



GL2000 Logger Family Manual

Version 4.5.5 | English

Imprint

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1 Introduction

In this chapter you find the following information:

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1.1 About this User Manual

Conventions

In the two following charts you will find the conventions used in the user manual regarding utilized spellings and symbols.

Style	Utilization
bold	Blocks, surface elements, window and dialog names of the software. Accentuation of warnings and advices. [OK] Push buttons in brackets File Save Notation for menus and menu entries
Source Code	File name and source code.
Hyperlink	Hyperlinks and references.
<CTRL>+<S>	Notation for shortcuts.

Symbol	Utilization
	This symbol calls your attention to warnings.
	Here you can obtain supplemental information.
	Here you can find additional information.
	Here is an example that has been prepared for you.
	Step-by-step instructions provide assistance at these points.
	Instructions on editing files are found at these points.
	This symbol warns you not to edit the specified file.

1.1.1 Warranty

Restriction of warranty

We reserve the right to change the contents of the documentation and the software without notice. Vector Informatik GmbH assumes no liability for correct contents or damages which are resulted from the usage of the documentation. We are grateful for references to mistakes or for suggestions for improvement to be able to offer you even more efficient products in the future.

1.1.2 Registered Trademarks

Registered trademarks

All trademarks mentioned in this documentation and if necessary third party registered are absolutely subject to the conditions of each valid label right and the rights of particular registered proprietor. All trademarks, trade names or company names are or can be trademarks or registered trademarks of their particular proprietors. All rights which are not expressly allowed are reserved. If an explicit label of trademarks, which are used in this documentation, fails, should not mean that a name is free of third party rights.

- ▶ Windows, Windows 7, Windows 8.1, Windows 10, Windows 11 are trademarks of the Microsoft Corporation.

1.2 Important Notes

1.2.1 Safety Instructions and Hazard Warnings

**WARNING!**

In order to avoid personal injuries and damage to property, you have to read and understand the following safety instructions and hazard warnings prior to installation and use of the loggers. Keep this documentation (manual) always near the logger.

1.2.1.1 Proper Use and Intended Purpose

**WARNING!**

The loggers are measuring devices which are used in the automotive and commercial vehicles industries. The loggers are designed for gathering and recording data of the bus communication, for analyzing and possibly controlling electronic control units. This includes, inter alia, bus systems like CAN, LIN, MOST and FlexRay.

The loggers may only be operated in a closed state. In particular, printed circuits must not be visible. The loggers may only be operated according to the instructions and descriptions of this manual. Only suitable accessories should be used, such as the original Vector accessories or accessories approved by Vector.

The loggers are exclusively designed for use by skilled personnel as its operation may result in serious personal injuries and damage to property. Therefore, only those persons may operate the loggers who (i) have understood the possible effects of the actions which may be caused by the loggers; (ii) are specifically trained in the handling with the loggers, bus systems and the system intended to be influenced; and (iii) have sufficient experience in using the loggers safely.

The logger specific information can be acquired via the specific manuals as well as from the Vector KnowledgeBase at www.vector.com. Please consult the Vector KnowledgeBase for updated information prior to the operation of the loggers. The knowledge necessary for the bus systems used, can be acquired in workshops and internal or external seminars offered by Vector.

1.2.1.2 Hazards

**WARNING!**

The loggers may control and/or otherwise influence the behavior of electronic control units. Serious hazards for life, body and property may arise, in particular, without limitation, by interventions in safety relevant systems (e.g. by deactivating or otherwise manipulating the engine management, steering, airbag and/or braking system) and/or if the loggers are operated in public areas (e.g. public traffic). Therefore, you must always ensure that the loggers are used in a safe manner. This includes, inter alia, the ability to put the system in which the loggers are used into a safe state at any time (e.g. by „emergency shutdown“), in particular, without limitation, in the event of errors or hazards.

Comply with all safety standards and public regulations which are relevant for the operation of the system. Before you operate the system in public areas, it should be tested on a site which is not accessible to the public and specifically prepared for performing test drives in order to reduce hazards.

1.2.2 Disclaimer

**WARNING!**

Claims based on defects and liability claims against Vector are excluded to the extent damages or errors are caused by improper use of the loggers or use not according to its intended purpose. The same applies to damages or errors arising from insufficient training or lack of experience of personnel using the loggers.

1.2.3 Licenses

1.2.3.1 SEGGER emFile Module

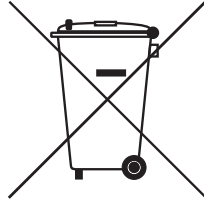
**WARNING!**

The firmware of the logger contains the copyright protected emFile module of SEGGER Microcontroller GmbH & Co. KG.

It should be noted that the Licensing Terms of the Licensor expressly prohibit the use of the SEGGER emFile module in weapons/weapons systems and/or their deployment in same. A “weapons system” is to be understood as meaning, in particular, a system whose primary or material purpose is to injure, incapacitate or kill a person or an opponent, or to destroy or damage the property of a person or an opponent, or to threaten a person or an opponent, irrespective of whether the weapon or the weapon system can be used to attack, defend, threaten or protect.

1.2.4 Disposal of Vector Hardware

Please handle old devices responsibly and observe the environmental laws applicable in your country. Please dispose of the Vector hardware only at the designated places and not with the household waste.



Within the European Community, the Directive on Waste Electrical and Electronic Equipment (WEEE Directive) and the Directive on the Restriction of the Use of Certain Hazardous Substances in Electrical and Electronic Equipment (RoHS Directive) apply.

For Germany and other EU countries, we offer free take-back of old Vector hardware.

