LANCIER Monitoring

Operating Instructions

ContactAlarm2 LTE/UMS

battery-operated and LTE based
6 channel contact monitoring device

BA 076019.020/05.23

Contents

Technical Data

		ContactAlarm2 LTE/UMS
Supply voltage		Exchangeable lithium battery, 3.6 V
Battery lifetime		> 5 years (at daily measurement and weekly status message)
Number of contact inputs		6 (4 remote contacts and 2 near contacts)
Contact distance	4 **remote** contacts 2 **near** contacts	≤ 3.000 m ≤ 10 m
Display		1 x red/green signal LED per contact 6 communication status LEDs
On-site operation		1 button for real-time measurement with display and message test transmission
Interfaces		1 USB 2.0, temporary, for configuration, threshold adjustment and measurement reading
Operating temperature		-20 °C .. +50 °C
Admissible humidity		0 .. 100%
Degree of protection by enclosure		IP 66
Field of application		Indoor and sheltered installation according to DIN VDE 0100 part 737 residential and business area as well as small enterprises
Dimensions		180 x 180 x 100 mm (w x h x d)

Ordering Data

ContactAlarm2 LTE/UMS
battery-operated, 6 channel contact monitoring device equipped with LTE/GSM based alarming, display and 6 contact inputs **Order no. 076014.000**

Spare part
Lithium batterie 3,6 V / 19 Ah with bracket and connection cable **Order no. 075969.000**

Important!
It is imperative to read and observe all safety instructions prior to initial operation!

General Information

These operating instructions should make it easier for you to become acquainted with the product. They contain important information to ensure safe, appropriate and cost-effective use of the equipment.

The operating instructions endorse the directives of national regulations for the prevention of accidents and the protection of the environment.

These operating instructions shall be read and adopted by anyone assigned to work with/on the equipment, e. g. during operation to include setting-up, maintenance trouble-shooting.

In addition to the operating instructions and the mandatory regulations for the prevention of accidents, applicable in the operator's country and at the place of use, the recognized technical regulations for safe and professional operation shall also be observed.

Designated Use

The contact monitoring device *ContactAlarm2 LTE/UMS* has been designed for monitoring contact conditions (open/closed, e.g. float switches, door contacts, etc.) and alerting via a mobile connection (LTE/GSM). 4 contact inputs are intended for remote contacts (distances up to 3,000 m), two for local contacts (distances up to 10 m).

The device can be configured by connecting it to a PC (laptop) via the USB interface.

Any other use is considered improper. The manufacturer is not liable for any resulting damage; the user alone bears the risk!

Safety Instructions

Important!
Read and observe safety instructions prior to initial operation!

- Keep the operating instructions ready to hand!
- The unit should only be operated in technically-sound condition, for its designated use, with safety and risk awareness in mind, taking into account the operating instructions. In particular, operational faults, which can compromise safety, should be rectified immediately!
- Do not make any modifications to the equipment!
- Mounting, maintenance and repair work should only be performed by trained personnel!
- Only use original LANCIER Monitoring replacement parts!

Important!
Obey handling instructions. Electrostatic discharge (ESD) damage.

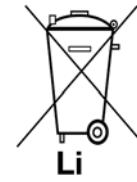
WARNING!
The place of installation of the device should have a complete lightning protection plan that covers power supply cables as well as data and telecommunications cables.

ATTENTION!
Never apply external voltages to the measurement lines.

WARNING! Lithium battery!
Only use the original 3.6 V/19 Ah battery with the mount and connecting cable. Never charge or short-circuit the lithium battery or reverse its polarity.
If required, take note of any shipping regulations for lithium batteries (Class 9, UN 3090 or UN 3091).

Battery disposal

- Do not dispose of old or defective accumulators as normal domestic waste.
- Adhere to environmental laws on battery disposal.
- Return old and/or defective accumulators to a municipal battery disposal point.



Installation

Mounting

The *ContactAlarm2 LTE/UMS* sits inside a wall housing and is attached to walls using four wall mounts and screws.

Electrical connection

The *ContactAlarm2 LTE/UMS* is powered by a battery, which has been pre-installed ex works but not yet connected.

Contact connection

Terminal assignment

X1
Antenna connector

X2.1 and X2.2
Remote contact input S1

X3.1 and X3.2
Remote contact input S2

X4.1 and X4.2
Remote contact input S3

X5.1 and X5.2
Remote contact input S4

X6
Battery connector, polarity-reversal-protected plug contact

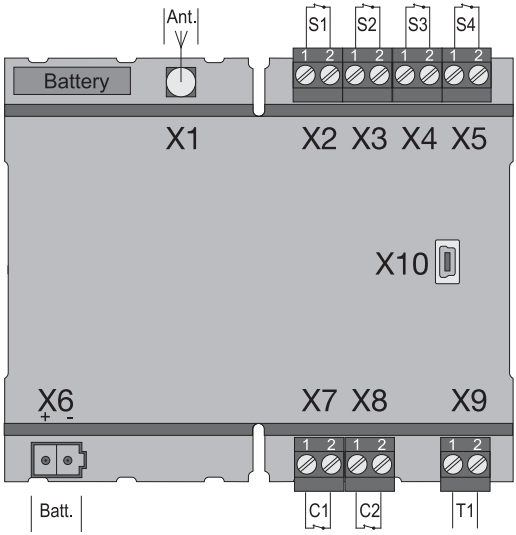
X7.1 and X7.2
Near contact input C1

X8.1 and X8.2
Near contact input C2

X9.1 and X9.2
Temperature sensor input

X10
Mini-USB 2.0 interface

Battery
Buffer battery for internal clock



Function/Commissioning

The *ContactAlarm2 LTE/UMS* is a measuring and monitoring device for the monitoring of potential-free contacts (4 remote and 2 near contacts, e.g. float switches, door contacts, etc.).

