

Operating instructions

LEAK GUARD

CLOUD

Battery-powered and LTE-based 2-channel district and local heating pipe monitoring device in the UMS network



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Important!

All safety instructions must be read and observed before commissioning!

Technical data

LEAKGUARD CLOUD

Supply voltage	Replaceable lithium battery, 3.6 V
Battery life	> 5 years (with daily measurement and weekly status report)
Number of measurement channels	2 (e.g. for flow and return of a district heating line)
Insulation measuring range	0 .. 10 M Ω Error: 3% from measured value \pm 10 k Ω absolute
Loop measuring range	0 .. 19.99 k Ω Error: 3% from measured value \pm 0.02k Ω absolute
Measuring section	Brandes \leq 3,000 m, Nordic \leq 3,000 m
Length calculation	Yes, for NiCr
Measurement voltage	12 V DC
Display	1 LED bar display per measurement channel for "ISO measured value" 1 LED per measurement channel for "Loop fault", "ISO fault" and 2 "Contact status" signal LEDs, 6 status LEDs
On-site operation	1 button for real-time measurement with measured value display and test message dispatch
Interfaces	1 USB interface for device configuration Limit value setting and measured value readout 2 contact inputs (cable length max. 10 m)
Operating temperature	-20 °C .. +50 °C
Permissible humidity	0 .. 100%
Housing protection class	IP 66
Application area	Indoors and protected outdoor installation according to DIN VDE 0100 Section 737 Residential and commercial areas as well as for small businesses
Housing measurements	180 x 180 x 100 mm (W x H x D)

Ordering information

Battery-powered 2-channel district and local heating pipe monitoring device with LTE/GSM-based alarms in the UMS network, pipe connection monitoring system, display field and 2 contact inputs

LEAKGUARD CLOUD (max. measuring section NiCr/Cu 3,000 m) **Order no. 1088866**

Spare part

Lithium battery 3.6 V with holder and connection cable

Order no. 1089454

General

These operating instructions are intended to make it easier to familiarise yourself with the product. They contain important information on how to use the product safely, properly and economically.

The operating instructions must be supplemented with instructions based on existing national regulations for accident prevention and environmental protection.



The operating instructions must be read and followed by every person who is entrusted with working with/on the device, e.g. during installation, maintenance and troubleshooting.

In addition to the operating instructions and the binding accident prevention regulations applicable in the country of use and at the place of use, the recognised technical regulations for safe and professional work must also be observed.

Proper use

The *LEAKGUARD CLOUD* district heating monitoring device is designed for measuring insulation and loop resistance to detect leaks in pipe systems and sending alarms via a mobile connection (LTE/GSM).

For configuration, the device can be connected to a PC (laptop) via the USB interface.

Any other use is considered improper. The manufacturer is not liable for any damage resulting from this; the risk is borne solely by the user!

Safety instructions



Important!

Safety instructions must be read and observed before commissioning!

- The operating instructions must always be available at the place of use of the product.
- Only use the device in a technically perfect condition, as well as for its intended purpose, in a safety-conscious and risk-conscious manner and in compliance with the operating instructions.
- Do not make any changes to the device.
- Assembly, maintenance and repair work may only be carried out by trained staff.
- Only use original BRUGG spare parts.



CAUTION!

Observe handling instructions.
Electrostatically sensitive components.



CAUTION!

The installation location of the device should have an overall lightning protection concept which considers the power supply as well as data and telecommunication lines.



CAUTION!

Never apply external voltages to the test leads.



CAUTION! Lithium battery!

Only use original battery 3.6 V / 19 Ah with holder and connection cable. Never charge, reverse polarity of or short circuit a lithium battery.

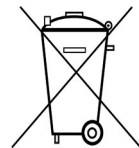
If necessary, observe shipping instructions for lithium batteries (Class 9, UN3090 or UN 3091).

Battery disposal

- Do not dispose of empty or defective lithium batteries with normal household waste!
- Observe the regulations of the Battery Directive.
- Bring empty or defective lithium batteries to a battery collection point.



Li



Li

Installation

Mounting

The *LEAKGUARD CLOUD* is situated in a wall-mounted housing and is attached to the wall with four wall brackets and screws.

Electrical connection

The *LEAKGUARD CLOUD* is powered by a battery that is installed at the factory but not yet connected.

Test lead connection



CAUTION!

Both pipe connection clamps X3.3 and X4.3 must be connected to a pipe at two separate points, or one clamp must be connected to the flow pipe and one clamp to the return pipe.

Pin assignment

X1

Antenna cable

X2.1 to X2.3

Measurement loop channel 1
(a, b, pipe connection 1)

X3.1 to X3.3

Measurement loop channel 2
(a, b, pipe connection 2)

X4

Battery connection,
reverse polarity protected plug
contact

X5.1 to X5.2

Contact input 1

X6.1 to X6.2

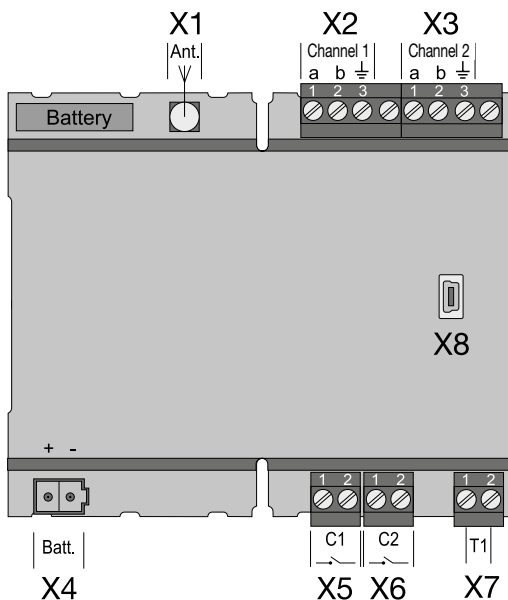
Contact input 2

X7

Temperature sensor input

X8

Mini-USB 2.0 interface



Function/Commissioning

The *LEAKGUARD CLOUD* is a measurement and monitoring device for insulation and loop resistance for detecting leaks in pipe systems and interruptions of the measurement loop as well as for monitoring potential-free contacts (e.g. float switches).

Each device can cyclically monitor two measurement loops, e.g. the flow and return of a district heating pipe. When exceeding or falling below the freely adjustable resistance limit values, the red alarm LEDs are activated and an alarm message is sent to the UMS server. No monitoring takes place between the measurement cycles.

The *LEAKGUARD CLOUD* is equipped with a pipe connection monitoring system to detect an interruption of the pipe connection (earth).

