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CMC III LTE unit



7030.571

Assembly and operating instructions

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SOFTWARE & SERVICES

FRIEDHELM LOH GROUP



Preface

EN

Preface

Dear Customer!

Thank you for choosing our CMC III LTE unit (referred to hereafter as "LTE unit")!

We wish you every success.

Yours
Rittal GmbH & Co. KG

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We are always happy to answer any technical questions regarding our entire range of products.

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1 Notes on documentation

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1 Notes on documentation

1.1 CE labelling

Rittal GmbH & Co. KG hereby confirms that the CMC III LTE unit is compliant with the EC EMC Directive 2014/30/EC. An appropriate declaration of conformity has been prepared. It can be provided on request.



1.2 Storing the documents

The assembly and operating instructions as well as all other applicable documents are an integral part of the product. They must be passed to those persons who are engaged with the unit and must always be available and on hand for the operating and maintenance personnel.

1.3 Symbols used in these operating instructions

The following symbols are used in this documentation:



Danger!

A hazardous situation in which failure to comply with the instructions causes death or severe injury.



Warning!

A hazardous situation which may lead directly to death or serious injury if the instructions are not followed.



Caution!

A hazardous situation which may lead to (minor) injuries if the instructions are not followed.



Note:

Identification of situations that can lead to material damage.

- This symbol indicates an "action point" and shows that you should perform an operation or procedure.

1.4 Other applicable documents

- Installation Guide and Short User's Guide
- CMC III Processing Unit/CMC III Processing Unit Compact assembly and operating instructions

1.5 Area of validity

This guide applies to software version V3.15.20.

This documentation shows the English screenshots.

The descriptions of individual parameters on the CMC III PU website likewise use English terminology.

Depending on the set language, the displays on the CMC III PU website may be different (see assembly and operating instructions for the CMC III Processing Unit).

2 Safety instructions

2.1 General safety instructions

Please observe the following general safety instructions for the installation and operation of the system:

- Use only original Rittal products or products recommended by Rittal in conjunction with the LTE unit.
- Please do not make any changes to the LTE unit that are not described in this manual or in the associated manuals.
- The operational safety of the LTE unit is only warranted if used properly for its intended purpose. The technical specifications and limit values stated must not be exceeded under any circumstances. In particular, this applies to the specified ambient temperature range and IP protection category.
- The LTE unit must not be opened. It does not contain any parts that need servicing.
- Operating the system in direct contact with water, aggressive materials or inflammable gases and vapours is prohibited.
- Other than these general safety instructions, ensure you also observe the specific safety instructions when carrying out the tasks described in the following chapters.

2.2 Operating and technical staff

- The mounting, installation, commissioning, maintenance and repair of this unit must only be performed by qualified, trained personnel.
- Only properly instructed personnel may work on the unit while in operation.

3 Product description

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3 Product description

3.1 Functional description and components

3.1.1 Function

Text messages may be sent via the LTE unit in the event of a status change in the CMC III Processing Unit or a connected sensor. To this end, the customer should procure a standard, commercially available SIM card.



Note:

In the following text, the designation "CMC III Processing Unit" refers to both the "CMC III Processing Unit" and also the "CMC III Processing Unit Compact". All text passages which only apply to one of these two variants are labelled accordingly.

3.1.2 Components

The device consists of a compact plastic housing in RAL 7035 with a ventilated front in RAL 9005.

3.2 Proper use, foreseeable misuse

The CMC III LTE unit is only to be used for sending text messages in the event of a status change in the CMC III Processing Unit or a connected sensor. It must only be used together with the CMC III PU. Any other use is not permitted.

The unit is state of the art and built according to recognised safety regulations. Nevertheless, improper use can pose a threat to the life and limb of the user or third parties, or result in possible damage to the system and other property.

Consequently, the unit must only be used properly and in a technically sound condition! Any malfunctions which impair safety should be rectified immediately. Follow the operating instructions!

Proper use also includes the observance of the documentation provided, and compliance with the inspection and maintenance conditions.

Rittal GmbH & Co. KG is not liable for any damage which may result from failure to comply with the documentation provided. The same applies to failure to comply with the valid documentation for any accessories used.