Please carefully check the Vector hardware to be disposed of before shipping. Please remove all items that are not part of the original scope of delivery, e.g. storage media. The Vector hardware must also be free of licenses and must no longer contain any personal data. Vector does not perform any checks in this regard. Once the hardware has been shipped, it cannot be returned to you. By shipping the hardware to us, you have relinquished your rights to the hardware. Before shipping, please register your old device via:

<https://www.vector.com/int/en/support-downloads/return-registration-for-the-disposal-of-vector-hardware/>

2 GL2000 Logger Series

In this chapter you find the following information:

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2.1 General Information

2.1.1 Scope of delivery

Included

- ▶ 1x GL logger (depending on the order)
- ▶ 1x 2 GB SD memory card (GL2000 only)
- ▶ 1x 8 GB SDHC memory card (GL2010 only)
- ▶ 1x 32 GB SDHC memory card (GL2410 only)
- ▶ Switch Box E2T2L
- ▶ USB cable
- ▶ Connection cable Vehicle for D-SUB25 (see page 40)
- ▶ Connection cable Extension D-SUB15 with Binder 5-pin (connection for Switch Box E2T2L) (GL2010 and GL2410 only)
- ▶ Mounting brackets (GL2000/GL2400 only)

2.1.2 Optional Accessories

Optional hardware and software

- ▶ CCP/XCP license for CAN
- ▶ Online Data Transfer license for data transfer to vLoggerCloud
- ▶ GL2x10 Ethernet cable IP65/IP20
- ▶ Router for wireless data transfer via cellular radio
- ▶ GPS receiver for recording the vehicle position via GPS
- ▶ LINprobe as extension for the LIN channels
- ▶ VoCAN for voice recording (1 button, 4 LEDs and signal tone)
- ▶ CASM2T3L for voice recording (2 buttons, 3 LEDs and signal tone)
- ▶ CAS1T3L (1 button, 3 LEDs and signal tone)
- ▶ LOGview for displaying signal and status information



Reference

Information on available accessories can be found in the appendix in section Accessories on page 39.

2.2 Overview

General capabilities

The devices of the GL2000 family are data loggers with USB interface which processes CAN messages with either 11-bit or 29-bit identifiers and LIN messages. Furthermore, received messages and analog values can be logged on an inserted SD/SDHC card. The configuration of the logger can be done with the **Vector Logger Suite** (see section [Vector Logger Suite](#) on page 35).



Figure 1: GL2000 family

Logger differences

The following table shows the main differences between the logger variants:

Feature	GL2000	GL2010	GL2400	GL2410
4x CAN channel	✓	✓	-	-
4x CAN/CAN FD channel	-	-	✓	✓
2x LIN channel	✓	✓	✓	✓
4x Analog input	✓	✓	✓	✓
4x Digital input/output	✓	✓	✓	✓
Watertight (IP65)	-	✓	-	✓
Exchangeable memory card	✓	-	✓	-



WARNING!

Please note that the housing of the GL2010 and GL2410 must not be opened under any circumstances, since otherwise the IP65 protection class of the data logger is no longer guaranteed. The SD/SDHC card, the piggybacks, and the battery may only be replaced by Vector Informatik GmbH. For more information, please contact the Vector Support.

Due to the openings in the housing for the LED, leak tightness may not be guaranteed if the label is damaged.

Firmware

- ▶ Starting with serial number 028126-**002700**, GL2400 loggers have a new hardware revision that requires firmware version 2.00 or higher. This firmware is included in the Vector Logger Suite 4.2 SP2 and later versions.
- ▶ GL2400 loggers with a CAN FD SIC transceiver (TJA1463ATK) require firmware version 2.10 or higher. This applies to all loggers, regardless of their serial number. This firmware is included in the Vector Logger Suite 4.5 and later versions.
- ▶ Configurations (COD files) generated with older versions must be recompiled using the newer version of the Vector Logger Suite. The recompiled configuration is compatible with all GL2400 loggers.

2.3 Operating Modes

Overview

The loggers support two operating modes, which are switched by using the USB connection and power supply respectively.

Mode	USB	External Power Supply
Configuration mode	connected to computer	optional
Logging mode	not connected	yes

Configuration mode

In the configuration mode, the logger can be configured with the configuration program. The configuration can be written to the logger. Logging data from the SD card can be written to the computer.

Logging mode

The Logging mode enables the computer independent usage of the logger and allows the logging of CAN, LIN and analog values. For this case, the logger must be unplugged from the USB connector of the computer. The voltage supply is done externally by the D-SUB25 connector.

2.4 Front Side

2.4.1 GL2000/GL2400

Device connectors
GL2000
GL2400

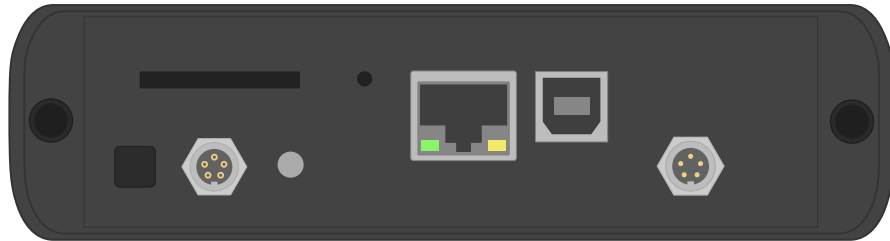


Figure 2: Logger with accessible storage medium

► Slot for removable SD/SDHC card

The logger has a push-and-pull card holder for inserting and removing the SD card. To insert the memory card, push it in until the locking mechanism engages securely. To remove the memory card, push it slightly into the card holder until it unlocks.



WARNING!