Every device tests the contacts for their conditions (open/closed) at defined time intervals. The remote contacts are monitored daily at the WakeUp time. The monitoring of near contacts takes place at 10-second intervals.

The remote contacts' condition is displayed on the S1 to S4 LEDs. The condition of near contacts on the C1 and C2 LEDs.

A contact in the normal "Open" or "Closed" condition is displayed in green, otherwise in red.

If there is a change in a contact's condition compared to the previous cycle, an alarm message is sent.

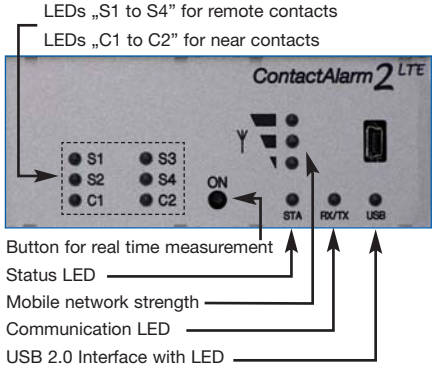
Between measurement cycles no contact monitoring of remote contacts takes place.

Contact settings are freely programmable in the RMConfigurator program via the USB port using a laptop/netbook. All settings are stored securely in an internal EEPROM memory.

Display and operating panel

The following can be done on the display and operating panel of the *ContactAlarm2 LTE/UMS*

- On the **S1 to S4 LEDs** the remote contacts' condition can be read,
- On the **C1 to C2 LEDs** the near contacts' condition can be read,
- On the **"ON" button** a real-time measurement can be triggered manually,
- On the **"STA" LED** the status can be read,
- On the **three LEDs** the mobile field strength can be read,
- On the **"RX/TX" LED** the communication status can be read,
- On the **"USB" LED** the correct USB connection can be determined,
- Settings can be edited via the **USB interface** by using a laptop/notebook.



Commissioning

The *ContactAlarm2 LTE/UMS* is delivered with a pre-installed battery ex factory.

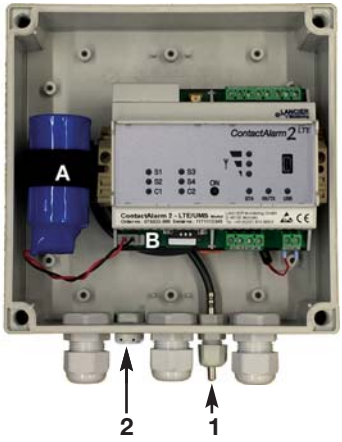
Connecting the measuring cable

1. **Install and connect the PT1000 temperature sensor**

   In order to do this, open the *Contact-Alarm2 LTE/UMS*' housing: Unscrew the four screws on the corners of the housing and remove the housing cover.

   Mount the M12 cable gland in the **1 drill hole** and insert the sleeve of the temperature sensor into the gland. The sleeve should protrude from the fitting by approximately 1 cm.

   Store the temperature sensor's measuring cable below the LTE module and connect it to **X9** (see page 6).



2. **Install a breathing locking cap for pressure equalisation**

   The locking screw provides for pressure equalisation in the event of temperature variations and so prevents the ingress of moisture.

   From the outside, plug the locking screw into the **2 drill hole** and screw it down with the enclosed union nut.

3. **Connect the contact switch**

   Depending on the number of cables to be connected produce enough openings for the cable glands and assemble them.

   Unless specified otherwise, the left gland is intended for remote contacts, the middle one is for near contacts. The feedthrough seals each have 2 openings. Three blind plugs are available to close any unneeded openings.

   Screw all feedthroughs down, so that they are tight.

4. **Connecting the antenna**

   The right cable feedthrough is intended for the antenna. You must use the slotted seal.

   Attach the antenna cable plug to the antenna connector **X1** (see page 6) of the *ContactAlarm2 LTE/UMS* and screw down the union nut.

   Screw all feedthroughs down, so that they are tight.

Connecting the lithium battery

Attach the polarity-reversal-protected battery connector (**B**) of the pre-assembled battery (**A**) to the connector **X6** (see page 6).

Inserting the SIM card

For the connection establishment to the wireless network, a SIM card from a mobile phone provider is required.

Warning: Additional costs will be incurred for mobile communications!

In order to insert the SIM card, the housing must be opened. To do this, unscrew the 4 screws on the corners of the housing and remove the housing cover.

The SIM card compartment is located on the ContactAlarm LTE/UMS module's lower side. The SIM card can only be inserted into the SIM compartment in one way: With the bevelled edge to the front left.

Then close the cover again and screw it down.

Configuring the ContactAlarm2 LTE/UMS

Prior to commissioning, the *ContactAlarm2 LTE/UMS* must be configured. This concerns the station name, contact preferences, COM parameters for the communication, date, time and daily measuring time (WakeUp time). The configuration is done via the USB port by a laptop/netbook that is running the supplied "RM-Configurator" software (see page 12).

Antenna placement

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

The antenna is equipped with a 2-metre cable for positioning in an appropriate place with good reception characteristics.

Factory settings *ContactAlarm2 LTE/UMS*

- Limit values for loop resistance of the remote contacts: 1000 Ω
  Remote contacts **closed**, loop resistance ≤ 1000 Ω: **no alarm**
  Remote contacts **open**, loop resistance > 1000 Ω: **alarm**
- **Near** contacts **closed**: **no alarm**

ContactAlarm2 LTE/UMS function

Automatic operation

Following its configuration the *ContactAlarm2 LTE/UMS* measuring device works autonomously and independently of external power sources.

It remains mainly in “Sleep mode”, where only the internal clock is in operation, to minimise power consumption.

At the programmed “WakeUp time” (see page 17) the device becomes active and performs a measurement cycle. The latter consists of

- The measurement of the two **near** contact inputs and
- The measurement of the four **remote** contact inputs.

Near contacts are also scanned at 10-second intervals.