Inappropriate use may be dangerous. Inappropriate use includes:

- Use of impermissible tools.
- Improper operation.
- Improper rectification of malfunctions.
- Use of accessories not approved by Rittal GmbH & Co. KG.

3.3 Scope of supply

- CMC III LTE unit
- Accessories supplied loose (fig. 1)
- Installation Guide and Short User's Guide

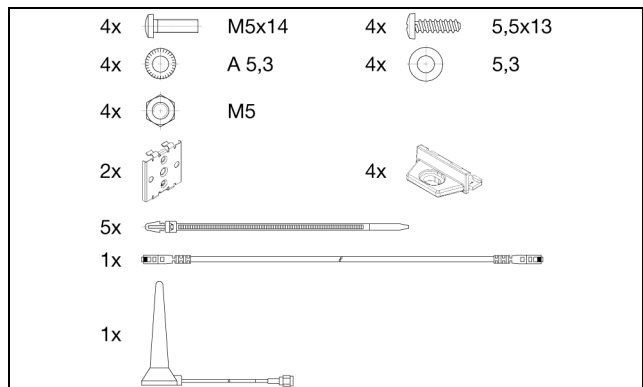


Fig. 1: Accessories supplied loose

4 Transport and handling

4.1 Transport

The unit is delivered in a cardboard box.

4.2 Unpacking

- Remove the packaging materials from the unit.



Note:

After unpacking, the packaging materials must be disposed of in an environmentally friendly way. They consist of the following materials:

Polyethylene film (PE film), cardboard.

- Check the unit for any damage that may have occurred during transport.



Note:

Damage and other faults, e.g. incomplete delivery, should be reported immediately, in writing, to the shipping company and to Rittal GmbH & Co. KG.

- Remove the unit from the PE film.
- Remove the protective film from the front cover of the unit.

5 Installation

5.1 Safety instructions

- Please observe the valid regulations for installation in the country in which the LTE unit is installed and operated, and the national regulations for accident prevention. Please also observe any internal company regulations, such as work, operating and safety regulations.
- The technical specifications and limit values stated must not be exceeded under any circumstances. In particular, this applies to the specified ambient temperature range and IP protection category.
- If a higher IP protection category is required for a special application, the LTE unit must be installed in an appropriate housing or in an appropriate enclosure with the required IP protection category.

5.2 Siting location requirements

To ensure proper functioning of the unit, the conditions for the installation site of the unit specified in section 8 "Technical specifications" must be observed.

Electromagnetic interference

- Interfering electrical installations (high frequency) should be avoided.

5.3 Installation procedure

Generally speaking, there are three ways of installing the LTE unit in an IT enclosure:

1. Installation using the mounting clips provided, possibly also with spring clips for top-hat rail installation.
2. Installation with the CMC III mounting unit (7030.071).
3. Installation with the CMC III mounting unit, 1 U (7030.088).

5.3.1 Notes on assembly

- Never secure the LTE unit using the mounting clips provided on only one side of the device! This would cause undesirable vibrations in the device during operation.

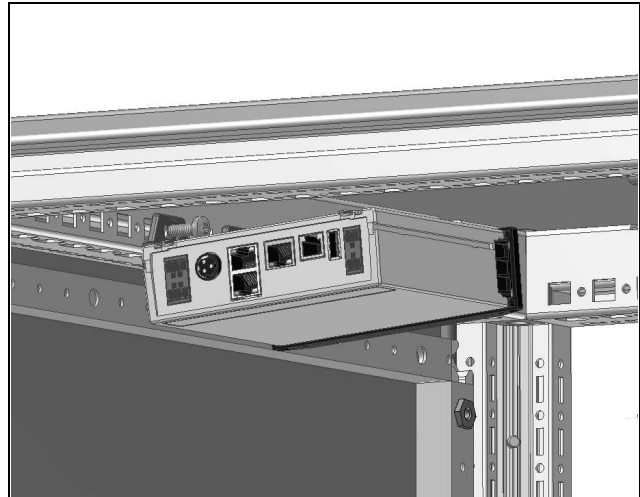


Fig. 2: Incorrect installation in the enclosure

- The LTE unit must be positioned so that it is ventilated with an adequate amount of air and the ventilation slots are not covered.

