User Manual

GSM Transmitter

Sebalog GT-3

Mess- und Ortungstechnik
Measuring and Locating Technologies

Elektrizitätsnetze
Power Networks

Kommunikationsnetze
Communication Networks

Rohrleitungsnetze
Water Networks

Abwassernetze
Sewer Systems

Leitungsortung
Line Locating

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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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Terms of Warranty

SebaKMT accept responsibility for a claim under warranty brought forward by a customer for a product sold by SebaKMT under the terms stated below.

SebaKMT warrant that at the time of delivery SebaKMT products are free from manufacturing or material defects which might considerably reduce their value or usability. This warranty does not apply to faults in the software supplied. During the period of warranty, SebaKMT agree to repair faulty parts or replace them with new parts or parts as new (with the same usability and life as new parts) according to their choice.

This warranty does not cover wear parts, lamps, fuses, batteries and accumulators.

SebaKMT reject all further claims under warranty, in particular those from consequential damage. Each component and product replaced in accordance with this warranty becomes the property of SebaKMT.

All warranty claims versus SebaKMT are hereby limited to a period of 12 months from the date of delivery. Each component supplied by SebaKMT within the context of warranty will also be covered by this warranty for the remaining period of time but for 90 days at least.

Each measure to remedy a claim under warranty shall exclusively be carried out by SebaKMT or an authorized service station.

This warranty does not apply to any fault or damage caused by exposing a product to conditions not in accordance with this specification, by storing, transporting, or using it improperly, or having it serviced or installed by a workshop not authorized by SebaKMT. All responsibility is disclaimed for damage due to wear, will of God, or connection to foreign components.

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.

Contents

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.

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 itselves 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

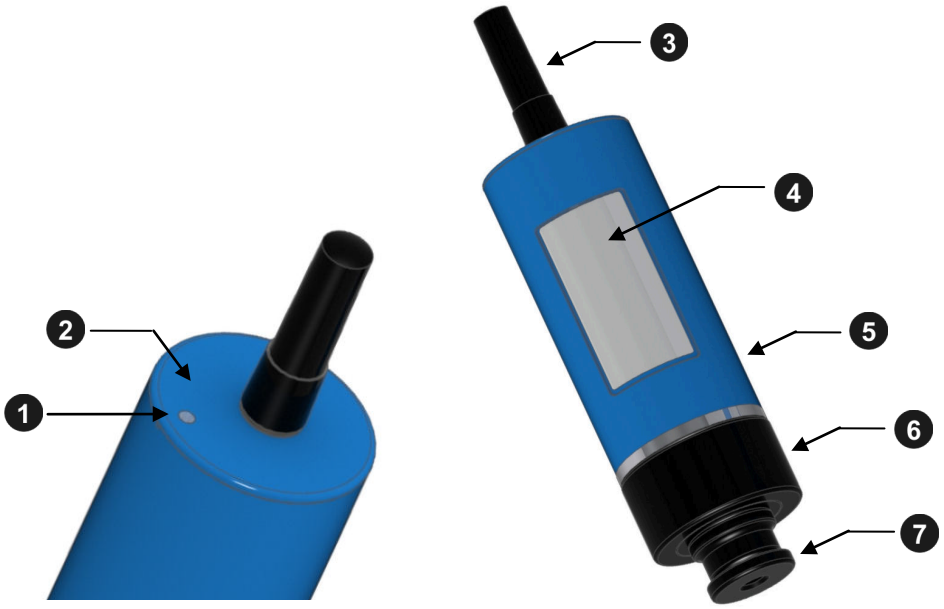
This device is designed for industrial use. When used at home it could cause interference to other equipment, such as the radio or television.

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.

2 Technical Description

2.1 Device construction

External features The GSM transmitter has the following control elements and external features:



Element	Description
1	**Status LED** 1 x red, 3 x green ... when switching on Flashes blue ... device is switched on and ready for radio communication Permanently blue ... data transfer taking place Yellow, then red ... when switching off
2	**On/Off contact field (magnetic switch)**
3	**GSM antenna (interchangeable)**
4	**Type label with the identification number (ID) of the device**
5	**Housing**
6	**Locking ring (unscrewable)**
7	**Magnetic adapter (unscrewable)**

2.2 Function

The "LOG GT-3" GSM transmitter is a compact, waterproof GSM module with its own power supply.

The GSM transmitter acts as a mobile phone network interface for the following devices in the Sebalog series:

- Log N-3 noise level logger
- Log P-3 pressure logger

The GSM transmitter makes it possible for the loggers with which it is connected to perform the following functions:

- Regular uploading of measured data to an FTP server (once a day)
- Regular transmission of measured data via email/SMS
- Transmission of alarm messages via email/SMS if limit values are exceeded or undercut

Up to three loggers can be connected to a GSM transmitter at the same time.

2.3 Communication

The GSM transmitter features an integrated GSM/GPRS modem and an integrated wireless module for short-distance wireless transmission.

Short-distance wireless transmission:

- Communication between GSM transmitter and a logger
- Communication between GSM transmitter and a PC/laptop
  (a wireless interface must be connected to the computer — please see the following sections).

Mobile wireless communication:

- Transfer of logger-measured data from the GSM transmitter to the FTP server
- Transmission of notifications via email/SMS

2.3.1 LOG RI / LOG RI+ wireless interfaces for the computer

LOG RI The "LOG RI" compact standard wireless interface is usually included in the scope of delivery for devices in the Sebalog series.

LOG RI+ The "LOG RI+" wireless interface is available from SebaKMT as accessory equipment. In comparison with the LOG RI, the wireless module in this device is more powerful, facilitating higher wireless ranges.

Operation The LOG RI/LOG RI+ device connects easily to the computer via a USB port. After connection, it activates itself automatically. The device is detected by the computer automatically and is immediately ready to establish a wireless connection. No other settings are required.

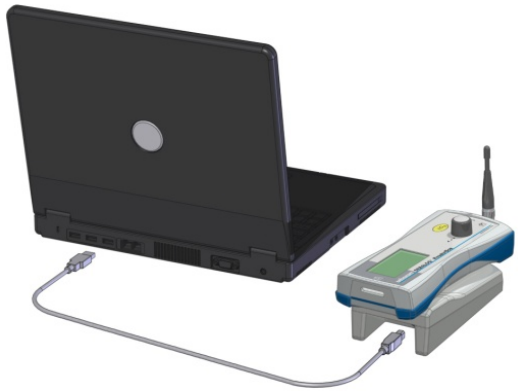
Status LED The LOG RI/LOG RI+ device features an LED for status indication:

- flashes 1x red, 1x green … when switching on
- lights up blue … during wireless operation
- lights up red … malfunction

Update It is recommended that the device is always operated using the latest firmware. Information on updating device firmware can be found in the operating instructions for the noise or pressure logger.

2.3.2 Reader-3 as a wireless interface for the computer

The "Reader-3" output device from SebaKMT can be used as a wireless interface.



Connect the device to the computer via the associated docking station and switch it on. The device will then switch automatically to "USB mode". The device is detected by the computer automatically and is immediately ready to establish a wireless connection. No other settings are required. Additional information can be found in the user manual for the Reader-3.

2.4 Power supply

The GSM transmitter is powered by internal lithium batteries of the brand **Energizer Ultimate Lithium AA**, but batteries from other manufacturers can also be used.

The batteries must satisfy the following technical criteria:

Parameters	Value
Type	Lithium battery
Size	AA (ICE LR6)
Quantity	2
Rated voltage	1.5 V
Capacity	Min. 3000 mAh
Continual discharge current	Min. 3 A

2.4.1 Reading off the battery status

If you want to check the battery charge of a GSM transmitter, you can read the current configuration for the respective device. The information on the **status** of the device will contain one of the following statements:

- **Battery full**
- **Battery OK**
- **Battery critical**

Requesting device configuration

You can request the current configuration of a GSM transmitter. The transmitter must be switched on and within the wireless range of the output device.