For every detected alarm, the integrated GSM/LTE modem sends an alarm message to the UMS server.

The unit then returns to “Sleep mode”. At the next programmed “WakeUp time” a new measurement cycle is started. Where the contact conditions have changed, those changes are transmitted via the mobile connection.

Manual operation/real-time measurements

Locally, the operator can activate the device by **briefly** pressing the “**ON**” button and read the device condition via the LEDs. No message is sent.

An additional status message is sent, if the „**ON**“ button is pressed for at least **5 seconds**.

A. A brief press of the “ON” button

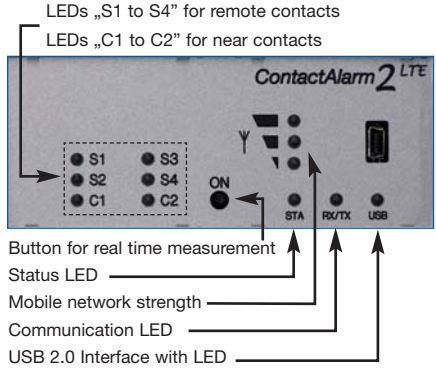
1. Starts the measurement cycle
   - The “STA” LED flashes briefly and then stays lit up throughout the measurement process
   - The contact input conditions are then displayed:
     C1 and C2 and after a short interval S1 to S4

   Red = “**Alarm**” contact condition, **Green** = “**OK**” contact condition.
2. The device then goes into “Sleep mode”.

B. Press the “ON” button for 5 seconds

By holding the button for at least 5 s, until the bottom LED of the field strength bar graph lights up red, the measurement cycle as described in “A.” is first run through and a status message is then sent.

Meaning of the LEDs when a message is sent:



Connection establishment to the mobile station

The bottom LED of the field strength bar graph lights up.

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

Then, the LEDs of the field strength bar graph indicate the connection level.

Data transmission to the mobile station

The "Rx/Tx" LED flashes.
The LEDs of the field strength bar graph indicate the connection quality.

1 LED = Weak signal
2 LEDs = Good reception
3 LEDs = Very good reception

Ending the data transmission to the mobile station

The LEDs of the field strength bar graph go out
The "Rx/Tx" LED briefly lights up one more time
All LEDs go out and the device returns to "Sleep mode".

Meaning of the status diode:

- The status diode lights up red when a message could not be sent. After a successful message it lights up green again.

ContactAlarm2 LTE/UMS configuration

To change the default setting or make subsequent adaptations to the parameters a computer (laptop, notebook, netbook) must be connected to the *ContactAlarm2 LTE/UMS* via the USB 2.0 interface.

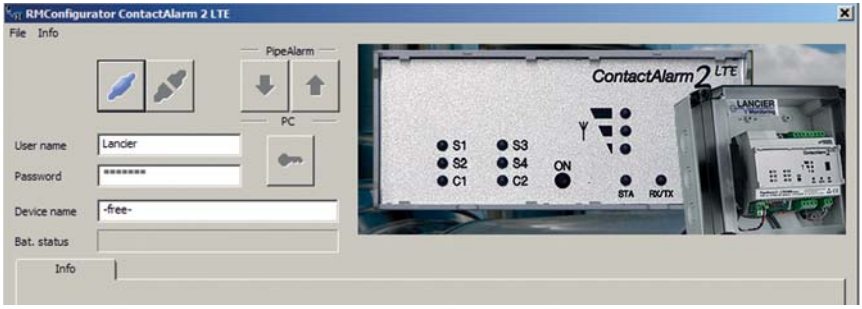
The “RMConfigurator” program must be installed on the computer. To this end, all of the files on the supplied USB stick must be copied to a directory. The drivers for the *ContactAlarm2 LTE/UMS* are also included here, in case it is not recognised automatically when connected to the USB cable.

Starting the configuration

1. Connect the computer to the *ContactAlarm2 LTE/UMS* via the included USB cable.
2. On the computer start the “RMConfigurator” program by double clicking on it in the appropriate directory.

The RMConfigurator program

After starting the “RMConfigurator” program and connecting it to the *ContactAlarm2 LTE/UMS* via a cable, the following screen appears:



Access to the device is password protected.
On delivery the following, pre-registered login details apply:

User name: Lancier
Password: Lancier

One click of the  button connects the software to the *ContactAlarm2 LTE/UMS*.

Data stored on the device data is retrieved automatically.
The key symbol to the right of the login fields turns red  .

Password change

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

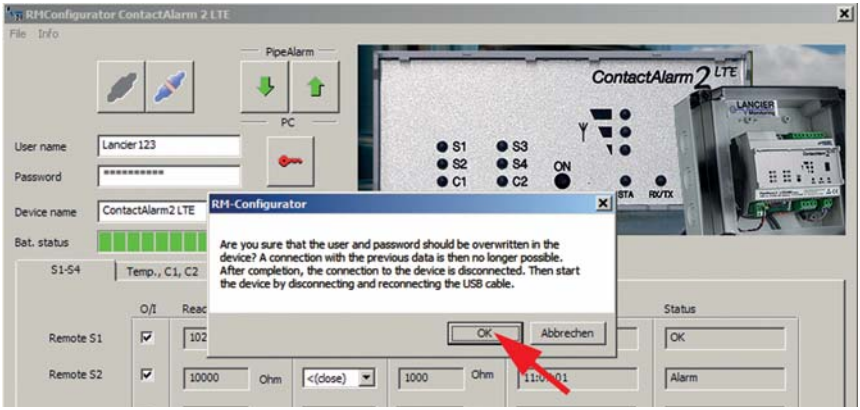
1. Enter a new user name (Overwrite “Lancier”)*
2. Enter a new password (Overwrite “••••••”)*
   The user names and passwords “reset” and “Lancier” are reserved for specific functions and therefore disabled.
3. Make a record of both for subsequent access
4. Press the red key symbol
5. Confirm the security question for accidental overwriting by clicking on the “OK” button.