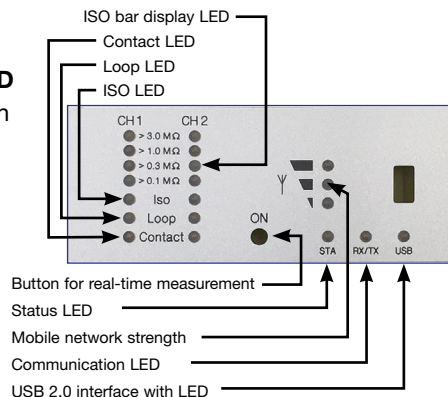
Two inputs are available for monitoring potential-free contacts. The contact status (open/closed) is queried every 10 seconds.

The limit values for insulation and loop resistance as well as the contact settings are freely programmable via the USB interface using a laptop/netbook. All settings are stored in an internal EEPROM memory so they are protected from loss.

Display and control field

In the *LEAKGUARD CLOUD* display and control field, you can

- Read off the values of the two insulation resistance measurement channels via the **ISO bar display LEDs**
- Read off the alarm states of the two insulation resistance measurement channels and interruptions of the pipe connection via the **ISO LEDs**
- Read the alarm states of the two loop resistance measurement channels via the **Loop LEDs**
- Read off the status of the contacts with the **Contact LEDs**
- Manually trigger real-time measurement via the **ON button**
- Read off the status with the **STA LED**
- Read off the mobile network strength via three **LEDs**
- Read off the communication status via the **RX/TX LED**
- Determine the correct USB connection via the **"USB" LED**
- Process limit values with a laptop/notebook via the **USB interface**



Commissioning

The *LEAKGUARD CLOUD* is delivered from the factory with the battery pre-assembled.

Connecting measuring cable

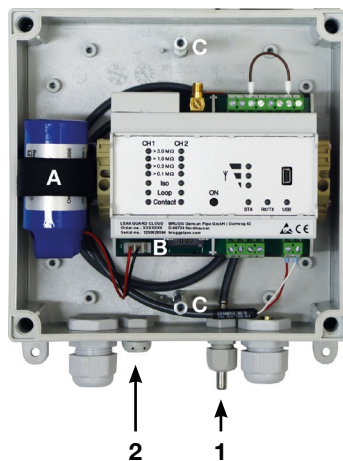
1. Install temperature sensor PT1000 and connect.

To do so, open the housing of the *LEAKGUARD CLOUD*: Unscrew the 4 screws on the housing corners and lift the housing cover.

Loosen the “C” screws of the panel and remove panel.

Mount cable gland M12 in **hole 1** and insert the sleeve of the temperature sensor into the cable gland. The sleeve should project approx. 1 cm from the screw connection.

Put the measuring cable of the temperature sensor away below the module and connect to **X7** (see page 6).



2. Install breathing cap for pressure compensation.

The screw plug ensures pressure compensation in the event of temperature fluctuations, preventing the penetration of moisture.

Insert screw plug from the outside through **hole 2** and tighten with enclosed union nut.

2. Connecting measuring cable

Depending on the number of cables to be connected, make enough cut-outs for the cable glands and mount them.

If not otherwise requested, the left cable gland is provided for the district heating pipe monitoring system, the middle one for contact monitoring. The seals for the bushings have 2 openings each. Three blind plugs are available to close unused openings.

Tighten all bushings so they are tight.

3. Connecting antenna

The right cable gland is intended for the antenna. The slotted seal must be used.

Attach the plug of the antenna cable to antenna connection **X1** (see page 6) of the *LEAKGUARD CLOUD* and tighten the union nut.

Tighten all bushings so they are tight.

Connecting lithium battery

Attach the reverse polarity protected battery plug **(B)** of the pre-assembled battery **(A)** to connection **X4** (see page 6).

Inserting SIM card

The SIM card from a mobile provider is required to establish a connection to the mobile network.

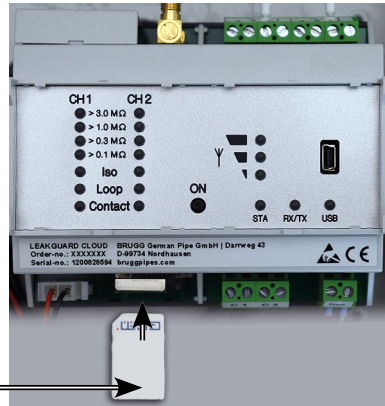
Caution: There are additional costs for the mobile connection!

The housing must be opened to insert the SIM card. To do so, unscrew the 4 screws on the housing corners and lift the housing cover.

The compartment for the SIM card is located at the bottom of the *LEAKGUARD CLOUD2-LTE/UMS* module. There is only one way to insert the SIM card into the SIM compartment on the correct side: With the bevel on the front left.

Then close the housing cover and screw it tight.

SIM card



Configuring LEAKGUARD CLOUD

The *LEAKGUARD CLOUD* must be configured before commissioning. This concerns the station name, limit values, UMS server with communication channel, date, time and the daily measuring time (wake-up time). Configuration is carried out via the USB connection using a laptop/netbook on which the supplied "LGKonfigurator" software has been installed (see page 12).

Antenna placement

The antenna for the mobile phone connection can be mounted by means of a magnetic base on metallic surfaces or using the supplied self-adhesive metal plate, e.g. on the device housing.



The antenna is equipped with a 2 m cable for positioning in a suitable place with good reception characteristics.

LEAKGUARD CLOUD factory settings

- Insulation resistance limit values (ISO): Alarm signal when undershooting 0,5 MΩ
- Loop resistance limit values (Loop): Alarm signal when exceeding 12 MΩ
- Contacts: Closed, no alarm

LEAKGUARD CLOUD function

Automatic operation

After configuration, the *LEAKGUARD CLOUD* measurement device works automatically and independently of external power sources.

It is mainly in "sleep mode", in which the contacts are scanned only every 10 seconds and the internal clock is operated to minimise power consumption.

At the programmed wake-up time (see page 15), the device becomes active and performs a measurement cycle. This consists of

- Measurement of the two contact inputs
- Checking the earth connection
- Measurement of measurement channel 1 and 2 and
- Evaluation of the measurement results

If the *LEAKGUARD CLOUD* detects at least one error case, its integrated LTE/GSM modem sends an alarm message to the UMS server and simultaneously transmits all current measured values as well as all entries from the history that have not yet been transmitted to the UMS server.

Then the device stores the current measured values as acknowledged in the history and returns to "sleep mode". At the next programmed wake-up time, a measurement cycle is started again and the measured values are stored in the history. If an error occurs, the device proceeds as described above.

Manual operation/Real-time measurement

On site, the operator can activate the device by **briefly** pressing the "ON" button and read the status of the device via the LEDs. No message is sent.