Proceed as follows:

Step	Description	
	Using the Commander-3	**Using the computer**
1	In Professional mode, open the  menu.	In the SDV-3 software, select the respective GSM transmitter in the directory tree.
2	Select the option **Read device configuration**.	Click on **Program** in the menu bar.
4	Select the option **Read GSM transmitter config**.	Click on **Read** in the input window.
		Result: The current configuration of the GSM transmitter is read out and displayed.
5	Enter and confirm the identification number (ID) of the GSM transmitter in question.	Click on **Status**.
	Result: The current configuration of the GSM transmitter is read out and displayed. The "Status" line contains information on the current battery state.	**Result:** A window opens showing information on the current status of the device. This window also includes information on the current battery charge status.

2.4.2 Replacing the batteries

Empty batteries can be replaced by the user.

We recommend that batteries of the same brand and type as those supplied with the device are used.

If you prefer to use batteries from a different manufacturer, you should ensure that these batteries fulfill the necessary technical criteria (see page 12). Batteries with an inadequate continuous discharge current are not suitable for use with the GSM transmitter.

The technical specifications for a battery type are often not indicated on the packaging or on the battery itself. The technical specifications can be requested from the manufacturer.

Procedure

NOTE

The device contains sensitive semi-conductor components.

Take care to avoid damaging the components. Never use force.

Proceed as follows:

Step	Description
1	Open the device (see page 16).
	Result: You can now access the SIM card slot and the battery compartment.
2	Carefully pull the battery tray out of the device until the batteries are freely accessible.
3	Replace the batteries. Make sure that you fit the new batteries with the correct polarity.
4	Carefully push the battery tray back into the device.
5	Close the device. When doing so, make sure that the rubber seal of the sealing plug and the sealing thread are free from dirt.

Whenever the batteries are replaced, the internal logbook for the respective GSM transmitter must be reset (see following section). If this is not the case, this may lead to incorrect information being provided when the battery charge status is requested at a later point.

2.4.3 Resetting the internal logbook

This step can be carried out using the Commander-3 or the computer. The GSM transmitter in question must be switched on and ready for wireless communication.

Proceed as follows:

Step	Description	
	Using the Commander-3	**Using the computer**
1	In Professional mode, open the  menu.	In the SDV-3 software, select the respective GSM transmitter in the directory tree.
2	Select the option **Read device configuration**.	Click on **Program** in the menu bar.
4	Select the option **Read GSM transmitter config**.	Click on **Read**.
		Result: The current configuration of the GSM transmitter is read out and displayed.
5	Enter and confirm the identification number (ID) of the GSM transmitter in question.	Click on **Status**.
	Result: The current configuration of the GSM transmitter is read out and displayed.	**Result:** A window opens showing information on the current status of the device.
6	Go to the final configuration data page using the **Next** button.	Click on **Reset logbook**. (N.B.: If the button is not visible in the status window, increase the window size. Click on and drag the window frame using the mouse whilst keeping the left mouse button depressed).
7	Select the option **Reset logbook**.	
	Result: A connection to the GSM transmitter is established. All logbook entries for this device are reset to "0".	**Result:** A connection to the GSM transmitter is established. All logbook entries for this device are reset to "0".

2.5 Specifications

The GSM transmitter has the following technical parameters:

Parameters	Value
Display	Status LED
Communication	Short-distance radio transmission 868 MHz (in Europe) 913/916 MHz (depending on the country) Mobile communication GSM/GPRS modem, 850/900/1800/1900 MHz
Power supply	2 x 1.5 V lithium battery
Operating temperature	-20 ... +60°C
Storage temperature	-20 ... +70°C
Dimensions	124 x 44 mm Ø (without GSM antenna)
Weight	250 g
Degree of protection	IP68

2.6 Scope of delivery

Standard accessories The standard scope of delivery includes the following components:

Accessory item	Description	Item no.
LOG GT-3	GSM transmitter	1003416
	Magnetic adapter M8/M6	90008233
	90-degree adapter for GSM antenna	90008232

Optional accessories Other accessory items are available in addition to the standard delivery scope:

Accessory item	Description	Item no.
	GSM antenna with cable, 3 m	2004816
	Magnetic angled adapter for transmitter	118303355
	Magnetic adapter	820015167
	Transport container for up to 15 transmitters	128311959
	Eye bolt (short)	128302985
	GPS receiver for laptop	820013945
LOG GPS-3	GPS receiver for Commander CDR-3	118303791

3 Setting Up and Starting the Device

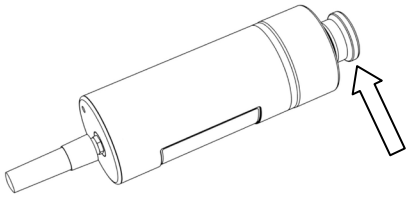
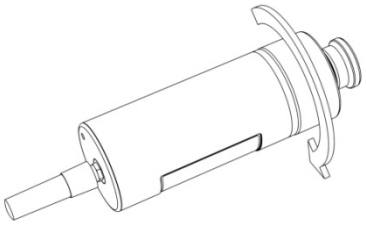
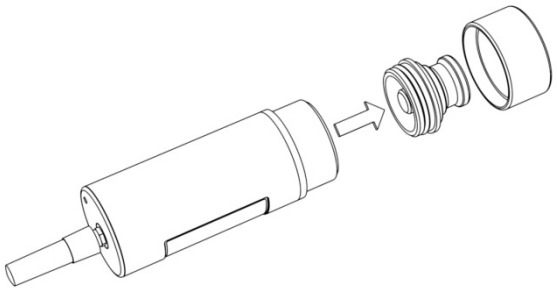
3.1 Access to SIM card and battery compartment

The GSM transmitter must be opened in order to gain access to the SIM card slot or the batteries.

	**NOTE** **The device contains sensitive semi-conductor components.** Take care to avoid damaging the components. Never use force.

Opening the housing

Proceed as follows:

Step	Description
1	The device must be switched off (status LED ❶ permanently off).
2	The magnetic adapter ❼ must be screwed onto the device. (When screwing on: tighten carefully! Do not over-tighten!) 
3	Unscrew the black locking ring ❻ from the housing. 
4	Carefully pull the sealing plug out of the housing. 
	Result: You can now access the SIM card slot and the battery compartment.

Closing the housing

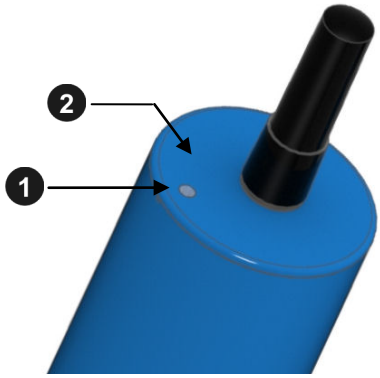
To close the housing, first push the sealing plug carefully back into the housing and then screw the locking ring back on.

Please note:

- The rubber seal of the sealing plug and all contact surfaces must be free from dirt.
- The thread of the locking ring and the housing must be free from dirt.
- Tighten the locking ring with care. Do not over-tighten!

3.2 Switching the GSM transmitter on/off

The GSM transmitter has an internal magnetic switch to turn it on and off.



Move the magnet provided over the on/off contact field 2. The status LED 1 first lights up red and then flashes green three times once the magnet has been removed. Regular blue flashes then indicate that the device is switched on and ready to receive data.

To switch off the device, hold the magnet against the on/off contact field 2 for a few seconds. The LED then lights up yellow. The magnet can be removed as soon as it lights up red. The device then switches off and the LED goes out.