User name and password

Permitted character lengths
User: 2 - 20 characters
Password: 8 - 20 characters

Permitted characters
a-z, A-Z, 0-9, !“#$%&‘()*+,-./:;< >?@,

Not permitted characters
blank spaces, ä, Ä, ö, Ö, ü, Ü, ß



The new entries are accepted and stored. 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 RMConfigurator has not been closed, the input fields show the last entered “User name” and “Password”.

Note

The user name and password are not stored outside of the device, i.e. they are not taken into account for “Load file” and “Save file” functions (see page 24).

Password reset

If the user name and password have been forgotten, the device can be reset to factory settings. All sensitive data, such as the APN Name, APN password, PIN number etc. will be deleted and must then be re-entered.

The reset is performed by entering the user name “reset” and the password “reset” and then clicking on the key symbol  .

It is then possible to login with the user name “Lancier” and the password “Lancier”.

Device configuration

Once the user name and password have been entered, click on  to connect the software to the *ContactAlarm2 LTE/UMS*.

Data stored on the device is retrieved automatically.

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

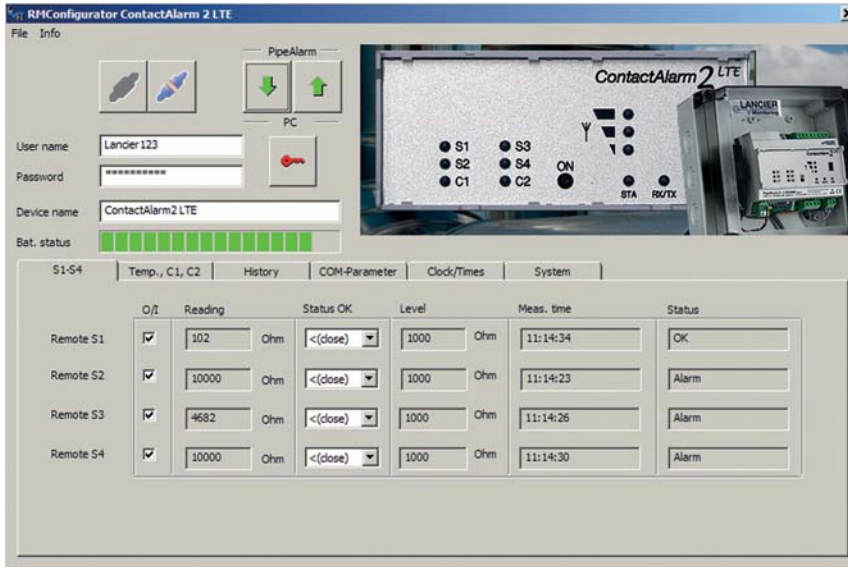
The freely selectable device name, which can also be reset later, appears in the **“Device name”** field**:** 

For all texts that are sent by error message (the device name, recipient's name) the following characters are permitted:
Blank spaces - . 0-9 ? A-Z a-z ä Ä ö Ö ü Ü
All other characters in the message are replaced by “?”.

The device battery’s condition can be read in the “**Batt. status**” field. With daily measurements and weekly status messages a new battery will last for about 5 years: 

More settings can be applied in the “S1-S4”, “Temp., C1, C2” “History”, “COM parameters”, “Clock/times” and “System” tabs.

“S1 - S4” tab



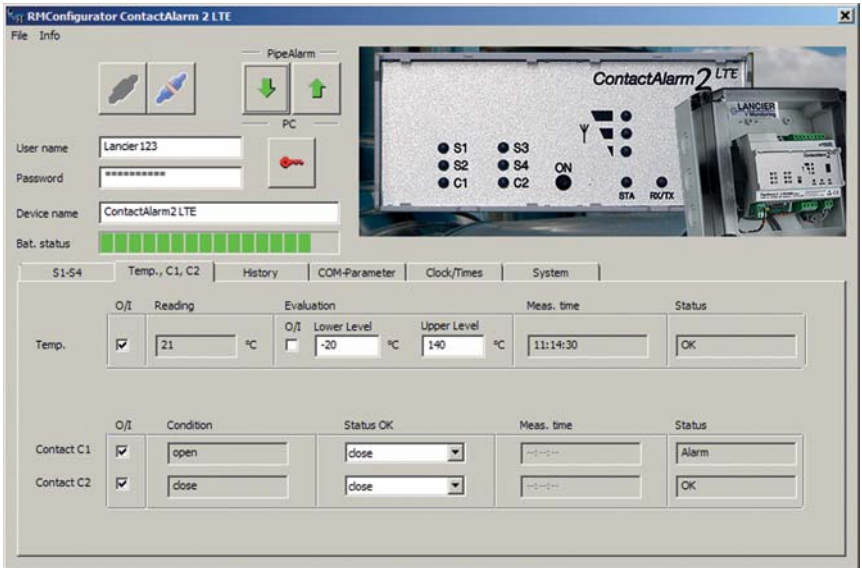
If the ContactAlarm has already performed measurements, then the last measured values are displayed in the “Reading” column and the corresponding time stamp in the “Meas. time” column.

Remote contacts

The measured loop resistance value is displayed.

The **levels** cannot be edited and are set to 1000 Ω.

“Temp., C1, C2” tab



Temperature

Temperature monitoring is activated as a factory default.

It can be disabled by clicking on the corresponding check box (O/I) in the first column.

If temperature monitoring is active, then the temperature value is also transmitted with each message.

