

User Manual

Data Logger

Sebalog D-3

Mess- und Ortungstechnik Measuring and Locating Technologies

Elektrizitätsnetze
Power Networks



Kommunikationsnetze
Communication Networks



Rohrleitungsnetze
Water Networks



Abwassernetze
Sewer Systems



Leitungsortung
Line Locating



Consultation with SebaKMT

The present system manual has been designed as an operating guide and for reference. It is meant to answer your questions and solve your problems in as fast and easy a way as possible. Please start with referring to this manual should any trouble occur.

In doing so, make use of the table of contents and read the relevant paragraph with great attention. Furthermore, check all terminals and connections of the instruments involved.

Should any question remain unanswered or should you need the help of an authorized service station, please contact:

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For damage resulting from a violation of their duty to repair or re-supply items, SebaKMT can be made liable only in case of severe negligence or intention. Any liability for slight negligence is disclaimed.

Since some states do not allow the exclusion or limitation of an implied warranty or of consequential damage, the limitations of liability described above perhaps may not apply to you.

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1 Safety Instructions

1.1 General Safety Instructions and Warnings



- Do not drop the device / the system's components or subject it / them to strong impacts or mechanical shocks.
- The limits described under Technical Data may not be exceeded.
- The device / system must be in a technically perfect condition for measurement.
- The indicated degree of protection can only be ensured if plugs or the provided protection caps are put in all sockets of the device.
- The plugs of the supplied connection cables are only compliant to the indicated degree of protection as long as they are plugged in. Plugs which are not connected or which are connected in a wrong way are not protected from water and dust ingress.
- If the O-ring seal of a socket is obviously damaged, it must be replaced in order to ensure the total protection against water and dust ingress.

1.2 General Notes

Safety precautions This manual contains basic instructions for the commissioning and operation of the device / system. For this reason, it is important to ensure that the manual is always available to the authorised and trained operator. He needs to read the manual thoroughly. The manufacturer is not liable for damage to material or humans due to non-observance of the instructions and safety advices provided by this manual.

Locally applying regulations have to be observed!

Labelling of safety instructions The following signal words and symbols are used in this manual and on the product itself:

Signal word / symbol	Description
CAUTION	Indicates a potential hazard which may result in moderate or minor injury if not avoided.
NOTICE	Indicates a potential hazard which may result in material damage if not avoided.
	Serves to highlight warnings and safety instructions. As a warning label on the product it is used to draw attention to potential hazards which have to be avoided by reading the manual.
	Serves to highlight important information and useful tips on the operation of the device/system. Failure to observe may lead to unusable measurement results.

Check contents Check the contents of the package for completeness and visible damage right after receipt. In the case of visible damage, the device must under no circumstances be taken into operation. If something is missing or damaged, please contact your local sales representative.

Working with products from SebaKMT It is important to observe the generally applicable regulations of the country in which the device will be operated, as well as the current national accident prevention regulations and internal company directives (work, operating and safety regulations).

Use genuine accessories to ensure system safety and reliable operation. The use of other parts is not permitted and invalidates the warranty.

Repair and maintenance Repair and maintenance work has to be carried out by SebaKMT or authorised service partners using original spare parts only. SebaKMT recommends having the system tested and maintained at a SebaKMT service centre once a year.

SebaKMT also offers its customers on-site service. Please contact your service centre if needed.

Special transportation requirements The lithium batteries of the device are dangerous goods. The transport of the batteries themselves and of devices which contain such batteries is subject to regulations based on the UN Model Regulations "Transport of Dangerous Goods" (ST/SG/AC.10-1).

Please inform yourself about the transportation requirements and follow them when shipping the device.

Electromagnetic radiation This device is designed for industrial use. When used at home it could cause interference to other equipment, such as the radio or television.

The interference level from the line complies with the limit curve B (living area), the radiation level complies with the limit curve A (industrial area) according to EN 55011. Given that living areas are sufficiently far away from the planned area of operation (industrial area), equipment in living areas will not be impaired.

For FCC:

- User Information acc. to FCC15.21:

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

- Part 15 Statement acc. to FCC 15.19/RSS Gen Issue 3 Sect. 7.1.3:

This device complies with Part 15 of the FCC Rules and with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment should be installed and operated with a minimum distance of 20 centimeters between the radiator and your body.

2 Technical data, scope of delivery and accessories

2.1 Technical data

Depending on the configuration, the Sebalog D-3 is specified by the following parameters:

Parameter	Value
Communication	Short-range radio 868 MHz (in Europe) 913.02 MHz (in the US) 913 / 916 MHz (depending on the country) Mobile radio (GSM / GPRS / UMTS) 850 / 900 / 1800 / 1900 / 2100 MHz
Inputs / outputs	2 or 4 freely programmable channels, digital: 0...5 V / pulse / frequency analogue: 4...20 mA (max. 2 channels); Up to 2 switching inputs (alarm trigger); Up to 2 switching outputs (alarm installation); Connectors for internal pressure sensor
Internal pressure sensor	optional (16 bar / 25 bar / 35 bar); accuracy: +/- 1 % resolution: 0.006 bar (16 bar sensor)
Log interval standard measurement pressure surge meas.	Standard measurement 1 sec up to 24 hrs selectable Pressure surge measurement 0.1 sec or 1 sec selectable
Memory	4 MB internal memory block or roll memory selectable
Alarm	Switching input and threshold monitoring for each channel possible; Triggering of switching output(s); Alarm messages via SMS / e-mail; Measuring data upload to FTP server in case of alarm
Battery	Internal lithium batteries
Ext. power supply	12 V DC
Operating temperature	-20°C ... +70°C (-4°F ... 158°F)
Operating temperature	5°C ... +70°C (41°F ... 158°F)
Storage temperature	-20°C ... +70°C (-4°F ... 158°F)
Dimensions (L x W x H)	approx. 185 x 115 mm
Weight	approx. 0.9 kg (incl. batteries)
Degree of protection	IP 68

2.2 Scope of delivery and accessories

Scope of delivery The Sebalog D-3 package contains:

Accessory part	Description	Item No.
LOG D-3	Flow and pressure data logger	depends on variant
CSW Dataview-3	SebaDataView-3 user software	118302210
Handbuch en	User manual	83914

Accessory set The LOG D-3-A (Item No. 1007011) accessory set contains:

Accessory part	Description	Item No.
VK 86	Connection cable for connecting up to 4 sensors	820019262
Hydraulikschlauch	Pressure hose, 2 m, 35 bar.	118304220
GSM-Antenne	GSM antenna with connection cable, 2 m	820020888

Optional accessory parts The following optional accessory parts can be ordered from SebaKMT:

Accessory part	Description	Item No.
LOG D-EB	External accumulator set for the logger	820020355
VK 88	Connection cable for LOG D-EB	820020384
LG LOG D-EB	Charger for LOG D-EB	820021240
VK 75	Connection cable without connection box	820012449
VK 76	Connection cable with connection box	820012450
VK 84	Connection cable between Log D-3 and UDM 300	820018168
LOG RI	Radio interface forPC/laptop	820025783
LOG RI+	Radio interface forPC/laptop	1003877

3 Technical description

3.1 Function

Sebalog D-3 (in short: Log D-3) is a compact, robust and extremely versatile data logger. The device can record the readings of various sensor types in user-defined intervals. Depending on the configuration, up to 4 freely programmable channels can be connected to sensors for data recording.

Log D-3 loggers are also available with integrated pressure sensors. Hoses can be connected directly to the device to perform a pressure measurement.

In addition to the standard pressure measurement, the recording of suddenly occurring pressure increases or decreases is possible - so-called "pressure surge measurement".

In addition, the "pressure analysis measurement" allows the long-term recording of the pressure curve with a narrow measuring interval. Using the 'real-time measurement' function or the 'Step Test' function, a measurement can be carried out and observed 'live' on a computer.

The logger can be used for monitoring purposes, as it is able to trigger user-defined alarm signals (e.g. signal lights, SMS or e-mail) if a threshold is exceeded or special alarm equipment is triggered.

Recorded measuring data are stored in the loggers memory and can be retrieved via short range radio. Loggers equipped with a GSM module can also send the data regularly to an FTP server, from where they can be downloaded to any Internet-capable computer.

Programming of the device, as well as retrieving and evaluating the recorded measuring data is performed by the help of the 'SebaDataView-3' PC software.

3.2 Design

3.2.1 Controls and indicators

The following figure shows the loggers' ON/OFF switch and control lamp.



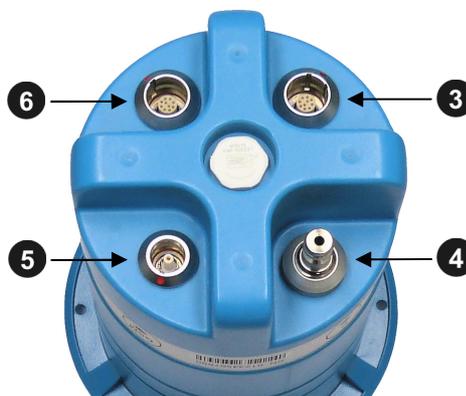
Item	Description
1	On/Off contact area
2	I/O control lamp

Control lamp states Here you find some possible states of the logger's control lamp:

LED status	Description
green (1 x per sec)	logger is switched on
red (regularly)	logger is sampling (flashing is according to log interval)
blue (1x each 10 sec)	logger is checking for radio signal
blue (rapidly)	during data transfer via radio
blue (constantly)	during connection to radio signal
green (unsteady)	GSM operations are done, data are transmitted
green (constantly)	logger is dialing in to GSM network
red (constantly)	<p>Error !!</p> <ul style="list-style-type: none"> • common GSM error, e.g. powering up modem failed, no SIM card detected, dial in unsuccessful, error during ftp data transfer - (LED turns off when modem was successfully turned down) • wrong PIN code - (flashing red 3x before turning on constantly) • SIM-card blocked, PUK needed - (flashing white 3x before turning on constantly)

3.2.2 Connectors

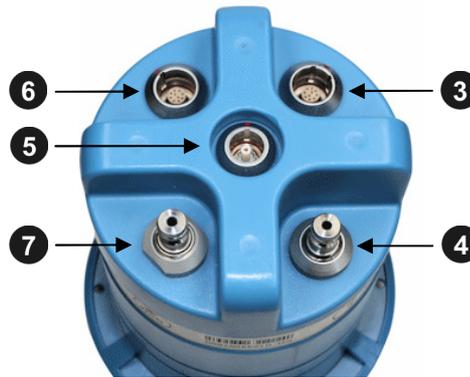
The following figure shows the connectors of a fully equipped logger. Which connectors are part of the assembly depends on the configuration of the logger.



Item	Description
3	DC ext. socket - for connecting an external power supply or alarm triggering devices
4	Connector P1 Pressure sensor (internal measuring channel: "Channel 1")
5	GSM socket for connecting the external GSM antenna
6	IN socket for connecting sensors or peripheral devices

For loggers that have two internal pressure sensors, the connections are arranged somewhat differently (see next page).

Loggers with 2 internal pressure sensors The following figure shows the connections or connection sockets of a logger with two internal pressure sensors.



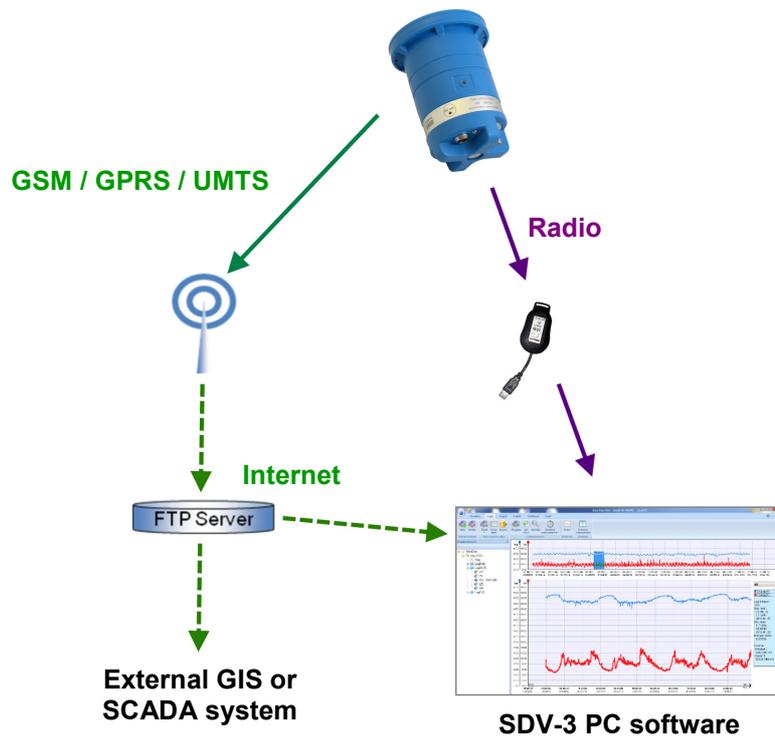
Item	Description
3	DC ext. socket for connecting an external power supply or alarm triggering devices
4	Connector P1 pressure sensor (internal measuring channel: "Channel 1")
5	GSM socket for connecting the external GSM antenna
6	IN socket for connecting sensors or peripheral devices
7	Connector P2 second pressure sensor (internal measuring channel: "Channel 3")

3.3 Communication

The SebaDataView-3 software is used on a PC/laptop to program the logger before the measurement and to retrieve the collected data after the measurement.

Short range radio is used for communication between the devices. The computer must have a radio interface. For that purpose the 'Log RI' or "Log RI+" can be connected.

Furthermore, if your logger is equipped with an internal GSM module, measurement data uploads to an FTP server or configuration data downloads to the logger are possible.



Loggers, which are to be contacted via radio, have to be switched on and must be situated within the wireless range of the computer or reading device.

3.3.1 Log RI or Log RI+ radio interface

'Log RI' The compact 'Log RI' is the standard radio interface for communicating with devices of the Sebalog series.



'Log RI+' The radio interface 'Log RI+' is available as accessory from SebaKMT. Compared to the Log RI the device has a higher-performing radio module which allows a higher radio range.



Use Simply connect the 'Log RI' / 'Log RI+' to a USB port of the computer. The device switches itself on. The device is automatically detected by the computer and immediately ready to establish the radio link. There are no further adjustments to be done.

Status LED The device has a status LED:

- flashing 1x red, 1x green ... switching on
- blue light ... data transfer in progress
- red light ... malfunction

Update We recommend that the device is always operated with the latest firmware. More exact information on how to update the firmware in Sebalog N-3 series devices is available in its own chapter in this operating manual.

3.3.2 Reader-3 used as radio interface

The 'Reader-3' reading device from SebaKMT can be used to establish radio communication, too.

Connect the Reader-3 to the USB port of your PC using the Docking Station and switch it on. The device automatically starts in USB mode. It is automatically detected by the computer and immediately ready to establish the radio link. There are no further adjustments to be done. For further information please consult the operating instructions of your Reader-3.

3.4 Power supply

3.4.1 Internal supply

The device is powered by internal Lithium batteries. Depending on the variant, one or two batteries can be installed.

Battery lifetime The effective lifetime of the batteries strongly depends on which functions are used and how often they are used.

Using the following settings and under the following conditions a logger can be operated for up to five years without changing the batteries.

Parameter	Setting
Channel 1	Internal pressure sensor
Channel 2	External sensor; Input signal: Pulse
Channel 3	External sensor; Input signal: Pulse
Channel 4	External sensor; Input signal: Pulse
Log interval	15 min

Event	Number
Data transfer via GSM	Once a day (SMS / e-mail / FTP upload)
Pressure surge recording	Once a day
Alarm events per day	No

Empty batteries When the batteries get low, the logger switches itself off. Measurement data, logged up to that point, remain safely in the loggers' memory until the next programming.

Flat batteries can be replaced (see page 85). A set of matching spare batteries is available from SebaKMT.

3.4.2 External power supply

In order to expand the operating time of the measuring system, the logger can be supplied by an external energy source.

The logger is connected to this source using the VK 76 connection cable (see page 30).

- Supply voltage: 12 V
- Supply current: approx. 0.5 A (if the GSM function is not used)
approx. 1.5 A (when using the GSM function)

	<p>NOTE Peaks of 4 A can occur.</p>
---	--

External rechargeable battery pack There is an external rechargeable battery pack available from SebaKMT which can be connected to the data logger in order to expand the operating time of the measuring system. The logger is connected to the external battery pack by means of the VK88 connection cable. The 10-pole connector (red) of the cable has to be plugged in the

DC ext. 3 socket of the logger. Then the 5-pole connector has to be plugged in one of the sockets of the battery, no matter which one. From now on the logger is powered by the external battery only, until the connection is cut or the capacitance of the external battery gets low. In that case, the logger switches back to internal power supply.

Use the supplied mains adapter to recharge the external battery pack. Plug the round 5-pole connector in one of the sockets of the battery, no matter which one. Once the battery is connected to the mains, it is charging. The charging process for a fully loaded battery takes 12 to 13 hours. Overcharging of the battery cannot occur if the supplied mains adapter is used.

3.4.3 Checking the battery status

The logger does not have a battery indicator. However, whenever the measured data or configuration data are queried from the logger, information on the current battery status of the logger is also sent to the receiver.

In the SebaDataView-3 Software, you can find the latest battery status in the device's status information (see page 79).

To check the current battery status of a logger, you should read out the configuration of this logger with the computer.

Requirements The following requirements must be fulfilled to do so:

- computer with SebaDataView-3 software
- a radio interface must be connected to the computer (e.g. Log RI)
- the logger must be registered in the software
- the logger must be switched on
- the device must be within the computer's wireless range

Procedure Proceed as follows:

Step	Description
1	Select the relevant device in the directory tree of the SDV-3 software.
2	In the menu bar, click on Program . Result: In the State segment, the battery status may already be indicated. However, this information only relates to the point in time of the last data readout and is thus not current.
3	Click on Read . Result: The configuration data is transferred from the logger and shown on the screen of the computer. The battery level shown in the State segment is now up-to-date.