5.3.2 Installation using the mounting clips provided

Installation using the mounting clips provided in the scope of supply is best done on a mounting plate or on a top-hat rail using the spring clips provided (see section 5.3.4 "Installation on a top-hat rail").

- Slide two mounting clips onto each of the side guide rails of the LTE unit.

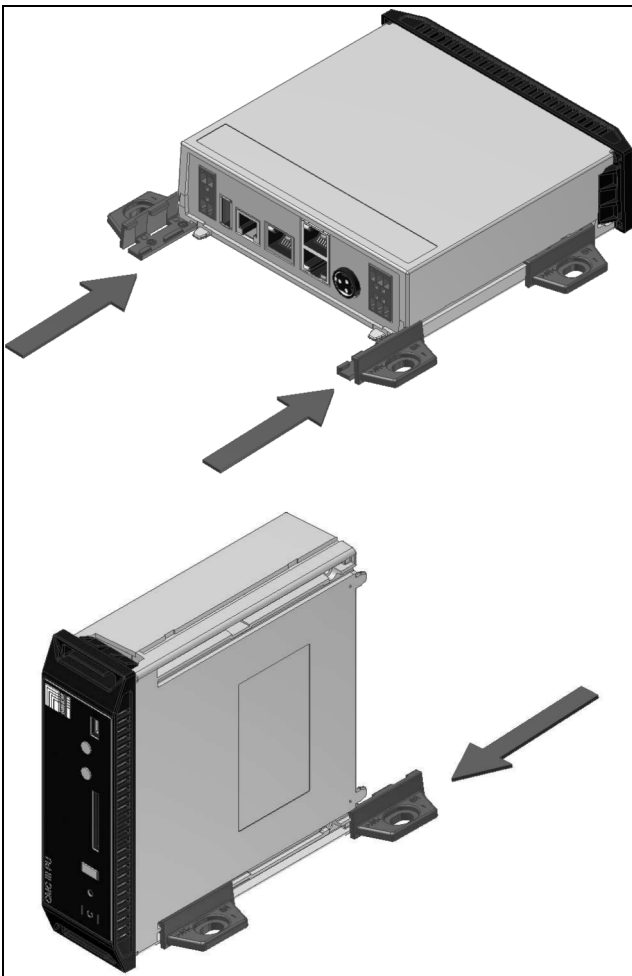


Fig. 3: Sliding on the mounting clips

- Secure the LTE unit using the screws provided in the scope of supply, e.g. on a mounting plate in the IT enclosure.

5.3.3 Installation with the CMC III mounting unit

- The CMC III mounting unit is available in two variants:
- For installing the LTE unit on the enclosure frame or on a mounting plate (7030.071).
 - As a 482.6 mm (19") variant (1 U) to accommodate the LTE unit and two additional devices (7030.088).

The procedure for installing the LTE unit in both mounting units is identical:

- Slide the LTE unit as far as possible into the mounting unit until it latches into place.

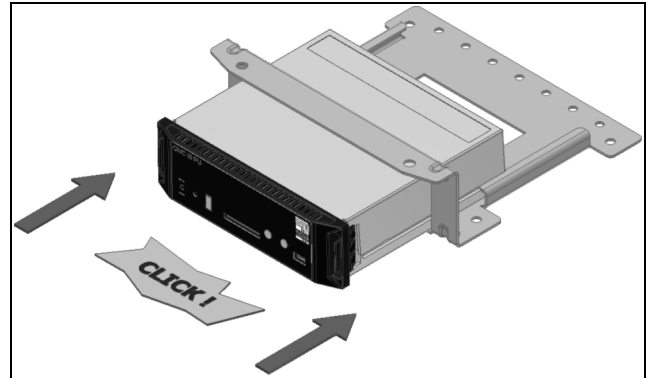


Fig. 4: Sliding the LTE unit into the mounting unit

- Fasten the mounting unit (7030.071) to the enclosure frame or to a mounting plate using the screws provided.