Do not pull the SD card from the card holder forcefully, since this could cause mechanical damage!



WARNING!

Do not remove the SD card, while the logger is still in logging mode! This may cause data loss!

While the logger is in logging mode, use the shutdown button next to the AUX connector, to safely release the SD card. It stops the logging mode for a certain time to allow you removing or exchanging the SD card safely.

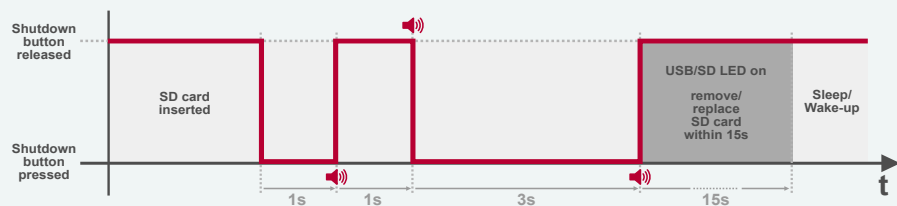


Step by Step Procedure

Follow the steps below to release the SD card:

1. Press the shutdown button for one second until the beep is heard.
2. Release the shutdown button for one second until the beep is heard.
3. Press the shutdown button again for at least 2...3 seconds until the beep is heard and the SD LED is lit.

When the correct sequence is detected a long beep sounds (step 3 above) and the logger is shut down. The USB LED and the SD LED light up for 15 seconds. During this time, the SD/SDHC card is disconnected from the system and can be removed.



After 15 seconds elapse, the logger changes to sleep mode. When a wake event such as bus activity occurs, the logger wakes up again and continues logging.



Note

The memory cards have to be FAT32 formatted. For optimal performance, we recommend FAT32 formatting with the maximum possible cluster size.

Use the formatting function in the Vector Logger Suite, to ensure using the optimal cluster size.

If you have a data transmission to the vLoggerCloud configured, please note the following interaction between usage of the shutdown button and data transmissions:

- ▶ The establishment of a connection using the **Stop logging** setting (LTL: ConnectionRequest) is executed to completion beforehand.

If a new configuration is transferred from the vLoggerCloud to the logger, the SD card is released for 15 seconds after the end of the transmission. The logger then changes to sleep mode and is only re-configured at a restart.

If the establishment of the connection fails or the connection is terminated, the SD card is released only after the end of the connection timeout.

The shutdown button is deactivated during an active connection because the logger has already introduced a shutdown.

- ▶ The establishment of a connection using the **Only if idle** setting (LTL: TransferRequest) is terminated. After a restart an attempt is made to establish the connection.

- ▶ **Ethernet**

The logger supports a monitoring interface that allows the use of the logger as bus interface for monitoring in CANoe/CANalyzer (since version 8.2). The logger is connected via Ethernet to the CANoe/CANalyzer computer and sends the bus data to CANoe/CANalyzer after measurement start, where the data can be analyzed in the measurement setup. Sending messages with CANoe/CANalyzer is not possible. The relevant CANoe/CANalyzer licenses must be provided by a connected hardware interface on the computer or by a license dongle. You can find further information in the Vector Logger Suite manual, section **Monitoring Interface**. There the configuration of the logger and CANoe/CANalyzer is described in **Tutorial: Usage as interface**.

This connector can also be used in conjunction with a LTE router which enables wireless data transmission via cellular radio.

For data transmission, the **OnlineTransfer** license must be installed on the logger. You can set the events that cause a connection and the transfer of logged data from the logger to the destination system in the Vector Logger Suite. A Team Area in Vector Team Services is required for data transfer. For more information, please refer to the **Vector Logger Cloud - Getting Started Guide**, which you can access in the Vector Logger Suite via the Backstage area under **Documentation**.

- ▶ **USB (Type-B)**

Data transfer between computer and logger.

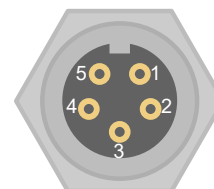
► **AUX**

The 5-pin plug connection (Binder type 711) AUX is intended for the connection of the following logger accessories:

- LOGview (external display)
- Switch Box CAS1T3L (with one button, three LEDs and one sound)
- Switch Box CASM2T3L (with two buttons, three LEDs, one sound, and microphone for voice recording)
- VoCAN (for voice recording and output)

The pin assignment on the logger is as follows:

Pin	Description
1	+ 5 V
2	GND
3	CAN High
4	CAN Low
5	Vbat



The AUX connections are internally wired to CAN 5. For this reason, this channel is always equipped with a high-speed transceiver without wake-up capability and can no longer be used freely if an AUX connection is used.

► **Event**

This connector is used for the Switch Box E2T2L, which is included in the scope of delivery. The buttons and the LEDs are freely programmable. The buttons can be used as manual trigger or event.



Figure 3: Switch Box E2T2L

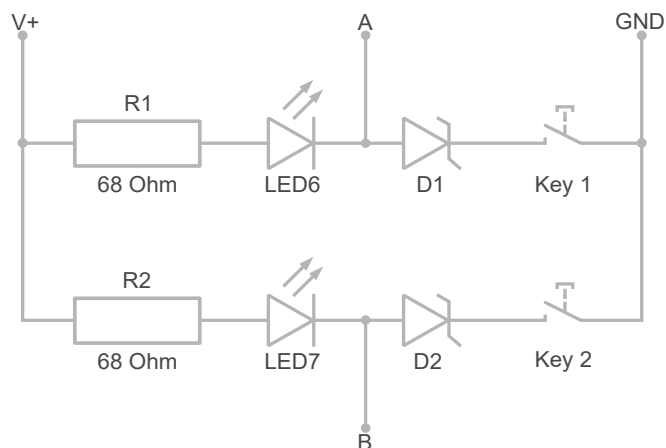
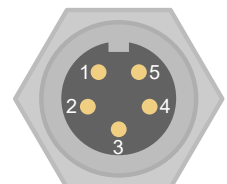


