DL2 - Industrial Data Logger

- Updated for 2019 -

- **Potentially 1000s of channels of data**
- **Built in GPS and 3 axis accelerometer**
- **Analogue inputs sampled at up to 1000Hz**
- **2 serial ports support ASCII or binary data**
- **2 CAN ports, supporting raw & J1939 at up to 1Mbit**

DL2 Data Logger

The GPS enabled DL2 data logger features integrated accelerometers and many input/output options, making it individually a very capable data/testing system. Alternatively it can be incorporated into a more complex system with our SPEEDBOX products.

The DL2 industrial data logger is designed as the perfect partner to our SPEEDBOX MINI range of testing products. The stackable cases and aligned data ports allow for simple connections and easy mounting for the system.

The D-type data connections allow for reliable connections that are quick and easy to populate without the specialist tools associated with micro miniature connector systems. Connections maintained by the secure thumb screws ensure robust connections.

Log data to removable memory card for fast data transfer.

Supplied with complete software package from configuration to data analysis. Configure the DL2 over the USB connection (configuration can also be read back and modified, ideal for making small adjustments).

Powerful Onboard Processing

The powerful processor enables the real-time calculation of maths channels and sensor processing. The results can be viewed live (on a display or video), not just in post analysis. Here are a few examples:

- Sensor data is processed directly by the unit and can be mapped to the named data channels, making setting up other system components and data analysis simpler.
- User defined channels used to perform maths functions on the live data, e.g. combine four wheel speed sensors to show if the average speed of the front wheels is higher than the rear wheels, showing spin and braking lockup. This can be displayed live to the driver, overlaid onto a video, or logged for analysis.

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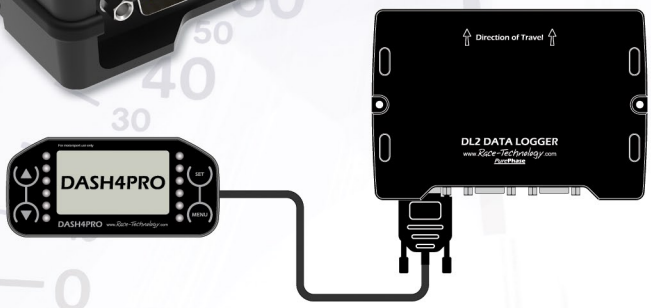
The DL2 takes inputs from a range of sources and references them to GPS time, position and velocity. This can be done using the DL2's built in GPS receiver and integrated accelerometers or using the increased accuracy of a SPEEDBOX system. The GPS and accelerometer data provides detailed performance and testing information, as well as giving an easy to interpret real-world reference for the additional sensor/input data.

- Up to 2 CAN ports, (transmit or receive) 1Mbit, 11 or 29 bit addressing. J1939 compatible.
- Up to 2 serial ports. Configurable serial output in ASCII or binary formats.
- Up to 12 analogue inputs, with sampling up to 1000hz.
- 4 frequency inputs with pulse counting, pulse high time, pulse low time, pulse position, duty cycle and mark space ratio.
- Output drivers - switch on/off external systems based on simple or complex equations - calculated from live data.

Stacking case design allows full systems to be integrated and installed as complete connected systems; making it easier to go from setting up on the bench to testing in the vehicle.

Aligned serial and CAN connections with DL2 and stacking SPEEDBOX MINI makes for short neat connections. With the DL2's pass-through dual CAN connections for each CAN port; CAN data is easily integrated or simply terminated with a terminating connector.

Complete integration with DASH4PRO display: Start/stop logging, view memory card status and any system error messages on the display. Fully configurable display; view any variables as numbers, text, graph, bargraph or bi-colour LED scale.



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DL2 - Industrial Data Logger - Enhancement Options

As standard the DL2 includes the following enhancements:

20Hz Advanced GPS Option

Increased speed and position accuracy, with higher GPS resolution. Download corrections from the internet with advanced PPP mode.

High Accuracy Export

To use your data in an external application you will need an export licence to output 20Hz data at full accuracy. Increased resolution on GPS latitude, longitude, raw velocity, position, heading, gradient, speed and distance.

DL2 - Additional Enhancement Options:

100Hz Live Speed Enhancement

High accuracy speed measurement from GPS and the built in accelerometers; combined using Kalman filtering to provide a real time output of speed at up to 100Hz. The measurement is resistant to brief GPS outages such as bridges.

1000Hz Data Logging Option

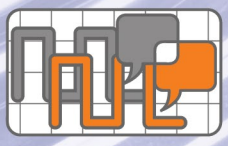
Measure rapid changes with the 1000Hz sample rate on analogue channels. Essential for accurate suspension analysis, where the high sample rates allow calculation of shock rates as well as measurement of suspension position.

GoPro HD Video Synchronisation

Synchronise test data with HD video. The software licence enables HD video by data analysis, and data overlaid video exports from the Analysis software. Multiple synchronisation options, including a control cable linked to the DL2.