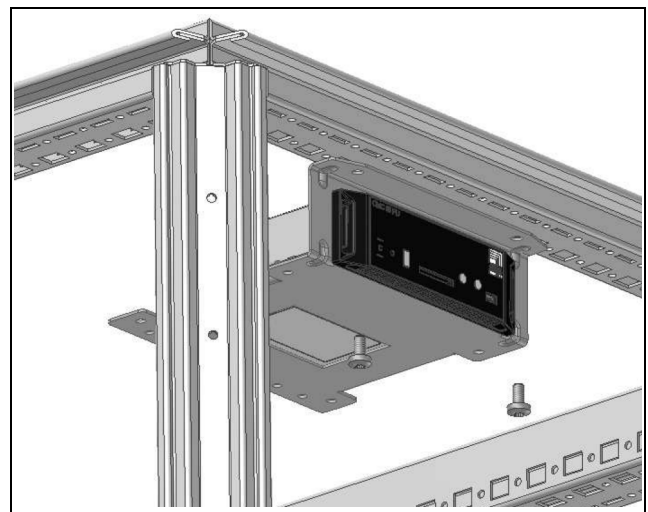


Fig. 5: Fastening the mounting unit to the enclosure frame

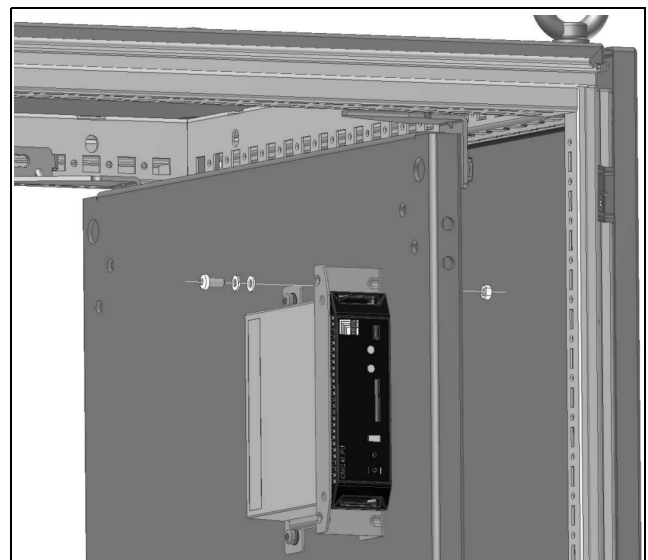


Fig. 6: Fastening the mounting unit to a mounting plate

- Fasten the mounting unit (7030.088) in a free rack-mounting point (1 U) in the IT enclosure using the screws provided.

5 Installation

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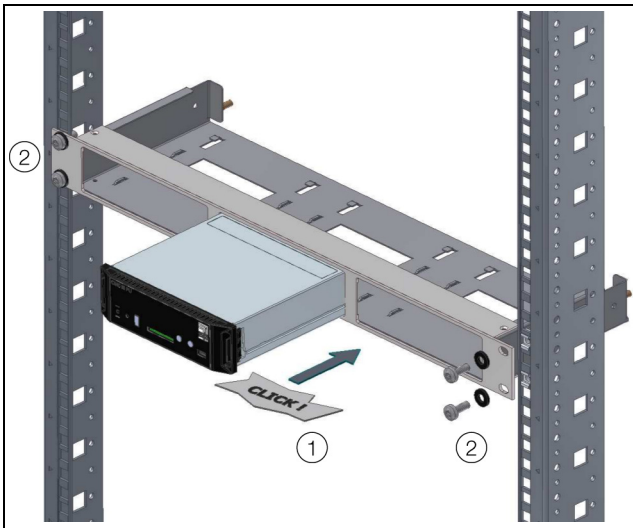


Fig. 7: Fastening the mounting unit in a rack-mounting point

5.3.4 Installation on a top-hat rail

The unit is mounted on a top-hat rail using the mounting clips and the spring clips provided.

- Slide a mounting clip onto each of the side guide rails of the LTE unit (left and right).
- Screw a spring clip for top-hat rail installation onto each of the mounting clips.
- Place the LTE unit with the spring clips on the top-hat rail.