Figure 4: Switch Box E2T2L wiring

The pin assignment on the logger is as follows:

Pin	Description
1	Not connected
2	V+
3	A
4	B
5	GND



2.4.2 GL2010/GL2410

Device connectors
GL2010/GL2410

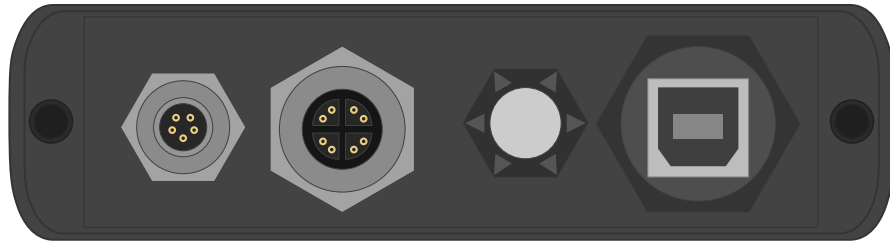


Figure 5: Watertight connectors

The GL2010/GL2410 is a special version of the GL2000/GL2400 that is IP65 water and dust resistant. For this reason, the memory card is permanently installed internally and cannot be removed. In addition, this version does not have an event connection.

- ▶ **AUX**
5-pin AUX connector. See GL2000/GL2400 for further details.
- ▶ **Ethernet**
8-pin Ethernet connector. See GL2000/GL2400 for further details.
- ▶ **Diaphragm**
Diaphragm for pressure compensation. Do not lift the cap under any circumstances!
- ▶ **USB**
USB connector. See GL2000/GL2400 for further details.

2.5 Back Side

Device connectors

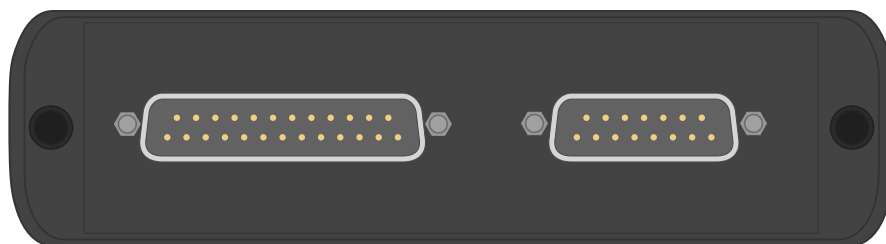


Figure 6: GL2000 family bus side

▶ Vehicle connector (D-SUB25 male)

Use the included connection cable Vehicle to access the individual features of the logger. The colors refer to the included cable. If the open wires are not used, it is recommended to terminate them to prevent short circuits.



WARNING!

The connecting cable Vehicle does not conform to IP65.

The pin assignment on the logger is as follows:

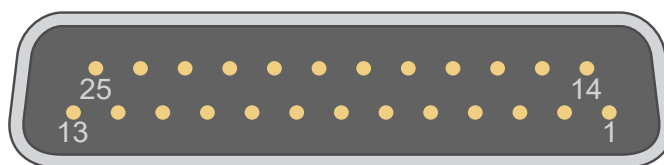


Figure 7: D-SUB25

CAN (GL2400/GL2410: CAN/CAN FD)

Pin	Assignment	Cable Color	Pin	Assignment	Cable Color
15	CAN1 High	yellow	16	CAN1 Low	green
19	CAN2 High	gray	21	CAN2 Low	pink
13	CAN3 High	white/red	14	CAN3 Low	white/blue
17	CAN4 High	white/gray	18	CAN4 Low	white/pink

The logger can be woken up on the four CAN or CAN FD channels. The channels must be occupied with Piggybacks with wake-up capable CAN transceivers if the wake-up will be executed via these channels.

LIN

Pin	Assignment	Cable Color	Pin	Assignment	Cable Color
23	LIN 1	lilac	24	LIN 2	red

LIN frames can be recorded with both internal LIN channels. The sending of LIN frames is not supported on these channels. A LINprobe X or LINprobe G are required for this purpose and is available as a logger accessory.

The LIN transceivers TJA1021 are already mounted on the main board of the loggers. Therefore LIN piggybacks are not needed.

The LIN channels are supplied with maximum 12 V from the supply voltage of the data logger. If the reference voltage for a LIN channel is higher than 12 V, this voltage (e. g. 24 V) must be applied to the LIN1_Vbatt or LIN2_Vbatt pins. In all other cases, the LIN1/2_Vbatt pins are not connected.

It is recommended to also connect GND as ground supply beside the LIN pins. The logger can be woken up over either LIN channel.

Analog input

Pin	Assignment	Cable Color	Pin	Assignment	Cable Color
9	Analog In 1	grey/pink	10	Analog In 2	red/blue
11	Analog In 3	blue	12	Analog In 4	brown/green

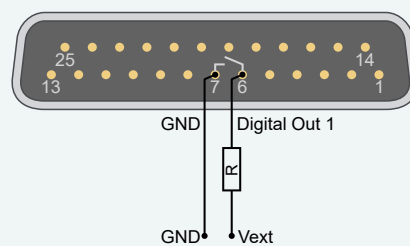
Digital input/output

Pin	Assignment	Cable Color	Pin	Assignment	Cable Color
6	Input/output 1	white/yellow	8	Input/output 2	brown/yellow

When used as a digital output, the pin is connected to GND when the output is switched on (so-called "low-side switch"). To switch a load, it is necessary to connect it between the pin of the digital output and the battery.