3.5 Memory

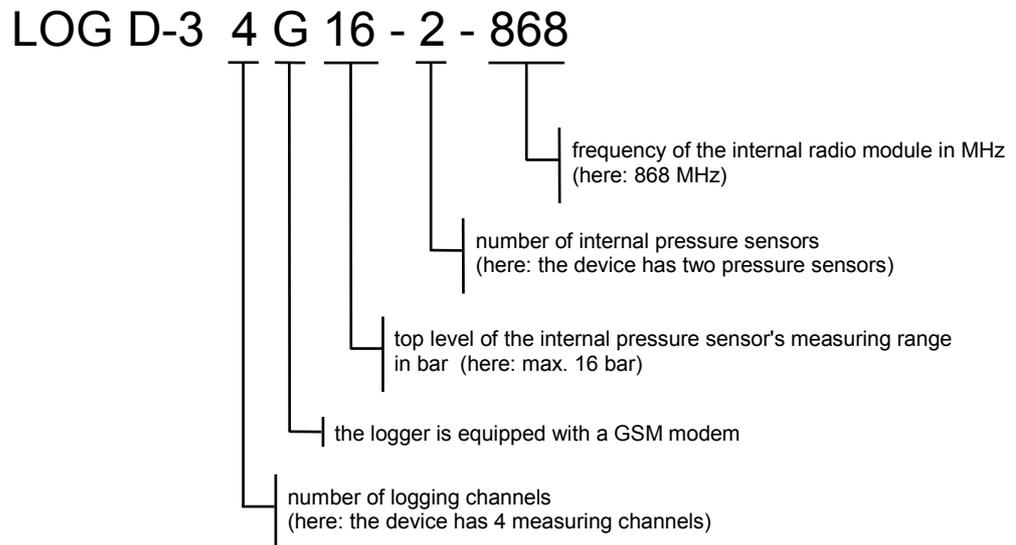
The device has 4 MB internal memory. For example, if 4 sensors are connected and a recording interval of 5 minutes is specified, this is sufficient for 5 years non-stop data recording.

As part of the programming process, the logger can be set to "ring memory mode". As the memory fills up with data in this mode, the device keeps logging and the respective oldest value is overwritten.

3.6 Available versions

The Sebalog D-3 data logger is available in a wide variety of configurations. The type code on the logger's label showshow the device is equipped..

Type code The type code consists of the following segments:



Due to the large amount of possible configurations, this manual cannot state explicitly whether or not a described function applies to your device. Please use the information provided within this section to identify the specific capabilities of your logger.

4 Data encryption and password

4.1 Introduction

Many SebaKMT devices support the following security features:

- Encryption of the radio communication
- Encryption of data transfers from / to the FTP server
- Possibility of assigning a user password for access restriction

The following table shows which devices have the security features Radio Encryption and Password Protection and which firmware version is at least necessary.

Software / Device	Firmware
SebaDataView	≥3.2.0.0
SebaCloud	≥9.0.0
LOG PS-3	≥2.0.0
LOG D-3	≥1.05.00
LOG GT-3-1	≥1.013
LOG GT-3-S	≥1.013
LOG GSM-3-2	≥1.013

4.2 Encryption of the radio communication

By default, the devices or software applications listed above (see table in the previous section) work with an encryption protocol for wireless communication. This means that certain user-sensitive data will only be transmitted encrypted.

These data are subject to encryption:

- SIM Pin
- any access data for FTP servers and e-mail accounts
- any telephone numbers and e-mail addresses
- any GPS data
- comment text

These data are not subject to encryption:

- measurement settings (for example, measurement interval, measurement period, channel config, etc.)
- measurement data

These transmission paths are subject to encryption:

- Radio communication between the computer with SebaDataView-3 software and a SebaKMT device
- Radio communication between the PocketServer-3 and a SebaKMT device



Both devices, transmitter and receiver, must at least work with the above-mentioned firmware version (see table in the previous section). Otherwise, only unencrypted data transmission is possible.

4.3 Encryption of data uploads and data downloads

The devices listed above are able to use an encryption protocol for GSM data transfers between the device and an FTP server or between the device and the SebaKMT Cloud.

Whether the data should be transmitted encrypted and which protocol should be used, the user can specify when programming the device.

You will find more information in chapter "Programming the Logger".

4.4 Password protection

Ex works, the above-mentioned devices and applications work without password protection, that is, any user can access and work without restriction. No password is requested.

It is possible to restrict access to the devices or applications so that only authorized persons can work with them. For this purpose, the main user of the SebaDataView-3 software can create passwords for the following three user groups:

- **„User level 1“:** Users with unlimited rights
Persons who have the password for this user level are considered main users. They have the full functionality of the software at their disposal. Main users are allowed to manage passwords and extend password protection from SebaDataView-3 to SebaKMT devices.
- **„User level 2“:** Users with reading and programming rights
Persons who have the password for this user level can read data from the SebaKMT device, program the device, and perform firmware updates.
- **„User level 3“:** Users with reading rights
People who have the password for this user level can read data from the SebaKMT device.

When the software is started, a login area always appears, which requires the user to select the user level and enter the corresponding password.

As a result, the SebaDataView-3 password protection can be extended from the software to SebaKMT devices, so that these devices can only be used by authorized persons.

You will find detailed information about SebaDataView-3 password protection in the chapter "SebaDataView-3 software" chapter.

You will find detailed information about the Log D-3 password protection in the "Password protection for Log D-3" chapter.

5 Commissioning the logger

5.1 Preparations for mobile communication

If your data logger is equipped with an internal GSM modem for mobile radio communication, alarm messages and status messages can be sent via e-mail or SMS. Furthermore, collected data can be transferred to an FTP server. From there they can be downloaded with any Internet-capable computer anywhere in the world.

UMTS / GPRS / GSM For data transfer via mobile radio you have to close a suitable contract with a mobile phone service provider, in order to get a SIM card enabled for data transfer via UMTS.

FTP server For measuring data uploads, free memory space on an FTP server is needed. You can ask your administrator to set up an FTP server using the server infrastructure of your company or you can rent a server from a commercial internet service provider.

You can also rent FTP space from SebaKMT. Please contact your SebaKMT distributor.

Under certain conditions the demo server run by SebaKMT can be used.

E-mail messages If you wish to receive alarm messages or status messages via e-mail, an e-mail account is needed from which the messages are to be sent. If the mail server of your company is not capable for this task (e.g. due to a firewall), a webmail account from an internet service provider (e.g. Yahoo or Google) can be used instead.

Under certain conditions the demo account run by SebaKMT can be used.



Please note that the mobile radio link function increases the loggers' energy demand, which has a strong negative influence on the battery life of the logger.

5.2 Preparing the logger for GSM

In order to prepare the logger for GSM connectivity, the SIM card has to be inserted and the GSM antenna must be connected. You received the SIM card from your mobile operator when you concluded the mobile contract.



NOTE

Please be careful not to damage any parts. Don't use any force.

Insert SIM card Proceed as follows:

Step	Description
1	The Logger has to be switched off.
2	Loosen the six screws on the device.
3	Loosen and remove the cover of the device. To do so, do not use tools, even if the cover is extremely tight.
Result: Inside the housing you have access to the batteries and SIM card slot.	

(continued on next page)

Step	Description
4	<p>Insert the SIM card.</p> <p>To remove the tray for the SIM card from its fastener, press the yellow spring mechanism (e.g. by the help of a screwdriver or a pen). Remove the tray and place the SIM card on it so it fits. Then push the tray back into the bracket until it locks into place.</p> 
5	<p>Attach the cover to the housing again.</p> <hr/> <p> The rubber seal inside the cover is not glued in and may possibly fall out. Therefore, when re-assembling the device, it may be helpful not to put the cover on the housing but to take both parts upside down and then put the housing on the cover.</p> <hr/> <p>Note the following points when assembling.</p> <ul style="list-style-type: none"> • The rubber seals and the housing and cover surfaces which touch each other must be free of dirt. • Do not pinch the wires of the batteries! • Do not jam cover when putting it on the housing! • Tighten screws crosswise! • Carefully tighten the screws finger-tight! Do not overtighten!

Connect GSM antenna The logger has no internal or external antenna. To enable the GSM connectivity the delivered external GSM antenna must be connected to the device.

Connect the antenna to the **GSM** socket **5**. Make sure that the guide on the plug fits in the groove in the socket and that you feel the plug latch in.

5.3 Switching the logger On/Off

The logger is switched on by the help of a magnetic switch.



NOTE

Before switching the logger on, all connected devices have to be disconnected (unplug connectors) because the internal relays of the logger are initiated during the switch-on process. Thus, connected devices could be turned on and off unexpectedly and unintentionally.

Move the supplied magnet in front of the contact area **1**. After the magnet switch has been activated, the **I/O** control lamp **2** is lit green for a moment and starts flashing blue after the logger has been started up. The device is now in energy saving mode.

Whenever a radio or GSM connection is established and whenever a data transfer takes place, the logger automatically switches to data transfer mode.

In order to switch the logger off, the magnet must be held in front of the contact area **1** for a few seconds while the **I/O** control lamp **2** is lit orange. As soon as the lamp switches to red, the magnet has to be taken away from the contact area. Afterwards, the logger switches off and the lamp goes out. Make sure to take the magnet away immediately after the lamp switches to red. Otherwise, the logger reboots right after it has been switched off.

Switching the device off has no effect on the measurement data stored. The measurement data remain in the logger's memory up to the time at which the device receives new configuration data.



After being switched off and on again, the logger's latest configuration still is stored and can be retrieved, but it is no longer valid. The logger does not resume measuring.

Furthermore, after being switched off and on again, the logger's system time is no longer current.

Therefore, the logger needs to be programmed anew after every restart.

5.4 Programming the logger

Prior to its on-site installation, the logger must be properly configured using the supplied SebaDataView-3 software. In doing so, the logger has to be provided with the channel allocation, the alarm conditions and the wireless connection parameters among other things.

Please refer to the according chapter in order to get a detailed description of how to configure the logger (see page 51).

6 Connecting the logger and installing it on-site

6.1 Connecting sensors to the logger

Depending on its configuration, the following peripheral and measuring devices can be connected to a logger:

- up to 4 sensors can be attached and the data can be logged (e.g. pressure, flow)
- up to 2 alarm-triggering devices (e.g. a light barrier) can be connected to the switching inputs
- up to 2 devices (e.g. signal lamp, pump) can be connected to the switching outputs and can be triggered in the case of an alarm
- one hose can be directly connected to the internal pressure sensors

Depending on the type of sensors / alarm devices connected, the appropriate parameter values have to be provided to the logger using the *SebaDataView-3* software. Please refer to the according chapter in order to get a detailed description of the necessary configuration steps (see page 51).



External sensors connected cannot be supplied by the data logger. They need a separate power supply.

6.1.1 Fixed channel allocations

The internal pressure sensors P1 and P2 are always linked to measuring channel 1 and 3. If your logger is equipped with internal pressure sensors, the respective channels are in use and must not be connected to external sensors.

Due to the internal wiring of the logger, current loops can only be connected to the channels 2 and 4.

Corresponding to these conventions, the following channel allocations apply:

	Channel 1	Channel 2	Channel 3	Channel 4
Internal pressure sensor P1	X			
Internal pressure sensor P2			X	
First current loop		X		
Second current loop				X

Please pay attention to this assignment both when connecting sensors as well as when selecting the measuring channels when programming the logger.

6.1.2 Connecting a hose to the internal pressure sensor

If your logger is equipped with one or two internal pressure sensors, hoses can be connected directly to the connectors **P1 4** or **P2 7**. In order to do so, your hose has to be equipped with a female quick-fit connector.



NOTE

When connecting a hose to the internal sensor, the following instructions must be noted:

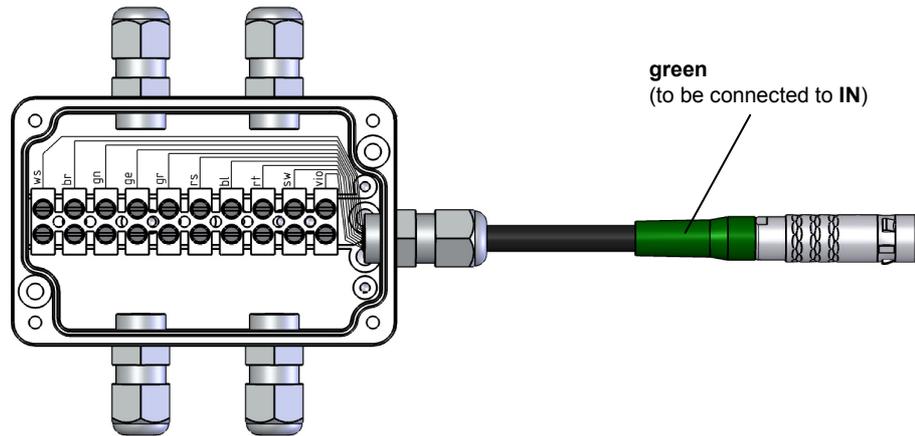
- Pressure sensors are sensitive to overpressure. Do not exceed the measuring range in order to avoid irreparable damage to the sensor.
- Do not undercut the specified operating temperature of the pressure sensors in order to avoid irreparable damage to the sensor by freezing water.
- Make sure no dirt or rust can ingress inside the sensors. In case of doubt, use a filter.
- After use or prior to storage for a longer period, each pressure sensor must be cleaned with compressed air. There must not be any water inside the sensor after use. Otherwise, frost can damage the sensor.

The sensors are capable of measuring the pressure of both liquid and gaseous media.

6.1.3 Connecting sensors

Any connection of a sensor is established via the VK86 connection cable attached to the **IN** socket **6**.

One end of the connection cable is equipped with a box providing a terminal block the colour-coded wires coming from the logger are connected to. Each colour represents a specific input / output of the logger.



The VK86 connection cable has the following pin assignment:

Wire	Description	
white	Channel 1 +	Channels up to 4 sensors can be connected to.
brown	Channel 1 –	
green	Channel 2 +	
yellow	Channel 2 –	
grey	Channel 3 +	
pink	Channel 3 –	
blue	Channel 4 +	
red	Channel 4 –	
black	not used	
purple	not used	

To connect a sensor, lead its connecting wires into the box using one of the four cable glands and connect them to the respective terminal of the terminal block.

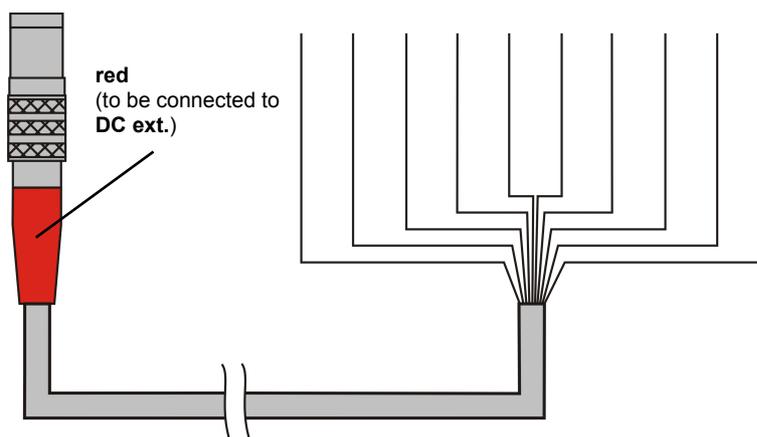
When you connect the cable to the **IN** socket of the logger, make sure that the guide on the plug fits in the groove in the socket and that you feel the plug latch in.

	<p>NOTE</p> <p>When you install the measuring system please keep in mind that water and dust can penetrate the box.</p>
--	--

6.1.4 Connecting devices to the switching Inputs / Outputs

The switching input / output connections and the external power supply are established via the VK76 connection cable attached to the **DC ext.** socket **3**.

One end of the cable is uncoated and ten colour-coded wires stick out of it. According to its colour, each of these wires represents a specific input / output of the logger and can be directly connected to the respective terminal of a peripheral device.



The VK76 connection cable has the following pin assignment:

Wire	Description	
white	Switching Input 1	An alarm-triggering device with a voltage output of 0 ... 5 V can be connected between a switching input and the purple wire (GND).
green	Switching Input 2	
brown	Relay 1 OUT	An electric circuit with an external DC power supply up to 12 V / 1 A can be connected to each switching output. If an internal relay is triggered by an alarm event, the respective circuit is closed and the connected load is activated / triggered.
yellow	Relay 2 OUT	
pink	Relay 1&2 IN	
red	External power supply	An external power supply with 12 V DC can be connected between this wire and the purple wire (GND). The internal battery cannot be charged by an external power supply.
purple	GND	
grey	not used	
blue	not used	
black	not used	

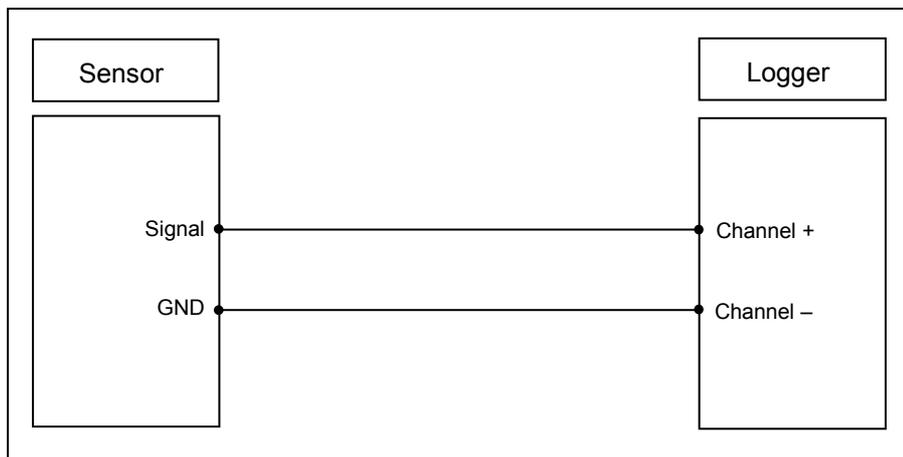
If no adequate terminals are existent, a luster terminal or other accessories can be used to connect a peripheral device. A proper electrical insulation must be ensured.