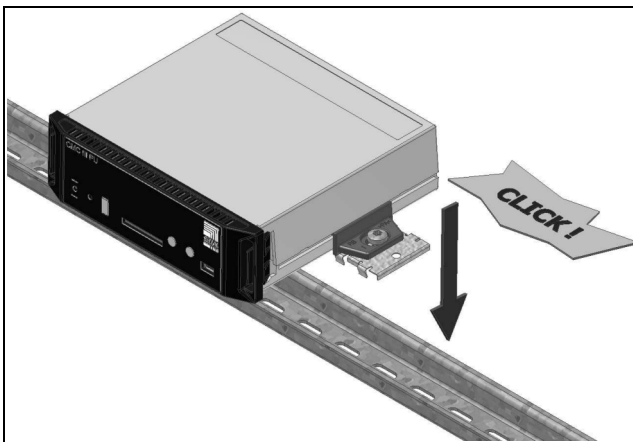


Fig. 8: Installing the LTE unit on a top-hat rail

5.4 Basic settings

A number of SIM card settings must be made via the CMC III PU website **before** connecting the LTE unit.

- In the browser, enter the IP address of the CMC III PU in the network. The login dialog for logging into the device will be displayed.
- Log in with the username **admin** and the password **admin**.
- In the left-hand section of the overview window (navigation area), click on the **Processing Unit** entry and in the right-hand section (configuration area), click on the **Configuration** tab.
- In the group box **Network**, click on the **SMS** button.

- In the **SMS Configuration** window, in the group box **Service Parameters**, enter the four-digit pin number of the SIM card in the **SIM-Pin** field.
- In the same group box, enter the provider's text service number (depending on the selected SIM card/provider) in the **Service Number** field.
For example, Deutsche Telekom D1:
+491710760000.
- In the **SMS Configuration** window, in the group box **Known Receivers**, enter the recipient's telephone number with the country code in the **Phone Number** field.
Example for Germany: "+49..." or "+491701234567".
- Click on the **Save** button to change your settings.

5.5 Connecting the LTE unit

The LTE unit is supplied with the necessary operating voltage via the RJ 12 connection. There is no need to connect a separate power supply unit.



Note:

The LTE unit is supported by the CMC III PU only as of firmware 3.15.70.2. If necessary, update the firmware from the CMC III PU website (see section "Firmware update" in the assembly and operating instructions).

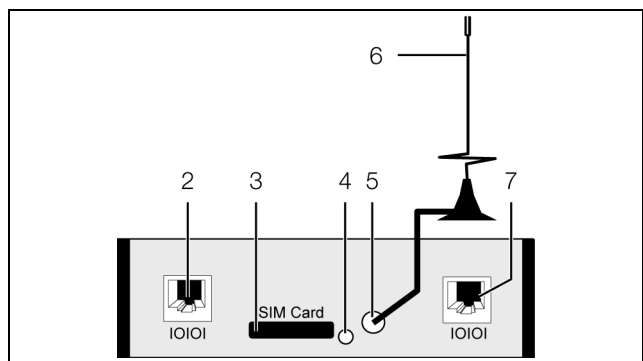


Fig. 9: Rear of the LTE unit

Key

- 2 Connection of the CMC III Processing Unit RJ 12/ RS 232, 24 V $\overline{\text{---}}$, 500 mA (alternative to item 7)
- 3 SIM card chassis
- 4 Button for ejecting the SIM card
- 5 Aerial connection
- 6 Aerial
- 7 Connection of the CMC III Processing Unit RJ 12/ RS 232, 24 V $\overline{\text{---}}$, 500 mA (alternative to item 2)

- Press the button to eject the SIM card (fig. 9, item 4). The SIM card holder will be ejected from the chassis (fig. 9, item 3).
- Insert your SIM card into the holder and push the holder and SIM card fully into the chassis.
- Screw the aerial into the relevant connection at the rear of the LTE unit (fig. 9, item 5).
- Be sure to erect the aerial where there is an adequate signal at all times from the SIM card's network opera-

tor. A longer connection cable for the aerial might be needed in order to achieve this.

- Connect the LTE unit to the CMC III Processing Unit using an RJ 12 connection cable (fig. 9, item 2 or item 7).