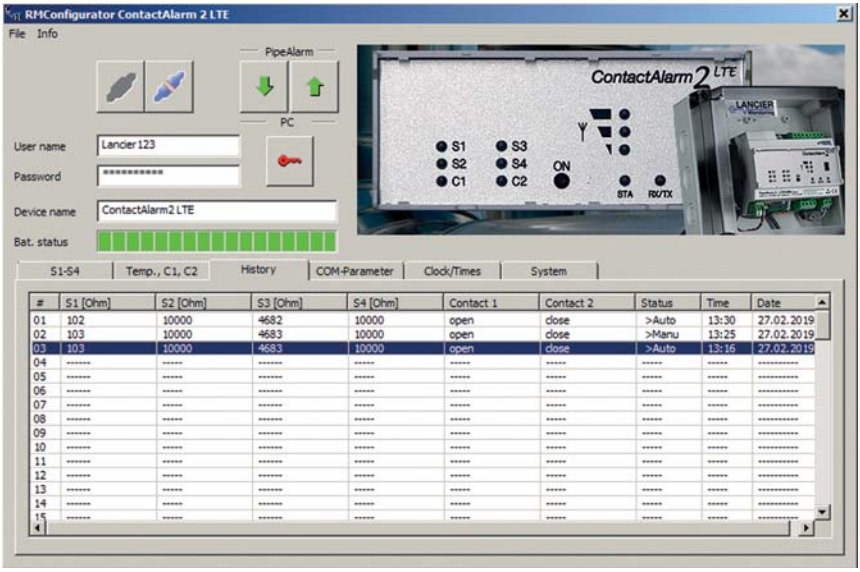
The **limit values** (lower level/upper level) can be edited freely.

Near contacts (Contact C1 and C2)

Every **near contact**, which is to be monitored, has to be activated by ticking the corresponding check box in the first column.

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

“History” tab



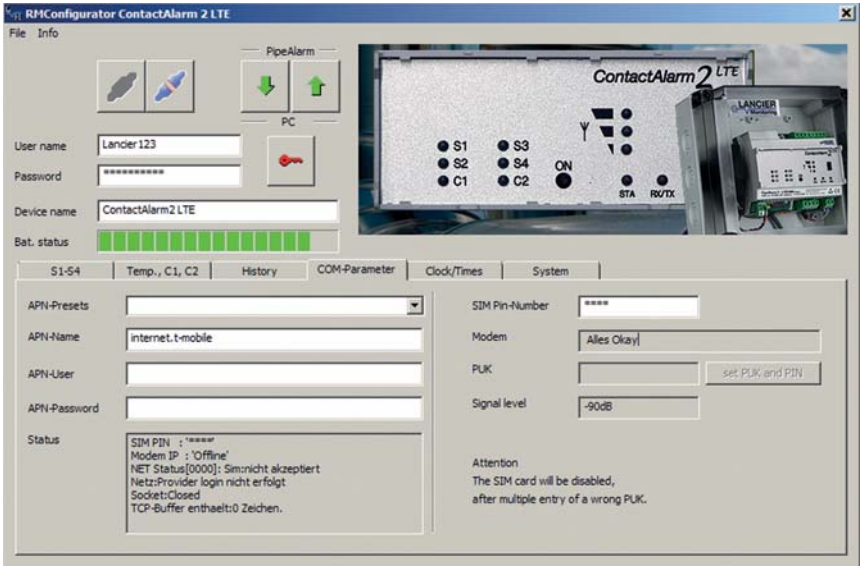
This displays a list of all of the results of the last 90 measurements including time stamps (time/date). One measurement event per line.

Measured values for the temperature are not stored.

Test measurements without message dispatch are not considered.

Test measurements with message dispatch are entered with the “Manu” status.

“COM-Parameter” tab



Here, connection parameters are entered for the communication with the UMS server via the mobile network.

Information about the mobile connection can also be found here.

APN = Access Point Name is the name given to 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 other required parameters are entered automatically.

It may be necessary to add the APN user and APN password.

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

Status

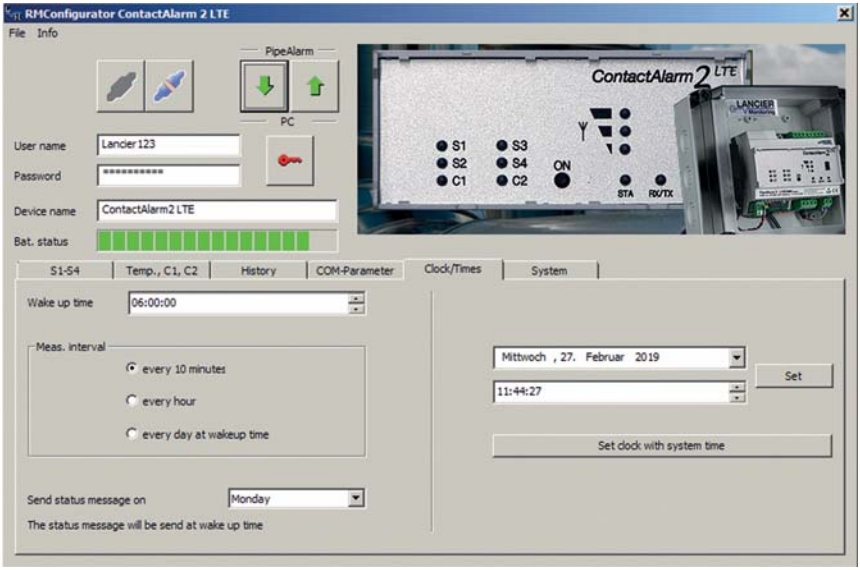
Here, the mobile connection’s system status is displayed.

SIM PIN number: Here, the PIN number of the SIM card used must be entered, in order to ensure the connection to the mobile network.

Signal level

Here, the last mobile connection’s signal level is displayed.

“Clock/times” tab



WakeUp time: Here, the time when the daily measurement cycle should be started is defined.

Meas. interval: The *ContactAlarm2 LTE/UMS* is designed for daily measurements. If shorter measurement intervals are required, they can be shortened by radio button to hourly or 10-minute intervals. These shorter intervals should only be used temporarily for test purposes, as they will significantly reduce the battery life.