Example



UART

Pin	Assignment	Cable Color	Pin	Assignment	Cable Color
2	RS232 Rx	white/green	3	RS232 Tx	brown/pink

Battery

Pin	Assignment	Cable Color	Pin	Assignment	Cable Color
1	Battery (VCC)	white	5	Battery (VCC)	white/black

GND

Pin	Assignment	Cable Color	Pin	Assignment	Cable Color
4	GND	brown	7	GND	brown/red
22	GND	brown/blue	-	-	-

The three GND pins are connected together internally and have the same potential as the power supply ground.

**WARNING!**

It is recommended to connect the logger to the same voltage supply (e. g. battery of the vehicle) as the vehicle or test equipment, respectively.

If two different voltage supplies are used for the logger and the test equipment, the ground pins (GND) of the two voltage supplies must be connected.

Wake/KL15

Pin	Assignment	Cable Color	Pin	Assignment	Cable Color
20	Wake/KL15	black	-	-	-

► **Extension connector (D-SUB15 male)**

Use the included connection cable Extension to access the individual features of the logger. The pin assignment on the logger is as follows:

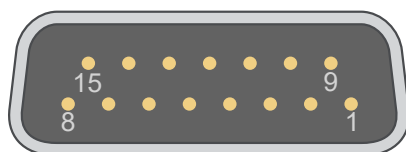


Figure 8: D-SUB15

Digital input/output

Pin	Assignment	Pin	Assignment
5	Input/output 3	11	Input/output 4

CAN Vbatt

Pin	Assignment	Pin	Assignment
1	CAN3_Vbatt	9	CAN3_GND
2	CAN4_Vbatt	10	CAN4_GND

LIN Vbatt

Pin	Assignment	Pin	Assignment
3	LIN1_Vbatt (24 V)	4	LIN2_Vbatt (24 V)

GPS

Pin	Assignment	Pin	Assignment
6	V+ (GPS)	7	Rx (GPS)
8	Tx (GPS)	-	-

Switch Box

Pin	Assignment	Pin	Assignment
12	V+ (Switch Box)	13	T1 (Switch Box)
14	T2 (Switch Box)	-	-

GND

Pin	Assignment	Pin	Assignment
15	GND	-	-

The ground pins (GND) on the **Vehicle** and **Extension** connector are connected together internally and have the same potential as the power supply ground.

2.6 LEDs

The logger has six LEDs. LED 1...4 are freely programmable. They can be used to display different states. LED **USB** indicates the USB connection to the computer and the LED **Power** indicates the operating status of the logger. GL2000 V2.0 and GL2400 have an additional LED **SD** next to the AUX connector to indicate when the SD card can be removed.

Operating Status	LED 1	LED 2	LED 3	LED 4	LED USB	LED SD
Card reader	-	-	-	-	Green	-
Card reader ejected	-	-	-	-	Green (())	-
No SD card inserted	Green (())	Yellow (())	Red (())	Red (())	-	-
No configuration available	-	-	-	Red (())	-	-
Firmware update and configuration (GL2000/GL2010):	Green	-	-	-	-	-
Firmware update and configuration (GL2400/GL2410):	Running light LED 1 to LED 4				-	-
Set time	Green (1 sec)	-	-	-	-	-
Device error (defect SD card, invalid device information)	-	-	Red (())	-	-	-
Configuration is running	Configurable				-	-
Cloud connection established before shutdown. Configuration has been stopped.	Running light LED 1 to LED 4				-	-
SD card is logged off	-	-	-	-	Green for 15 s	

(()) flashing light
- state not defined

2.7 Replacing Piggybacks

**WARNING!**

The housing has to be opened to replace the piggybacks. This must be done very cautiously and carefully, in order to not damage the sensitive lines in the unit.

When performing this operation be sure not to touch the top or bottom of the boards (logger board or piggybacks) to avoid damages due to electrical discharges.

**WARNING!**

Please note that the housing of the GL2010/GL2410 must not be opened under any circumstances, since otherwise the IP65 protection class of the data logger is no longer guaranteed. Piggybacks of the GL2010/GL2410 may only be replaced by Vector Informatik GmbH. For more information, please contact the Vector Support.

**Step by Step Procedure**

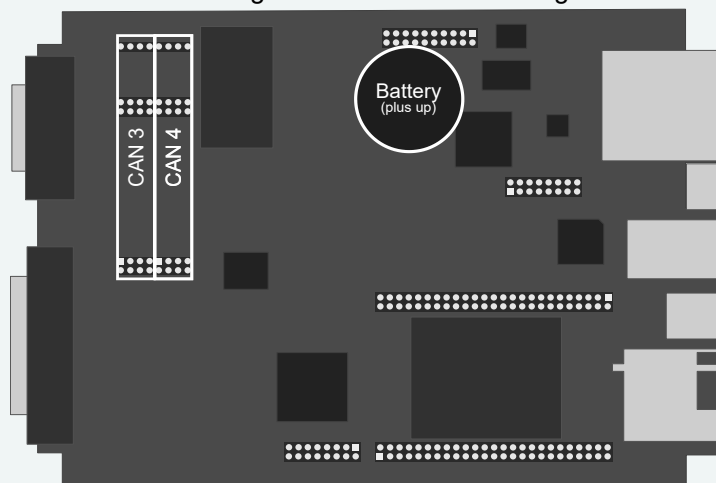
The piggybacks of the GL2000 can be exchanged as follows:

1. First, loosen the logger housing screws on the back side with the D-SUB connectors. This requires removing the black decorative caps.
2. Also remove the screws on the side with the USB connector.
3. Carefully remove the bottom cover together with the main board and the top cover completely from the housing.