6 Operation

6.1 Activating the LTE unit

After connecting the LTE unit to the CMC III Processing Unit using an RJ 12 connection cable, the LTE unit will activate automatically (see section 5.5 "Connecting the LTE unit"). Separate activation is not required.

6.2 Operating and display elements

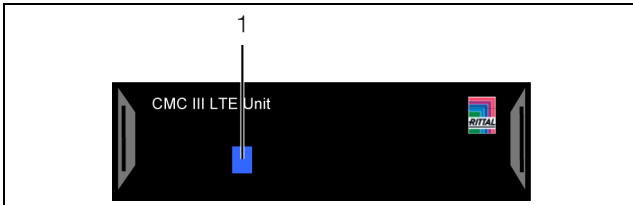


Fig. 10: Front of the LTE unit

Key

- 1 Multi-LED for status display

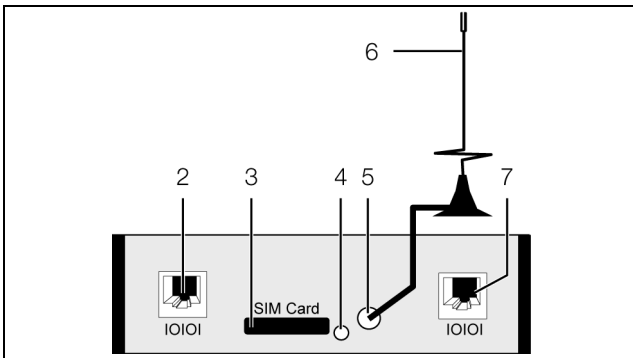


Fig. 11: Rear of the LTE unit

Key

- 2 Connection of the CMC III Processing Unit RJ 12/ RS 232, 24 V $\overline{\text{---}}$, 500 mA (alternative to item 7)
- 3 SIM card chassis
- 4 Button for ejecting the SIM card
- 5 Aerial connection
- 6 Aerial
- 7 Connection of the CMC III Processing Unit RJ 12/ RS 232, 24 V $\overline{\text{---}}$, 500 mA (alternative to item 2)

6.3 LED displays

A multi-LED for status display is integrated into the front of the LTE unit (fig. 10, item 1).

6.3.1 Multi-LED displays

The status of the LTE unit can be read on the multi-LED.

Continuous light

Colour	Status
Green	A switch connection has been established.
Orange	A text message is being transmitted.
Red	Initialisation error.

Tab. 1: Multi-LED continuously lit

Flashing codes

Colour	Rhythm (on/off) [s]	Status
Blue	0.1 / 2.9	The LTE unit is logged in (roaming).
Blue	Flash 1x	The LTE unit is booked into the GSM/UMTS network (home network).
Blue	Flash 2x	The LTE unit is booked into the LTE network (home network).
Blue	0.2 / 0.2	Login was rejected or the SIM card was not recognised.
Blue	0.35 / 0.35	The SIM card has not yet been unlocked with the PIN.
Blue	0.5 / 0.5	The LTE unit is not logged in.
Red	0.5 / 0.5	Unknown operating status

Tab. 2: Multi-LED flashing codes

6.4 Operating via the CMC III Processing Unit website

Once installation is complete, you can check the status of the LTE unit on the CMC III Processing Unit website and configure the recipients for text messages.

6.4.1 Checking the status of the LTE unit

- Select the "CMCIII-PU" entry in the navigation area.
- Select the **Observation** tab in the configuration area.
- One after another, expand the "CMCIII-PU", "System" and "V24 Unit" (V24 Port) entries by clicking on the "plus" symbol in front of the entry.

General settings for a connected LTE unit may be made here.

Parameter	Explanation
DescName	Specific description of the connected unit.

Tab. 3: Settings in the "V24 Unit (V24 Port)" sub-level

The following parameters are also displayed for the LTE unit:

Parameter	Explanation
Message	Current status of the unit. One of the messages below is displayed here, depending on the status of the unit.
Signal	Current signal strength.

Tab. 4: Displays in the "V24 Unit (V24 Port)" sub-level

Parameter	Explanation
Status	Current status of the LTE unit ("OK" or "n.a." if no unit is connected). When these variables are changed (removal of a connected LTE unit), a task can be used to send an appropriate message (e.g. by e-mail or SNMP).

