

Datalogger DL2

Mounting

Connection

Operation



48003740

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Safety advice

Please pay attention to the following safety advice in order to avoid danger and damage to people and property.

Attention should be paid to

- the statutory provisions for prevention of industrial accidents,
- the statutory provisions for environmental protection,
- the Health and Safety at Work Act 1974
- Part P of the Building Regulations 2005
- BS7671 Requirements for electrical installations and relevant safety regulations

These instructions are exclusively addressed to authorised skilled personnel.

- Only qualified electricians should carry out electrical works.
- Initial installation must be effected by qualified personnel named by the manufacturer

This manual contains important information about safe and proper usage of this product. Please keep this manual for future reference.

Subject to technical change. Errors excepted.

1. Description of symbols



WARNING!
Warnings are indicated with a warning triangle!

Signal words describe the danger that may occur, when it is not avoided.

- **Warning** means that injuries or even danger of life can occur.

2. Disposal

- Dispose of the packaging in an environmentally sound manner.
- Dispose of old appliances in an environmentally sound manner. Upon request we will take back your old appliances bought from us and guarantee environmentally-friendly disposal of the devices.

3. Information about the product

Proper usage

The datalogger DL2 may only be used in conjunction with controllers with VBus[®] output in order to log and access data in compliance with the technical data specified in this manual.

Improper use excludes all liability claims.

CE-Declaration of conformity

The product complies with the relevant directives and is therefore labelled with the CE mark. The Declaration of Conformity is available upon request, please contact RESOL.



Scope of delivery:

- Datalogger DL2, ready to plug in, with mains adapter and RESOL VBus[®]-cable
- Network cable, 1 m
- Dowels and screws
- Screw terminal (for extending the RESOL VBus[®]-cable)

- **Visualisation of system states**
- **Yield control**
- **Easy configuration by integrated web interface for standard internet browsers**
- **Optional SD card**
- **Export function for further data processing in spreadsheet programs**
- **Direct connection of PC or router for remote access**



This additional module enables the acquisition and storage of large amounts of data (such as measuring and balance values of the solar system) over a long period of time. The DL2 can be configured and read-out with a standard internet browser via its integrated web interface. For transmission of the data stored in the internal memory of the DL2 to a PC, an SD card can be used.

The DL2 is appropriate for all controllers with RESOL VBus®. It can be connected directly to a PC or router for remote access and thus enables comfortable system monitoring for yield monitoring or for diagnostics of faults.



Technical data

Housing:

Plastic PC-ABS and PMMA

Protection type: IP 20 / DIN 40050

Ambient temperature: 0 ... 40 °C

Dimensions: Ø130 mm, depth 45 mm

Mounting: wall mounting

Display: Bar LED for monitoring the memory capacity, 1 illuminated push-button for presentation of the SD card status

Interfaces: VBus® for connection to RESOL controllers. Ethernet (LAN), Auto MDIX 10/100 Base TX

Power supply:

Input voltage of mains adapter: 100 ... 240 V

Rated current: 350 mA

Input voltage of Datalogger: 5V DC ± 5 %

Memory: 180 MB internal memory, for logging interval of 5 min. sufficient for:

- 30 months for a systems with one *DeltaSol*® M, one HKM and one WMZ module
- 60 months for a system with one *DeltaSol*® M and one HKM
- 120 months for a system with one *DeltaSol*® M

4. Installation

4.1 Mounting



WARNING!

Always disconnect the device from power supply before opening the housing!

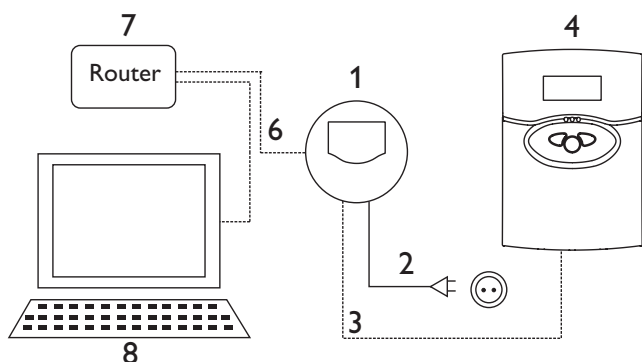


The datalogger is designed for the use as a mobile unit as well as a wall-mounted unit. Please pay attention to the following instructions when using the data logger as a wall mounted unit:

The unit must only be located in dry interior locations. It is not suitable for installation in hazardous locations and should not be placed close to any electromagnetic fields. Please pay attention to separate routing of sensor cables and mains cables.