Send status message on: At the WakeUp time the ContactAlarm sends a weekly status message, in order to document that it is active. The weekday for this can be freely selected via the pull-down menu.

If the “every day” condition is selected in the pull-down menu, a status message is sent every day at the WakeUp time.

This will decrease the battery’s operating life.

Setting the date and time: This data can be changed by clicking on the menu arrows at the right edge of the input fields or entered via the keyboard. In order to transmit them to the *ContactAlarm2 LTE/UMS*, the “Set” button 

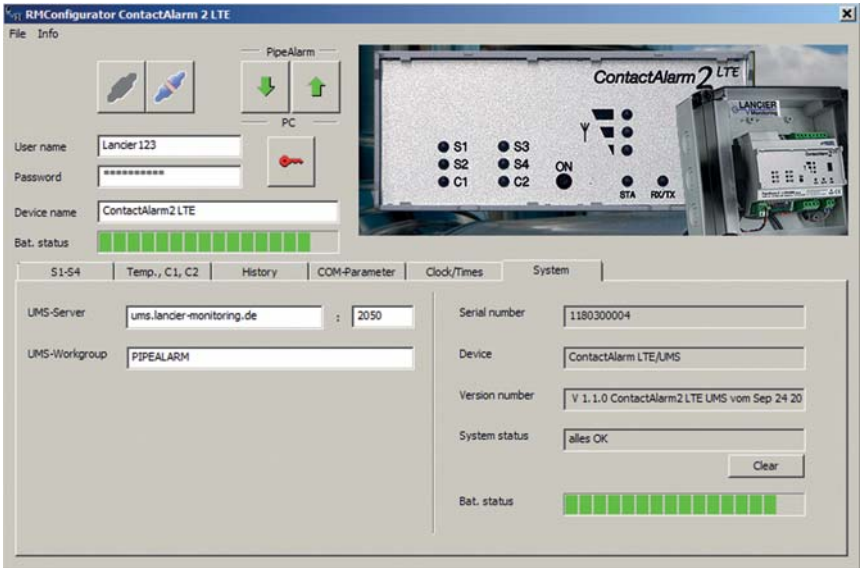
must be clicked.

Alternatively, the system time of the laptop/notebook used can be copied across by clicking on the button “Set clock with system time” 

.

Warning:
The device does not automatically adjust for winter/summer time changes.

“System” tab



Here, the UMS server data is entered, and any 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 Clear button.

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

UMS Server:	ums.lancier-monitoring.de (max. of 64 characters)
Port specification:	2050 (field after “:”)
UMS work group:	Freely selectable name (max. of 30 characters)

If **your own server** is used, the following information must be entered:

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

In order for the changes to the settings to be transferred to the *ContactAlarm2 LTE/UMS*, the button must be clicked.

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

Warning: Transfers of any changes to the time and date take place exclusively via the two Set and Set clock with system time buttons.

In order to check that the communication data, such as the APN name, PIN etc., have been entered correctly, a test message should be sent. To do this, press the “ON” button on the *ContactAlarm2 LTE/UMS* for 5 seconds (see page 10).

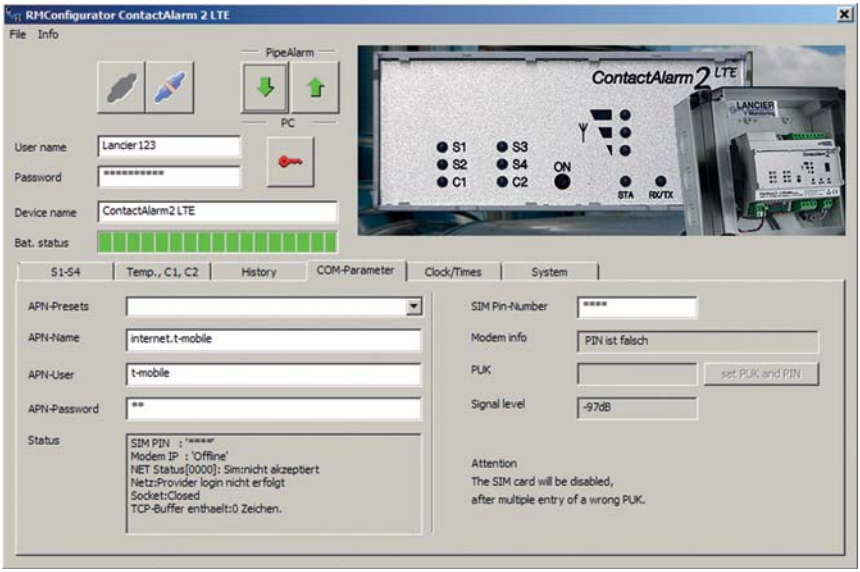
If the UMS server does not receive a message from the ContactAlarm2 LTE, the APN access data and PIN number must be checked.

In order to read the stored data, press the  button in the RMConfigurator and go to the “COM parameters” or “System” tab.

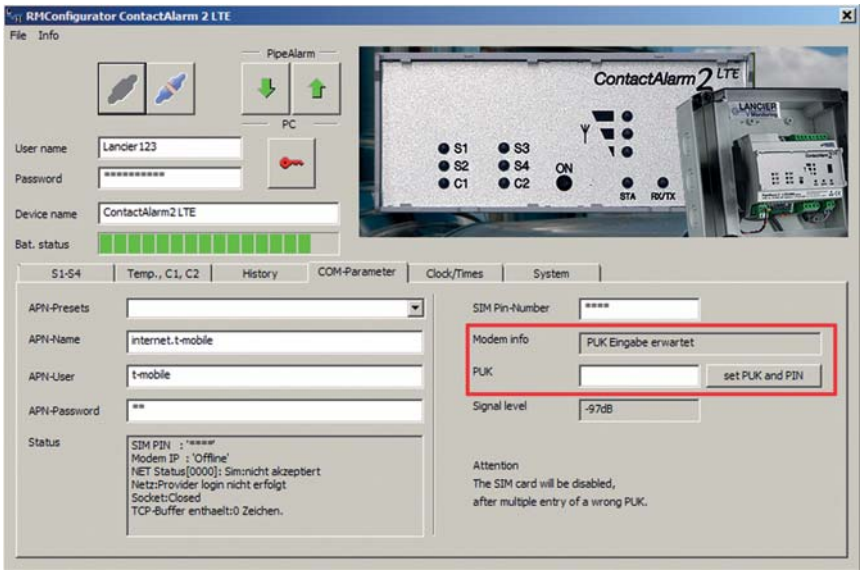
Incorrect PIN input/unlocking via the PUK

If an incorrect PIN has inadvertently been entered, no alarm and status messages can be sent.