Tab. 4: Displays in the "V24 Unit (V24 Port)" sub-level

The "Message" parameter in the "V24 Unit (V24 Port)" sub-level may have the following values:

Parameter	Explanation
No SMS unit found	No unit connected.
SMS unit found	LTE unit connected, unit is logging onto the network.
SMS unit o.k.	LTE unit ready.
Sending SMS	Text message is being sent.
SMS unit timeout	LTE unit timeout, no connection possible.
SMS unit: PIN is missing	No PIN entered.
SMS unit: Service number missing	No service number entered.
SMS unit: wrong PIN	Incorrect PIN entered.
SMS unit: PUK needed	PUK must be entered.
SMS unit: not registered	LTE unit not registered on the network.

Tab. 5: Status in the "V24 Unit (V24 Port)" sub-level

6.4.2 SMS Configuration

The "SMS Configuration" dialog is used to make the basic settings for sending text messages.

Parameter	Explanation
SIM-Pin	Four-digit PIN of the SIM card.
Service Number	Provider's text messaging service number (depending on the selected SIM card / provider). For example, Deutsche Telekom D1: +491710760000

Tab. 6: Service Parameters group box

All receivers of text messages are entered and generally enabled for sending in the **Known Receivers** group box.



Note:

- All text message receivers that are not enabled in this group box ("Use" column) cannot receive text messages, even if activated in the Alarm Configuration.
- All text message receivers that are activated in this group box must additionally be activated in the Alarm Configuration (see section 6.4.3 "SMS receivers").

Parameter	Explanation
Send device messages	Setting to determine whether status changes such as "Lost", "Detected", "Changed" etc. should be sent as text messages. "Disable": No text message sent in case of status changes. "Alarms Only": Text messages only sent for critical changes "Detected" and "Lost". "All": Text messages sent for all status changes.
Phone Number	A maximum of 16 telephone numbers as possible receivers of text messages from the CMC III PU. Please observe the required input format.
Use	Enable or disable individual receivers.
Forward Trap Senders	IP addresses or names of trap senders whose traps are likewise to be forwarded to the respective receivers of text messages. Addresses and names previously entered in the group box Allowed Trap Senders can be selected from the drop-down list. By clicking the "Ctrl" button, multiple trap senders may be selected and then listed, separated by commas.

Tab. 7: Known Receivers group box



Note:


Selecting the entry "All" in the "Send device message" field may incur high costs, because a separate text message is sent for **every** status change.

A CMC III PU may receive traps from other CMC III PUs and then forward them as text messages via the LTE unit. The advantage of this is that there is no need for a LTE unit on every CMC III PU. The traps to be forwarded are then specified in the group box **Allowed Trap Senders**.


Parameter	Explanation
Host	Up to 5 IP addresses or host names of CMC III PUs whose traps are to be forwarded.

Tab. 8: Allowed Trap Senders group box

Additionally, the SNMP configuration of the CMC III PU whose traps are to be forwarded must be amended (see assembly and operating instructions for the CMC III Processing Unit).

 Note:
The status of the LTE unit can be obtained from the website in the "V24 Unit (V24 Port)" sub-level (see section 6.4.1 "Checking the status of the LTE unit") or via Telnet/SSH/USB on the "Info Page".

6.4.3 SMS receivers

 Note:
Further information on the general alarm configuration may be found in the CMC III Processing Unit/CMC III Processing Unit Compact assembly, installation and operating instructions

All sensors and units that are connected to the CMC III PU are listed in the navigation area under "Real Device". After selecting a device, an alarm notification for various variables of the corresponding device may be configured on the **Configuration** tab.

- In the navigation area, select the sensor or unit whose alarm notification you wish to configure.
- Select the **Configuration** tab in the right-hand area of the screen page.
- Click on the "Alarm Configuration" symbol.
The "Alarm Configuration" dialog will open.
- In the list, click on the line of the sensor whose alarm configuration you wish to configure.
- Click the **Edit** button.
The "Alarm Configuration" dialog will open.

You can make settings in the **SMS Receivers** group box to specify which receivers should be sent a text message.