4 Preparatory Work in the Office

4.1 Mobile communication, FTP server, email account etc.

GSM/GPRS For data transfer via mobile communication, a corresponding contract must have been concluded with a mobile service provider. You will need a **SIM card** which has been approved for data transfer via GPRS.

FTP server You will need free storage space on an **FTP server** in order to upload the measured data. For this purpose, you can either use your company's own server environment, or you can conclude a user contract with a commercial provider on the Internet.

You can also rent storage space on an FTP server from SebaKMT. To do so, please contact your SebaKMT sales partner.

Your computer will need read and write permissions for the relevant FTP server.

Emails You will need an **email account** that sends alarm messages and measured data overviews. You can either use your company's own mail server, or you can conclude a usage contract with a commercial provider on the Internet.

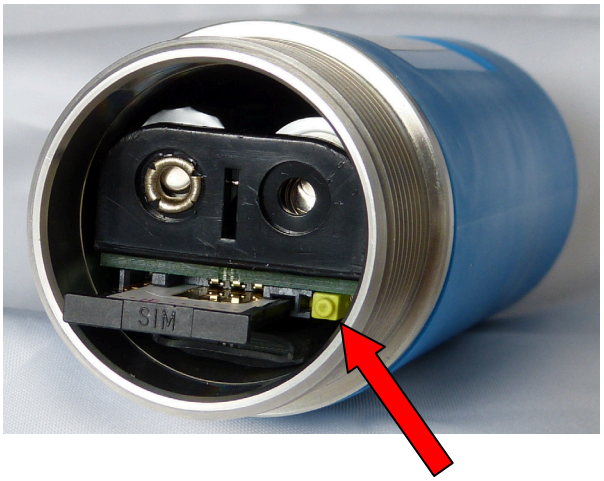
Under certain conditions, it is also possible to access SebaKMT's own "Demo Account".

4.2 Inserting the SIM card into the GSM transmitter

A SIM card must be inserted in each GSM transmitter to be used for the purpose of measurement. You will have received these from your mobile network operator when you concluded the mobile phone contract.

Inserting the SIM card Open the device (see page 16).

The SIM card slot is located inside the device on the bottom of the PCB. In order to detach the tray for the SIM card from its fixture, push on the yellow spring mechanism to the right of the card tray (see illustration), e.g. using a pen or similar item.



Pull out the tray and insert the SIM card. Then slide the tray back into the fixture as far as the stop.

Testing the GSM connection

As soon as the SIM card has been inserted, the device should be programmed with the necessary GSM connection data so that a GSM connection test can be carried out.

Additional information on programming the GSM transmitter and on the GSM connection test can be found in the following sections.

4.3 Connecting the wireless interface to the PC/laptop

In order to communicate with the GSM transmitter, you will need to connect a wireless interface to the computer (see page 10).

4.4 Creating a logger group in the SebaDataView-3 software

A group must be created in the SebaDataView-3 software (or SDV-3 for short) on the PC/laptop which contains all loggers to be used, or which could be used, for the forthcoming measurement.

You can create a new group for this purpose, or you can add the loggers in question to an existing group.

Restriction

Please note:

Use of the GSM transmitter is possible in combination with

- Log P-3 pressure loggers
- Log N-3 noise loggers in the "Lift&Shift" group mode

Use of the GSM transmitter is not possible in combination with

- Log N-3 loggers in the "Patrol" group mode
- Log N-3 loggers in "Network" group mode

Procedure

To create a new logger group, proceed as follows:

Select the required zone in the directory tree for the SDV-3, open the **Directory** register, click on **New** in the **Group** segment and create a new group.

To add the required loggers to the group, proceed as follows:

Select this group in the directory tree, open the **LogP** or **LogN3** register in the menu bar, click on **New** in the **Administration** segment and then register the loggers one by one.

Detailed information on creating and managing logger groups in the SDV-3 can be found in the user manual for the logger in question.

4.5 Creating a GSM transmitter in the SebaDataView-3 software

All GSM transmitters that will be used for the forthcoming measurement must be set up in the SebaDataView-3 software.

Proceed as follows:

Step	Description
1	In the directory tree of the SDV-3 software, select the group to which the GSM transmitter should be added. (The same group that contains the loggers which will be used for the forthcoming measurement).
2	Click on **New** in the **Administration** segment in the menu bar. (If necessary, first open the **GSM transmitter** tab).
	Result: The window for registering new devices appears.
3	Register the GSM transmitter. **2 Methods** **Manually**: Deactivate the **Automatic detection** checkbox and enter the identification number (ID) for the device. **Automatically**: Activate the **Automatic detection** checkbox and then switch on the GSM transmitter. **Result:** The identification number (ID) for the device is recognized and displayed. Enter a comment for the device and confirm all details by pressing **OK**.
	Result: The GSM transmitter is now registered and appears in the directory tree.
4	Register all additional GSM transmitters.
5	Click on **Close** to complete the procedure. (Pairing of the device is performed at a later date at the place of use).

4.6 Programming the GSM transmitter

4.6.1 Entering the GSM settings and transferring to the transmitter

The GSM transmitter must be programmed before the measurement is carried out. During this process, all necessary GSM configuration data is assigned to the device.

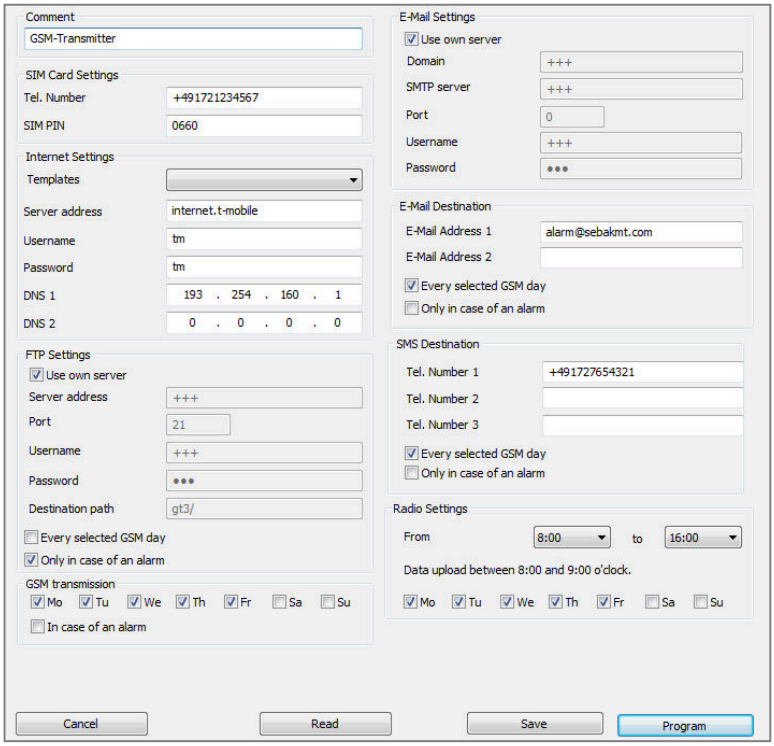
Prerequisites The GSM transmitter must be switched on and within the wireless range of the computer.

Procedure Proceed as follows:

Step	Description
1	In the SDV-3 software, select the respective GSM transmitter in the directory tree.
2	Click on **Program** in the **Communication** segment in the menu bar. (If necessary, first open the **GSM transmitter** tab).
	Result: The window for entering the configuration data appears.
3	Enter all data necessary for the mobile connection (see following section).
4	In the **Radio Settings** segment, specify the week days and times that the GSM transmitter should be accessible from outside via short-distance wireless transmission (i.e. via computer or via Commander-3).
5	Click on **Program**.
	Result: The GSM settings are transferred to the GSM transmitter. A dialog box then appears, which asks whether you want to connect the GSM transmitter to any loggers.
6	Click on **No** in the displayed dialog box.