By pressing the ON button for at least **5 seconds**, a connection to the UMS server is also established, the current measured values marked as "test measurement" and all entries from the history that have not yet been transmitted to the UMS server are sent.

A. Briefly pressing the "ON" button

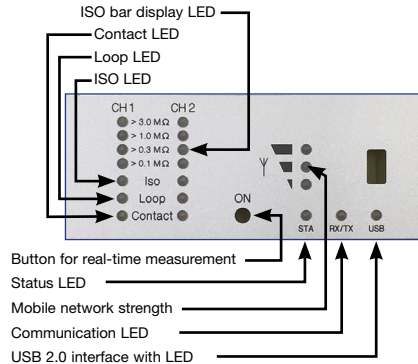
1. Indicates the **status of the contact inputs** on the "Contact CH1" and "Contact CH2" LEDs.

Red = "Alarm" contact status, **Green** = "OK" contact status.

2. Then the measurement cycle starts and displays the measurement results one after the other. Sequence: LOOP1, ISO1, LOOP2, ISO2.
-

Meaning of the LEDs in real-time measurement

- The **“ISO 1” and “ISO 2” LEDs** show the range in which the current measured values are located:
 $> 0.1 \mid > 0.3 \mid > 1 \mid > 3 \text{ M}\Omega$.
 - The **“ISO 1” and “ISO 2” error LEDs** change from **green** to **red** when the defined limit value is undercut. They flash **alternately** if the pipe connection is interrupted.
 - The **“LOOP 1” and “LOOP 2” error LEDs** change from **green** to **red** when the measurement loop has been interrupted and the defined limit value has been exceeded.
 - The **“Contact 1” and “Contact 2” LEDs** change from **green** to **red** when the switching state has changed.
3. The device then automatically goes into "sleep mode".



B. Holding the "ON" button down for 5 seconds

If you hold down the button for at least 5s until the lower LED of the field strength bar display lights up, first the measurement cycle described above is run through and then a status message is sent: The current measured values marked as "test measurement" and all entries from the history that have not yet been transmitted to the UMS server.

Meaning of the LEDs when sending the status message to the UMS server:

Establishing a connection to the mobile station

The lowest LED of the field strength bar display lights up.

Shortly afterwards, it goes out and the top LED of the field strength bar display lights up green until a connection to the mobile station has been established.

After that, the LEDs of the field strength bar display show the connection level.

Data transmission to the mobile station

The "Rx/Tx" LED flashes.

The LEDs of the field strength bar display indicate the quality of the connection.

1 LED = Weak reception

2 LEDs = Good reception

3 LEDs = Very poor reception

Terminating the data transmission to the mobile station

The LEDs of the field strength bar display go out

The "Rx/Tx" LED lights up briefly once again

All LEDs go out and the device returns to "sleep mode".

Meaning of status LED:

- The status LED lights up red if it was not possible to send a message. After sending a message is successful, it lights up green again.

LEAKGUARD CLOUD configuration

To change the factory setting or to adjust the parameters later, a computer (laptop, notebook, netbook | Windows 7 and higher) must be connected to the *LEAKGUARD CLOUD* via the USB 2.0 interface.

The "LGKonfigurator" program must be available on the computer. All files on the supplied USB stick must be copied into a directory for this purpose. The drivers for the *LEAKGUARD CLOUD* are also located here, if it is not automatically recognised when connected to the USB cable.

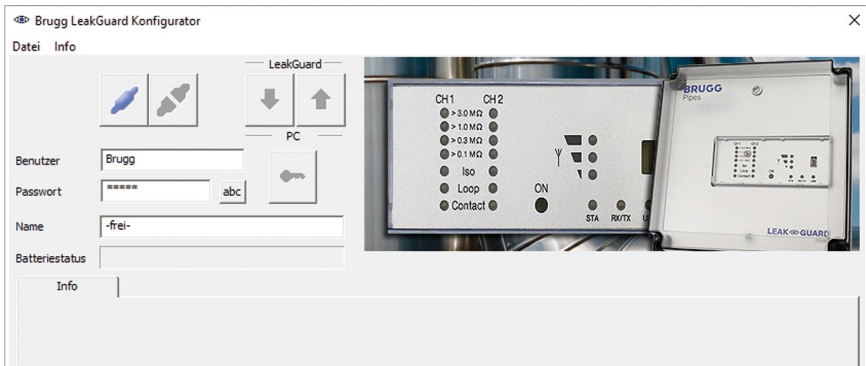
Name	Änderungsdatum	Typ	Größe
apn.xml	15.09.2020 08:30	XML-Dokument	2 KB
LGKonfigurator.exe	15.09.2020 08:33	Anwendung	3.908 KB
mchpcdc.cat	15.09.2020 08:30	Sicherheitskatalog	8 KB
mchpcdc.inf	15.09.2020 08:30	Setup-Info...	4 KB

Starting configuration

1. Connect the computer to the *LEAKGUARD CLOUD* using the supplied USB cable.
2. On the computer in the appropriate directory, start the "LGKonfigurator" program with a double click.

The LGKonfigurator program

After starting the "LGKonfigurator" program and wiring the *LEAKGUARD CLOUD*, the following screen appears:




Access to the device is password-protected.

In the delivery state, the following access data applies (already entered):


User: BRUGG

password: Pipes

The password can be made visible by clicking on .

Clicking on  connects the software to *LEAKGUARD CLOUD*.

The data stored in the device is retrieved automatically.

The key icon to the right of the login fields turns red .

Changing password

To protect against unauthorised access, the device must be protected by assigning a new user name and password.

To change the user name and password

1. Enter new user name (overwrite "BRUGG")*

2. Enter new password (write over "●●●●●●")*

The user names and passwords "reset" and "BRUGG" are reserved for certain functions and are therefore locked.

User name and password

Permissible character lengths

User: 2 - 20 characters

Password: 8 - 20 characters

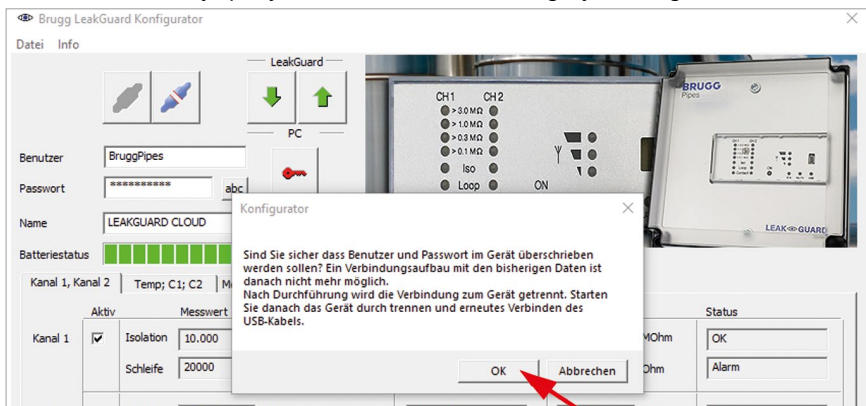
Permissible characters


a-z, A-Z, 0-9, !"#%&'()*+,-./:;<>?@,
No spaces, umlauts and ß

3. Note both for later access

4. Press red key icon

5. Confirm security query for accidental overwriting by clicking the "OK" button.



The new entries are accepted and saved. The connection to the device is disconnected and must be re-established by clicking on .

