is GPS signal coverage.

To change the battery 4 screws and the cover has to be removed.

5. Installation:

5.1. The DataLogger should be installed to a horizontal place with the *Forward* arrow on it pointing to traveling direction. (Connector to the front, SD card slot looking backwards) Pay attention to this in order to help the accelerometer work properly. Also make sure the install the DataLogger such way that the SD card can be easily replaceable. Recommended place is the part of driveshaft tunnel in front of shift gear.

5.2. It is recommended to connect an external antenna to the DataLogger which is connecting to the unit with an SMB connector.



5.3. An optional accessory mount is available to order, which enables easier installation and removal, besides protecting the DataLogger from heat and vibration.

Further information: www.asmoto.eu / info@asmoto.eu

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In case of you find any grammatical, stylistically, professional, logical or other type of mistakes in current manual or in case we did not phrase something unambiguously please notify us at the info@asmoto.eu e-mail address.

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