4.6.2 Information on the GSM input window

The figure shows the input screen for the GSM configuration data. This screen must be completed with all parameters that are required for the correct functioning of the mobile connection from/to the GSM transmitter. (The necessary data is specified in your mobile phone contract, or can be requested from the mobile network operator).



GSM parameters This table explains the individual items in the configuration window.

Segment	Parameters
SIM Card Settings	Enter the telephone number and the PIN code of the SIM card used in the GSM transmitter.
Internet Settings	Enter the Internet access data for your mobile network operator (server address, user name, password etc.). By finding and selecting your mobile network operator in the **Templates** drop-down list, the necessary data will be entered automatically.
FTP Settings	Enter the access data for the FTP server to which the measured data should be sent (server address, port, user name, password). This data will have been provided when you concluded the FTP usage agreement, or can be requested from the FTP server operator. If you have already stored the access data for your server in the software system settings and wish to use this server, select the **Use own server** checkbox. The data from the system settings is then applied and appears in the input fields.

Segment	Parameters
	If you would like to use SebaKMT's demo server, select the **Seba Demo Mode** checkbox. The access data is then entered automatically. (Please note that this server may only be used on a short-term basis and for demonstration purposes only!)
	Use the checkboxes to specify when the measured data upload should take place: **Every selected GSM day** … Data is uploaded on a daily basis (to be precise: on every "GSM day"). **Only in case of alarm** … Data is only uploaded if a logger's leak threshold has been exceeded during the last measurement. If you do not want any measured data uploads to take place, then deactivate both checkboxes.
E-Mail Settings	Would you like to receive alarm messages via emails if a leak is suspected or if a pressure surge occurs? If so, then enter the access data for the sending email account (domain, server address, port, user name, password). This data will be provided by the operator of the email account or by your system administrator. If you have already stored the access data for the account in the software system settings and wish to use this account, select the **Use own server** checkbox. The data from the system settings is then applied and appears in the input fields. If you would like to use SebaKMT's demo account, select the **Seba Demo Mode** checkbox. The access data is then entered automatically. (Please note that this account may only be used on a short-term basis and for demonstration purposes only!)
E-Mail Destination	Would you like to receive alarm messages and measured-data overviews via email? If so, then enter up to two receiving addresses here. Use the checkboxes to specify whether you wish to receive emails only in the case of alarms or on a daily basis (to be precise: on every "GSM day"). If you do not wish to receive any emails, then deselect both checkboxes.
SMS Destination	Would you like to receive alarm messages and measured-data overviews via SMS? If so, then enter up to three recipient telephone numbers here. Do not use any spaces or special characters. Use the checkboxes to specify whether you wish to receive SMS messages only in the case of alarms or on a daily basis (to be precise: on every "GSM day"). If you do not want to receive any SMS messages, then deselect both checkboxes.

"GSM days"

Segment	Parameters
GSM Transmission	Specify the days on which you would like the GSM modem of the GSM transmitter to be active (known as **"GSM days"**). It will only be possible to upload or send measured data or messages on these days.

"Wireless days"

Segment	Parameters
Wireless Settings	Specify the days and times per day that you would like the short-distance wireless transmission module of the GSM transmitter to be active (known as **"Wireless days"**). The GSM transmitter will only be able to communicate wirelessly with other devices within these defined periods. Please note: The "Wireless start time" set here is also set automatically as the time at which the GSM transmitter requests the previous night's measured data from the connected loggers and forwards this data to the FTP server.

4.7 Performing a GSM test

In order to avoid on-site complications, an initial GSM test should be carried out in the office on every GSM transmitter to be used for the measurement. This test checks whether the device is able to establish a mobile wireless connection without error.

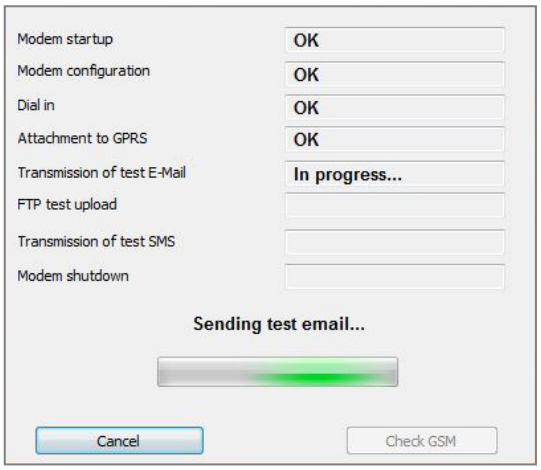
Prerequisites In order to carry out a GSM test using a computer, the following conditions must be met:

- A wireless interface must be connected to the computer (e.g. LOG RI).
- The GSM transmitter in question must be set up in the SDV-3 software.
- The GSM transmitter in question must be ready for GSM operation. (SIM card inserted, GSM transmitter programmed)
- The GSM transmitter in question must be switched on and within the wireless range of the computer.

Procedure In order to carry out a GSM test using a computer, proceed as follows:

Step	Description
1	In the SDV-3 software, select the respective GSM transmitter in the directory tree.
2	Click on **Check GSM** in the **Communication** segment in the menu bar. (If necessary, first open the **GSM transmitter** tab).
	Result: A new window will open.

(continued on the next page)

Step	Description
3	In the window, click on **Check GSM**.
	Result: The GSM test is launched. The GSM transmitter uploads a test file to the FTP server with the name "ftp-test.csv". The GSM transmitter also sends a test email or test SMS to all specified addressees with the following information: • ID and comment on the GSM transmitter • Information on the quality of the connection • The wording "Test email" or "Test SMS" The individual test steps are listed in the window on the screen. Steps that have been successfully completed are marked as **OK**. Otherwise, an error message is shown. 

Causes of faults

If the GSM test fails, check the following points again:

- Is a SIM card inserted in the GSM transmitter?
- Does the SIM card support data transfer?
  (Check the mobile phone contract or contact the mobile network operator)
- Are GSM and data transfer active for the SIM card?
  (Check with the mobile network operator)
- Do the settings match the SIM card in use?
- Do the settings match the GSM transmitter in use?
- Have the GSM settings been transferred to the GSM transmitter?
- Does the GSM transmitter have sufficient battery charge?

4.8 Exporting a logger group from the SebaDataView-3 software and transferring it from the computer to Commander-3

If you are using Log N-3 noise loggers only, then all steps required on-site for installation of the logger and the GSM transmitter can be carried out using the Commander-3.

Would you prefer to work with the laptop on-site rather than with Commander-3? If so, then the step described here is not relevant for you.

Transfer the logger group in question from the computer to the Commander-3.

Prerequisites The following prerequisites must be met:

- The Commander-3 must be operated in "Professional mode" rather than in "Easy mode".
- You will need the connection cable VK77, which is supplied with Commander-3.

Procedure Proceed as follows:

Step	Description
1	Establish a connection between the computer and the Commander-3. (To do so, open the  menu in the main menu bar of the Commander-3. Select the option **Connect to PC**. Connect the devices using the connection cable VK77. Select **Connect** in the Commander-3.)
2	In the SDV-3 software, select the respective group in the directory tree.
3	Click on **Export** in the **Group** segment in the menu bar. (If necessary, first open the **Directory** tab.)
4	In the next window, click on **Commander-3**.
5	In the next window, navigate to the Commander-3 root directory and store the group data there.
6	Stop the connection between the devices.

5 Working On-Site using a Laptop

After completing the preparatory work in the office, all further steps are carried out at the place of installation using a laptop.

Prerequisites

The following prerequisites must be met:

- Laptop with SebaDataView-3 software
- A wireless interface must be connected to the laptop (e.g. LOG RI).