Access to the device is now only possible with the current user name and password.

Comfort function


As long as the LGKonfigurator has not been closed, the input fields "User" and "Password" show the last entries.

Note

User name and password are not stored outside the device. This means that they are not considered for the "Load data set" and "Save data set" functions (see p. 24).


Resetting password

If the user name and password have been forgotten, the device can be reset to the factory settings. All data worthy of protection such as APN-Name, APN-Password, PIN number, etc. are deleted and must be re-entered afterwards.


Resetting is done by entering user name "reset" and password "reset" and then clicking on the key icon .

Then you can login with user name "BRUGG" and password "Pipes".


Device configuration

After entering the user name and password, clicking on  connects the software to *LEAKGUARD CLOUD*.

The data stored in the device is retrieved automatically.

The key icon to the right of the login field turns red .

The freely selectable device name appears in the "Name" field and can also be changed later:

The remaining energy of the device battery can be read off in the "**Battery status**" field. A new battery has a lifetime of approx. 5 years with daily measurements and weekly status reports: Batteriestatus 

The "Channel 1, Channel 2", "Temp; C1; C2", "Measured value memory", "COM parameters", "Clock/Times" and "System" tabs can be used to make further settings.

“Channel 1, channel 2” tab

Kanal 1, Kanal 2	Temp; C1; C2	Messwertspeicher	KOM-Parameter	Uhr/Zeiten	System
	Aktiv	Messwert	Messzeit	Grenzwert	Status
Kanal 1	<input checked="" type="checkbox"/>	Isolation 10.000 MOhm	10:47:25	9.900 MOhm	OK
		Schleife 20000 Ohm Länge (NiCr) 3448 m	10:47:21	18000 Ohm	Alarm
Kanal 2	<input checked="" type="checkbox"/>	Isolation 10.000 MOhm	10:47:17	9.900 MOhm	OK
		Schleife 20000 Ohm Länge (NiCr) 3448 m	10:47:28	18000 Ohm	Alarm

Each measurement channel to be monitored must be activated by checking the corresponding checkbox in the first column.

If the LEAKGUARD CLOUD has already performed measurements, the last measured values are displayed in the “Measured value” column with the corresponding time stamp in the “Measuring time” column.

For NiCr measurements, the length of the measuring section is displayed. The displayed value is not relevant for Cu measurements.

The **limit values** are can be freely edited.

Insulation: Alarm signal when exceeding 0 .. 10 MΩ,
Factory setting 0,5 MΩ. *Decimal commas must be entered as full stops!*

Loop: Alarm signal when exceeding 0 .. 19.99 kΩ,
Factory setting 12 kΩ. *Decimal commas must be entered as full stops!*

“Temp., C1, C2” tab

Brugg LeakGuard Konfigurator

Datei Info

LeakGuard

Benutzer: BruggPipes

Passwort: ***** abc

Name: LEAKGUARD CLOUD

Batteriestatus:

Kanal 1, Kanal 2 Temp; C1; C2 Messwertspeicher KOM-Parameter Uhr/Zeiten System

Temperatur	Aktiv	Messwert	Bewertung		Messzeit	Status
	<input checked="" type="checkbox"/>	22 °C	O/I <input type="checkbox"/>	Untere Grenze -20 °C	Obere Grenze 140 °C	10:57:03

Kontakt C1	Aktiv	Zustand	Status OK	Messzeit	Status
	<input checked="" type="checkbox"/>	offen	geschlossen	geschlossen	--:--:--
<input checked="" type="checkbox"/>	offen	geschlossen	geschlossen	--:--:--	Alarm

Temperature

Temperature monitoring is activated in the delivery state.

It can be deactivated by clicking the corresponding checkbox in the first column.

If temperature monitoring is activated, the temperature value is also transmitted with each message. The limit values are not evaluated and there is no alarm when limit values are exceeded.

If the temperature is to be evaluated at the programmed wake-up time, the "Evaluation" checkbox must be activated. An alarm is also triggered when the limit value is exceeded.

The **limit values** can be freely edited from -20 °C to +140 °C.

Contacts

Each **contact** to be monitored must be activated by checking the corresponding checkbox in the first column.

Status: Closed or open, set value = no alarm,
Factory setting: closed.

Measured value memory tab

Brugg LeakGuard Konfigurator

Datei Info

LeakGuard

Benutzer: BruggPipes

Passwort: *****

Name: LEAKGUARD CLOUD

Batteriestatus

Kanal 1, Kanal 2 | Temp; C1; C2 | Messwertspeicher | KOM-Parameter | Uhr/Zeiten | System

#	Iso 1 [MOhm]	Schleife 1 [Ohm]	Iso 2 [MOhm]	Schleife 2 [Ohm]	Kontakt 1	Kontakt 2	Status	Zeit	Datum
01	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	9:40	15.09.2020
02	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	9:30	15.09.2020
03	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	9:20	15.09.2020
04	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	13:10	3.09.2020
05	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	11:00	3.09.2020
06	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	10:50	3.09.2020
07	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	10:40	3.09.2020
08	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	10:30	3.09.2020
09	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	10:20	3.09.2020
10	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	10:10	3.09.2020
11	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	10:00	3.09.2020
12	10.000	20000 >Alarm	10.000	20000 >Alarm	offen >Alarm	offen >Alarm	>Auto	9:50	3.09.2020
13	-----	-----	-----	-----	-----	-----	-----	-----	-----
14	-----	-----	-----	-----	-----	-----	-----	-----	-----
15	-----	-----	-----	-----	-----	-----	-----	-----	-----

Displays a list of all results of the last 90 measurements with timestamp.

One line per measurement event.

The measured temperature values are not stored.

Test measurements without message dispatch are not considered.

Test measurements with message dispatch are entered with the status "Manu".