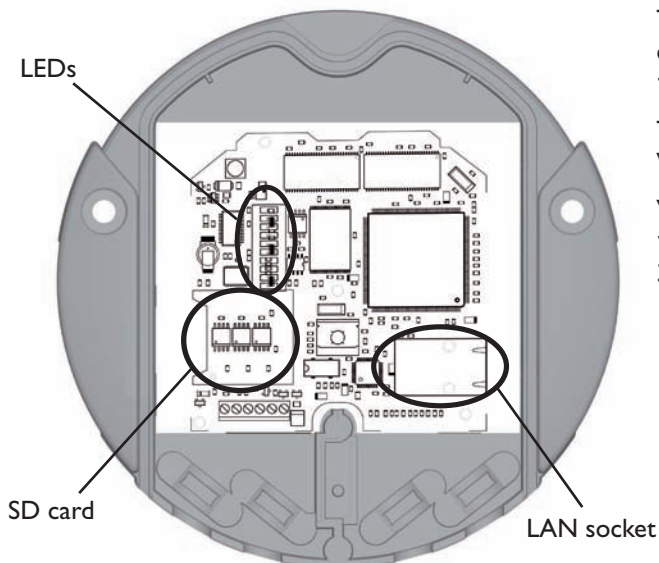
1. Choose a mounting place
2. Drill two holes (\varnothing 6mm) next to each other at a distance of 113 mm and insert the enclosed dowels.
2. Attach the base by means of the enclosed screws (4x40 mm) (1).

4.2 Connection



Connect the datalogger (pos.1) to other modules in the following order:

1. Connect the data cable (RESOL VBus®, pos.3) to the RESOL controller (pos.4). Extend, if necessary, with enclosed screw terminal and (twisted) two-wire cable.
2. Plug mains adapter (Pos.2) into the mains socket.
3. For direct connection of a router or PC, connect the datalogger to the router (pos.7) or PC (pos.8) by means of the network cable (enclosed, pos.6).



The power supply to the device must be carried out via an external mains adapter and the supply voltage must be 100 ... 240 V~ (50 ... 60 Hz).

The DL2 is supplied with connected mains adapter and VBus®-cable.

VBus® connection at terminals:

- 1 / 2 = VBus®- connection 1
- 3 / 4 = VBus®- connection 2

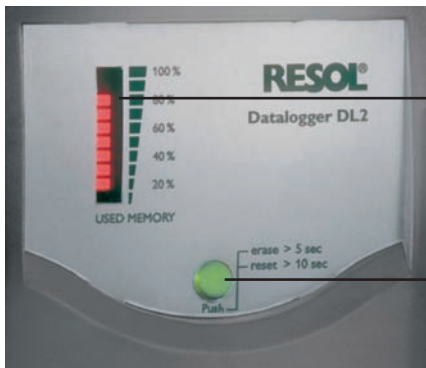


side view: LAN socket



side view: SD card slot

5. Operation



fill level
data memory

reset button

The datalogger can be configured, read out and deleted via the integrated web interface. The DL2 is additionally equipped with a manual reset button. The following functions can be carried out by pushing the button:

- Deleting the internal memory; the settings will not be deleted. For this purpose, press the button for more than 5 but less than 10 seconds. All LEDs will be flashing.
- Resetting the datalogger to the factory settings. For this purpose, press the button for more than 10 seconds. All LEDs will be illuminated. This reset process can take several minutes.

6. Data transfer

For data transfer from the internal memory of the DL2, an SD card can be used:

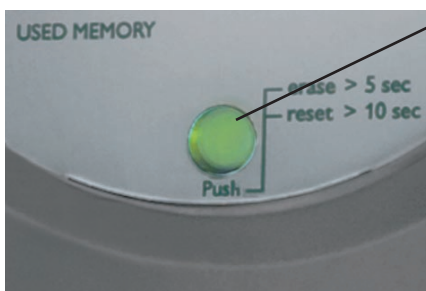
1. Insert the SD card into the card slot
2. The status LED flashes green: The card has been recognised and data are being automatically transferred
3. After data transfer, the status LED is illuminated (green), the SD card can be removed

For further information about further processing see RESOL ServiceCenter manual

Note: the SD card is not used for increasing the internal memory capacity. It is used for data transfer only.

7. Displays

7.1 Status LED



Status LED

The status LED (integrated into the button) visualises the operating state of the DL2.

off	no SD card or no mains voltage
green flashing	SD card has been recognised; DL2 data are being copied to the SD card. Do not remove the SD card.
green	SD card can be removed.

7.2 Fill level of data memory

The fill level LEDs visualise the current fill level of the datalogger, i.e. the internal memory capacity used.