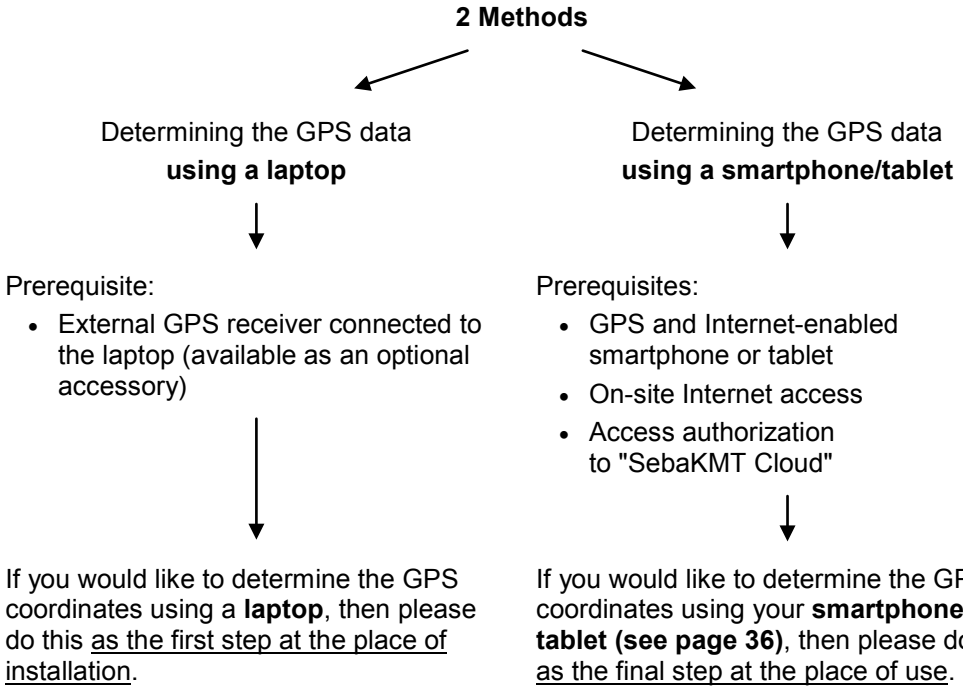
The individual work steps are explained in the following sections.

5.1 Determining and storing the GPS position

Determine the GPS position of the place of installation.

The GPS data for the places of installation is essential in order to perform online data analysis using the "SebaKMT Cloud".

The GPS data is also useful for performing offline data analysis on the computer. All devices can be displayed clearly in a chart, allowing them to be retrieved quickly and securely.



GPS receiver for laptop

In order to determine position data using a laptop, you will need an external GPS receiver from the range of SebaKMT accessories.

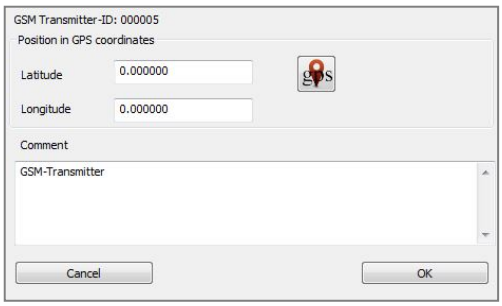
Simply connect the GPS receiver to the laptop via a USB port. Once connected, the device switches on automatically and starts to search for available satellite signals immediately.

The GPS receiver features a status LED:

- LED flashes at regular intervals … Device is searching for GPS signals; still not possible to establish position
- LED permanently lit … GPS signals are being received; possible to establish position
- LED is not lit … Device is not connected

Determining the GPS data

To determine the GPS position using a laptop, proceed as follows:

Step	Description
1	Connect the GPS receiver to the laptop.
	Result: The GPS receiver switches on and starts to search for available satellite signals. It may take a few minutes to determine the first GPS position.
2	With your laptop and GPS receiver, move as close as possible to the place of installation.
3	In the SDV-3 software, select the respective GSM transmitter in the directory tree.
4	Click on **GPS** in the **Communication** segment in the menu bar. (If necessary, first open the **GSM transmitter** tab).
	Result: A new window will open. 
5	In the window, click on the **GPS** button.
	Result: The current GPS position is determined and displayed. (The laptop and GPS receiver should be kept as stationary as possible during this process).
6	Click on the **OK** button.
	Result: The procedure is complete. The data is stored in the SDV-3 database.

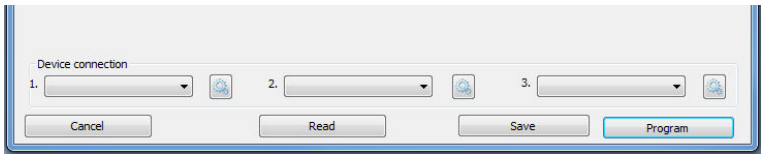
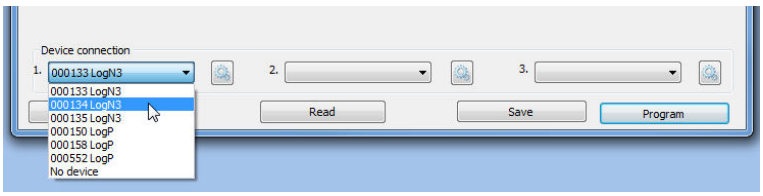
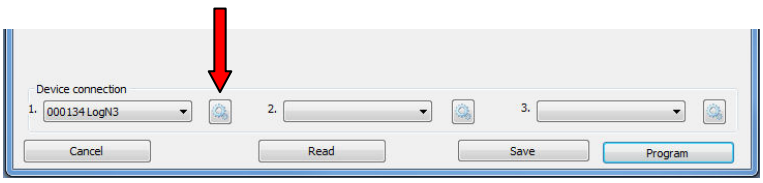
Entering/modifying GPS data manually

If you already know the GPS coordinates of the place of installation, then these can also be entered or changed directly in the **Latitude** and **Longitude** input fields.

5.2 Programming and linking devices

Specify which loggers you wish to use on-site and for linking to the GSM transmitter. During this step you can also set the measurement parameters for these loggers. You can set a maximum of three loggers.

Proceed as follows:

Step	Description
1	In the SDV-3 software, select the respective GSM transmitter in the directory tree.
2	Click on **Program** in the **Communication** segment in the menu bar. (If necessary, first open the **GSM transmitter** tab).
	Result: The window for entering the GSM settings appears. The **Device connection** segment is at the bottom of the input screen. 
3	Select the first logger to be linked to the GSM transmitter using the first of the three drop-down menus.  The list includes all noise and pressure loggers for this group. If the required logger is not in the list, this indicates that it has not yet been added to this group (see page 7).
4	Set the measurement parameters for this logger. Follow steps 4a-4d.
4a	Click on the  button to the right of the drop-down-menu. 
	Result: A new window will open showing the input screen for programming this logger.
4b	Enter the measurement parameters for the forthcoming measurement. (In order to save power, some input fields or checkboxes cannot be edited here. Further information on the individual setting options can be found in the detailed user manual for the logger in question).
4c	Click on **Save**.
4d	Click on **OK** in the success message.

Step	Description	
5	Would you like to select additional loggers for linking to the GSM transmitter? If so, use the second and third drop-down menus and repeat steps 3 and 4 for each additional logger.	
6	In the GSM configuration window, click on **Program** at the bottom right-hand side, and answer "Yes" to the security question.	
	Result: The configuration data will be sent to the GSM transmitter. Once the data has been transferred successfully, a dialog box appears, asking whether you want to link the GSM transmitter to the loggers. Prerequisite: The loggers must be switched on and be in proximity to the GSM transmitter.	
6	Link devices now? Click on **Yes** in the dialog box.	Do not link devices now? Click on **No** in the dialog box. In this case, the devices must be linked (see page 35) on another occasion.
	Result: The GSM transmitter and the loggers will be linked. At the same time, the measurement settings are transferred to the loggers. If one or more loggers are not connected, check again whether these are switched on and within range.	
	 Radio interference may sometimes occur if loggers are positioned too close to the GSM transmitter.	
	Click on **Link to logger** in the menu bar to repeat the process.	