COM parameters tab

The screenshot shows the 'Brugg LeakGuard Konfigurator' software. The 'COM parameters' tab is active, displaying various configuration fields. On the left, there are fields for 'Benutzer' (BruggPipes), 'Passwort', 'Name' (LEAKGUARD CLOUD), and a 'Batteriestatus' bar. The main area contains a table with columns: 'Kanal 1, Kanal 2', 'Temp; C1; C2', 'Messwertspeicher', 'KOM-Parameter', 'Uhr/Zeiten', and 'System'. The 'System' column contains the following fields:

- APN-Preset: [Dropdown menu]
- APN-Name: shared.m2m.ch
- APN-User: [Text field]
- APN-Passwort: [Text field with 'abc' button]
- SIM Pin-Number: ****
- Modeminfo: SIM Karte fehlt
- PUK: [Text field with 'PUK und PIN setzen' button]
- Signalpegel: -117dB
- Betriebsart: erst LTE dann GSM (dropdown menu)

A 'Status' window at the bottom left shows the following information:

```

SIM PIN : '****'
Modem IP : 'Offline'
NET Status[0000]: Sim:nicht akzeptiert
Netz:Provider login nicht erfolgt
Socket:Closed
TCP-Buffer enthaelt:0 Zeichen.
  
```

The connection parameters for communication with the UMS server via the mobile network are entered here.

It also provides information about the mobile connection.

APN = Access point name is the name of the gateway between the mobile network and the public Internet.

The required APN can be selected from the “APN-Presets” pull-down menu. In this case, the remaining required parameters are entered automatically.

It may be necessary to add APN -User and APN-Password.

Maximum number of characters: APN-Name: 64 characters
 APN-User: 30 characters
 APN-Password: 30 characters

Status

The system status of the mobile connection is displayed here.

SIM PIN number

The PIN number of the SIM card used must be entered here to ensure connection to the mobile network.

Signal level

The signal level of the last mobile connection is displayed here.

Operating mode

Here you can select from the pull-down menu which mobile connection or combination should be used.

Time/Date tab

Brugg LeakGuard Konfigurator

Datei Info

LeakGuard

PC

Benutzer: BruggPipes

Passwort: ***** abc

Name: LEAKGUARD CLOUD

Batteriestatus: [Progress bar]

Kanal 1, Kanal 2 | Temp; C1; C2 | Messwertspeicher | KOM-Parameter | Uhr/Zeiten | System

WakeUp Zeit: 06:00:00

Messintervall:

- alle 10 Minuten
- jede Stunde
- jeden Tag zur WakeUp Zeit

Statusmeldung absetzen (am): Montag

Die Statusmeldung wird immer zur WakeUp Zeit abgesetzt

Uhr/Zeiten:

Dienstag, 15. September 2020

10:57:16

Uhr setzen

Uhr mit Systemzeit setzen

Wake-up time: Here you define the time at which the measuring cycle is to be started daily.

Measurement interval: The *LEAKGUARD CLOUD* is designed for daily measurements. If shorter measuring intervals are required, they can be shortened to hourly or every 10 minutes using the radio knob. The shorter intervals should only be used temporarily for testing purposes, as this reduces the battery life considerably.

Send status message on: The *LEAKGUARD CLOUD* sends a status message weekly at wake-up time to document that it is active and simultaneously sends all entries from the history that have not yet been transmitted to the UMS server. The day of the week is freely selectable via the pull-down menu.

If the "Daily" status is selected in the pull-down menu, a status message is sent every day at wake-up time.

This reduces the operating time of the battery.

Setting time and date: This data can be changed by clicking on the menu arrows on the right side of the input fields or entered using the keyboard. Press the "Set clock" button [Uhr setzen](#) to transmit to the *LEAKGUARD CLOUD*.

Alternatively, the system time of the used laptop/notebook can be adopted by clicking the "Set clock with system time" button [Uhr mit Systemzeit setzen](#).

Caution:

There is no automatic changeover between winter and summer time.

System tab

Here the UMS server data is entered and the device-related data such as the serial number, type and version number is displayed.

Error messages in the "System status" field can be acknowledged as read and reset by pressing the [zurücksetzen](#) button.

If **BRUGG server hosting** is used, the following UMS server address must be entered:

UMS server: Ums.leakguard.ch (max. 64 characters)
 Port specification: 2050 (field after " : ")
 UMS work group: Freely selectable name (max. 30 characters)

If a **separate server** is used, the following must be entered:

UMS server: IP address or name of the server (max. 64 characters)
 Port specification: According to the circumstances (field after " : ")
 UMS work group: Freely selectable name (max. 30 characters)

To transmit the changes of the settings to the *LEAKGUARD CLOUD*, press the




button.

This can be done on each settings page and after each change, or once after all settings have been completed.

Caution: The transmission of the change of time and date is done exclusively via the two [Uhr setzen](#) and [Uhr mit Systemzeit setzen](#) buttons.

A test message should be sent to check if communication data, such as APN-Name, PIN, etc. was entered correctly. Press and hold the "ON" button on the *LEAKGUARD CLOUD* for 5 seconds (see page 10).

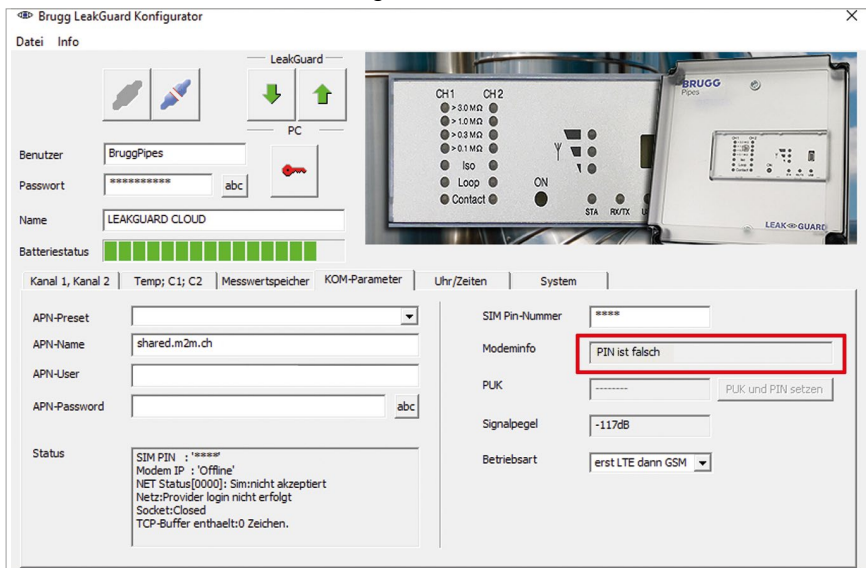
If the UMS server does not receive a message from the *LEAKGUARD CLOUD*, the APN access data and the PIN number must be checked.