One bar corresponds to 10% of the internal memory capacity: Permanent illumination means that the memory capacity is fully used. Flashing LEDs indicate the level at which data are being stored.

Example: When the 3rd bar from the bottom is flashing, the capacity used is larger than 20% but smaller than 30%.

8. Connecting the datalogger



Note:

When the DL2 is used in conjunction with a Gigabit-Network device (laptop, switch, etc.), problems can occur when the connection is being established. In this case, we recommend using a 100 Mbit-switch between the two devices.

The datalogger is designed for direct connection to a PC via a LAN connection or a router and is used for remote access. Please carry out the following steps:

1. Install the search tool:

The search tool can either be started from the CD (DL2DiscoverToolSetup.exe) or from the internet (<http://www.resol-dl2.de/discover/>) (Confirm the security enquiry about the digital signature)

2a. Starting the tool from the internet:

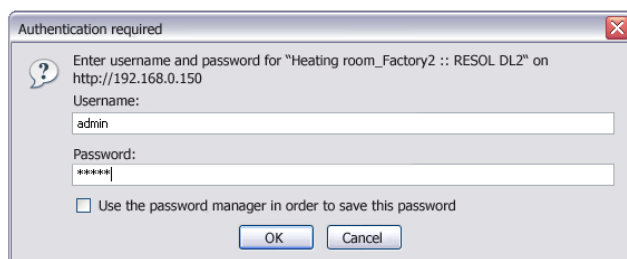
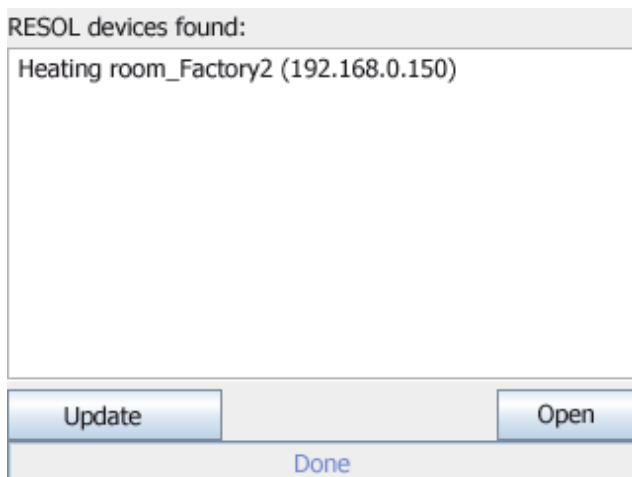
The datalogger will automatically be searched and displayed as soon as it is found by the search tool

2b. Installation from the CD:

- Start „DL2 DiscoverToolSetup.exe“. The search tool will be installed under „Programme\RESOL\DL2Discover-Tool“
- Start the DL2 Discover tool. The DL2 will automatically be searched and displayed as soon as it is found by the search tool.
- Mark the datalogger found by the tool by clicking on it
- Click on „Open“

3. The standard web browser opens

- Enter username and password. Username and password are „admin“ (factory setting).