If the SIM card does not accept the PIN number, this is displayed in the RMConfigurator’s “Modem info” field:

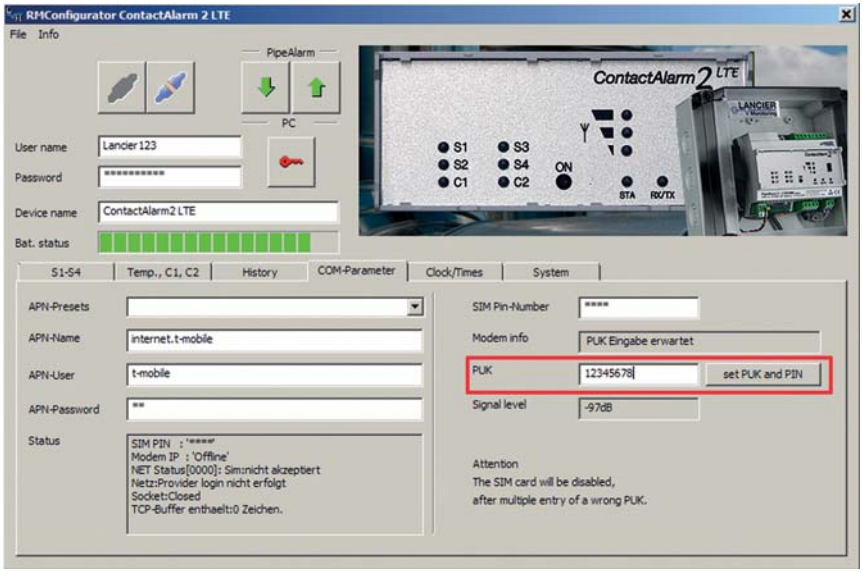


After the fourth attempt to send with an incorrect PIN number, the SIM card locks automatically. This is displayed in the RMConfigurator’s “Modem info” field (see next page):

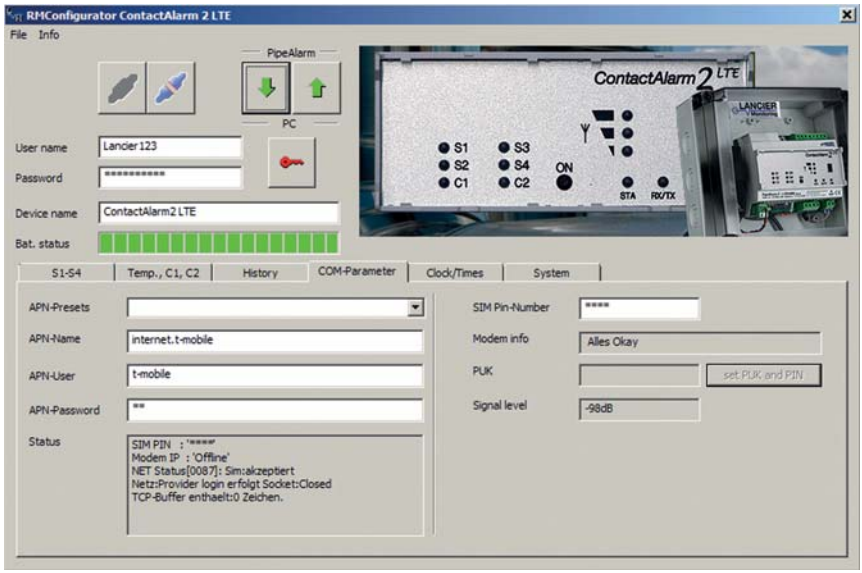


A locked SIM card can be unlocked with the PUK number.

In order to unlock it, enter the desired, freely selectable, 4-digit SIM PIN number in the “SIM PIN number” field and the 8-digit PUK number in the “PUK” field and upload them to the *ContactAlarm2 LTE/UMS* by pressing the set PUK and PIN button.



A test message to the registered UMS server is then sent automatically. The new SIM number is then set and the SIM card re-activated.

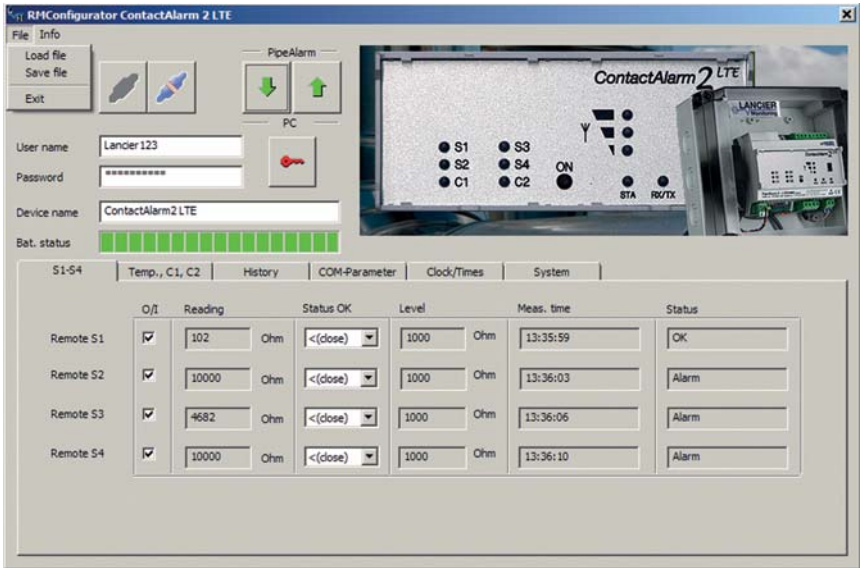


In order to **complete the configuration**, the  button must be clicked to separate the software from the device.