To read out the saved data, click the  button in the LGKonfigurator and switch to the "COM parameters" or "System" tab.

Incorrect PIN entry / Unlocking via PUK

If the wrong PIN number is accidentally entered, no alarm and status messages can be sent.

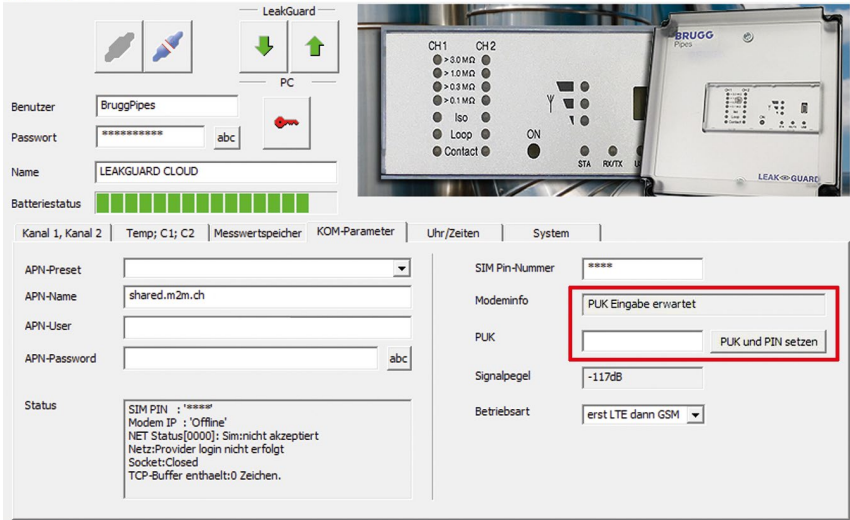
If the SIM card does not accept the PIN number, this is indicated in the "Modem info" field of the LGKonfigurator:



After the fourth transmission attempt with an incorrect PIN number, the SIM card automatically locks. This is displayed in the "Modem info" field of the LGKonfigurator:

Brugg LeakGuard Konfigurator

Datei Info



LeakGuard

Benutzer: BruggPipes

Passwort: ***** abc

Name: LEAKGUARD CLOUD

Batteriestatus: [Progress bar]

Kanal 1, Kanal 2 | Temp; C1; C2 | Messwertspeicher | KOM-Parameter | Uhr/Zeiten | System

APN-Preset: [Dropdown]

APN-Name: shared.m2m.ch

APN-User: [Text]

APN-Passwort: [Text] abc

Status: SIM PIN : '****'
Modem IP : 'Offline'
NET Status[0000]: Sim:nicht akzeptiert
Netz:Provider login nicht erfolgt
Socket:Closed
TCP-Buffer enthaelt:0 Zeichen.

SIM Pin-Nummer: [Text] ****

Modeminfo: PUK Eingabe erwartet

PUK: [Text] [PUK und PIN setzen]

Signalpegel: -117dB

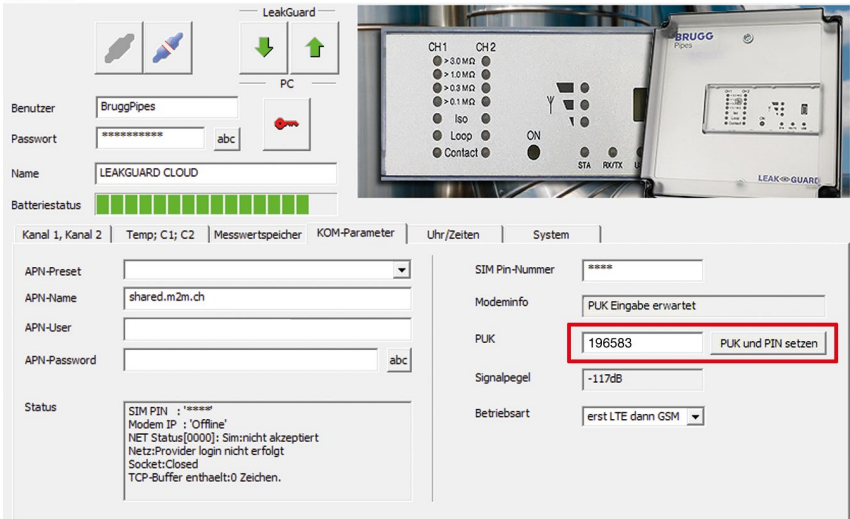
Betriebsart: erst LTE dann GSM

A blocked SIM card can be unlocked using the PUK number.

To unlock, enter the freely selectable 4-digit SIM PIN number in the "SIM PIN number" field and the 8-digit PUK number specified by the mobile provider in the "PUK" field and upload it to the *LEAKGUARD CLOUD* by pressing the **PUK und PIN setzen** button.

Brugg LeakGuard Konfigurator

Datei Info



LeakGuard

Benutzer: BruggPipes

Passwort: ***** abc

Name: LEAKGUARD CLOUD

Batteriestatus: [Progress bar]

Kanal 1, Kanal 2 | Temp; C1; C2 | Messwertspeicher | KOM-Parameter | Uhr/Zeiten | System

APN-Preset: [Dropdown]

APN-Name: shared.m2m.ch

APN-User: [Text]

APN-Passwort: [Text] abc

Status: SIM PIN : '****'
Modem IP : 'Offline'
NET Status[0000]: Sim:nicht akzeptiert
Netz:Provider login nicht erfolgt
Socket:Closed
TCP-Buffer enthaelt:0 Zeichen.

SIM Pin-Nummer: [Text] ****

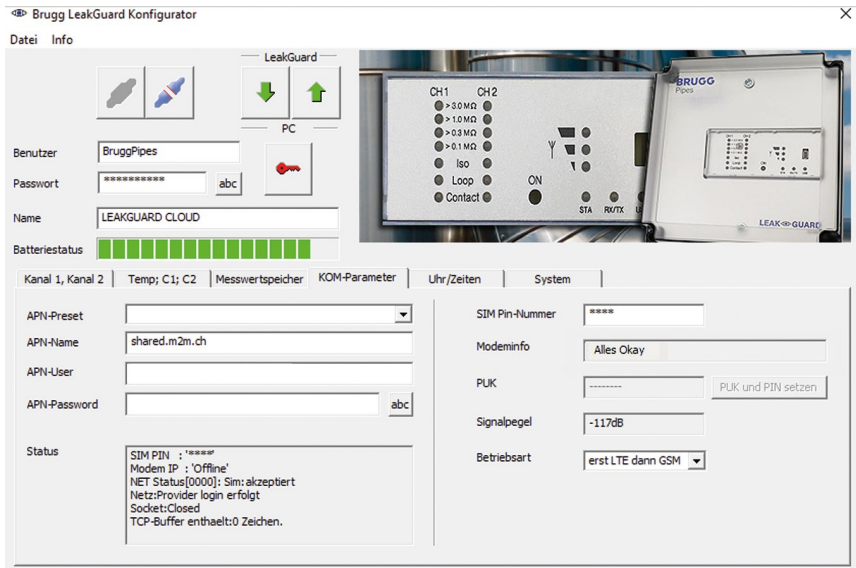
Modeminfo: PUK Eingabe erwartet


PUK: 196583 [PUK und PIN setzen]

Signalpegel: -117dB

Betriebsart: erst LTE dann GSM

A test message is then automatically sent to the registered UMS server. Then the new SIM number is set and the SIM card is unlocked again.