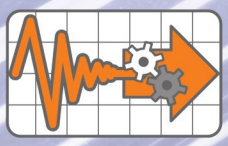
2nd Serial Port

A second serial port option is ideal for combining multiple input and output modules for complex systems, or driving a low speed telemetry channel on one port and a high speed output for video overlay on the second.



Optional CAN Ports

Add up to 2 CAN ports to transmit or receive more CAN data. Receive CAN data from another source, ideal for integrating external equipment with a CAN output and synchronising it with the rest of the data.

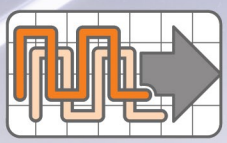


Low Side Drivers and 4 Extra Analogue Channels

This option allows you to switch on/off external systems automatically using the DL2. Control can be simple or based on a complicated equation. This option also enables the 4 additional analogue channels, making a total of 12.

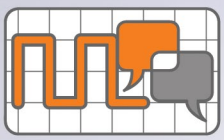
PWM Output Controller and Advanced Frequency Inputs

The PWM output controller allows you to control an external system with a graduated signal. Meaning it can be "on" anywhere between 1 and 100%. This option enables the advanced frequency input functions.



RAW CAN Reception

Receive and log the vehicle's entire CAN bus data, irrespective of whether it is 11 bit or 29 bit address. Decode it in the Analysis software using DBC files. No need to pre-configure, just log and decode in the software.



CAN Communication

CAN Reception (15 channels per licence): Decode any CAN data from the vehicle's main CAN stream or a CAN based aftermarket ECU.

CAN Transmission: With this option the unit can transmit any of the internal data channels on the CAN bus, at a rate determined by the configuration.

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Specification

Memory Card	Removable SD card. High rate file stored alongside background low rate file. User configurable file names up to 25 characters.
GPS	Outputs position, speed, position accuracy and speed accuracy at 5Hz with no interpolation. GPS tracking loops optimised for applications up to about 4g. tracking of all satellites in view. 20Hz raw data storage for post-processed operation
GPS Antenna	Magnetic base, 3.3v active antenna with SMA connector.
Analogue Inputs	12 external inputs, all 12 bit resolution and 0-25v. All inputs are protected and have a 2nd order filter with corner frequency of 105Hz. Accuracy = 0.4% of measured voltage +-20mV. Sample rate 100Hz as standard, 1kHz optional.
Frequency Inputs	4 external frequency inputs with a maximum input frequency >2kHz. Triggering voltage requires a low input of <1v and a high input of >4v and 15v maximum.
Start Sample Input	Triggering voltage requires a low input of <1v and a high input of >4v and 25v maximum
Low Level Outputs	4 low side drivers updating at 10Hz, each capable of driving 500mA.
Power Supply Requirements	12v nominal input, minimum of 10v, maximum of 23v (higher voltages can be accommodated if specified at the time of ordering). Current consumption of about 180mA including GPS, dependant on SD card requirements. +5v Reference Out Maximum current draw 500mA x 2.
Ignition In Signal (High Level)	Designed to connect directly to negative terminal of ignition coil. Can also fire from fuel injectors and from CD ignition systems.
Ignition In Signal (Low Level)	Triggering voltage requires a low input of <1v and a high input of >4v and 15v maximum. Suitable for connection directly to most ECU tacho outputs. Maximum input frequency >300Hz.
Case Construction	Diecast aluminium housing.
Connector Type	9 way d-type connectors for CAN, serial, frequency, and aux inputs/outputs. 25 way d-type analogue inputs. Lemo power connector, SMA gps antenna connection.
Main Processor	150MHz TI Digital Signal Processor
Serial Port 1	User configurable for messages. Transmission and reception of RT format messages from 115200 - 921600 baud
Serial Port 2	User configurable for messages. Transmission and reception of RT format messages from 115200 - 921600 baud
CAN Port	Maximum of 75 individual channels per port, decoded at up to 1Mbit/s Message transmission with RTR Optional RAW CAN reception (100Hz standard, 1000Hz with 1000Hz license) Optional second CAN port for reception and transmission Decoding information imported from .DBC file or manual configuration. J1939 compatible.
Computer Communication	USB port for reflashing, reading/writing configuration, and viewing live data.
Accelerometers	3 axis, precision digital output. Guaranteed 2g minimum full scale on both axes. Resolution of 0.005g. Optional 6g sensor available as a factory option.
Gyro	Optional gyro for yaw/pitch/roll rate output. Up to 245 deg/s.
Vibration	Factory tested at 25g, 50Hz sinusoidal for 5 minutes (without memory card inserted).
Temperature	Factory tested from -20°C to 70°C
Status Indicators	Power, logging, status and GPS lock lights on front panel.
Dimensions	163mm x 118mm x 51mm

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