The USB cable can then be removed from the device and the computer and the “RMConfigurator” program closed.

The configuration is complete.

Saving/loading the device configuration



The RMConfigurator offers the option to store device settings or to load saved settings.

By clicking on the “File” menu option, a pull-down menu with the following options opens:

Load file Loads a previously saved data set along with device settings.

Save file Stores a data set along with current device settings.

Exit Closes the “RMConfigurator” program.
Prior to ending the program, the configuration must be completed, see the following point.

This feature is not password protected.

In order to **complete the configuration**, the  button must be clicked first to separate the software from the device.

The USB cable can then be removed from the device and the computer.

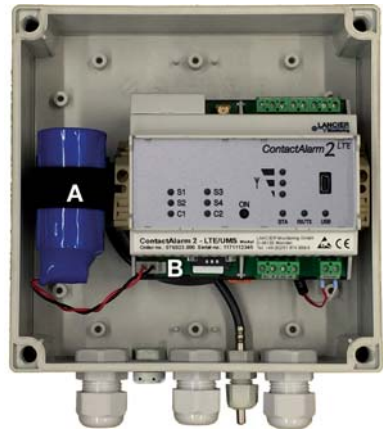
The configuration has been completed, the RMConfigurator can be closed.

Maintenance

Battery replacement

WARNING! Lithium battery!
Only use the original 3.6 V/19 Ah battery with the mount and connecting cable. Never charge or short-circuit the lithium battery or reverse its polarity.
If required, take note of any shipping regulations for lithium batteries (Class 9, UN 3090 or UN 3091).

The *ContactAlarm2 LTE/UMS* is equipped with a 3.6 V lithium battery (**A**), which has been pre-installed ex works but not yet connected. With daily measurements and weekly status messages a new battery will last for more than 5 years.



In order to change a battery (LANCIER Monitoring order number 075969.000) the housing of the *ContactAlarm2 LTE/UMS* must be opened.

To do this, unscrew the 4 screws on the corners of the housing and remove the housing cover.

Pull off the battery connector (**B**) and remove the battery (**A**) from the top-hat rail together with the mount.

Click the mount and the new battery (**A**) into place on the top-hat rail. Attach the polarity-reversal-protected battery connector (**B**) of the new battery (LANCIER Monitoring order number 075969.000) to the X6 connector (see page 6).

Close the cover again and screw it down.

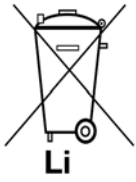
Battery error message

A battery error message occurs, when the battery voltage of the *ContactAlarm2 LTE/UMS* falls below 3 V and it should be replaced.

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

Battery disposal

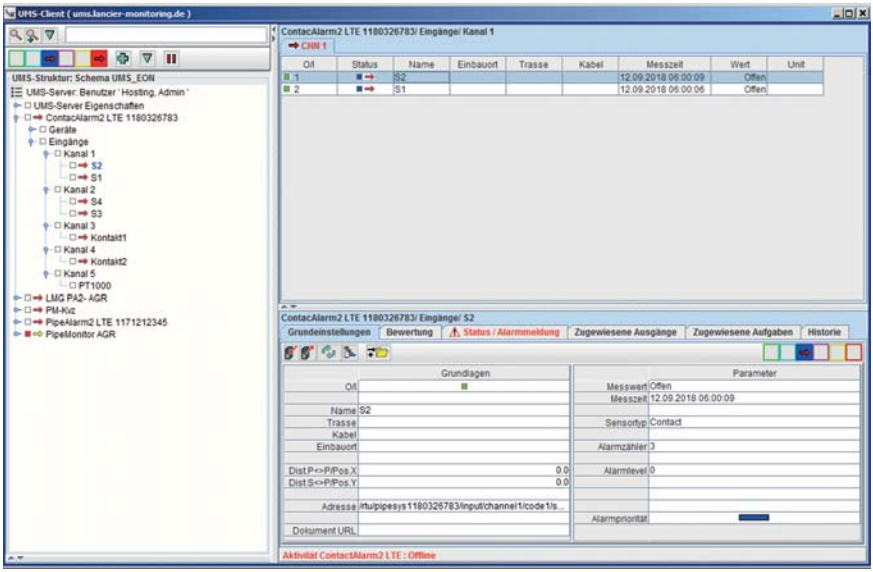
- Do not dispose of old or defective accumulators as normal domestic waste.
- Adhere to environmental laws on battery disposal.
- Return old and/or defective accumulators to a municipal battery disposal point.



UMS server

Messages sent to the UMS server are there assigned to the corresponding device and evaluated.

All relevant data is visible at a glance.



LANCIER Monitoring GmbH
Gustav-Stresemann-Weg 11
48155 Münster, Germany
Tel. +49 (0) 251 674 999-0
Fax+49 (0) 251 674 999-99
mail@lancier-monitoring.de
www.lancier-monitoring.de

CE

EC Declaration of Conformity

We declare under our sole responsibility, that the product

Make:	**LANCIER Monitoring**
Type:	**ContactAlarm2 LTE/UMS**

to which this declaration refers, meets the relevant health and safety requirements of the following EC directives:

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

For proper implementation of the health and safety requirements named in the EC directives the following standard(s) and/or technical specification(s) have been consulted:

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)**

Münster, 22.01.2019

Research and Development

Managing Director