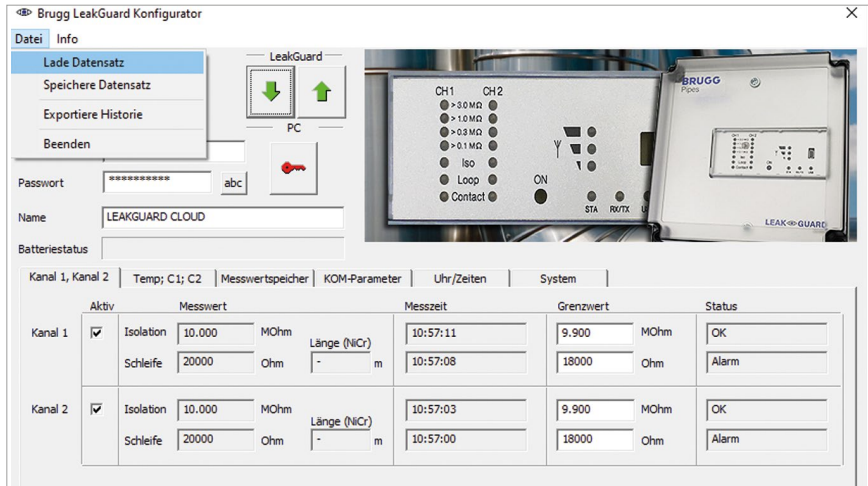


To **finish configuration**, the  button for separating the software and device must be pressed.

The USB cable can then be disconnected from the device and computer and the "LGKonfigurator" program can be closed.

Configuration is complete.

Saving / Loading device configuration



The LGKonfigurator offers the option of saving device settings or loading saved settings.

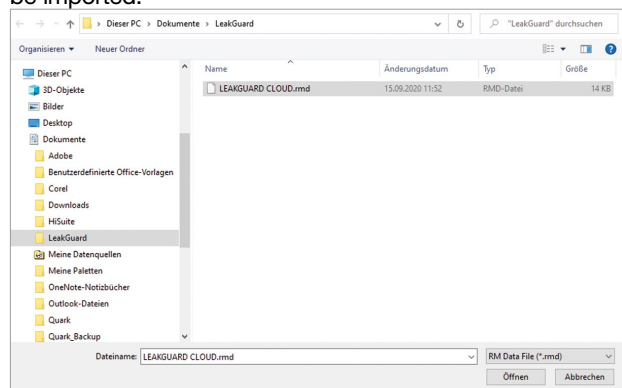
This function is not password protected.

Clicking the “File” menu item opens a pull-down menu with the following options:

Load data set

Imports device settings that were previously saved in a data set (file format xxx.rmd) from a connected PC/laptop, etc.

If the LGKonfigurator was not yet connected to the device, it first reads the configuration of the device when connecting. If another saved data set is to be used, it must then be imported.

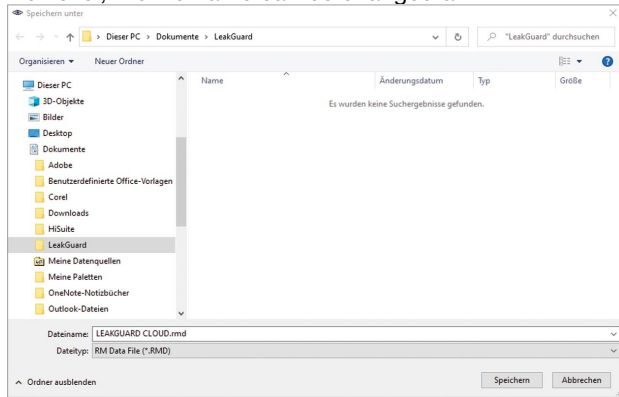


Save data set

Saves the current device configuration in a data set on the connected PC/laptop, etc.

The device name is suggested as the file name.

However, the file name can be changed at will.



Note:

The changed data of the LGKonfigurator is only transmitted to the device when

the  button is clicked.

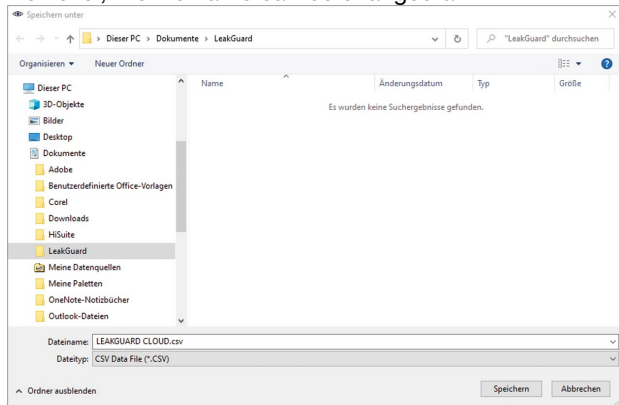
Its configuration does not change before this happens!

Export history

Stores the measured data from the measured value memory in a CSV file on the connected PC/laptop etc.


The device name is suggested as the file name.

However, the file name can be changed at will.



End

Closes the “LGKonfigurator” program.
Before exiting the program, the configuration must be finished, see the following point.

To **finish configuration**, the  button for separating the software and device must be pressed.

The USB cable can then be disconnected from the device and computer and the "LGKonfigurator" program can be closed.

The configuration is finished, the RMConfigurator can be closed.

Maintenance

Changing battery



CAUTION! Lithium battery!

Only use original battery 3.6 V / 19 Ah with holder and connection cable. Never charge, reverse polarity of or short circuit a lithium battery.

If necessary, observe shipping instructions for lithium batteries (Class 9, UN3090 or UN 3091).

The *LEAKGUARD CLOUD* is equipped with a 3.6 V lithium battery (**A**), which is mounted at the factory but not yet connected. A new battery has a lifetime of more than 5 years with daily measurements and weekly status reports.