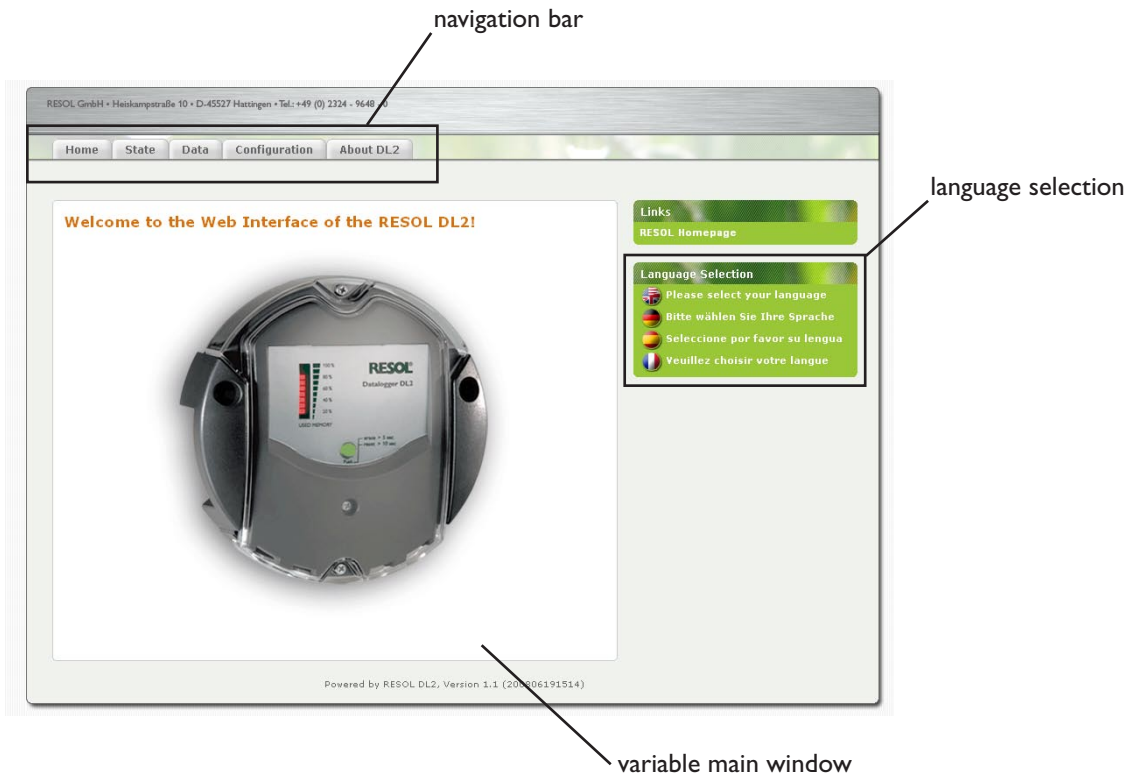


9. Quickguide Configuration

1. Change username and password
2. Adjust date and time
3. Enable firmware update
4. Change the remote access password
5. Print configuration

The DL2 is now ready for use

10. Start screen of the DL2 Web Interface

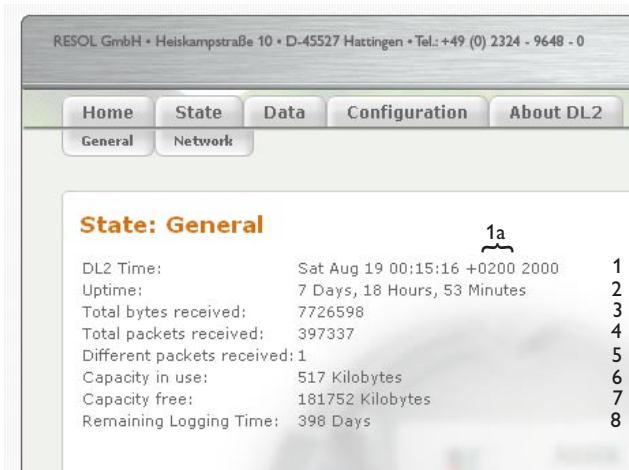


- Click on the tab in the navigation bar in order to access the different sub-windows of the web interface

10.1 State

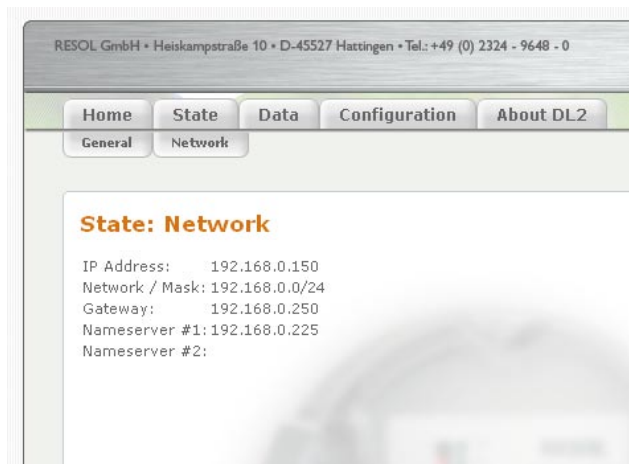
The state window consists of two different sub-windows: „General“ and „Network“.

State: General



- 1: current time setting of the DL2
- 1a: time shift to GMT (in hours)
- 2: time since last reset
- 3: sum of all bytes received since last reset
- 4: sum of all data packets received since last reset
- 5: number of packets in a communication cycle
- 6: sum of all data logged in the internal memory of the DL2
- 7: free memory capacity
- 8: estimated remaining logging time

State: Network



This window shows the current network configuration of the DL2.

11. Data

In this sub-window, the data stored in the internal memory of the DL2 can be read.

The DL2 web interface provides different tabs which are described in the following section.

Data: Live-Data

The current data of the connected VBus®-devices are displayed, such as: temperature, pump speed, heat quantity, etc. The values will automatically be updated every 10 seconds.