All receivers that have been created correctly will be displayed here (see section 6.4.2 "SMS Configuration"). These receivers are **deactivated** by default.

Parameter	Explanation
SMS Phone Number	Telephone numbers created in the CMC III PU configuration.
Use	Enable or disable the associated receiver.

Tab. 9: SMS Receivers group box



Note:
If an SMS receiver was generally disabled previously, it may be enabled for individual alarm messages, but text messages are still not sent to this receiver (see section 6.4.2 "SMS Configuration").

6.4.4 Analysis of logging data

Log information about the LTE Unit can be viewed on the **Logging** tab.

The output of the LTE Unit for the "AT+COPS?" command is made in the following format:

– "+COPS:<mode>,<format>,<opName>,<AcT>"



Note:
The "AT+COPS?" command is executed once

- after the connection has been established from the LTE Unit to the CMC III Processing Unit and
- after the complete system has been re-started.

The possible values of the individual parameters are described in the following table.

Parameter	Explanation
mode	This parameter specifies how the net selection is performed: <ul style="list-style-type: none"> – 0: automatic net selection, the "opName" parameter is ignored. – 1: manual net selection, the "format" and "opName" parameters must be specified. – 2: book out from the selected net. – 3: specify the "format" parameter for the output of "AT+COPS?". – 4: automatic or manual net selection. If the manual net selection is not possible, an automatic net selection is performed.
format	This parameter specifies the format with which the "opName" parameter is provided: <ul style="list-style-type: none"> – 0: character string, long form. – 1: character string, short form. – 2: numeric format, such as "26202".
opName	Operator name, namely, the name of the provider in the appropriate format for the "format" parameter.
AcT	Deployed mobile phone technology: <ul style="list-style-type: none"> – 0: GSM – 7: E-UTRAN (=LTE)

Tab. 10: Parameters

– **Example:** "+COPS: 0,0,"Telekom.de",7"

This logging entry states the following:

- mode = 0: the net was selected automatically.
- format = 0: the provider is displayed as a (long) character string.
- opName = "Telekom.de": the provider is the German Telekom.
- AcT = 7: The mobile phone technology is LTE.

An entry can also be output in the form "V24 unit: OK (SMS unit OK, 19%)". This states that the LTE modem has a signal quality of 19%.

7 Storage and disposal

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7 Storage and disposal

7.1 Storage

If the device is not used for a long period, Rittal recommends that it be disconnected from the mains power supply and protected from damp and dust.

7.2 Disposal

Since the LTE unit consists mainly of the "housing" and "circuit board" parts, the device must be passed on to the electronic waste recycling system for disposal.

8 Technical specifications

Technical specifications		CMC III LTE unit	
Model No.		7030.571	
W x H x D (mm)		138 x 40 x 132	
Operating temperature range		0 °C...+55 °C	
Storage temperature		-45 °C...+85 °C	
Operating humidity range		5%...95% relative humidity, non-condensing	
Protection category		IP 30 to IEC 60 529	
Inputs	RJ 12	2 x	
Mobile phone nets and frequency ranges			
Frequency range 4G		Upload band [Mhz]	Download band [Mhz]
LTE band 1 (2100 MHz)		1920...1980	2110...2170
LTE band 3 (1800 MHz)		1710...1785	1805...1880
LTE band 8 (900 MHz)		880...915	926...960
LTE band 20 (800 MHz)		832...862	791...821
LTE band 28 (700 MHz)		703...748	758...803
Frequency range 3G			
3G band I (2100 MHz)			
3G band VIII (900 MHz)			
Frequency range 2G			
2G band D (900 MHz)			
2G band E (1800 MHz)			

Tab. 11: Technical specifications

9 Customer service addresses

EN

9 Customer service addresses

For technical queries, please contact:

Tel.: +49(0)2772 505-9052

E-mail: info@rittal.de

Homepage: www.rittal.com

For complaints or service requests, please contact:

Tel.: +49(0)2772 505-1855

E-mail: service@rittal.de

To ensure optimum service quality, send us the "SMS.log" file together with your enquiry. This file contains error messages that can be evaluated by our experts. You can upload the file from the CMC III Processing Unit via FTP or SFTP.

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- Power Distribution
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