**WARNING!**

The circuit board is connected to the AUX connection of the top cover via a cable. Therefore, the top cover must be inserted together with the circuit board from the top to the bottom of the housing. Please make sure not to damage the cable.

4. You will find mounting location almost at the edge main circuit board.



5. Remove the piggybacks carefully from the mounting location.
6. Insert the replacement piggyback. When doing this please make sure that the single and dual-row connectors are not laterally shifted.
7. Reassemble the unit in reverse order. First attach the top cover to the housing. Afterwards, insert the circuit board into the housing and make sure that the circuit board has been inserted into the correct guide rail (groove 1). Please be sure that the frame around the LEDs do not snag on the housing.
8. Now slide the main board completely into the housing. It should be possible to slide the main board in the housing up to a few millimeters from the end without forcing it in. Close the housing by applying light pressure, and then secure it with the appropriate screw fasteners. The screws should be secure but not excessively tight.
9. Please also attach the black decorative caps.

2.8 Battery for Real-Time Clock

2.8.1 General Information

General information The loggers have an internal real-time clock, which is battery supplied, and thus continues running even if the logger is disconnected from power supply. The real-time clock inside the logger is required to store the date and time together with the logged data. The configuration of the clock is done with the Vector Logger Suite (SD card must be inserted). After setting the real-time clock, the logger is switched off.

It is recommended to set the real-time clock before first logging.

Service life See [Technical Data](#) on page 31.

Replacing the battery The battery may only be replaced by Vector Informatik GmbH. For more information, please contact the Vector Support.



WARNING!

Please note that the housing of the GL2010/GL2410 must not be opened under any circumstances, since otherwise the IP65 protection class of the data logger is no longer guaranteed.

2.9 Technical Data

CAN channels	Max. 4 (GL2000/GL2010) - 2x CAN High-Speed (TJA1043), wake-up capable - 2x optional via Piggybacks Max. 4 (GL2400/GL2410) - 4x optional via GLT Piggybacks
LIN channels	2x - Transceiver: TJA1021 - Wake-up capability
Analog inputs	4x (single-ended) - Voltage range: 0 V ... 18 V - Resolution: 10 bit - Precision: 1 % - Sampling rate: max. 1 kHz - Input resistance: 155.6 kOhm - Reverse-polarity protection: -50 V... +50 V -150 V... +150 V (for max. 3 seconds)
Digital inputs/outputs	4x - Voltage range: 0 V ... 36 V - Pull-up resistor: 10 kOhm to 3.3 V - Threshold High: 1.9 V - Threshold Low: 0.55 V - Sampling rate: 1 kHz - State of unconnected input: High (TRUE) - Current when switched on: max. 500 mA per output - Nominal output current (all channels on): max. 250 mA per output (depends on external circuit) - Amount of all digital outputs: max. 1000 mA (depends on external circuit) - Internal resistance (on resistance): 1 Ohm - Circuit time: typ. 1 ms
USB	2.0
Ethernet	1x 10/100 Mbit/s interface
Start time	Approx. 170 ms with approved Xmore SD/SDHC cards. The start time may vary depending on the type and capacity of the SD/SDHC card.

Battery	GL2000/GL2010: - Lithium primary cell, type BR2032 - Typical service life: 5...10 years, conditions: - $T = +40\text{ °C} \dots +80\text{ °C}$ for at most 40 hours per week and - $T = -40\text{ °C} \dots +40\text{ °C}$ in the rest of the time. GL2400/GL2410: - Lithium primary cell, type CR 2/3 AA - Typical service life: 4...7 years, conditions: - $T = +40\text{ °C} \dots +70\text{ °C}$ for at most 40 hours per week and - $T = -40\text{ °C} \dots +40\text{ °C}$ in the rest of the time.
Power supply	6 V...30 V, typ. 12 V
Current consumption	Operation: - typ. 170 mA at 12 V (GL2000/GL2010) - typ. 182 mA at 12 V (GL2400/GL2410) Sleep mode: typ. <1 mA Standby mode: - typ. 60 mA at 12 V (GL2000/GL2010) - typ. 55 mA at 12 V (GL2400/GL2410)
Temperature range	GL2000/GL2400: $-40\text{ °C} \dots +80\text{ °C}$ GL2010/GL2410: $-20\text{ °C} \dots +80\text{ °C}$ USB interface: $0\text{ °C} \dots +70\text{ °C}$
Dimensions (LxWxH)	GL2000/GL2400: Approx. 175 mm x 137 mm x 35 mm GL2010/GL2410: Approx. 182 mm x 137 mm x 35 mm
Housing	Aluminium housing Alubos 1300
Operating system requirements	Windows 10 (64 bit) Windows 11 (64 bit)

3 First Steps

In this chapter you find the following information:

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3.2 Vector Logger Suite	35

3.1 Switching the Logger On/Off

3.1.1 Automatic Switching

- Power management** For permanent use in vehicles, the loggers are permanently connected to the vehicle battery. Due to the sleep-/wake functionality, the logger will be switched on and off automatically by bus activity. This implements an effective power management with very quick start times without stressing the vehicle battery in idle times (e. g. during night).
- Sleep mode** The logger can be configured to switch to sleep mode automatically if no CAN or LIN message was received within a defined time. This time can be defined in the configuration program (maximum 18,000 s = 5 hours). The sleep mode has a very low current consumption of less than 1 mA.
- Wake-up** The logger wakes up from sleep mode:
- ▶ after reception of a CAN message
 - ▶ after reception of a LIN message
 - ▶ positive edge on the wake-up line (clamp 15)
 - ▶ wake-up timer via real-time clock
- After wake-up, messages will be recorded after 170 ms. The fast wake-up from standby mode allows the recoding of the very first message waking up the logger. However, with typ. 60 mA the standby mode has a higher current consumption than the sleep mode.