Make sure that the guide on the plug of the VK76 cable fits in the groove in the **DC ext.** socket and that you feel the plug latch in.

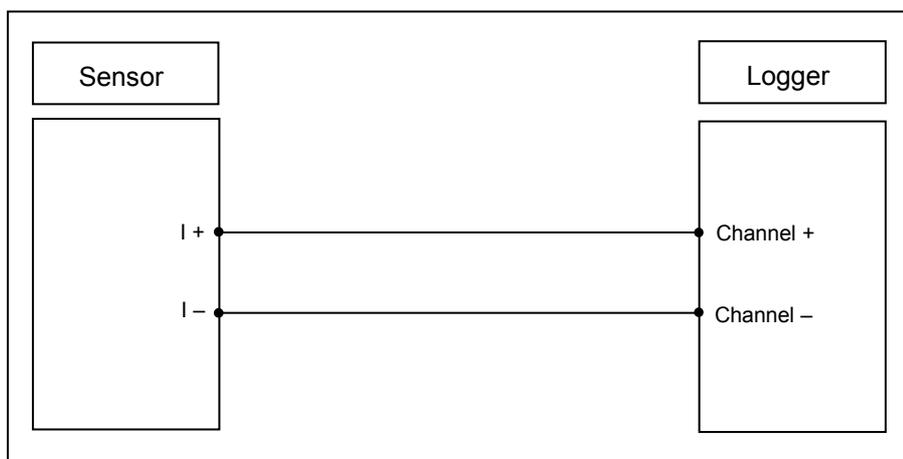
6.1.5 Wiring diagram examples

In the following, some connection examples are described. Depending on the sensor, the actual wiring diagram and the terminal designation may differ. Please refer to the respective sensor manual for detailed information.

Output signal type The following example describes how to connect a sensor with a 0 - 5 V voltage output or 0 Hz - 6000 Hz frequency output or pulse output:
voltage/frequency/pulse



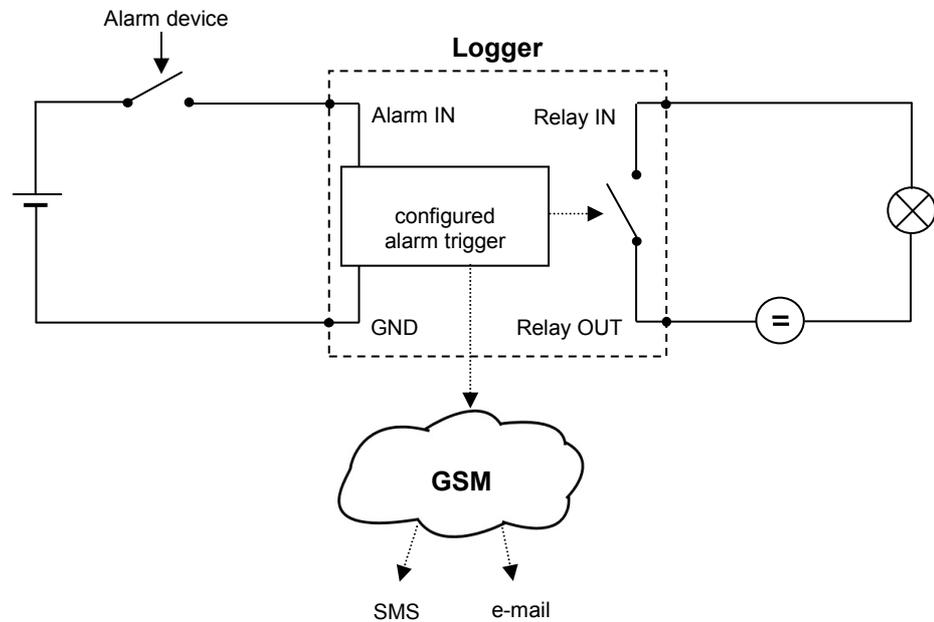
Output signal type The following example describes how to connect a sensor to a 4 ... 20 mA current loop:
current



NOTE

A current loop can only be connected to channel 2 or 4.

Example of an alarm loop The following example shows an electrical circuit with DC power source connected to the switching input of the loggers. If an alarm is raised by the alarm device (e.g. light barrier) is activated, the circuit is closed and the switching input is triggered. Depending on the alarm configuration, one or two of the internal relays are switched in order to activate / trigger the load connected to the respective switching output (in this case a signal lamp) and a SMS and / or e-mail can be sent to predefined receivers.



Alarms can also be triggered when the value of a monitored measurement crosses a predefined threshold. Please refer to the corresponding section for detailed information on how to configure the threshold monitoring (see page 58).

6.2 Positioning the logger

The logger housing is protected against the ingress of dust and water and, thus, especially qualified for the operation in pipeline shafts where it can be installed next to the measuring point.

The logger can be installed in vertical and horizontal position or even upside-down and it can also be hung up using, e.g., a cable tie.

General advices During field installation the following instructions must be observed, in order to ensure proper operation of the logger:

- Make sure that all connections to sensors of other peripheral devices are established in a professional manner and that the connection points are properly insulated.
- When you plug a connection cable in the respective socket, make sure you feel the plug latch in. Only proper and positive locking connections provide protection against ingress of water and ensure error-free data transfer.
- Unused sockets must be sealed with the protective caps.
- Do not bend the connection cables.
- Care shall be taken to ensure that cables and their connections are not subjected to tensile load.
- Do not hang the logger on its connection cables.
- Make sure the logger is switched on and programmed before you leave the site.

Additional advices for loggers with GSM You have to observe the following instructions when positioning the GSM antenna:

- The GSM antenna must be properly connected to the logger. Make sure that the guide on the plug fits in the groove in the **GSM** socket **5** and that you feel the plug latch in.
- Be aware that thick walls and other barriers do affect the signal strength negatively.
- If the logger is installed underground, e.g. in a pipeline shaft, the antenna should be positioned as near as possible to the ground surface. The deeper the antenna is positioned, the smaller is the chance of an adequate reception.

Check the GSM connectivity using the GSM test function of the SebaDataView-3 software (see page 67) right after the GSM antenna has been positioned.

If no connection can be established, a better position has to be found. If necessary, lead the antenna out of the shaft and bury it a few centimetres under the ground surface.

7 SebaDataView-3 software

7.1 Introduction

SebaDataView-3 (abbreviation: SDV-3) is the multifunctional application software for working with devices in the 'Sebalog' series. You can use it to configure devices and read out the measurement data from the devices. The measurement data can be displayed and analysed in greater detail using various functions on the computer.

7.2 Installation

System requirements Your machine must meet the following minimum system requirements in order to run the SebaDataView-3 software:

- PC or notebook with Windows 7® or higher
- min. Pentium IV compatible CPU (at least 2 GHz)
- min. 2 GB memory
- USB interface
- CD ROM drive

Installation To install the software insert the provided CD, execute the installation file and follow the instructions on the screen. The application is installed to the following folder:
C:\Program Files\SebaKMT\SebaDataView.

Furthermore, a database is created in the Windows standard folder for application data.

Software start Start the application by double-clicking on the desktop icon created during the installation process. Alternatively, the application can be started via the Windows start menu.

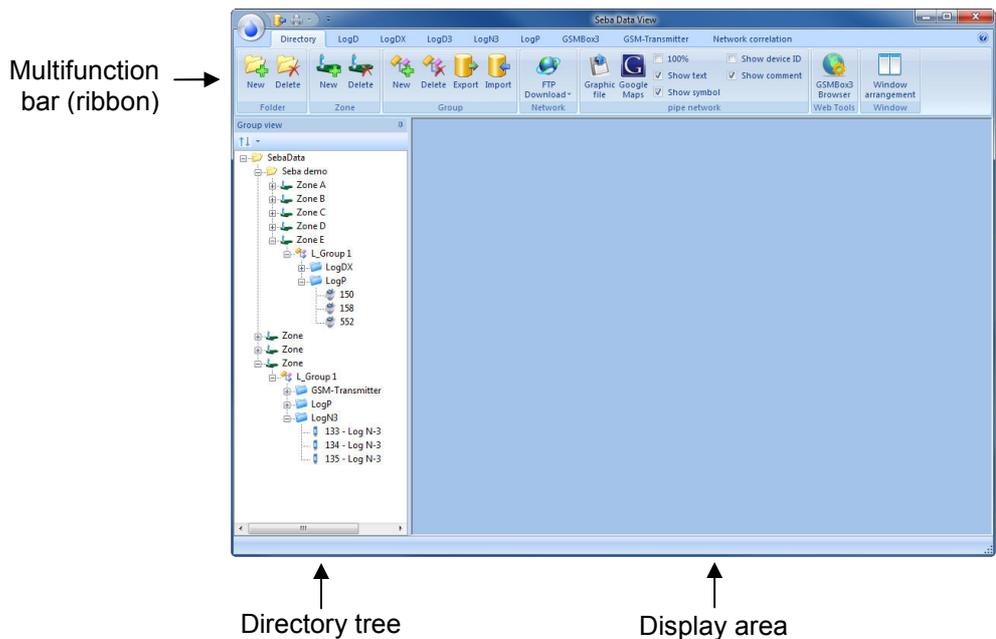
Language selection During start-up you are asked to select the language of the user interface. Make your choice from the drop-down-list and click on **OK**.

Software update During start-up, the current version of the software is displayed on the screen. Please check www.sebakmt.com regularly for updates. To install a new version of the software, store the respective file on your PC, execute it and follow the instructions on the screen.

7.3 Function and structure

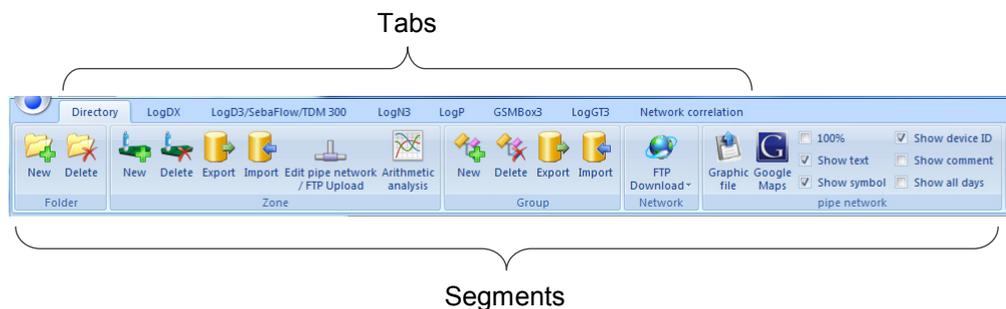
Introduction SebaDataView-3 (SDV-3) is the multifunctional user software for working with devices of the Sebalog series. Using the software, loggers can be programmed prior to the measurement. After measurement the recorded data can be queried from the loggers, displayed and analyzed.

User interface The SDV-3 user interface is based on the Microsoft Office suite (2007 and later). In all menu levels the display shows the following structure:



Multifunction bar All function and command buttons are arranged in a panel, called 'ribbon', as it is known from Microsoft Office applications.

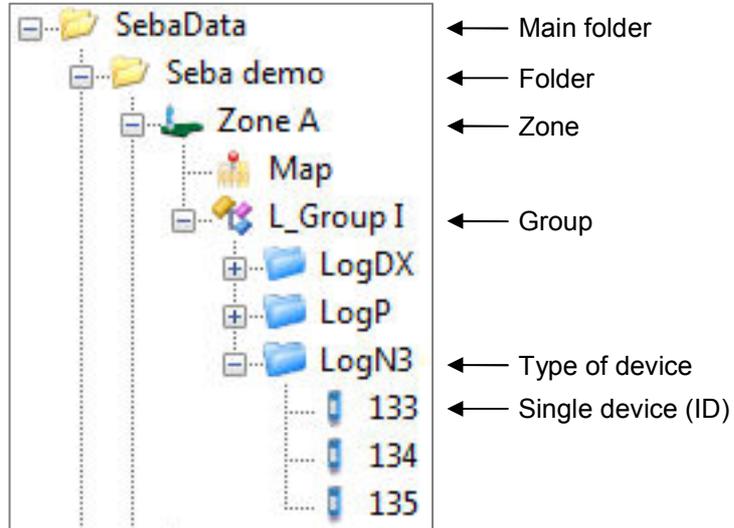
Every Sebalog device series that can be managed using the SDV-3 software has its own 'tab'. All the commands needed when working with this device are grouped in the 'segments' of this tab.



Display area All dialogue and display windows of the various functions appear in the display area.

Directory tree On the left of the screen the directory structure of the software database is displayed. All the devices added to the database by means of their identification number can be found in this so called 'directory tree'.

The directory tree shows the following structure of folders and sub-folders:



7.4 Device administration

7.4.1 Creating / deleting folders

Create a folder To create a new folder in the directory tree, proceed as follows:

Step	Description
1	Mark the folder 'SebaData', or any other existing folder which the new folder should be added to as a sub-directory.
2	Open the tab Directory in the multifunction bar.
3	In the segment Folder , click on New .
4	In the window which opens, enter the Name and a Comment for the new folder and confirm the entries by pressing OK .
	Result: The new folder has now been created in the database and will appear in the directory tree.

Delete a folder To remove a folder from the directory tree, proceed as follows:

Step	Description
1	Mark the folder to be deleted.
2	Open the tab Directory in the multifunction bar.
3	In the segment Folder , click on Delete .
4	Answer the security query with Yes .
	Result: The corresponding folder is removed from the directory tree.



If a folder is deleted, all loggers/devices assigned and all the collected data are deleted, too.

7.4.2 Creating / deleting zones

Create a zone To create a new zone in the directory tree, proceed as follows:

Step	Description
1	Mark the folder in the directory tree in which the new zone should be created.
2	Open the tab Directory in the multifunction bar.
3	In the segment Zone , click on New .
4	In the window which opens, enter the Name and a Comment for the new zone and confirm the entries by pressing OK .
	Result: The new zone has now been created in the database and will appear in the directory tree.

Delete a zone To remove a zone from the directory tree, proceed as follows:

Step	Description
1	Mark the zone to be deleted.
2	Open the tab Directory in the multifunction bar.
3	In the segment Zone , click on Delete .
4	Answer the security query with Yes .
	Result: The corresponding zone is removed from the directory tree.



If a zone is deleted, all loggers/devices assigned and all the collected data are deleted, too.

7.4.3 Creating / deleting groups

Create a group To create a new group in the directory tree, proceed as follows:

Step	Description
1	Mark the zone in the directory tree in which the new group should be created.
2	Open the tab Directory in the multifunction bar.
3	In the segment Group , click on New .
4	In the window which opens, enter the Name and a Comment for the new group and confirm the entries by pressing OK .
	Result: The new group has now been created in the database and will appear in the directory tree.

Delete a group To remove a group from the directory tree, proceed as follows:

Step	Description
1	Mark the group to be deleted.
2	Open the tab Directory in the multifunction bar.
3	In the segment Group , click on Delete .
4	Answer the security query with Yes .
	Result: The corresponding group is removed from the directory tree.



If a group is deleted, all loggers/devices assigned and all the collected data are deleted, too.

7.4.4 Adding / deleting single devices

Add a device To add a device to a group in the directory tree, e.g. a logger, proceed as follows:

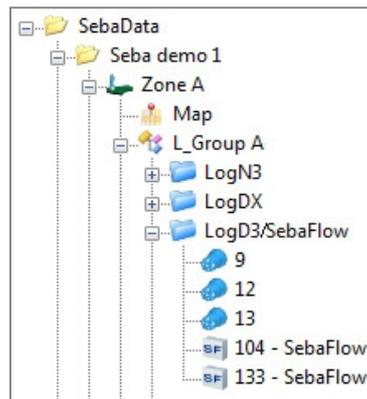
Step	Description
1	Mark the group in the directory tree to which the device should be added.
2	In the multifunction bar, open the tab LogD3/SebaFlow/TDM300 .
3	In the segment Administration , click on New .
4	In the window which opens, enter the Identification Number (ID) of the device or use the "Automatic detection" (find more information below in the text). Click on OK to add the device to the group.
	Result: The new device has now been created in the database and will appear in the directory tree.

Add more devices to the group successively or close the window.



There is the possibility to add devices of different types to the same group. Then, automatically new sub-directories are created by the software to which the various devices are added according to their type.

Example: "Group A" has Log N3, LogDX, Log D3 and SebaFlow devices:



Automatic detection A radio interface (e.g. Log RI) needs to be connected to the computer in order to be able to use the „Automatic detection“ when signing on devices.

Tick the checkbox „Automatic detection“ in the window which opens. Then bring the device which has to be turned off near the computer and switch it on. The identification number of the device will be recognised and displayed on the screen.

Click **OK** or **Insert** in order to accept the ID and to add the device to the group.

If you tick the checkbox „Automatic insertion“, the recognised devices will be added automatically to the group.

Delete a device To remove a device from the directory tree, proceed as follows:

Step	Description
1	Mark the device to be deleted.
2	In the multifunction bar, click on Delete .
3	Answer the security query with Yes .
	Result: The corresponding device with all its measuring data is removed from the directory tree.

7.5 Map function

You have the opportunity to mark the location of installation of each of your devices on a virtual map. Thus, you obtain an overview of the zone and all the devices used.

7.5.1 Creating a map

Introduction You have the chance to import any image file into the software - e.g., a sector of a pipe network plan or a detail of a map, etc.