5.3 Installing devices at the place of use

Install the GSM transmitter together with the linked loggers at the place of use. The devices must be within the same range.

Following installation, return the place of use to the exact state in which you found it (close the shaft etc.). This will ensure that the subsequent GSM test is performed under realistic conditions.

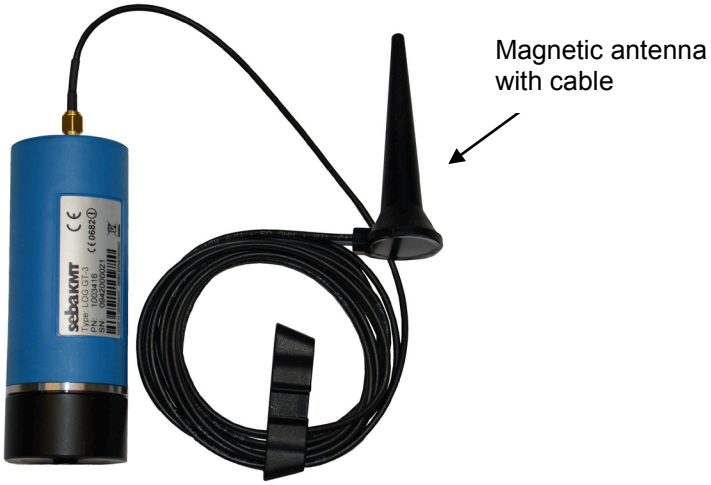
Installation information

Ideally, all devices should be installed in the same shaft.

You can simply place the GSM transmitter in the shaft, or assemble the optional magnetic base or magnetic angled adapter to secure the device in the shaft.

If the shaft is very narrow, you can fit the 90-degree antenna adapter, thereby bending the GSM antenna. In some cases, better GSM reception can be an additional effect of this measure.

If the shaft is very deep, you can replace the standard antenna with the optional magnetic antenna and cable. Attach the antenna at the very top of the shaft, as close as possible to the surface of the ground.



Installation examples The following photos show real-life installation examples:

Log P-3 pressure logger with GSM transmitter in a German underground hydrant.

Log N-3 noise logger with GSM transmitter in a German gate shaft.

Log N-3 noise logger with magnetic angled adapter
and GSM transmitter with magnetic angled adapter and 90-degree antenna adapter
in a German gate shaft.

5.4 Testing the mobile connection

Once the logger and GSM transmitter have been installed, checks must be carried out to verify that the mobile connection from the GSM transmitter has been set up without error.

Performing the GSM test

Perform a GSM test directly at the place of installation. When doing so, proceed exactly as you did for the preparatory work in the office (see page 25).

If the GSM test fails, then it may be possible to improve the GSM reception using the following measures:

- Change the position of the GSM transmitter and therefore the alignment of the antenna in the shaft.
- Use the 90-degree angled adapter for the antenna.
- Replace the standard antenna with the optional magnetic antenna with cable.

Repositioning the devices

Poor GSM test results may mean you will need to install the GSM transmitter in a different position to the one originally planned. The determined GPS position may therefore no longer be correct. In this case, you will need to work out the GPS position of the new place of installation. You will then also need to repeat the "Programming and linking devices" step (see page 31).

Devices ready for measurement

Has the GSM test been successful and is the GSM transmitter already linked to the loggers? If so, then the devices are now ready for the measurement to be performed.

5.5 Linking the devices

The GSM transmitter must be "linked" to the loggers in use. As part of this same step, the loggers are also programmed automatically (i.e. the temporarily stored measurement settings are transmitted by the GSM transmitter to the individual loggers).

Has the GSM transmitter already been linked to the loggers (see page 31)? If so, then the step described here is not relevant for you and should not be carried out.

Procedure

Proceed as follows:

Step	Description
1	In the SDV-3 software, select the respective GSM transmitter in the directory tree.
2	Click on **Link to logger** in the **Communication** segment in the menu bar. (If necessary, first open the **GSM transmitter** tab).
	Result: The GSM transmitter and the loggers will be linked. This automatically programs the loggers at the same time. A message appears on the screen once the procedure has been completed successfully.

5.6 Determining the GPS position using a smartphone/tablet

You can determine the GPS position of the place of installation using a smartphone or tablet instead of the laptop. The data is immediately uploaded to the SebaKMT Cloud or to your own server.

Have you already established the GPS coordinates using a laptop?
If so, then the step described here is not relevant for you.

Prerequisites The following prerequisites must be met:

- GPS and Internet-enabled smartphone or tablet
- Internet access
- Access to the SebaKMT Cloud or to your own server
  (have the URL, user name and password to hand!)

Procedure Proceed as follows:

Step	Description
1	Move close to the installed GSM transmitter.
2	Activate the GPS function on your smartphone/tablet.
3	Open the SebaKMT Cloud web page and log in.
4	In the main menu, select the **GPS -> LOG DX, GT3** option under **GPS assignment**.
	Result: A new menu level will open.
5	Select the checkbox below the GSM transmitter symbol.
6	Enter the identification number (ID) of the GSM transmitter for which you would like to determine the GPS position.
7	Select **Transmit**.
	Result: The GPS position of the smartphone/tablet is determined and stored in the SebaKMT Cloud as the position of the GSM transmitters with associated ID. A message appears on the screen once the procedure has been completed successfully.
8	Click on the **Menu** button to return to the SebaKMT Cloud main menu. Here, you can determine the GPS positions of additional GSM transmitters if needed. To do so, simply repeat steps 4-6. Select the **logout** option to log out of the SebaKMT Cloud.

6 Working On-Site using the Commander-3

After completing the preparatory work in the office, all further steps are carried out at the place of use. You can use the Commander-3 for these steps rather than a laptop.

Prerequisites The following prerequisites must be met:

- Only Log N-3 noise loggers in "Lift&Shift" group mode are being used.
- No Log P-3 pressure loggers are being used.
- The Commander-3 must be operated in "Professional mode" rather than in "Easy mode".

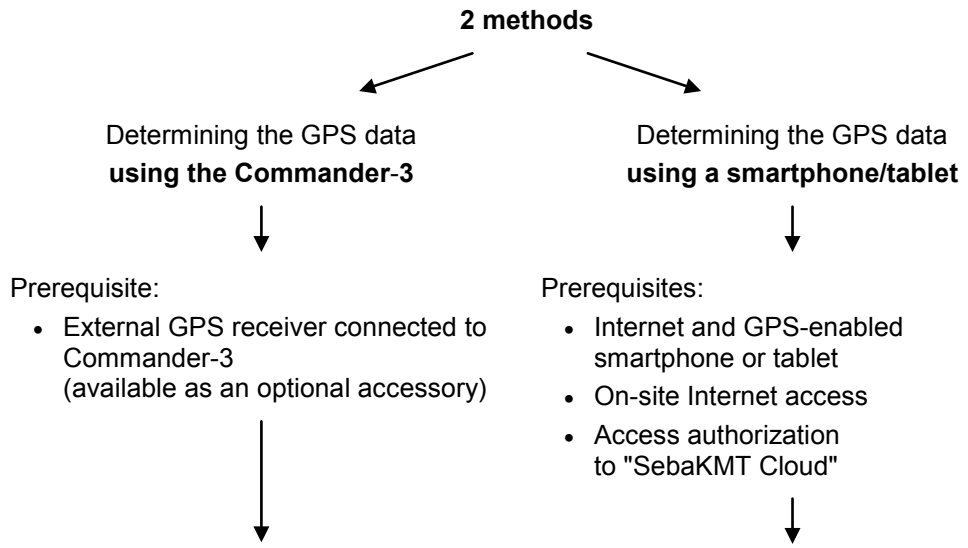
The individual work steps are explained in the following sections.