3.1.2 Manual Switching

- ▶ The logger is switched on by applying the supply voltage.
- ▶ The logger is shut down by using the shutdown button next to the SD slot. The step by step procedure is described on page 18.
- ▶ Depending on the configuration, bus activity after the shutdown can wake up the logger immediately.

**Note**

The logger must not be switched off by disconnecting the voltage.

3.2 Vector Logger Suite

3.2.1 General Information

Overview

Vector Logger Suite enables the configuration of all loggers of the GL Logger family and offers a wide range of settings. You may set baud rates for CAN and LIN, define triggers and filters, set LEDs and manage logging files on the storage media. Furthermore for the CAN bus diagnostics and CCP/XCP can be configured. For CCP/XCP the logger needs an installed license. For Seed & Key CANape is required. Vector Logger Suite also supports trigger and filter by symbolic names defined in CAN and LIN databases.

Main features are:

- ▶ Customizable filters for CAN and LIN messages and FlexRay frames/PDUs
- ▶ Customizable triggers
- ▶ Support of CAN databases (DBC) and LIN databases (LDF)
- ▶ Support of AUTOSAR description files (ARXML)
- ▶ Diagnostic support
- ▶ File management
- ▶ CCP/XCP (optional)

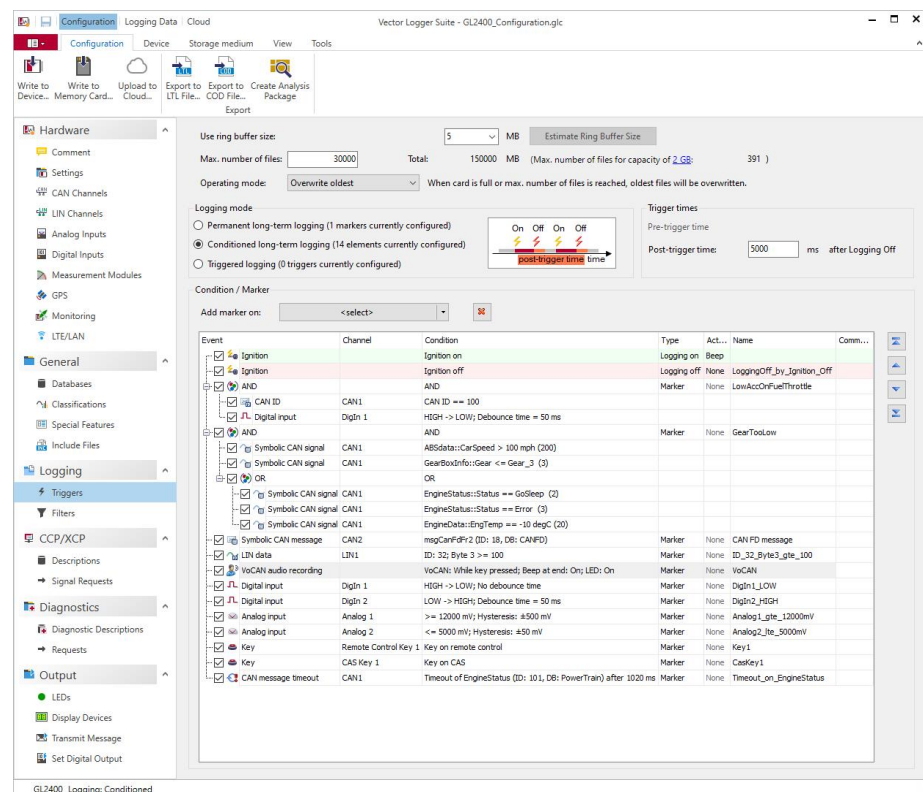


Figure 9: Vector Logger Suite

Requirements

The following software requirements must be fulfilled to run the Vector Logger Suite: Windows 10 (64 bit) or Windows 11 (64 bit)

**Reference**

The Vector Logger Suite is described in detail in the user manual of this configuration program. The user manual is available as PDF and can be opened in the Vector Logger Suite via **Backstage | Documentation**.

3.2.2 Quick Start

3.2.2.1 Installation

**Step by Step Procedure**

The Vector Logger Suite can be installed as a 64 bit program as follows:

1. Execute the setup, which is found in the download package.
.\VLSuite\Setup_VLSuite_64Bit.exe.
2. Please, follow the instructions in the setup program to complete the installation.
3. After successful installation, the Vector Logger Suite can be found in the start menu (if selected during installation).

3.2.2.2 Configuring the Logger



Step by Step Procedure

Follow the instructions below to configure the logger with an SD card, start long-term logging and read out logging data.