If you have access to the Internet, the software also provides the possibility to call up the 'Google Maps' web service, in order to create a map of the respective zone.

Import an image file To import an image file and add it to a zone in the directory tree, proceed as follows:

Step	Description
1	Mark the zone in the directory tree to which the map should be added.
2	Open the tab Directory in the multifunction bar.
3	In the segment Pipe network , click on Graphic file .
4	Use the window that opens to navigate to the source folder, from where the image file is to be imported ('jpg', 'bmp' and 'png' format are possible). Select the file and click on OK . Result: The image file is imported into the software and now appears in the directory tree in the form of a sub-folder called Map . A new window opens, where the newly created map is shown.
5	To mark the place of installation of a device, in the directory tree click on the device concerned, keep the left mouse button pushed and drag the device to the point desired on the map displayed. Proceed in the same way to place the other devices of the zone on the map.

Create a map using 'Google Maps' To create a map using the 'Google Maps' web service and add it to a zone in the directory tree, proceed as follows:

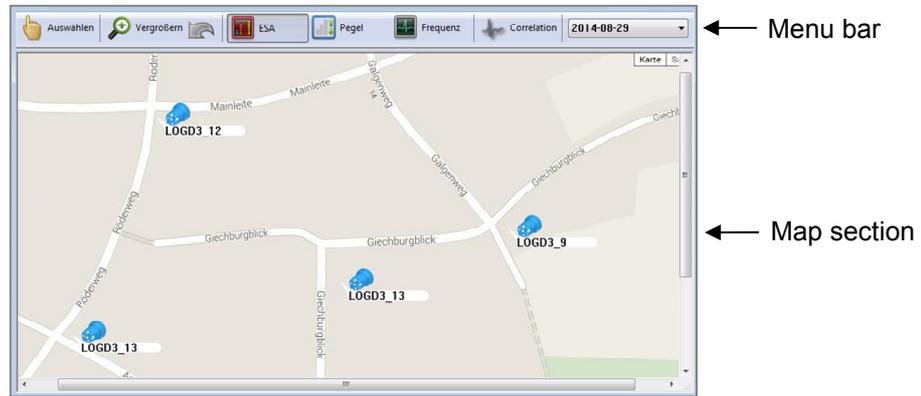
Step	Description
1	Mark the zone in the directory tree to which the map should be added.
2	Open the tab Directory in the multifunction bar.
3	In the segment Pipe network , click on Google Maps . Result: A connection to 'Google Maps' is established. A new window opens, showing the known 'Google Maps' user interface. Additionally, you find some input fields and controls. If there are GPS position data stored for the devices of the zone, the appropriate map section is displayed automatically.
4	To get a certain destination area displayed, use one of the following options: <ul style="list-style-type: none"> • Mark the checkbox Address and enter the destination address desired into the field right beside, or • mark the checkbox Coordinate and enter a GPS position, using the fields Latitude and Longitude. Confirm your entry by pressing the ENTER key on your keyboard.

(continued on next page)

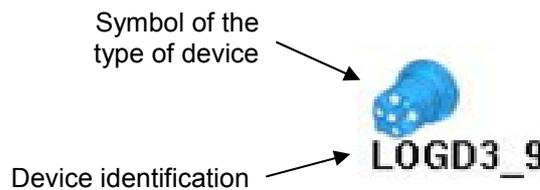
Step	Description
5	Use the known tools of the 'Google Maps' user interface (moving, zooming, etc.) to customize the map section displayed.
6	<p>Click on OK.</p> <p>Result: The adjusted map section is stored as an image file and now appears in the directory tree in the form of a sub-folder called Map. A new window opens, where the newly created map is shown.</p>
7	<p>To mark the place of installation of a device, in the directory tree click on the device concerned, keep the left mouse button pushed and drag the device to the point desired on the map displayed.</p> <p>Proceed in the same way, in order to place the other devices of the zone on the map.</p>

7.5.2 Executing a map

To open the map window of a zone, in the directory tree double-click on the **Map** sub-folder of the zone concerned.



The markings, indicating the positions of the single devices on the map, show the following design:



Thanks to the pictogram (symbol), the type of device marked can easily be recognized.

The text box shows 'type & identification number' or the 'comment' of the device marked - depending on the settings made in the **Pipe network** segment of the menu bar (see page 43).

Create a marking To mark the place of installation of a device, in the directory tree click on the device concerned, keep the left mouse button pushed and drag the device to the point desired on the map displayed.

Move a marking To move a marking on the map, proceed as follows:

Step	Description
1	In the menu bar of the window, click on Select . Result: The mode of the cursor changes from 'show'  to 'select'  .
2	Click on the marking concerned, keep the left mouse button pushed and move it to a new position.
3	Finally, click on the Select button once again in order to deactivate it.

Zoom function You have the chance to get a section of the map magnified in an extra window. Proceed as follows:

Step	Description
1	In the menu bar of the window, click on Zoom . Result: The cursor changes from mode „show“  to mode „enlarge“  .
2	On the map, mark the area that is to be magnified. (For this, click on the map, keep the left mouse button pressed and move the cursor diagonally across the area of interest.) Result: The map section selected is magnified.

Undo last step

In order to undo the last steps click the arrow button  in the menu bar.

In order to leave the magnified map view click once again the **Zoom** button.

Costumize the view

You have the chance to costumize the map view. For this purpose, open the **Directory** tab of the multifunction bar. There, in the **Pipe network** segment, the following checkboxes are available:

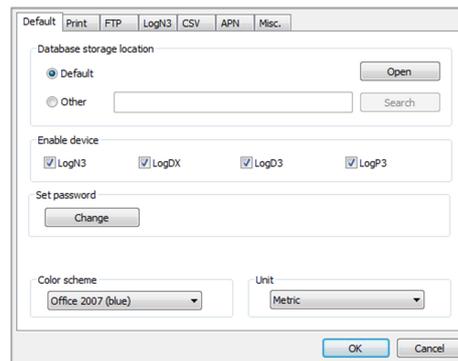
Option	Description
100 %	If this checkbox is enabled, the map section is scaled up or down corresponding to the size of the window displayed If it is disabled, the size of the map remains static.
Show text	If this checkbox is disabled, the text box of the markings is hidden.
Show symbol	If this checkbox is disabled, the pictogram of the markings is hidden.
Show device ID	If this checkbox is enabled, the text box of a marking shows the type and the identification number” of the device.
Show comment	If this checkbox is enabled, the text box of a marking shows the comment/name of the device.

7.6 System settings

In the System settings menu you can make various basic settings for use of the SDV-3 software or specify frequently recurring parameters etc.

To open the menu, first click the water drop symbol  in the top left. Then, click the **Settings** button in the appearing context menu.

A new window appears showing the system settings menu:



7.6.1 Managing the storage location of the measurement database

During installation of the software, a directory with the name 'data' is created on the computer by default. All recorded data is saved to this directory.

In the system settings of the software, you have the option to display the current storage location of the measurement data or set up another storage location.

To get access to the storage location management tools, you have to open the **Default** tab.

Displaying the storage location To display the current storage location of the measurement data, click **Open** in the **Database storage location** segment. The current target directory opens in an Explorer window. (With the default setting, it is the 'data' directory mentioned above.) The precise target path is displayed in the address line.

Changing the storage location You have the option to define another storage location in place of the standard target directory of 'data'.

Select the **Other** radio button in the **Database storage location** segment. Then click **Search (Browse)** and use the Explorer window that opens to set a new target directory. After the next restart of the software, all newly saved measurement data will be saved in this folder. All previously saved measurement data remains in the previous target folder. There is no longer access to this data from SDV-3.

If you define a new storage location and want to still have access to the previously saved measurement data, you need to first move the entire previous target directory to the new storage location. Only after you do this should you set the new target path, as described above, by selecting the **Other** checkbox and defining the new target path by pressing the **Search (Browse)** button.

7.6.2 Saving access data for FTP server and email account

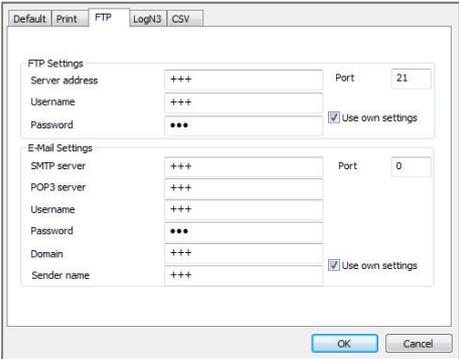
Introduction Various devices in the Sebalog series are equipped with an integrated GSM modem. This means that they can

- send messages per SMS or email (e.g. alarm messages), as well as
- upload measurement data to an FTP server.

Every time the devices are programmed the access data for the sending email account or the access data for the FTP server being used must be entered.

If you wish you can save the data for an email account as well as the FTP server data permanently in the software. When programming the saved access data can then simply be accepted into the input screen 'with a click of the mouse'.

Procedure To store access data in the software, proceed as follows:

Step	Description
1	<p>In system settings open the FTP tab.</p> <p>Result: The following entry screen then appears in the window:</p>  <p>The FTP Settings segment contains boxes for entering access data for your FTP server. You can ask your company's system administrator or the server operator for this data or it is available in your FTP usage agreement.</p> <p>The Email Settings segment contains boxes for entering the access data for the sender email account, if messages are to be sent per email. The data will be assigned to you by the operator of the mail account, or by your system administrator. In the Sender name field, you can enter any name, which will subsequently be used to identify the device which is the sender of the alarm message.</p>
2	Click the relevant Use own settings checkbox.
3	Enter the access data in the input fields.
4	Click on OK to confirm the details and to close the window.
	<p>Result: The access data are now permanently stored in the software. When programming the devices a checkbox is shown for each of the steps in the entry area, with which the stored access data can then be inserted.</p>



Only when the **Use own settings** checkbox has been activated will it be possible at a later stage to access the stored data for programming purposes.

If the checkbox has not been activated, the user is then offered a choice of using a SebaKMT demo FTP server and/or a demo email account.

7.7 Password protection

7.7.1 Introduction

Ex works, the SebaDataView-3 software works without password protection, that is, any user can access and work without restriction. No password is requested.

It is possible to restrict access to the application so that only authorized persons can work with it. For this purpose, in the SebaDataView-3 system settings, passwords for the following three user groups can be created:

- „User level 1“: Users with unlimited rights
- „User level 2“: Users with reading and programming rights
- „User level 3“: Users with reading rights

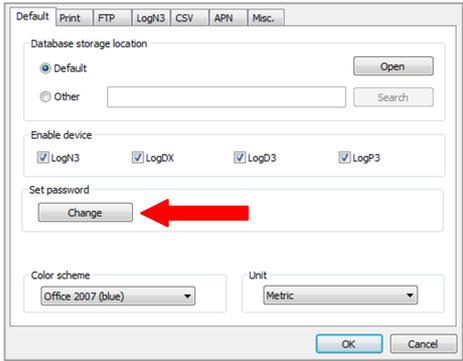
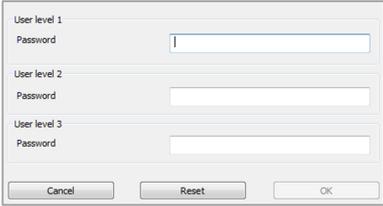
When the software is started, a login area always appears, which requires the user to select the user level and enter the corresponding password. Depending on the user level, the software then opens with limited or full functionality. Without a password the application can not be opened.

7.7.2 Set up login

To set up the password protection for the SebaDataView-3 software for the first time, proceed as follows.

Password management dialogue

First open the password management dialog in the system settings:

Step	Description
1	Start the SebaDataView-3 software and click on the water drop symbol  in the top left.
2	Click the Settings button in the appearing context menu Result: A new window appears showing the system settings menu.
3	Click the Change button in the Password segment.  Result: The password management dialogue opens. 

Set passwords Continue as follows:

Step	Description
4	Enter a password for User level 1, User level 2 and User level 3 each. <div style="border: 1px solid black; padding: 5px; width: fit-content;">  Write down the passwords and keep them safe. Without knowing the passwords, there is no way to gain access to the SebaDataView-3 software and the password-protected devices. </div>
5	Click on OK . Result: The window closes. The passwords are adopted by the software and are valid immediately.
6	Close the application and restart it.

Login From now on, a login area appears in the start screen above the language selection.



To log in, proceed as follows:

Step	Description
1	Click on the drop-down menu and select a user level.
2	Enter the corresponding password in the input field.
3	Click on OK . Result: The user interface of the application opens with full or limited functionality, depending on the user level.

7.7.3 Extend password protection to devices

The SebaDataView-3 password protection can be extended from the software to SebaKMT devices, so that these devices can only be used by authorized persons.

You will find more information in a separate section of this manual.

7.7.4 Change password

The passwords for the SebaDataView-3 login can be changed if necessary.

	<p>NOTE</p> <p>If the passwords are changed in the SebaDataView-3 software, password-protected SebaKMT devices can no longer be contacted via the SebaDataView-3, since access to these devices is still protected with the previous passwords.</p> <p>We therefore recommend the following procedure:</p> <ul style="list-style-type: none"> ➤ First remove password protection from all password-protected SebaKMT devices ("Reset password"). ➤ Then change the passwords in the SebaDataView-3 software. ➤ Then extend the SebaDataView-3 password protection again to the desired devices ("Set password").
--	--

Requirements User level 1 login for the SebaDataView-3 software is required.
User levels 2 and 3 are not authorized to manage the passwords.

Procedure To change the login passwords for the SebaDataView-3, proceed as follows:

Step	Description
1	Start the software and log in to User level 1.
2	Click on the water drop symbol  in the top left.
3	Click the Settings button in the appearing context menu
4	Click the Change button in the Password segment.
5	Change the displayed passwords in the input fields.
	<div style="display: flex; align-items: center;">  <p>Write down the passwords and keep them safe.</p> </div>
6	Click on OK .
7	Close the application.
	Result: From now on, the changed passwords apply to the SebaDataView-3 login and when extending the password protection on SebaKMT devices.

7.7.5 Disable password protection

Users with User level 1 access can completely reset the password protection of the SebaDataView-3. The application then works again without login.

Proceed as follows:

Step	Description
1	Start the software and log in to User level 1.
2	Click on the water drop symbol  in the top left.
3	Click the Settings button in the appearing context menu
4	Click the Change button in the Password segment.
5	Click the Reset button. <div data-bbox="794 734 1177 945" data-label="Image"> </div>
6	Close the application. Result: From now on the SebaDataView-3 works again without password protection. Every user has access to the full range of functions.

8 Programming the logger using the SebaDataView-3 software

8.1 Introduction

Before use, the logger must be programmed. During this process, the settings are defined for mobile service, the measurement channels of the device are adjusted to the connected sensors, the measurement interval and the measurement period are set and possible alarm thresholds are defined, etc.

Programming is performed on the computer using the SebaDataView3 software.

Programming via short range radio The configuration data is transferred via short range radio to the logger and immediately installed there.

For that, the following requirements must be met:

- a radio interface must be connected to the computer (e.g. Log RI)
- the logger must be switched on
- the logger must be within the computer's wireless range

Programming via mobile radio Loggers with a GSM modem can, after initial programming, also be remotely programmed from the office via an FTP server.

For that, the following requirements must be met:

- computer with SebaDataView-3 software
- the access data for the FTP server must already be saved in the configurations of the SebaDataView-3 Software (see page 46)
- the logger must be known to the FTP server, meaning at least one data upload from the logger to the server must have already taken place
- the logger has to be switched on

Saving measuring data With the programming, the measurement data memory of the logger is also reset, meaning all previous data will be deleted.

If there is measured data stored in the device that needs to be saved, it must be read out of the logger before programming (see page 72).

Procedure In order to program the device, proceed as follows:

Step	Description
1	Select the relevant device in the directory tree of the SDV-3 software.
2	In the menu bar, click on Program . Result: The window for programming opens.

(continued on next page)

Step	Description	
3	Query the current configuration of the logger. (This step is not absolutely necessary in all cases, but it is recommended to nevertheless always perform the step instead of skipping it.)	
	<p style="text-align: center;">  </p> <p>If you want to read the data directly from the device via radio, click on Read.</p> <p>Result: The current configuration data is read out and displayed. All input fields are now editable.</p>	<p>If you want to download the data from the FTP server, click on Read settings.</p> <p>Result: The current configuration data is download and displayed. All input fields are now editable.</p>
4	Enter or change the configuration data (see next sections).	Change the configuration data (see next sections).
5	Finally, click on Program .	Finally, click on Write settings .
	Result: The new configuration data is transmitted via radio to the logger and installed there.	Result: The new configuration data is upload to the FTP server. From there, it is downloaded by the logger at the next planned contact and then installed on the device.

You find detailed information about the necessary programming steps in the following sections.

8.2 Status of the device

In the **State** segment current status information about the device can be found, such as the firmware version used, the internal time, battery status etc.

The **Resulting storage periode** line indicates how long the device can continue to measure with the currently set parameters until the device memory is full.

8.3 Selecting the logging interval

You can select the time interval in which the measured values are logged from the **Log Interval** drop-down list.

8.4 Configuring a measuring channel

Introduction Depending on its configuration, up to 4 sensors can be connected to a logger. In order to evaluate the logged data in the right way, the logger needs to know which type of sensor is connected to which channel.