The housing of the *LEAKGUARD CLOUD* must be opened to change a battery (BRUGG order number 1089454).

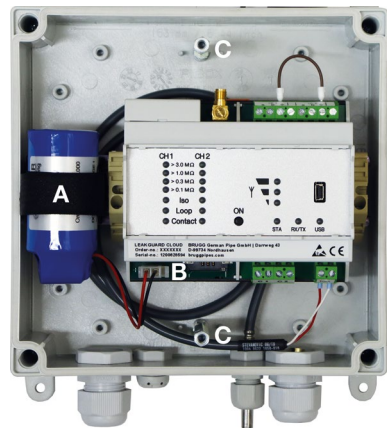
To do so, unscrew the 4 screws on the housing corners and lift the housing cover.

Loosen the “**C**” screws of the panel and remove panel.

Disconnect the battery plug (**B**) and remove the battery (**A**) together with the holder from the top-hat rail.

Snap the holder with the new battery (**A**) onto the top-hat rail. Attach the reverse polarity protected battery plug (**B**) of the new battery (BRUGG order number 1089454) to connection **X6** (see page 6).

Reposition and tighten panel, then close and tighten housing cover.



Battery error message

A battery error message appears if the battery voltage of the *LEAKGUARD CLOUD* falls below 3 V and should be replaced.

This message is always sent together with the weekly status message or with an alarm or OK message.

Battery disposal

- Do not dispose of empty or defective lithium batteries with normal household waste!
- Observe the regulations of the Battery Directive.
- Bring empty or defective lithium batteries to a battery collection point.



Li



Li

UMS server

The messages transmitted to the UMS server are assigned to the corresponding device and evaluated there.

All relevant data can be seen at a glance.

The screenshot displays a software interface for monitoring a UMS server. The main window is divided into several sections:

- Left Panel:** A tree view showing the server structure. It includes sections for 'UMS-Struktur: Schema UMS', 'UMS-Server: Benutzer 'KPR user'', 'UMS-Hilfup', and 'UMS-Münster'. Under 'UMS-Münster', there are sub-sections for 'Geräte' (GLS5-QUAD, Batterie 3.6 Volt) and 'Eingänge' (Kanal 1-4, each with sub-entries for ISO1, LOOP1, ISO2, LOOP2, and Kontakt1-2).
- Top Panel:** A table with columns: Ort, Status, Station, Name, Trasse, Kabel, Einbaort, Messzeit, Messwert, and Unit. The table lists various data points from the UMS-Münster station, including measurements for ISO2, LOOP2, ISO1, LOOP1, Kontakt2, Kontakt1, and GLS5-QUAD. It also shows battery voltage (Batterie 3.6 Volt) and mail server status (Mailserver) for the UMS-Server Eigenschaft.
- Bottom Panel:** A configuration window for 'KPRH'. It has tabs for 'Grundinstellungen', 'Zugewiesene Aussagen', 'Zugewiesene Aufgaben', 'Status / Alarmmeldung', and 'Historie'. The 'Grundinstellungen' tab is active, showing fields for 'Name: XPR', 'Adresse: /server/group4', 'Parent: IndexD', and 'Ingen: opt/DP_Adi'. There is also a 'Dokument URL' field.

Ort	Status	Station	Name	Trasse	Kabel	Einbaort	Messzeit	Messwert	Unit
UMS-Münster		ISO2	Schumacherort	Schumacherort	Münster		15.12.2014 09:00:18	5.000	[Ohm]
UMS-Münster		LOOP2	Schumacherort	Schumacherort	Münster		15.12.2014 09:00:15	0.023	[Ohm]
UMS-Münster		ISO1	Schumacherort	Schumacherort	Münster		15.12.2014 09:00:12	0.004	[Ohm]
UMS-Münster		LOOP1	Schumacherort	Schumacherort	Münster		15.12.2014 09:00:05	0.023	[Ohm]
UMS-Münster		Kontakt2					15.12.2014 09:00:02	Geschloss.	
UMS-Münster		Kontakt1					15.12.2014 09:00:02	Geschloss.	
UMS-Hilfup		ISO2					15.12.2014 11:12:24	4.893	[Ohm]
UMS-Hilfup		LOOP2					15.12.2014 11:12:21	0.099	[Ohm]
UMS-Hilfup		ISO1					15.12.2014 11:12:48	4.852	[Ohm]
UMS-Hilfup		LOOP1					15.12.2014 11:12:45	0.101	[Ohm]
UMS-Hilfup		Kontakt2					15.12.2014 11:12:41	Geschloss.	
UMS-Hilfup		Kontakt1					15.12.2014 11:12:41	Geschloss.	
UMS-Münster		Batterie 3.6 Volt					01.01.1970 01:00:00		
UMS-Server Eigenschaft		GLS5-QUAD					01.01.1970 01:00:00		
UMS-Server Eigenschaft		Mailserver					01.01.1970 01:00:00		
UMS-Hilfup		Batterie 3.6 Volt					01.01.1970 01:00:00		
UMS-Hilfup		GLS5-QUAD					01.01.1970 01:00:00		
UMS-Server Eigenschaft		Mail A.Graeve					01.01.1970 01:00:00		
UMS-Server Eigenschaft		Mail KPRH					01.01.1970 01:00:00		
UMS-Server Eigenschaft		Hosting Admin					01.01.1970 01:00:00		

Compliance statement for modem

RED Directive 2014/53/EU

The *LEAKGUARD CLOUD* uses the HL7692 modem from Sierra Wireless Inc., which was integrated in accordance with the manufacturer's installation instructions.

Sierra Wireless Inc certifies in a "Compliance statement" that the modem meets the requirements of RED Directive 2014/53/EU (Radio Equipment Directive).



BRUGG

Pipes

BRUGG Rohrsystem AG

Industriestrasse 39
CH-5314 Kleindöttingen

Tel. +41 (0) 56 268 78 78

pipes@brugg.com
bruggpipes.com

EU Declaration of Conformity

We declare in sole responsibility that the product

Brand: BRUGG Pipes
Type: LEAKGUARD CLOUD

to which this declaration refers complies with the relevant basic health and safety provisions of the following EU directives:

2014/30/EU	Electromagnetic Compatibility
2011/65/EU	RoHS-II
2014/53/EU	RED

The following standard(s) and/or technical specification(s) were used for proper implementation of the safety and health requirements specified in the EU Directives:

EN 61010-1	Safety requirements for electrical equipment for measurement, control, and laboratory use – Part 1
EN 61326-1	Electrical equipment for measurement, control and laboratory use - EMC requirements (class B)

Kleindöttingen, 21/9/2020

Management