1. Start the program.
2. Create a new project in the backstage via **New Project...** In the displayed dialog, select the logger type.
3. Select suitable baud rates for CAN (**Hardware | CAN channels**).
4. Select the timeout to sleep mode (value > 0) in **Hardware | Settings**.
5. Configure the logger for a permanent logging of all data from switching on to switching off of the logger by activating the option **Use permanent logging** in **Logging | Triggers**.
6. Insert an empty, FAT32 formatted SD card into the GL2000/GL2400. The SD card is already inserted in the GL2010/GL2410.
7. Connect the logger to the computer via a USB cable. If the logger is not automatically detected, press **<F5>** to refresh the display of connected logger devices.
8. Write the configuration to the logger via **Configuration | Write to Device**
9. Set the real-time clock via **Device | Set Real-Time Clock...** (recommended before first logging).
10. Disconnect the logger from the computer.
11. Connect the logger to your test system (CAN bus). Power on via connecting cable D-SUB25.
12. Start logging. LED1 flashes permanently (standard setting for new configurations, can be configured).
13. Stop logging by switching off CAN. Wait until the logger goes to sleep mode (CAN transceiver with wake-up capability necessary) i. e. LED1 must be off.
14. Open the module **Logging Data**.
15. Connect the logger to the computer via a USB cable.
16. The data from the logger is automatically displayed if the **Measurement Selection** list was empty before. Otherwise click on **Backstage**  and select the logger from the **Attached Hardware** list.
17. Click on **Destination Format** and select the file format (e. g. BLF logging file) and further settings.
18. Click on **File Storage** and select the target directory and further settings.
19. Click on **Export** to initiate the readout of the logging data and the automatic conversion to the selected file format. The files will be stored in a new sub-folder (Destination Subdirectory) of the target directory.
20. Eject the logger with the  menu from . Disconnect the logger from USB.

4 Appendix

In this chapter you find the following information:

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4.2 Error Messages With Inappropriate Configuration	42

4.1 Accessories

4.1.1 Piggybacks

A piggyback is a plug-in PC-board which implements the interconnection of the logger to a specific CAN bus by the use of various transceivers. The piggybacks are also used in other loggers. See section [Replacing Piggybacks](#) on page 28 on how to replace piggybacks on the logger. Find the available piggybacks in the following tables.

GL2000

Piggyback	Transceiver	Description	Wake-up	Electr. Isolation
1043	TJA1043	CAN High-Speed	✓	-
1043mag	TJA1043	CAN High-Speed	✓	✓
1042	TJA1042	CAN High-Speed	-	-
1050	TJA1050	CAN High-Speed	-	-
1055	TJA1055	CAN Low-Speed	✓	-
1055mag	TJA1055	CAN Low-Speed	✓	✓
Single Wire	TLE6255G	CAN Single Wire	✓	-
Truck Trailer	WABCO	Truck & Trailer	✓	-

GL2400

GL Piggyback	Transceiver	Description	Wake-up	Electr. Isolation
1043	TJA1043TK	CAN/CAN FD High-Speed	✓	-
1055	TJA1055	CAN Low-Speed	✓	-
1463	TJA1463ATK	CAN FD with SIC	✓	-



Note

Piggybacks 1043mag and 1055mag are magnetically decoupled. Due to the decoupling, the power supply and ground for these piggybacks must be connected at the main plug. Therefore, use the according Vbat and GND pins, please. For proper electrical isolation, the piggybacks must be powered from a different source than the logger.



Note

Transceivers with wake-up capability are supplied directly from the supply voltage of the logger.

For the electrically decoupled transceiver, power supply (CAN3/4_Vbatt) and ground (CAN3/4_GND) must be connected separately.

4.1.2 Storage Media

GL2000
GL2400

The GL2000 and GL2400 support industrial grade SD/SDHC cards up to 32 GB.
For the proper use, only the industrial grade cards released by Vector may be used.

Support cases with problems related to non-released storage media cannot be handled by our support team.

4.1.3 Connection Cable Vehicle for D-SUB25

The scope of delivery includes a connection cable for the Vehicle plug. The connections are as follows:

Assignment	Connector
CAN1	D-SUB9 (black)
CAN2	D-SUB9 (red)
LIN1	D-SUB9 (yellow)
Vbatt/KL30	Banana plug (red)
GND	Banana plug (black)
Wake/KL15	Banana plug (red)

All other wires have open ends. If these individual wires are not used, it is recommended to terminate them. This prevents short circuits between the open wires. At the same time the EMC properties are improved.



WARNING!

The connection cable does not comply with IP65.

CAN1/2

D-SUB9 Pin	Assignment
2	CAN Low
3	GND
7	CAN High

LIN

D-SUB9 Pin	Assignment
3	GND
7	LIN

4.1.4 Other Connection Cables

GL2010/GL2410 IP65 connections

The following IP65 cables are compatible with the GL2010/GL2410:

- ▶ **Ethernet**
 - Vector GL2x10 Ethernet Cable IP65/IP20
 - Phoenix Contact Bus system connector - VS-08-M12MS-10G-P SCO, part number 1417430
- ▶ **D-SUB connector**
 - Conec IP65 D-SUB Plastic Hood and Accessories:
Water resistant hood
- ▶ **AUX connector**
 - Binder Cable plug connector injected, part number 79 1455 212 05
 - Binder Male angled connector injected, part number 79 1455 272 05

4.2 Error Messages With Inappropriate Configuration

If the configuration update fails due to an inappropriate configuration (COD file), the file `UpdateFailure.txt` with an error message is stored on the memory card. The Vector Logger Suite informs about failed configuration updates.

Error Message	Description
File <COD filename> does not belong to this system (GL2xxx), it was compiled for system <DEVICE_TYPE>.	No correct COD file, it was compiled for another model as the GL2xxx.
File <COD filename> is not a COD file, failed content check.	Wrong COD file, unknown content.
COD file is corrupted .	Wrong COD file, the COD file content is corrupt.
COD file <COD filename> has no correct size <filesize>.	Wrong COD file, the COD file has no correct size.
Rejected to flash COD file <COD filename>, time stamp equals currently running COD's time stamp.	The same COD file is already active on the data logger.
File <COD filename> does not have the minimum FW version of 2.00 for this hardware.	The COD file is old and therefore not suitable for the new GL2400.



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