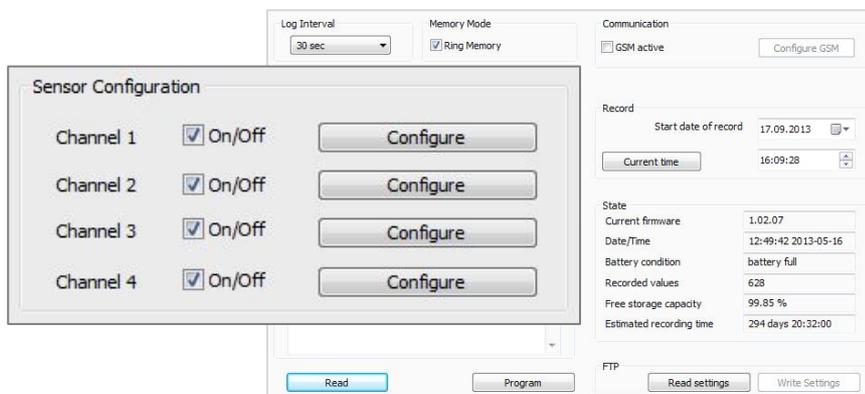
Make sure that the sensor configuration is consistent with the effective connection setup. Each channel is linked with specific wires of the VK86 connection cable (see page 29).

Please pay regard to the fixed channel allocations (see page 27) when configuring internal pressure sensors or sensors with current output.

Make sure you enter the values in the same format as shown in the figures.

Activating channels In the Sensor configuration segment, the measurement channels of the logger are listed.

Activate the measurement channels to which the sensors are connected. To do so, tick the checkbox of the corresponding channel.



Only when a channel is "activated" is the measured data of the connected sensor recorded by the logger. Not activated channels are ignored during the measurement.



If a logger is equipped with fewer than four measurement channels, then in the input screen, only channels that actually exist in the device are available for selection.

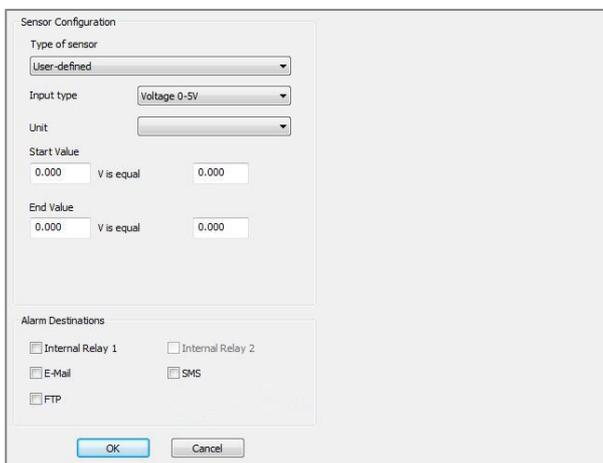
Configuring a channel After a channel has been activated, it has to be specified which type of sensor is connected to the channel.

Click the respective **Configure** button. A new window appears.

8.4.1 Selecting the type of sensor

The physical value measured by the sensor is transformed into an electrical signal (e.g. voltage, pulses, frequency) which is used to transmit the data to the logger. In order to transform this carrier signal back into the original physical values, the logger needs to know how the ranges are correlated to each other.

Procedure Select the sensor connected to the channel from the drop-down list on the upper left of the window. If your sensor type is not contained in the drop-down list, select the **User-defined** entry.



The sensors contained in the list are parameterized. The signal conversion data are already populated and cannot be edited. Usually, no further configuration is required.

In some cases you have the chance to specify the unit for the recorded values - e.g. 'bar' or 'l'.

Furthermore, with some flow sensors you have the chance to compare your results to the values of a water meter. For this purpose, enter the water meters' **meter reading** into the displayed field prior to the measurement. The logger will then accept this count as a starting point for the measurement.

8.4.1.1 Configuring an Internal Pressure Sensor

Most parameters of the internal pressure sensor are filled in automatically and cannot be edited.

Unit You have the chance to select the **unit** for the recorded pressure. Use the drop-down list. If the desired measuring unit is not offered, select the option **User defined**. A new input field opens. Enter the desired measuring unit there.

Recording pressure surges If you want sudden pressure fluctuations, known as pressure surges, to be recorded in addition to the standard pressure measurement, select the **Record Press Shocks** checkbox

Using the input field to the right of the checkbox, you specify how much a measuring value has to differ from the previous value in order to classify a pressure fluctuation as a 'pressure surge'.

Example: If '0.5' is set, pressure surge recordings start as soon as a measuring value is min. 0.5 bar higher or lower than the preceding value.

By means of the **High resolution** checkbox you can specify which sampling interval should be used for the 60 second pressure surge recordings:

- checkbox de-selected: 1 sec sampling interval
- checkbox selected: 0.1 sec sampling interval

Using the short 0.1 sec interval allows a more detailed recording.



Please note that the high resolution recording of pressure surges requires more energy and, thus, has a strong negative impact on the logger's battery life.

The recording of pressure surges is parallel to the standard pressure measurement and has no effect on this.

Pressure analysis measurement If you would like to perform a pressure analysis measurement instead of the standard pressure measurement, activate the checkbox **Pressure analysis**. Use the drop-down menu to the right of the checkbox to select the measurement interval for the pressure analysis measurement.

- Note:
- Performing a pressure analysis measurement is only possible when the Log D-3 is powered from an external source.
 - For operational reasons, the measuring channels 2, 3 and 4 are not available when a pressure analysis measurement is carried out.

8.4.1.2 Configuring a 'user defined' sensor

In the case of a 'user defined' sensor which is not contained in the mentioned Drop-Down-List, the input type (carrier) and the unit of the physical value have to be specified manually. Furthermore, the upper and lower thresholds of the input signal and the correlating measurement values have to be specified.

Procedure Perform the following steps to configure the input type of a 'user defined' sensor:

Step	Description
1	Select the type of signal, the sensor uses to pass the measured data to the logger from the Input type drop-down list - e.g. "Voltage 0-5V".
2	Select the unit of the physical value measured by the sensor from the Unit drop-down list - e.g. "bar". If the desired measuring unit is not offered, select the option User defined . A new input field opens. Enter the desired measuring unit there.
3	Depending on which input type or which unit was selected, additional input fields are displayed. Assign the smallest possible input value to the smallest possible output value (in the figure at "Start value"). Assign the largest possible input value to the largest possible output value (in the figure at "End value"). <div style="text-align: center;"> </div> <p>Input signal thresholds Correlating measured values</p>
	For detailed information about the input type and the ranges, please refer to the manual of the connected sensor.

Negative value **Output values with a negative value** can also be defined.

Example (Temperature sensor): 0,0 V is equal to -20°C
5,0 V is equal to 50°C

For flow sensors, the sign of the output value indicates the flow direction of the fluid, meaning:

- positive sign = forward flow
- negative sign = backward flow

Example: 4 mA is equal to -5 l/s (means 5 l/s backward flow)
20 mA is equal to 5 l/s (means 5 l/s forward flow)

8.4.1.3 Input type examples

Input type Voltage A 10 bar pressure sensor with voltage output is connected to a channel of the logger.

Input type: Voltage 0-5V

Unit: bar

The lower limit of the measuring range (0 bar) is indicated by a voltage value of 0 V while the upper limit (10 bar) correlates with 5 V. As a result, the fields must be populated as follows:

Input type	Voltage 0-5V	
Unit	bar	
Start Value	0.000 V is equal	0.000 bar
End Value	5.000 V is equal	10.000 bar



NOTE

The maximum permissible input voltage is 5 V.

Input type Frequency A level meter with frequency output is installed in a 430 l tank.

Input type: Frequency

Unit: l

The maximum level of 430 l is indicated by a frequency of 6000 Hz. As a result, the fields must be populated as follows:

Input type	Frequency	
Unit	l	
	6000.000 Hz is equal	430.000 l



The maximum permissible frequency is 6000 Hz. If the connected sensor transmits higher frequencies, a frequency divider must be interconnected.

Input type Pulse A flowmeter with a digital pulse output is connected to a channel of the logger. The flowmeter transmits one pulse per 16 litres.

Input type: Pulse
Unit: l

The checkbox **Fast-pulse-mode** must be activated if a sensor is used with a pulse rate >50 Hz (ie, more than 50 pulses per second). Otherwise, it may result in inaccurate measurements.

Select whether the flow shall be measured **per hour** or **per second**.

If you want to compare your results to the values of a water meter, you have the chance to enter the water meters' **counter reading** into the respective field prior to the measurement.

Determining the flow direction A flowmeter is connected to channel 3. In addition to the flow rate itself, the flow direction shall be determined. For this purpose, a sensor which indicates the flow direction by means of voltage values is connected to another channel of the logger (in the figure Channel 2).

Input type: Sign slave for other channel

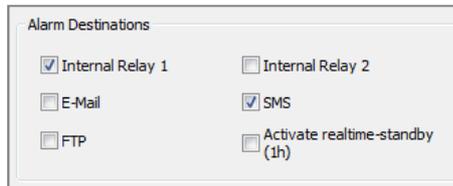
First of all, it has to be specified which direction is indicated by the 5 V value. A voltage value of 0 V automatically indicates the opposite direction.

Furthermore, the channel (flow), the determined flow direction applies to, has to be selected (in this case Channel 3).

8.4.2 Configuring alarm conditions (Threshold monitoring)

The device can trigger certain alarm actions when a value goes above or below defined threshold values. The alarm thresholds must be defined individual for each measurement channel.

Specify alarm targets In the **Alarm destinations** segment, you define what should happen in case of a threshold violation.



Checkbox	Description
Relais 1	The internal relay 1 is switched. As a result the device or warning unit is activated that is connected by connecting cable VK76 (see page 30). As a result a signal lamp can be switched on, for example, a pump activated or a valve closed, etc.
Relais 2	The internal relais 2 will be switched.
E-Mail	An alert will be sent via e-mail to the stored destination addresses.
SMS	An alert will be sent by SMS to the stored phone numbers.
FTP	An un-scheduled measuring data upload will take place.
1h Standby	For one hour after the alarm, the logger is available over the cellular network. In this period, a real-time measurement ("FTP step test") can be performed with the device via the SebaKMT Cloud. To save energy, the loggers are not permanently ready to receive messages. Only when this box is checked it is ensured that the device is available via the cellular network after an alarm and a real-time measurement can be performed.

 Note: There is a conflict of interest between the function "1h standby" and the function "CSV upload" in the cellular network settings.
This means: The alarm target "1h standby" only works if the checkbox "CSV upload" is disabled in the cellular network settings.
If the "CSV upload" box is checked, the alarm target "1h standby" can be selected, but when an alarm occurs it does not go into effect, meaning no real-time measurement can be performed.

"Relais" as alarm destination If a maximum level is set, the activated relay will trigger a connected device to switch on as soon as the max. level is exceeded. The device is switched off, as soon as the signal falls back below the threshold. This process takes place vice versa for a minimum level.

The minimum and the maximum threshold cannot be assigned to different relays. If both levels are set, each of the activated relays will switch as soon as one of the thresholds is crossed, no matter which one.

A relay cannot be assigned to more than one alarm. If a relay is already included in an existing channel configuration, it cannot be used in combination with any other channel or switching input.

Configuring alarm trigger

Perform the following steps to configure the alarm thresholds:

Step	Description
1	<p>In the segment Alarm Trigger – Settings specify whether there is a minimum and / or a maximum threshold to be monitored by activating the respective checkbox(es).</p> <div style="display: flex; justify-content: space-around;"> <div style="border: 1px solid gray; padding: 5px; width: 45%;"> <p>Sensor Configuration</p> <p>Type of sensor User-defined</p> <p>Input type Voltage 0-5V</p> <p>Unit</p> <p>Start Value 0.000 V is equal 0.000</p> <p>End Value 0.000 V is equal 0.000</p> <p>Alarm Destinations</p> <p><input type="checkbox"/> Internal Relay 1 <input type="checkbox"/> Internal Relay 2 <input type="checkbox"/> E-Mail <input type="checkbox"/> SMS <input type="checkbox"/> FTP</p> <p style="text-align: center;">OK Cancel</p> </div> <div style="border: 1px solid gray; padding: 5px; width: 45%;"> <p>Alarm Trigger - Settings</p> <p><input type="checkbox"/> Max. level 0.00 l/s</p> <p><input checked="" type="checkbox"/> Min. level 2.00 l/s</p> <p>Hysteresis 0 %</p> <p>Debouncing 0 s</p> <p><input checked="" type="checkbox"/> Monday <input checked="" type="checkbox"/> Thursday <input type="checkbox"/> Sunday <input checked="" type="checkbox"/> Tuesday <input checked="" type="checkbox"/> Friday <input checked="" type="checkbox"/> Wednesday <input type="checkbox"/> Saturday</p> </div> </div>
2	<p>Enter the minimum and / or the maximum threshold into the respective field(s).</p> <hr/> <div style="border: 1px solid gray; padding: 5px;"> <p>i Input of negative values is possible. (Example of temperature sensor: min. level: -15°C) For flow sensors, the sign indicates the flow direction of the fluid. (Example: 5 l/s corresponds to 5 l/s forward flow; -5 l/s corresponds to 5 l/s reverse flow)</p> </div> <hr/>
3	<p>A hysteresis and a debounce value can be defined for alarm input preventing a constant triggering of the alarm by measuring values fluctuating marginally around the threshold.</p> <p>Enter a Hysteresis value. The Hysteresis value in percent designates a symmetrical range around the specified threshold the input signal can fluctuate in without having an impact on the current alarm status.</p> <p>Example: (pressure sensor) Min. level: 2.0 bar Hysteresis: 10 %</p> <p>The alarm does not switch on until the input signal reaches 90 % of the specified threshold (here 1.8 bar). After this, the alarm does not switch off until the input signal exceeds 110 % of the threshold (here 2.2 bar).</p>

(continued on next page)

Step	Description
	<p>Select a Debounce value. The input signal must cross the specified threshold not only one time in order to switch an alarm on or off, but two times more after specific periods of time. These periods of time, called 'debounce', always are a multiple of the specified logging interval.</p> <p>Example: (pressure sensor) Logging interval: 5 sec Min. level: 2.0 bar Debounce: 15 sec</p> <p>The alarm does not switch on until the input signal crosses the specified threshold (2.0 bar) three times in succession (15 seconds).</p>
4	<p>Select the days of the week alarming should be active on by marking the respective checkbox(es).</p>

Defining exceptions The segment **Alarm Trigger – Exceptions** offers the possibility to modify the alarm setting, entered under **Alarm Trigger - Settings**, for specific periods of time (certain days of the week or even periods of time in a day).

Example: The following picture shows a possible setting:

The image shows two configuration windows. The top window, titled "Alarm Trigger - Settings", has the following values: Max. level (0.00 bar, unchecked), Min. level (2.00 bar, checked), Hysteresis (0 %), and Debouncing (0 s). Under "Alarm Trigger - Exceptions", the days checked are Monday, Tuesday, Wednesday, Thursday, and Friday. The bottom window, titled "Alarm Trigger - Exceptions", has the following values: Max. level (0.00 bar, unchecked), Min. level (4.00 bar, checked), Min Flow Monitoring (unchecked), Hysteresis (0 %), and Debouncing (0 s). The "Start time" is 02:00 and the "End time" is 04:00. The days checked for this exception are Monday, Tuesday, Wednesday, Thursday, and Friday.

Here, from Monday to Friday an alarm is switched on as soon as the input signal falls below a value of 2.0 bar (set in **Alarm Trigger – Settings** segment), but from 2 to 4 o'clock in the morning a threshold of 4.0 bar is valid (set in **Alarm Trigger – Exceptions** segment).

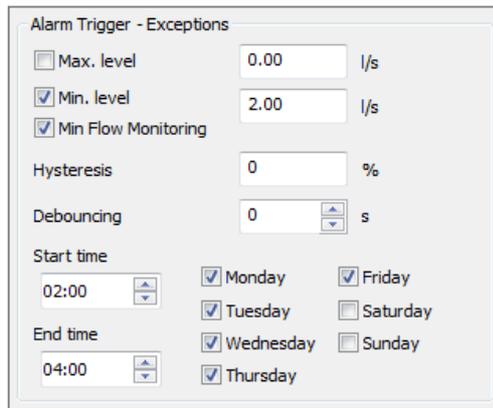
Minimum flow monitoring The **Min. Flow Monitoring** checkbox in the **Alarm trigger - Exceptions** segment is only relevant in the context of flow measurements.

When the connected sensor is not a flow sensor, please disable this checkbox, i.e. make sure it is unchecked.

When this checkbox is activated, the alarm case occurs when the specified minimum flow IS NOT reached within the specified period.

More specifically: The alarm is triggered immediately after the end of the measurement if the value never dropped below the "min. level" between "start time" and "end time".

Example: In your experience, the flow rate at the measuring point drops between 2 am and 4 am under the value of 2.0 l/s. An alarm should be triggered if the flow rate does not fall below 2.0 l/s during the entire period.



- Procedure:
- tick the **Min. Flow Monitoring** checkbox
 - type the value 2.0 in the **Min. level** field
 - specify 2:00 as **Start time** of monitoring
 - specify 4:00 as **End time** of monitoring
 - tick the weekdays on which this monitoring alarm should apply (here: Monday to Friday)

Result: If the flow value drops below 2.0 l/s one or more times between 2 and 4 am, no alarm is triggered.

If the flow value never drops below 2.0 l/s between 2 and 4 am, an alarm is triggered.

8.4.3 Finishing the sensor configuration

Confirm and save the configuration of a channel by clicking the **OK** button.

Perform the configuration for the remaining channels.

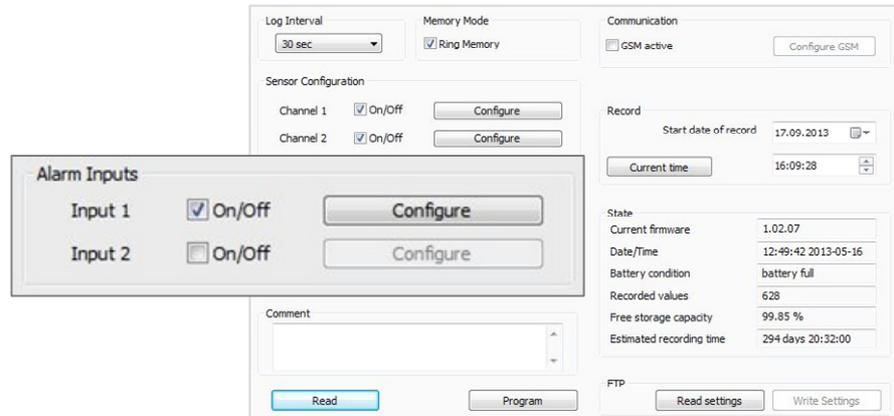
8.5 Configuring the alarm inputs

Introduction Depending on its configuration a logger can be equipped with up to two switching inputs (alarm inputs) which can be connected to active circuits. For each of these inputs it can be specified which input voltage value causes an alarm.