Data: Data download

Select the data format for data download:

- Text (Tabulator character, Windows):
generates a text file which is optimised for further processing in Windows. A tabulator character separates the data from each other.
- Text (Semicolon, Windows):
generates a text file which is optimised for further processing in Windows. A semicolon separates the data from each other.
- Text (Tabulator character, Linux):
generates a text file which is optimised for further processing in Linux / MacOS X, etc. A tabulator character separates the data from each other.
- Text (Semicolon, Linux):
generates a text file which is optimised for further processing in Linux / MacOS X, etc. A semicolon separates the data from each other.
- HTML Table:
data are represented in a table in a HTML file
- HTML List:
data are represented in a HTML file as a nested list.
- Excel:
data are issued in Excel format for direct processing in Excel (max. 60.000 data records)
- VBus Protocol Data:
data are issued in a file format suitable for further processing in the RESOL ServiceCenter or in the RESOL Data Center

Data: Erase

In order to delete all data, click on the „Yes, erase all logged data“ button.

12. Configuration

In the following sub-windows of the web interface, the settings of the DL2 can be changed.

- In order to save the changes, click on „Save changes“.

The „Print Configuration“ button:

- In order to print the current configuration of the web interface, click on „Print Configuration“.

12.1 Configuration: General

In the configuration window „General“ carry out the following settings:

- Enter username
- Enter password
- Repeat password
- Enter device name (characters permitted: letters, numbers, underline character)
- Adjust logging interval (1 ... 86400 s; the smaller the interval, the more capacity is required)
- Adjust logging mode

Username and password are required for the next access to the web interface

Logging mode

There are two types of logging modes:

- **Cyclic** (factory setting):
If the internal memory of the DL2 is full, the oldest data packets will be overwritten.
- **Linear**:
If the internal memory of the DL2 is full, no further data will be logged.

12.2 Configuration: Network

In the configuration window „Network“, the settings mentioned below have to be carried out. When the auto-configuration is not enabled, all network parameters have to be entered manually into the fields below.

- Enable / disable the LAN auto configuration
- Information such as IP address, IP netmask, etc. is indicated.

12.3 Configuration: Time

In the configuration window „Time“, carry out the following settings:

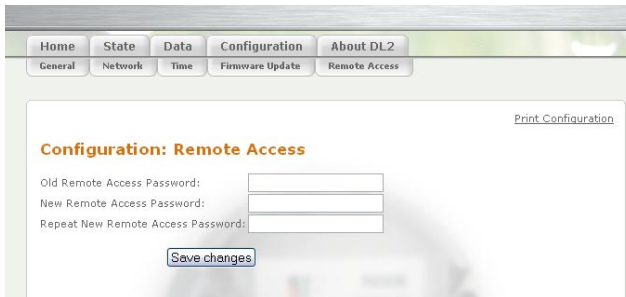
- Enter the timezone
- Adjust the update interval
- Enable / disable the network time synchronisation function
- Enter NTP server address
- Manually adjust the time settings

12.4 Configuration: Firmware Update

In the configuration window „Firmware Update“ , carry out the following settings:

- Enable / disable automatic firmware update
- Enter update URL
- Adjust update interval

12.5 Configuration: Remote access



- Enter old remote access password (factory setting: vbus)
- Enter new remote access password
- Confirm new password

These adjustments are required for accessing the controller via the datalogger by means of the Service Center Software or the RESOL Data Center.

12.6 About DL2

In this window, details about open source applications and libraries covered are shown.

13. Source code

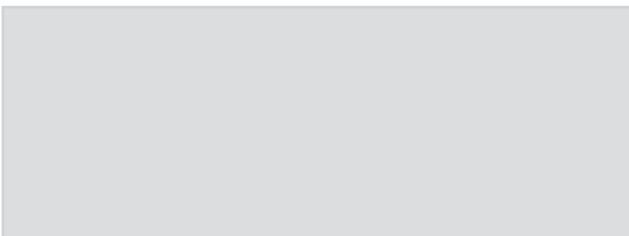
You can order a copy of the corresponding source codes and compilation scripts on DVD for a handling and shipping fee of EUR 20,- from:

RESOL - Elektronische Regelungen GmbH
Heiskamstraße 10
45527 Hattingen
GERMANY

Please include the version number of your firmware in your order. (e.g.: „1.0 (200805241128)“ indicated at the bottom of every web interface page). You must not specify more than one version per order.

Notes

Distributed by:



Important notice:

We took a lot of care with the texts and drawings of this manual and to the best of our knowledge and consent. As faults can never be excluded, please note: Your own calculations and plans, under consideration of the current standards and DIN-directions should only be basis for your projects. We don't offer a guarantee for the completeness of the drawings and texts of this manual - they only represent some examples. They can only be used at your own risk. No liability is assumed for incorrect, incomplete or false information and / or the resulting damages.

Please note:

The design and the specifications are to be changed without notice.
The illustrations may differ from the original