6.1 Determining and storing the GPS position

Determine the GPS position of the place of installation.

The GPS data for the places of installation is essential in order to perform online data analysis using the "SebaKMT Cloud".

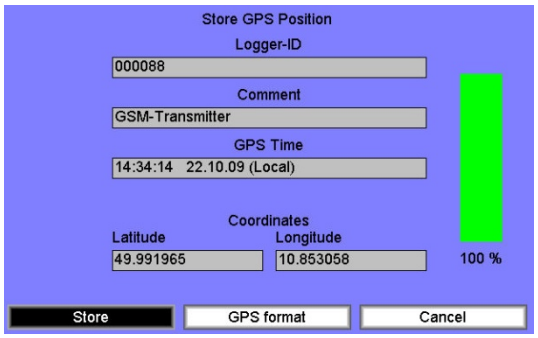
The GPS data is also useful for performing offline data analysis on the computer. All devices can be displayed clearly in a chart and retrieved quickly and securely.



GPS receiver for Commander-3 In order to determine position data using the Commander-3, you will need the **LOG GPS-3** external GPS receiver from the range of SebaKMT accessories.

Simply connect the GPS receiver to Commander-3 via the **USB/GPS** port. The receiver switches on automatically when connected and the status LED lights up. The device starts to search for available satellite signals immediately.

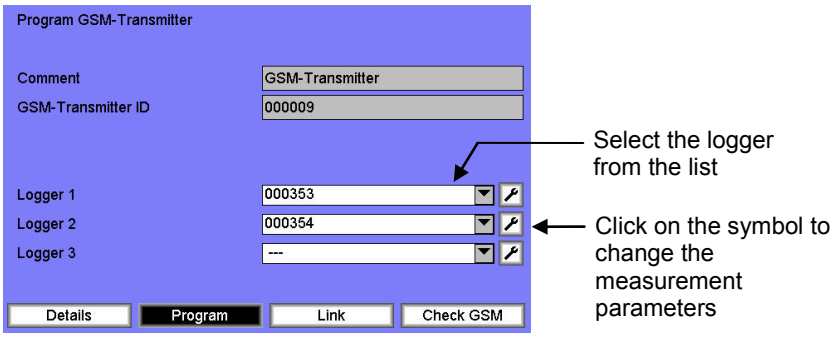
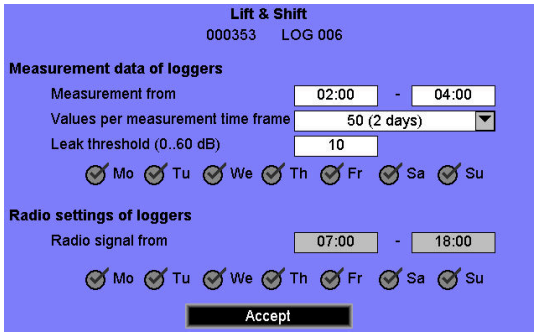
Determining GPS data To determine the GPS position using the Commander-3, proceed as follows:

Step	Description
1	Connect the GPS receiver to the Commander-3.
2	Move close to the place of installation.
3	Open the  menu in the main menu bar of the Commander-3.
	Result: The menu opens.
4	Select the **Store GPS position** option.
	Result: A new menu level will open.
5	Select the required logger group using the drop-down menu at the top of the screen.
6	Select the required GSM transmitter from the list.
7	Select the **Store GPS pos** button.
	Result: A new view will open. The current GPS position is determined. (The Commander-3 should be kept as stationary as possible during this process). 
8	Wait until the position data is displayed reliably. Then select the **Store** button.
	Result: This GPS data is now stored in the group data as the position of the GSM transmitter.

6.2 Programming the devices

Specify which loggers you wish to use on-site and for linking to the GSM transmitter. During this step you can also set the measurement parameters for these loggers. You can set a maximum of three loggers.

Proceed as follows:

Step	Description
1	Switch on the respective logger.
2	Open the  menu in the main menu bar of the Commander-3.
	Result: The menu opens.
3	Select the **Program GSM Transmitter** option.
	Result: A new menu level will open.
4	Select the required logger group from the drop-down menu at the top of the screen.
5	Select the required GSM transmitter from the list.
6	Select the **Progr. Transmitter** button.
	Result: A new menu level will open. 
7	Select the first logger to be linked to the GSM transmitter using the first of the three drop-down menus.
8	Click on the  button to the right of the field, in order to specify the measurement parameters for this logger.
	Result: The input screen for the Log N-3 configuration now opens. For power saving reasons, it is only possible to edit the parameters for "Measurement period", "Values per measurement" and "Leak threshold value" at this point. 

Step	Description
9	Change the parameters and click **Accept** to confirm.
	Result: The screen switches back to the previous menu level.
10	Would you like to select additional loggers for linking to the GSM transmitter? If so, use the second and third drop-down menus. Repeat steps 8 and 9 to specify the measurement parameters for each logger.
11	Select the **Program** button.
	Result: The ID and comment for the GSM transmitter are displayed again.
12	Select the **Program** button.
	Result: The configuration data for the loggers is now transferred to the GSM transmitter where it is temporarily stored.

6.3 Installing devices at the place of use

Install the GSM transmitter together with the loggers at the place of use. The devices must be within the same range.

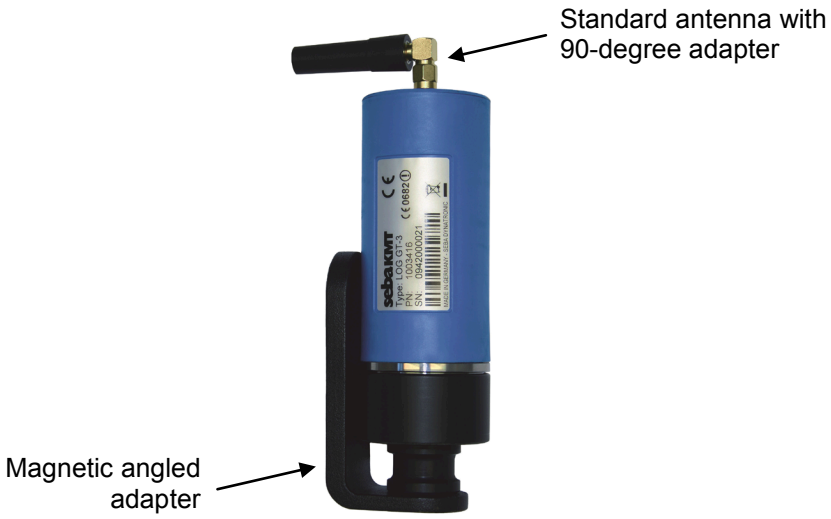
Following installation, return the place of use to the exact state in which you found it (close the shaft etc.). This will ensure that the subsequent GSM test is performed under realistic conditions.

Installation information

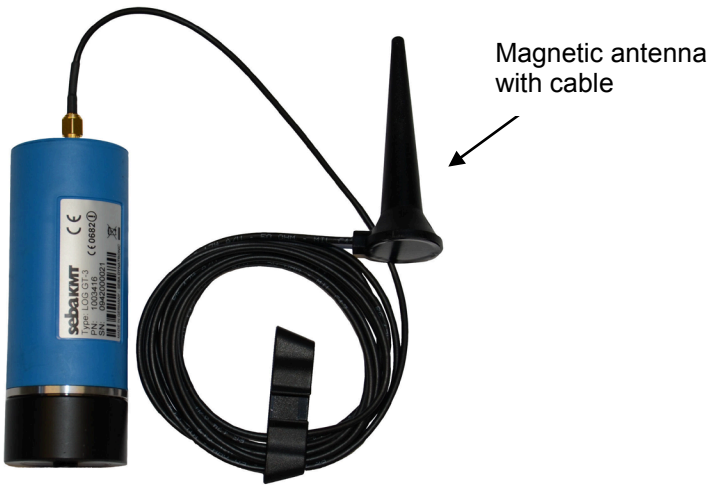
Ideally, all devices should be installed in the same shaft.