As known from the channel configuration, an alarm can trigger up to two internal relays.

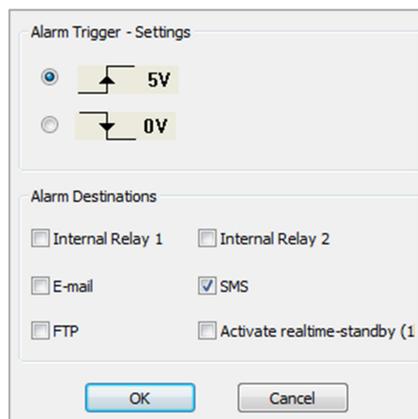
If your logger is equipped with a GSM modem, alarm messages can be sent via SMS and / or e-mail. Furthermore, an unscheduled measuring data upload to your FTP server can be performed in case of alarm. For that, GSM connectivity must be established and properly configured.

Activating an alarm input First of all, you have to activate the **Alarm Inputs** which are going to be part of an alarm input during the upcoming operation period by marking the respective **On/Off** checkbox:



Configuring an alarm input After an alarm input has been activated, it must be specified which input voltage value causes an alarm and which actions are triggered by an alarm.

Click the respective **Configure** button. The following window appears:



Proceed as follows to configure an alarm input:

Step	Description
1	Specify the input voltage value which does, when present at the switching input, trigger an alarm. The input voltage threshold is 2.5 V. Any voltage value below 2.5 V is interpreted as 0 V while voltages higher than 2.5 V are interpreted as 5 V . In order to ensure a reliable classification, the actual voltage values should not be too close to 2.5 V.
2	Specify under Alarm Destinations which type of alarm message shall be sent (SMS and / or e-mail and / or data upload to FTP server) and which Internal Relay shall switch to trigger the connected device.
3	Confirm and save the settings by clicking the OK button.



A relay cannot be assigned to more than one alarm. If a relay is already included in an existing channel configuration, it cannot be used in combination with any other channel or switching input.

8.6 Configuring the mobile communication

Introduction If your logger is equipped with an internal GSM modem, data transfer and alarm messaging via mobile radio can be realised. For this purpose, a UMTS-enabled SIM card (data contract) is required which can be obtained from almost any local mobile network operator.

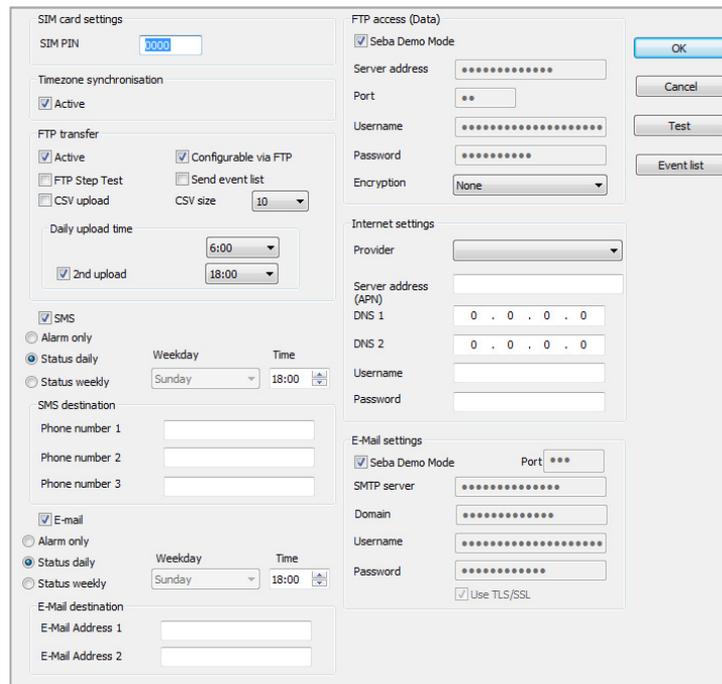
 Usually, all the data required to set up mobile data transfer is provided within the mobile network contract. Further information can be obtained from the website or the hotline of the mobile network operator. If necessary, request guidance for setting up data communication in particular. SebaKMT cannot provide any specific technical advice in this case.

Procedure For mobile communication a number of settings must be made. Proceed as follows:

Step	Description
1	Make sure the logger has been properly prepared for GSM connectivity (see page 23).
2	In the Communication segment of the window, tick the GSM active checkbox. <div data-bbox="512 936 1430 1391" data-label="Image"> </div>
3	Click the Configure GSM button. Result: The GSM configuration dialogue appears.
4	Enter all the requested data. (You find more information about the configuration dialogue below in the text).
5	Click Test to perform a GSM test. This test checks the existence and quality of the cellular connection. (You find more information about testing the GSM connection below in the text).
6	Confirm and save the settings by clicking the OK button.

8.6.1 Explanations about the GSM configuration dialogue

The picture shows the GSM configuration dialogue:



You find explanations on the individual segments of the configuration dialogue in the following table:

Segment	Parameter
SIM Card Settings	Enter the PIN code of the SIM card which is being used in the device (see mobile communication contract or ask your provider).
Time zone synchronization	If the device is to recognize summer and winter time automatically, activate the checkbox Active .
FTP transfer	<p>If you want the logged data to be transferred to a FTP server daily, select the Active checkbox.</p> <p>Daily upload time</p> <p>Here you can specify at what time the measurement should be sent to the FTP server daily ("upload"). Select a time from the drop-down list.</p> <p>Each upload includes the newly recorded measured data since the previous upload.</p> <p>If you wish a second measuring data upload every day, tick the 2nd upload checkbox and select the desired time for this second upload from the second drop-down menu.</p> <p>Send Event List</p> <p>If you select the send Event List checkbox, simultaneously with the measuring data upload another file is sent to the FTP server containing an overview about the alarm events and GSM connection establishments of the device. These information can then be added to the device's 'event list' (see page 80). In total, 100 entries are possible, then the oldest entries are removed from the list and replaced with the new entries.</p>

Segment	Parameter
	<p>CSV Upload</p> <p>When you check this box, the recorded measured data is uploaded to the FTP server in CSV format.</p> <p><u>Explanation:</u> Data in CSV format can be further processed, for example with SCADA systems.</p> <p>The upload does not take place at certain times, rather it is performed in regular data packets.</p> <p>A drop-down list appears. Select there how many measurement data points each CSV data packet should include.</p> <p>The daily standard upload of the measured data is not influenced by the CSV upload. It is performed without any change. The measured data are then in fact stored on the FTP server twice, once in the standard data format for all SebaKMT applications and once in CSV format.</p> <p><u>Requirement:</u> Uploading the measured data in CSV format is only possible when the device is connected to a working external power supply.</p> <p>FTP Step Test</p> <p>If the pending measurement should be a Step-Test measurement, check this box.</p> <p><u>Explanation:</u> Immediately after receiving the configuration data, the device starts recording data. This is forwarded directly to the FTP server so that the progress of the measurement can be followed via the internet in real time.</p> <p>If the device is connected to an external power supply, the step-test measurement continues to run until it is stopped by the user. Without an external power supply, the step-test measurement is automatically stopped after 6 hours.</p> <div style="border: 1px solid black; padding: 5px;">  <p>NOTE</p> <ul style="list-style-type: none"> Due to system constraints, the two options FTP Step Test and CSV Upload cannot be used simultaneously. The step-test measurement places a significant load on the battery, unless the device is connected to an external power supply. </div> <p>Configurable via FTP</p> <p>When you check this box, with each measured data upload the logger checks whether new configuration data is stored on the FTP server. If this is the case, the data is downloaded onto the logger and the device reprograms itself using this data.</p>
<p>SMS checkbox and E-Mail checkbox</p>	<p>If you want to receive notifications (regular status messages and/or alarm messages) by SMS, activate the SMS checkbox.</p> <p>If you want to receive notifications (regular status messages and/or alarm messages) by e-mail, activate the E-mail checkbox.</p>

(continued on next page)

Segment	Parameter
	<p>Use the radio buttons to select, which messages you want to receive:</p> <ul style="list-style-type: none"> • Alarm only You will only receive alarm messages (An alarm message contains the ID and comment of the sending device, the date and time it is sent, the number of the corresponding measurement channel, the reason for the alarm and the alarm value) • Status daily You receive alarm messages and a status message once a day (A status message contains the ID and comment of the sending device, the date and time it is sent, the highest and lowest measurement of each active measurement channel since the last status message, flow quantity since the last status message (only for flow sensors)) • Status weekly You receive alarm messages and a status message once a week <p>Furthermore, specify the point in time and, if required, the day of the week, the status message shall be sent. (Time values are specified in 24-hour format.)</p>
SMS Destination	Specify up to three mobile phone numbers here to which summary or alarm messages should be sent.
E-mail Destination	Specify up to two e-mail addresses here to which summary or alarm messages should be sent.
FTP Settings	<p>Enter the access data for the FTP server to which the measuring data will be sent . You received the data when you concluded the FTP use contract or it can be requested from the operator of the FTP server.</p> <p>The device supports encrypted data transfer to FTPS servers. Select the desired Encryption from the drop-down list.</p> <hr/> <div style="border: 1px solid black; padding: 5px;">  <p>Ensure that the right port is specified in the FTP settings. When using encryption, it may be necessary to modify the value.</p> <p>The FTP server must support the selected encryption and it must be set up accordingly by the administrator.</p> </div> <hr/> <p>If you have already stored the access data for your FTP server in the SebaDataView-3 database (see page 46) and want to use this server, tick the Use own server checkbox. The access data are then filled in automatically.</p> <p>If you want to use the demo FTP server run by SebaKMT, tick the Seba Demo Mode checkbox . The FTP access data are filled in automatically. The logged measuring data will be transferred to this server. However, the Seba Demo Server is for demonstration purposes only!</p>

Segment	Parameter
Internet Settings	<p>Here the data for access the internet must be entered.</p> <p>Open the Provider drop-down list and select your cellular network provider. The access data is then entered automatically.</p> <p>If your cellular network provider is not included in the list, enter the data manually. You can find the necessary information in the material included with your cellular network contract. Otherwise, please ask your cellular network provider.</p>
E-mail Settings	<p>If you want to receive messages via e-mail, enter the access data for the e-mail account from which alarm or status messages are to be sent. (Usually, this kind of information can be obtained from the 'How to configure an e-mail client' tutorial on the providers' website. Username and password can be specified during the account setup procedure or can be requested from the operator of the mail account or from your system administrator. SebaKMT does not provide e-mail accounts.)</p> <p>The device supports encrypted e-mail transmission (TLS/SSL) via an SMTPS e-mail account. If you want to use encryption, check the Use TLS/SSL box.</p> <hr/> <div style="border: 1px solid black; padding: 5px; margin-bottom: 10px;">  <p>Ensure that the right port is specified in the e-mail settings. When using encryption, it may be necessary to modify the value.</p> <p>The e-mail server must support the selected encryption and be configured accordingly.</p> </div> <hr/> <p>If you have already stored the access data for your e-mail account in the SebaDataView-3 database (see page 46) and want to use this account, tick the Use own server checkbox. The access data are then filled in automatically.</p> <p>If you want to use a demo e-mail account run by SebaKMT, tick the Seba Demo Mode checkbox. The respective data are filled in automatically. However, the Seba Demo Account is for demonstration purposes only!</p>

8.6.2 Testing the mobile connection ('GSM test')

With a 'GSM test' you can check whether the cellular network connection works with the parameters entered.

Requirements In order to perform a GSM test, the following requirements must be met:

- the GSM configuration must have been already finished (see previous sections),
- a radio interface has to be connected to the computer (e.g. Log RI),
- the logger has to be switched on
- the logger must be within the computer's wireless range

Procedure Proceed as follows to carry out a GSM test:

Step	Description
1	In the SDV-3 software open the GSM configuration dialogue of the respective device (see previous sections). (select the logger in the directory tree >> click on Program >> click on Configure GSM)
2	On the upper right of the window, click on the Test button. Result: The GSM test starts. The device uploads a test file named "ftp-test.csv" to the FTP server. The device also sends a test e-mail or a test SMS to all specified addressees. The window on the screen lists the individual test steps. Successfully completed steps are marked with OK . <div data-bbox="742 712 1204 1097" data-label="Image"> </div>

Test FTP file If the transmission has been successfully completed, you find a test file with the name "ftp-test.txt" on your FTP server. It contains date and time of the test.

Test SMS / e-mail All addressees should receive a SMS or e-mail containing the following information:

- Type of device and identification number
- Date and time of the test
- Signal quality

In the case of bad signal quality , it may help to move the GSM antenna in a better position.

Debugging If no file is created in the folder of the FTP server or no SMS / e-mail has been received, the test failed. Then, use the **Event list** button to retrieve the event list (see page 80) from the device. There, information can be found which can help to identify the problem.

8.7 Adjusting the start time of data recording

The point in time, the device shall start logging, has to be defined under **Record**.

Use the controls to specify a start date and time or click on the **Current time** button to get the system date and time of the computer filled in.

If the entered recording start lies in the past, seen from the point in time the device is receiving the configuration data, the device starts data storage immediately.

8.8 Activate / deactivate circular buffer

In the **Memory mode** segment you can specify whether measurement data is stored using the circular buffer method.

If you disable the **Ring memory** checkbox, the measurement is stopped as soon as the logger memory is full.

If you enable the **Ring memory** checkbox, the logger memory capacity is set to "infinite". This means that the measurement is continued even after the storage limit is reached. The oldest measurements are then overwritten by new measurements.

The ring memory setting is recommended in principle for all loggers with an internal GSM modem and for loggers that will be used over the long term at the same location.

8.9 Adding a comment

In the **Comment** segment you have the opportunity to provide information about this device or the location of the device, etc.

8.10 Sending the configuration data to the logger

Finally, the data must be transferred to the logger.

	<p>NOTE</p> <p>Keep in mind that the data memory of the logger is reset by programming, i.e. all measurement data is deleted.</p>
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Data transfer via radio To send the data wirelessly to the logger, click the bottom of the window on **Program**. The logger must be switched on and within the wireless operating range of the computer.

The new configuration data is sent to the logger and installed there immediately. A success message appears on the computer screen.

Data transfer via FTP server If you are remotely programming the logger, click the bottom of the window on **Write settings**. The access data to the FTP server must be stored in the system settings of the SDV-3 software (see page 46).

The new configuration data is upload to the FTP server. From there, it is downloaded by the logger at the next planned contact and installed immediately.

9 Retrieving and evaluating data

9.1 'Realtime Measurement' with SDV-3 software

Using the **real-time measurement** function of the SebaDataView-3 software you have the chance to carry out a measurement and observe the data recording in real-time. Also a current measurement can be observed.

Requirements The following requirements must be met:

- computer with SebaDataView-3 software
- a radio interface must be connected to the computer (e.g. Log RI)
- the logger must be switched on
- the device must be within the computer's wireless range

Procedure Proceed as follows to retrieve and display live data:

Step	Description
1	Select the relevant device in the directory tree of the SDV-3 software.
2	In the menu bar, click on Realtime measurement .
3	<p>From the context menu select if the 'live' measuring values should be displayed graphically or numerically.</p> <p>If you select Digital, the measured value of each active channel is displayed numerically in a table.</p> <p>If you select Graph, the measured data of the active channels is shown as the curves of a graph:</p> <div style="text-align: center;"> </div> <p>The continuous curves in the top diagram show the last 10 taken values. The bottom diagram shows the entire realtime measurement:</p> <p>Result: If a measurement already is in process, the values of this recording are displayed. Otherwise, a new measurement is started and the taken 'live' data is shown.</p>

You finish the realtime measurement function using the **Stop** button or by closing the display window.

Storing the data set After having closed the graphical view, a dialogue appears asking if you'd like to store the data set of this realtime measurement. If you answer with **Yes**, the measuring data is stored in the software database and can from now on be found in the data records list (see page 73).

9.2 Retrieving measurement data

The measuring data is stored in the memory of the device. It can be read out via short range radio using the computer.

If measuring data have been transmitted from the device via mobile radio to a FTP server, it can be downloaded from there to your computer. In addition, it is possible to access this data in the SebaKMT Cloud "online" and to further process it.

9.2.1 Reading out data using the PC/Laptop

You can read out the measuring data from the device using your computer with SebaDataView-3 software.

Requirements The following requirements must be met:

- computer with SebaDataView-3 software
- a radio interface must be connected to the computer (e.g. Log RI)
- the logger must be switched on
- the device must be within the computer's wireless range

Procedure Proceed as follows:

Step	Description
1	Select the relevant device in the directory tree of the SDV-3 software.
2	In the menu bar, click on Read .
3	Select Device from the appearing context menu. Result: The connection between the computer and the device is established and the data readout starts. In a small window the progress of the data transfer is displayed. As soon as the transfer is completed, a new window opens and the measuring data is displayed (see page 74).

9.2.2 Downloading data from a FTP server

Depending on the device's configuration the measuring data may have been transmitted to a FTP server. From there it can be downloaded to your computer.

Requirements The following requirements must be met:

- computer with SebaDataView-3 software and Internet access
- the FTP access data must have been entered and stored in the database of the software (see page 46)

Procedure Proceed as follows to download data from the FTP server:

Step	Description
1	Select the relevant device in the directory tree of the SDV-3 software.
2	In the menu bar, click on Read .
3	Select Cloud from the appearing context menu. Result: The download starts. In a small window the progress of the data transfer is displayed.

Step	Description
4	As soon as the download is finished, click the OK button. Result: The small window closes. Measuring data and event list data of the respective device are now available in the software database and can be displayed.

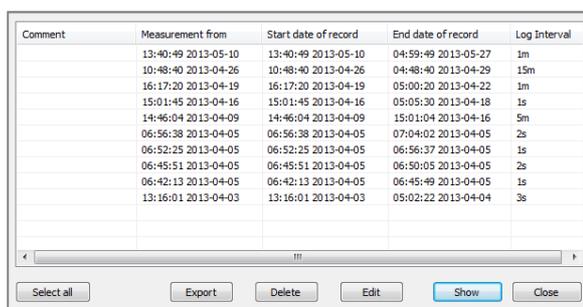
9.3 Managing saved measurement data

In the database of the software, a large number of measurement data records can be saved for each device.

You can display all measurement data records of a device in a list. Proceed as follows:

Step	Description
1	Select the relevant device in the directory tree of the SDV-3 software.
2	In the menu bar, click on Show data . Result: A new window opens. It shows a table where all measurement data records of the device are listed (see figure). If only one measurement data record is saved for the device, this window does not appear. Instead, the measurement data display opens immediately (see page 74).

Data records list The window contains a table in which all measurement data records saved for this device in the database of the software are listed. These are results from standard measurements as well as recordings of real-time measurements.



Comment	Measurement from	Start date of record	End date of record	Log Interval
	13:40:49 2013-05-10	13:40:49 2013-05-10	04:59:49 2013-05-27	1m
	10:48:40 2013-04-26	10:48:40 2013-04-26	04:48:40 2013-04-29	15m
	16:17:20 2013-04-19	16:17:20 2013-04-19	05:00:20 2013-04-22	1m
	15:01:45 2013-04-16	15:01:45 2013-04-16	05:05:30 2013-04-18	1s
	14:46:04 2013-04-09	14:46:04 2013-04-09	15:01:04 2013-04-16	5m
	06:56:38 2013-04-05	06:56:38 2013-04-05	07:04:02 2013-04-05	2s
	06:52:25 2013-04-05	06:52:25 2013-04-05	06:56:37 2013-04-05	1s
	06:45:51 2013-04-05	06:45:51 2013-04-05	06:50:05 2013-04-05	2s
	06:42:13 2013-04-05	06:42:13 2013-04-05	06:45:49 2013-04-05	1s
	13:16:01 2013-04-03	13:16:01 2013-04-03	05:02:22 2013-04-04	3s

Functions Using the buttons at the bottom of the window, you can call up and manage the individual measurement data records.

Select the relevant line in the list and click the desired button:

- Show** ... The measurement data is shown.
(Alternatively, you can simply double-click the respective line in the table.)
- Edit** ... A window that can be used to edit the comment text for this measurement opens.
- Delete** ... The data record is deleted from the database of the software. Answer the confirmation prompt with **Yes**.
- Export** ... The data record can be exported and stored in CSV format to the hard disk or any other memory. The saved file can be accessed using any CSV-capable application (e.g. Microsoft Excel).

9.4 Displaying measurement data

9.4.1 Calling up a measurement

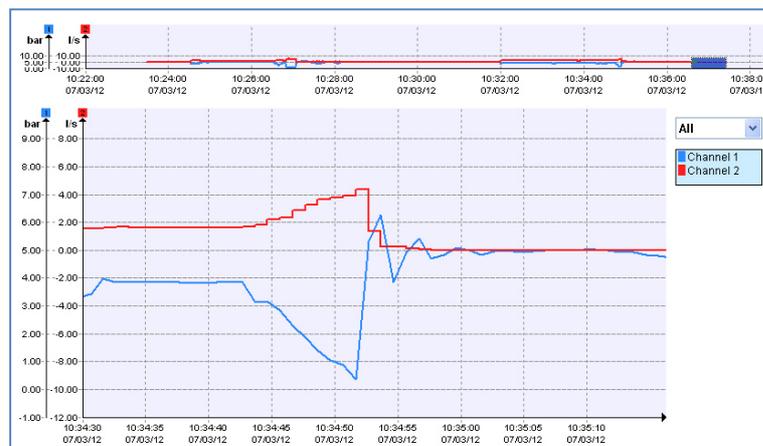
Calling up the most recent measurement To call up the most recently saved measurement data of a device, double-click this device in the directory tree of the software. The window for displaying the measurement data opens (see below).

Calling up a particular measurement To call up the results of a particular measurement, proceed as follows:

Step	Description
1	Select the relevant device in the directory tree.
2	In the menu bar, click on Show data . Result: The data records list opens (see page 73). If only one measurement data record is saved for this device, this list does not appear. Instead, the measurement data display opens immediately.
3	Select the required data record in the list and click Show or double-click the concerning line. Result: The measurement data is shown.

9.4.2 Using the measurement data display

Design The following figure shows the window for displaying measurement data:



In the top diagram the entire measurement is displayed. Up to four different coloured curves can be seen. Each curve is representing the results of one of the device's measuring channels.

The bottom diagram is used for viewing enlarged subareas of the measurement curves (see below).

The X-axis corresponds to the chronological sequence of a measurement. The Y-axis corresponds to the measured values.

Selecting a channel To focus on the data of one measuring channel you can either select the channel from the blue info window on the right or click directly on the respective curve in the bottom diagram.

The curve is shifted to the foreground. If there are alarm thresholds set for this channel, they are indicated by horizontal black lines.

If the curve represents a pressure measurement, all recorded pressure surges are indicated by vertical black lines.

Some important characteristics of the measurement are displayed in the blue window. The information relate exclusively to the section of the measurement that is currently displayed in the bottom diagram.

Click anywhere in the diagram to end focusing on one individual channel.

Specifying the zoom area You have the following options for displaying an enlarged subarea of the overall measurement curve:

- **Free selection of a section of the curve**
 Select the desired area of the measurement in the top diagram. To do this, click inside the diagram, hold down the left mouse button and guide the cursor diagonally across the relevant area. The selected area will be displayed in the bottom diagram.
 If you click the coloured area that was selected and hold down the left mouse button, you can freely move the selection within the top diagram. This function is practical for use as a “magnifying glass”.
- **Selecting time frames from the list**
 Using the drop-down list on the right next to the diagram, you can restrict the time frame of the displayed area to a month, a week, a day or an hour. By means of the "User-defined" option you have the the chance to specify the start and end time of the span to be displayed.

Moving in the diagram Using the mouse wheel (if available), you can move within the diagram along the axes:

- **Mouse wheel** ... Movement along the X-axis
- **Shift key + mouse wheel** ... Movement along the Y-axis

Other functions A **context menu** opens after you right-click in the diagram view. A number of other functions for working with the diagram are available here:

Function	Description
Zoom in	You can use this function to select an area in the diagram for enlarged display. The cursor symbol switches from  to  . Left-click in the diagram, hold down the button and guide the cursor to the desired area.
Pan	You can use this function to grab and move the displayed measurement area. The cursor symbol switches from  to  . Left-click in the diagram, hold down the button and freely move the image section in all directions.
Select	Use this command to end the functions Zoom in and Pan .
Measure	You can use this function to display the time span and pressure difference between any two points on the displayed measurement curve. Left-click in the diagram on the desired starting point, hold down the button and guide the cursor to the desired ending point. The time span between the two points is displayed.

(continued on next page)

Function	Description
Insert label	<p>You can use this function to create text fields (labels) within the diagram. These fields can be used to add comments to any points in the diagram. Labels remain saved after the diagram display is closed.</p> <p>Edit text ... Double-click the text field – input text – then click once outside of the field</p> <p>Move label ... Click the text field once – then “grab onto it” (click it and hold down the left mouse button) and move it wherever you would like</p> <p>Delete label ... Click the text field once – then press the “Delete” key on your keyboard</p>
Hide / Show grid	You can use this option to decide whether there should be a grid shown in the bottom diagram’s background or not.

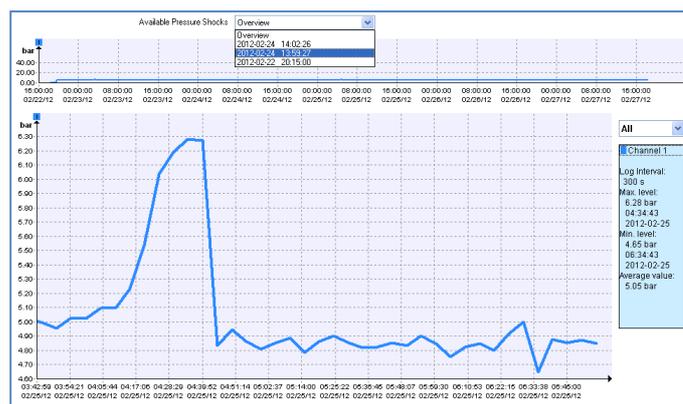
Print If you want to print the actual diagram view, right-click in the bottom diagram and select **Print** from the appearing context menu.

Reset initial view If you want to cancel all active functions in the window and return to the initial diagram view, right-click in the bottom diagram and select **Reset** from the appearing context menu.

9.4.3 Displaying pressure surges

If pressure surges were recorded in addition to the standard pressure measurement, you will see a **drop-down list** at the very top of the displayed window. All recorded pressure surges are in this list.

In order to display the one-minute recording of an individual pressure fluctuation, click the desired recording time point in this list. The corresponding measurement curve will be displayed in the bottom diagram.



With the tools described above, you can view the recording in detail and carry out a closer analysis.

To return to the standard measurement display, click **Overview** in the drop-down list.

9.5 Exporting data in CSV format

The data collected from a device and stored in the SDV-3 database can be exported in CSV ('Comma Separated Values') format. In doing so a file containing all logged value-time pairs line by line is saved to the hard disk or any other memory. The saved file can be accessed using any CSV-capable application (e.g. Microsoft Excel).

Export all data records To export all the stored measurement data of one device, proceed as follows:

Step	Description
1	Select the device whose data you want to export in the directory tree.
2	In the menu bar, in the segment Measurement data click on Export . Result: An Explorer window opens.
3	Browse to the desired target folder and save the data set there.

Export one data record To export the data of one individual measurement, proceed as follows:

Step	Description
1	Select the device whose data you want to export in the directory tree.
2	In the menu bar, in the segment Measurement data click on Show data . Result: A new window shows all measurement data records saved for this device.
3	Select the relevant data record and click on Export . Result: An Explorer window opens.
4	Browse to the desired target folder and save the data record there.

10 Miscellaneous functions of the SebaDataView-3 software

10.1 Find out status information of a device

Every time data is exchanged between the device and the computer, general information on the status of the device is also transferred to the computer.

Status information include, for example:

- The device firmware version
- Internal date and time of the device
- Battery status
- Free memory capacity, etc.

Procedure To view the status information of a device, proceed as follows:

Step	Description														
1	Select the relevant device in the directory tree.														
2	<p>In the menu bar, click on Program.</p> <p>Result: The window for programming opens. The status information can be found in the State segment.</p> <div style="border: 1px solid gray; padding: 5px; width: fit-content; margin: 10px auto;"> <table style="width: 100%; border-collapse: collapse;"> <tr> <td colspan="2" style="padding: 2px 5px;">State</td> </tr> <tr> <td style="padding: 2px 5px;">Current firmware</td> <td style="padding: 2px 5px; text-align: right;">1.00.08</td> </tr> <tr> <td style="padding: 2px 5px;">Date/Time</td> <td style="padding: 2px 5px; text-align: right;">06:00:19 2054-09-06</td> </tr> <tr> <td style="padding: 2px 5px;">Battery condition</td> <td style="padding: 2px 5px; text-align: right;">battery full</td> </tr> <tr> <td style="padding: 2px 5px;">Recorded values</td> <td style="padding: 2px 5px; text-align: right;">0</td> </tr> <tr> <td style="padding: 2px 5px;">Free storage capacity</td> <td style="padding: 2px 5px; text-align: right;">100.00 %</td> </tr> <tr> <td style="padding: 2px 5px;">Resulting storage period</td> <td style="padding: 2px 5px; text-align: right;">4429 days 09:00:00</td> </tr> </table> </div> <p>The data refer to the time of the last data exchange between device and computer.</p> <p>If you wish more current information, read the configuration of the device (next step). For that, the following requirements must be met:</p> <ul style="list-style-type: none"> • a radio interface must be connected to the computer (e.g. Log RI) • the device must be registered in the SDV-3 • the device must be switched on • the device must be within the computer's wireless range 	State		Current firmware	1.00.08	Date/Time	06:00:19 2054-09-06	Battery condition	battery full	Recorded values	0	Free storage capacity	100.00 %	Resulting storage period	4429 days 09:00:00
State															
Current firmware	1.00.08														
Date/Time	06:00:19 2054-09-06														
Battery condition	battery full														
Recorded values	0														
Free storage capacity	100.00 %														
Resulting storage period	4429 days 09:00:00														
3	<p>Click on Read.</p> <p>Result: The current configuration data is transferred from the device to the computer. The information on the screen is updated.</p>														

Explanations In the **Date/time** line, the internal time of the logger is displayed. Each time data is exchanged, the time of the logger is synchronised with the system time of the computer. After reading out the configuration (see Step 3), the displayed time should match the actual time.

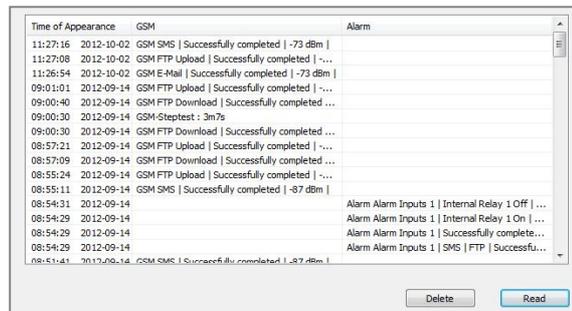
The **Resulting storage periode** line indicates how long the device can continue to measure with the currently set parameters until the device memory is full.

10.2 Receiving an 'Event List'

Introduction By the help of the **Event List** function you get information about

- a device's alarm events up to now,
- a device's GSM connection establishments up to now.

These events are listed in a table on the screen.



If measuring data have been sent from the device to a FTP server, the event list is part of these data and is available right after the download.

For energy saving reasons, the event list is not part of the data transferred to the computer via radio. In this case, the event list still needs to be retrieved from the logger, before it can be displayed on the screen.

A maximum of 600 events can be listed. After 600 entries have been reached, the respective oldest values are overwritten.

Procedure Proceed as follows to call the event list of a device:

Step	Description
1	Select the relevant device in the directory tree.
2	In the menu bar in the segment Event list click on Show . Result: The event list window opens. The events up to the time of the last data readout are shown. If the list is empty, there are no events stored for this device in the software database. Maybe the list has not yet been read out from the device. If you wish more current information, read the event data from the device now (next step). For that, the following requirements must be met: <ul style="list-style-type: none"> • a radio interface must be connected to the computer (e.g. Log RI) • the device must be registered in the SDV-3 • the device must be switched on • the device must be within the computer's wireless range
3	Click the Read button. Result: The latest event data are transmitted from the device to the computer and added to the Event list on the screen. If the list still is empty, no events have been stored by the device.

Deleting events You can remove events from the list and delete them in the software database by selecting them in the window and clicking the **Delete** button.

11 Password protection for Log D-3

11.1 Set password protection

Introduction It is possible to restrict access to the Log D-3 by means of a login so that only authorized persons can work with the device. For this purpose, the password protection of the SebaDataView-3 software is extended to the Log D-3, which means that no new password is created for the logger, instead the login passwords of the software also apply to the device.

Requirements These requirements must be met:

- computer with SebaDataView-3 software
- a radio interface must be connected to the computer (e.g. Log RI)
- the Log D-3 must be registered in the SebaDataView-3 software
- the Log D-3 must be switched on and within the the computer's wireless range
- the SebaDataView-3 software on the computer must be password-protected
This means, when opening the software, a password must have been requested. If not, the password protection for the software must be set up first. Only then the password protection can be extended to the Log D-3.
- User level 1 login is necessary for SebaDataView-3
This means, when starting the software, you must have logged in with the password for User level 1. The User levels 2 and 3 are not authorized for password management.

Procedure To extend the SebaDataView-3 password protection to the Log D-3, proceed as follows:

Step	Description
1	Select the Log D-3 in the directory tree of the SDV-3 software.
2	In the Password segment of the menu bar, click on Set . Result: The login settings are transmitted and adopted by the logger. After the process, a success message will appear on the screen.

From now on, only authorized users can access the logger, ie people who have the password for "User Level 1", "User Level 2" or "User Level 3".

11.2 Reset password protection

It is possible to remove the password protection for the Log D-3.

Requirements The same prerequisites must be met as when setting up password protection (see previous section).

Procedure Proceed as follows:

Step	Description
1	Select the Log D-3 in the directory tree of the SDV-3 software.
2	In the Password segment of the menu bar, click on Reset . Result: The command is transmitted to the logger. After the process, a success message will appear on the screen.

The work with the logger is now possible again for anyone without access restriction.

11.3 Canceled password protection after device reset

Introduction It may happen that the passwords for the password-protected Log D-3 Logger are no longer valid or no longer known. In this case, there is no way to contact the logger via radio.

In order to gain access again, you can perform a reset with the device, ie reset the logger to factory settings. This deactivates password protection and makes the logger accessible again.

Note: The reset deletes all measurement data stored in the logger and resets all saved settings.

Procedure To perform the reset, hold a magnet on the On/Off contact field of the Log-D-3 for approximately 30 seconds until the status LED turns magenta. The device turns off. After switching on again, the logger can be addressed by radio again.