You can simply place the GSM transmitter in the shaft, or assemble the optional magnetic base or magnetic angled adapter to secure the device in the shaft.

If the shaft is very narrow, you can fit the 90-degree antenna adapter, thereby bending the GSM antenna. In some cases, better GSM reception can be an additional effect of this measure.



If the shaft is very deep, you can replace the standard antenna with the optional magnetic antenna and cable. Attach the antenna at the very top of the shaft, as close as possible to the surface of the ground.



Installation examples The following photos show real-life installation examples:

Log P-3 pressure logger and GSM transmitter in a German underground hydrant.

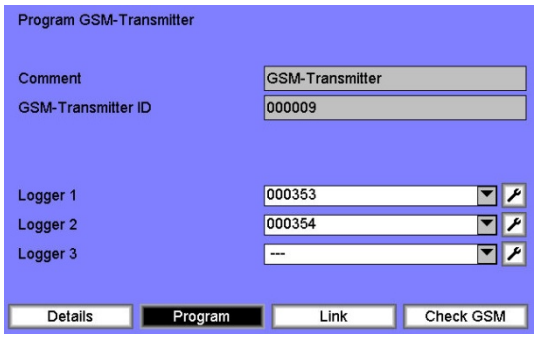
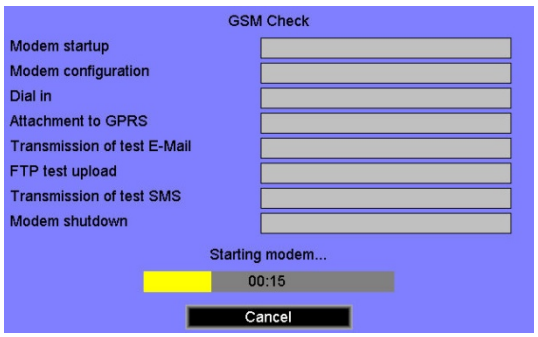
Log N-3 noise logger and GSM transmitter in a German gate shaft.

Log N-3 noise logger with magnetic angled adapter
and GSM transmitter with magnetic angled adapter and 90-degree antenna adapter
in a German gate shaft.

6.4 Testing the mobile connection

Once the logger and GSM transmitter have been installed, checks must be carried out to verify that the mobile connection from the GSM transmitter has been set up without error. A GSM test must be carried out directly at the place of installation for this purpose.

Proceed as follows:

Step	Description
1	In the Commander-3, open the menu for programming the GSM transmitter (see page 39 steps 2-6). 
2	Select the **Check GSM** button.
	Result: In the subsequent view, the ID and comment for the specific GSM transmitter are displayed again.
3	Click the **Send command** button.
	Result: The GSM test is launched. 
	The GSM transmitter uploads a test file to the FTP server with the name "ftp-test.csv". The GSM transmitter also sends a test email or test SMS to all specified addressees. This message contains the ID and comment for the GSM transmitter as well as the wording "Test email" or "Test SMS". The individual test steps are listed on the screen. Steps that have been successfully completed are marked as **OK**. Otherwise, an error message is shown.

If the GSM test fails, check once again that all GSM data has been entered correctly. It may be possible to improve the transmitter's GSM reception by using a different antenna or the 90-degree angled adapter for the antenna.

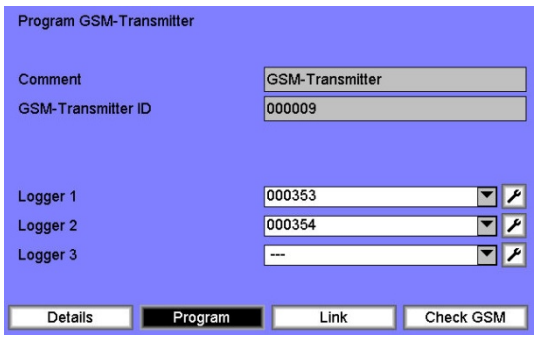
Repositioning the devices

Poor GSM test results may mean you will need to install the GSM transmitter in a different position to the one originally planned. The determined GPS position may therefore no longer be correct. In this case, you will need to work out the GPS position of the new place of installation. You will then also need to repeat the "Programming devices" step (see page 39).

6.5 Linking the devices

The GSM transmitter must be "linked" to the loggers in use. As part of this same step, the loggers are also programmed automatically (i.e. the temporarily stored measurement settings are transmitted by the GSM transmitter to the individual loggers).

Proceed as follows:

Step	Description
1	In the Commander-3, open the menu for programming the GSM transmitter (see page 39 steps 2-6). 
2	Select the **Link** button.
	Result: The ID and comment for the GSM transmitter are displayed again.
3	Click on the **Send command** button.
	Result: The GSM transmitter and the loggers will be linked. This automatically programs the loggers at the same time. A message appears on the screen once the procedure has been completed successfully.

Devices ready for measurement

Has the GSM test been successful and is the GSM transmitter already linked to the loggers? If so, then the devices are now ready for the measurement to be performed.

6.6 Determining the GPS position using a smartphone/tablet

You can determine the GPS position of the place of installation using a smartphone or tablet instead of the Commander-3. The data is immediately uploaded to the SebaKMT Cloud or onto your own server.

Have you already established the GPS coordinates using the Commander-3? If so, then the step described here is not relevant for you.

Prerequisites The following prerequisites must be met:

- GPS and Internet-enabled smartphone or tablet
- Internet access
- Access to the SebaKMT Cloud or to your own server (have the URL, user name and password to hand!)

Procedure Proceed as follows:

Step	Description
1	Move close to the installed GSM transmitter.
2	Activate the GPS function on your smartphone/tablet.
3	Open the SebaKMT Cloud web page and log in.
4	In the main menu, select the **GPS -> LOG DX, GT3** option under **GPS assignment**.
	Result: A new menu level will open.
5	Activate the checkbox below the GSM transmitter symbol.
6	Enter the identification number (ID) of the GSM transmitter for which you would like to determine the GPS position.
7	Select **Transmit**.
	Result: The GPS position of the smartphone/tablet is determined and stored in the SebaKMT Cloud as the position of the GSM transmitters with associated ID. A message appears on the screen once the procedure has been completed successfully.
8	Click on the **Menu** button to return to the SebaKMT Cloud main menu. Here, you can determine the GPS positions of additional GSM transmitters if needed. To do so, simply repeat steps 4-6. Select the **Logout** option to log out of the SebaKMT Cloud.

6.7 Transferring logger groups from Commander-3 to the computer and importing them into the SebaDataView-3 software

As the final stage of preparatory work in the office, you exported the group data for the logger group in question from the computer to Commander-3.

Once on-site work is complete, the data for this group will need to be transferred back from Commander-3 to the computer and imported into the SebaDataView-3 software.

Procedure Proceed as follows:

Step	Description
1	Establish a connection between the computer and the Commander-3. (To do so, open the  menu in the main menu bar of the Commander-3 (Professional mode!). Select the option **Connect to PC**. Connect the devices using connection cable VK77. Select the **Connect** command in the Commander-3).
2	Select the required logger group in the directory tree for the SDV-3 software.
3	Click on **Import** in the **Group** segment in the menu bar. (If necessary, first open the **Directory** tab).
4	In the next window, click on **Commander-3**.
5	In the next window, navigate to the Commander-3 root directory, select the required logger group and click on **OK**.
	Result: The group data is transferred from Commander-3 and stored in the SDV-3 database. A message appears on the screen once the procedure has been completed successfully.
6	Stop the connection between the devices.