12 Firmware update

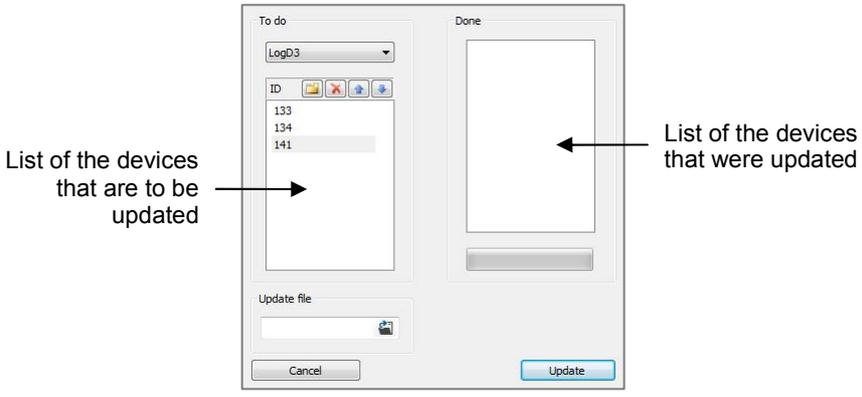
We recommend that you keep the firmware the device current at all times. SebaKMT makes improved versions of the firmware available in the download area of www.sebakmt.com on a regular basis.

FW version in use The firmware version currently used by the device can be found in the status information of the device (see page 79).

Saving measuring data All data stored in the device's internal memory may be deleted by the firmware update. Therefore, retrieve all data from the device before carrying out an update.

- Requirements* To conduct a firmware update, the following requirements must be met:
- computer with SebaDataView-3 software Internet access
 - a radio interface must be connected to the computer (e.g. Log RI)
 - the relevant device must be registered in the SDV-3 software
 - the logger must be switched on
 - the device must be within the computer's wireless range

Procedure To update the firmware of one or more devices, proceed as follows:

Step	Description
1	Download the file for the update from the download area of www.sebakmt.com onto your computer.
2	Open the SebaDataView-3 software.
3	<p>Click the water drop symbol  on the top left of the window and select the option Firmware Update in the window that opens.</p> <p>Result: The following window opens.</p> <div style="text-align: center;">  </div>
4	In the drop-down list in the top left, select the type of device LogD3 .
5	<p>At the top of the list on the left, click the folder symbol .</p> <p>A new input field opens. There, enter the identification number (ID) of the device you want to update and confirm with the ENTER key on your keyboard. The ID now appears in the list on the left.</p> <p>Several devices can be updated at the same time, provided they are of the same type. If you want to do that, enter the IDs of the relevant devices now.</p> <p>If you want to remove a device from the list, select the relevant ID and click the 'Delete' symbol  at the top of the list.</p>

(continued on next page)

Step	Description
6	<p>In the Update file segment on the lower left of the window, enter the location where you saved the update file that you downloaded to your computer in step 1.</p> <p>To do this, click the folder symbol  and use the Explorer window that opens.</p>
7	<p>Click OK to start the firmware update.</p> <p>Result: The update file is transferred to the device/s and installed there. A bar under the list on the right shows the progress of this process. After the file is installed, each device restarts automatically. The IDs of the successfully updated devices switch from the left to the right side on the screen. As soon as the firmware update is successfully completed for all devices, a corresponding message appears in the update window.</p>

13 Changing the battery

13.1 Ordering a battery-replacement kit

Used batteries can be replaced. You will need a special battery replacement kit, which is available from SebaKMT.

Get a battery replacement kit Compare the first 8 digits of the type key on the logger's nameplate with the information in the following tables. Select the appropriate battery-replacement kit and state the item number when ordering.

Battery-replacement kits for devices with internal GSM modem:

Type key of the device	Item number of the battery-replacement kit
LOG D-3 4 G	90016461
LOG D-3 2 G	90016464

Battery-replacement kits for devices without GSM modem:

Type key of the device	Item number of the battery-replacement kit
LOG D-3 4	90016463
LOG D-3 2	90016466

If you are not sure which kit to choose, please contact your SebaKMT service partner or contact us. Contact information on our web site www.sebakmt.com.

Spare seal rings supplied Each replacement kit contains new O-ring seals for the logger housing and the logger lid in addition to the batteries. Replacing the seals in the course of the battery change is mandatory. Otherwise, the tightness of the device is compromised.

13.2 Conduct the replacement

Back up data Stored measurement data may get lost due to the battery change. Therefore, it is recommended to read and save the logger's measurement data to the computer prior to the battery replacement.

Replace batteries To conduct the battery change, proceed as follows.

	<p>NOTE Please be careful not to damage any parts. Don't use any force.</p>
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Step	Description
1	The device needs to be turned off.
2	Loosen the six screws of the device.
3	Loosen and remove the lid of the device. Do not use any tools as an aid, even not if the lid seems to be stuck.
Result: Inside the device you have access to the batteries.	

(continued on the next page)

Step	Description
	<p>Loggers with internal GSM modem have two batteries. Loggers without GSM modem have only one battery. In the middle of the device there is a connection socket with two superimposed jacks. Each battery is connected to one of these jacks.</p> 
<p>4</p>	<p>Disconnect the batteries.</p> <p><u>Note:</u> The battery plug is scurely held in the socket by two small locking catches. Therefore, the plug must not be pulled straight backwards out of the jack. This could lead to damage.</p> <p><u>To disconnect:</u></p> <ol style="list-style-type: none"> 1. Slightly press with your finger from above onto the plug. 2. At the same time, carefully pull the two wires to the back and down. Do not use force. 
<p>5</p>	<p>Pull the battery out of the compartment.</p>
<p>6</p>	<p>Insert the new battery. Make sure that the wires of the battery are in the recess of the compartment and not be jammed.</p>
<p>7</p>	<p>Connect the battery, i.e. put the plug into one of the two jacks in the middle of the device, no matter which one. You must feel the plug latch in.</p>
<p>8</p>	<p>Replace the two rubber seal rings of the logger.</p> <p><u>For that:</u></p> <ol style="list-style-type: none"> 1. Remove the old ring from the logger's housing and replace it with the new ring of the same size (Art.Nr. 90013554) from the battery replacement kit. Make sure that the ring fits properly and tightly to the housing. 2. Remove the old ring from the logger's lid and replace it with the new ring of the same size (Art.Nr. 90013552) from the battery replacement kit. Make sure that the ring fits properly.

Step	Description
9	<p>Attach the lid to the housing again.</p> <hr/> <div style="display: flex; align-items: flex-start;"> <div style="border: 1px solid black; padding: 2px; margin-right: 10px; text-align: center;">i</div> <p>The rubber seal inside the lid may possibly fall out. Therefore, when re-assembling the device, it may be helpful not to put the lid on the housing but to take both parts upside down and then put the housing on the lid.</p> </div> <hr/> <p>Observe the following points:</p> <ul style="list-style-type: none"> • The rubber seals and the surfaces of housing and lid which touch each other must be free of dirt. • Ensure that the wires will not be pinched or clamped. • Be careful not to jam the housing parts against each other. • Tighten the screws in a crosswise sequence. • Tighten the screws finger-tight (1 Nm). Do not overtighten!

13.3 Reset of the battery counter

After a battery replacement has taken place, the internal 'battery counter' of the device must be reset. Otherwise, the actual battery level cannot be recognized by the logger and stated in the SDV-3 properly.

- Requirements* The following requirements must be met:
- computer with SebaDataView-3 Software
 - a wireless interface must be connected to the computer (e.g. Log RI)
 - the logger must be registered to the SebaDataView-3

Procedure Proceed as follows:

Step	Description
1	The logger needs to be turned on.
2	Open the SDV-3 software.
3	In the directory tree, right-click on the relevant logger.
4	In the context menu, select the Reset battery counter option.
5	Confirm the message on the screen with OK .
	Result: The command is sent to the logger and executed. Subsequently, a success message appears on the screen.



Tento symbol indikuje, že výrobek nesoucí takovéto označení nelze likvidovat společně s běžným domovním odpadem. Jelikož se jedná o produkt obchodovaný mezi podnikatelskými subjekty (B2B), nelze jej likvidovat ani ve veřejných sběrných dvorech. Pokud se potřebujete tohoto výrobku zbavit, obraťte se na organizaci specializující se na likvidaci starých elektrických spotřebičů v blízkosti svého působiště.



Dit symbool duidt aan dat het product met dit symbool niet verwijderd mag worden als gewoon huishoudelijk afval. Dit is een product voor industrieel gebruik, wat betekent dat het ook niet afgeleverd mag worden aan afvalcentra voor huishoudelijk afval. Als u dit product wilt verwijderen, gelieve dit op de juiste manier te doen en het naar een nabij gelegen organisatie te brengen gespecialiseerd in de verwijdering van oud elektrisch materiaal.



This symbol indicates that the product which is marked in this way should not be disposed of as normal household waste. As it is a B2B product, it may also not be disposed of at civic disposal centres. If you wish to dispose of this product, please do so properly by taking it to an organisation specialising in the disposal of old electrical equipment near you.



Този знак означава, че продуктът, обозначен по този начин, не трябва да се изхвърля като битов отпадък. Тъй като е B2B продукт, не бива да се изхвърля и в градски пунктове за отпадъци. Ако желаете да изхвърлите продукта, го занесете в пункт, специализиран в изхвърлянето на старо електрическо оборудване.



Dette symbol viser, at det produkt, der er markeret på denne måde, ikke må kasseres som almindeligt husholdningsaffald. Eftersom det er et B2B produkt, må det heller ikke bortskaffes på offentlige genbrugsstationer. Skal dette produkt kasseres, skal det gøres ordentligt ved at bringe det til en nærliggende organisation, der er specialiseret i at bortskaffe gammelt el-udstyr.



Sellise sümboliga tähistatud toodet ei tohi käidelda tavalise olmejäätmena. Kuna tegemist on B2B-klassi kuuluva tootega, siis ei tohi seda viia kohaliku jäätmeäituspunkti. Kui soovite selle toote ära visata, siis viige see lähimasse vanade elektriseadmete käitlemisele spetsialiseerunud ettevõttesse.



Tällä merkinnällä ilmoitetaan, että kyseisellä merkinnällä varustettua tuotetta ei saa hävittää tavallisen kotitalousjätteen seassa. Koska kyseessä on yritysten välisen kaupan tuote, sitä ei saa myöskään viedä kuluttajien käyttöön tarkoitettuihin keräyspisteisiin. Jos haluatte hävittää tämän tuotteen, ottakaa yhteys lähimpään vanhojen sähkölaitteiden hävittämiseen erikoistuneeseen organisaatioon.



Ce symbole indique que le produit sur lequel il figure ne peut pas être éliminé comme un déchet ménager ordinaire. Comme il s'agit d'un produit B2B, il ne peut pas non plus être déposé dans une déchetterie municipale. Pour éliminer ce produit, amenez-le à l'organisation spécialisée dans l'élimination d'anciens équipements électriques la plus proche de chez vous.



Cuireann an siombail seo in iúl nár cheart an táirgeadh atá marcáilte sa tslí seo a dhiúscairt sa chóras fuoil teaghlaigh. Os rud é gur táirgeadh ghnó le ghnó (B2B) é, ní féidir é a dhiúscairt ach oiread in ionaid dhiúscairthe phobail. Más mian leat an táirgeadh seo a dhiúscairt, déan é a thógáil ag eagraíocht gar duit a sainfheidhmiú in ndiúscairt sean-fhearas leictreach.



Dieses Symbol zeigt an, dass das damit gekennzeichnete Produkt nicht als normaler Haushaltsabfall entsorgt werden soll. Da es sich um ein B2B-Gerät handelt, darf es auch nicht bei kommunalen Wertstoffhöfen abgegeben werden. Wenn Sie dieses Gerät entsorgen möchten, bringen Sie es bitte sachgemäß zu einem Entsorger für Elektroaltgeräte in Ihrer Nähe.



Αυτό το σύμβολο υποδεικνύει ότι το προϊόν που φέρει τη σήμανση αυτή δεν πρέπει να απορρίπτεται μαζί με τα οικιακά απορρίματα. Καθώς πρόκειται για προϊόν B2B, δεν πρέπει να απορρίπτεται σε δημοτικά σημεία απόρριψης. Εάν θέλετε να απορρίψετε το προϊόν αυτό, παρακαλούμε όπως να το παραδώσετε σε μία υπηρεσία συλλογής ηλεκτρικού εξοπλισμού της περιοχής σας.



Ez a jelzés azt jelenti, hogy az ilyen jelzéssel ellátott terméket tilos a háztartási hulladékokkal együtt kidobni. Mivel ez vállalati felhasználású termék, tilos a lakosság számára fenntartott hulladékgyűjtőbe dobni. Ha a terméket ki szeretné dobni, akkor vigye azt el a lakóhelyéhez közel működő, elhasznált elektromos berendezések begyűjtésével foglalkozó hulladékkezelő központhoz.



Questo simbolo indica che il prodotto non deve essere smaltito come un normale rifiuto domestico. In quanto prodotto B2B, può anche non essere smaltito in centri di smaltimento cittadino. Se si desidera smaltire il prodotto, consegnarlo a un organismo specializzato in smaltimento di apparecchiature elettriche vecchie.



Št zíme noráda, ka izstrādājumu, uz kura tā atrodas, nedrīkst izmest kopā ar parastiem mājsaimniecības atkritumiem. Tā kā tas ir izstrādājums, ko cits citam pārdod un lieto tikai uzņēmumi, tad to nedrīkst arī izmest atkritumos tādās izgāztuvēs un atkritumu savāktuvēs, kas paredzētas vietējiem iedzīvotājiem. Ja būs vajadzīgs šo izstrādājumu izmest atkritumos, tad rīkojieties pēc noteikumiem un nogādājiet to tuvākajā vietā, kur īpaši nodarbojas ar vecu elektrisku ierīču savākšanu.



Šis simbolis rodo, kad juo paženklinto gaminio negalima išmesti kaip paprastų buitinių atliekų. Kadangi tai B2B (verslas verslui) produktas, jo negalima atiduoti ir buitinių atliekų tvarkymo įmonėms. Jei norite išmesti šį gaminį, atlikite tai tinkamai, atiduodami jį arti jūsų esančiai specializuotai senos elektrinės įrangos utilizavimo organizacijai.



Dan is-simbolu jindika li l-prodott li huwa mmarkat b'dan il-mod m'ghandux jintrema b'hal skart normali tad-djar. Minhabba li huwa prodott B2B , ma jistax jintrema wkoll f'centri civici ghar-rimi ta' l-iskart. Jekk tkun tixtieq tarmi dan il-prodott, jekk joghgbok ghamel dan kif suppost billi tiehdu ghand organizzazzjoni fil-qrib li tispjalizza fir-rimi ta' taghmir qadim ta' l-eletriku.



Dette symbolet indikerer at produktet som er merket på denne måten ikke skal kastes som vanlig husholdningsavfall. Siden dette er et bedriftsprodukt, kan det heller ikke kastes ved en vanlig miljøstasjon. Hvis du ønsker å kaste dette produktet, er den riktige måten å gi det til en organisasjon i nærheten som spesialiserer seg på kassering av gammelt elektrisk utstyr.



Ten symbol oznacza, że produktu nim opatrzonego nie należy usuwać z typowymi odpadami z gospodarstwa domowego. Jest to produkt typu B2B, nie należy go więc przekazywać na komunalne składowiska odpadów. Aby we właściwy sposób usunąć ten produkt, należy przekazać go do najbliższej placówki specjalizującej się w usuwaniu starych urządzeń elektrycznych.



Este símbolo indica que o produto com esta marcação não deve ser deixado fora juntamente com o lixo doméstico normal. Como se trata de um produto B2B, também não pode ser deixado fora em centros cívicos de recolha de lixo. Se quiser desfazer-se deste produto, faça-o correctamente entregando-o a uma organização especializada na eliminação de equipamento eléctrico antigo, próxima de si.



Acest simbol indică faptul că produsul marcat în acest fel nu trebuie aruncat ca și un gunoi menajer obișnuit. Deoarece acesta este un produs B2B, el nu trebuie aruncat nici la centrele de colectare urbane. Dacă vreți să aruncați acest produs, vă rugăm s-o faceți într-un mod adecvat, ducând-ul la cea mai apropiată firmă specializată în colectarea echipamentelor electrice uzate.



Tento symbol znamená, že takto označený výrobek sa nesmie likvidovať ako bežný komunálny odpad. Keďže sa jedná o výrobok triedy B2B, nesmie sa likvidovať ani na mestských skládkach odpadu. Ak chcete tento výrobok likvidovať, odneste ho do najbližšej organizácie, ktorá sa špecializuje na likvidáciu starých elektrických zariadení.



Ta simbol pomeni, da izdelka, ki je z njim označen, ne smete zavreči kot običajne gospodinjске odpadke. Ker je to izdelek, namenjen za druge proizvajalce, ga ni dovoljeno odlagati v centrih za civilno odlaganje odpadkov. Če želite izdelek zavreči, prosimo, da to storite v skladi s predpisi, tako da ga odpeljete v bližnjo organizacijo, ki je specializirana za odlaganje stare električne opreme.



Este símbolo indica que el producto así señalado no debe desecharse como los residuos domésticos normales. Dado que es un producto de consumo profesional, tampoco debe llevarse a centros de recogida selectiva municipales. Si desea desechar este producto, hágalo debidamente acudiendo a una organización de su zona que esté especializada en el tratamiento de residuos de aparatos eléctricos usados.



Den här symbolen indikerar att produkten inte får blandas med normalt hushållsavfall då den är förbrukad. Eftersom produkten är en så kallad B2B-produkt är den inte avsedd för privata konsumenter, den får således inte avfallshanteras på allmänna miljö- eller återvinningsstationer då den är förbrukad. Om ni vill avfallshandera den här produkten på rätt sätt, ska ni lämna den till myndighet eller företag, specialiserad på avfallshandtering av förbrukad elektrisk utrustning i ert närområde.