

# Installation and Operating Instructions

## *DUAL SIM modem*



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Version: V2.20160204



3030248926-02-EN

Read and follow these operating instructions.

Keep these operating instructions in a safe place for later reference.

## Company details

**Document**                    Installation and Operating Instructions  
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# 1 For your safety

## 1.1 Basic safety instructions



Please read the following safety instructions carefully before using the product for the first time.

- Do not make any unauthorized modifications to the product. Unauthorized modifications or use may impair safety and reduce the service life or operability of the unit. Modifications are considered unauthorized if they are not described in the product documentation.
- Comply with road traffic rules. Stop the vehicle before operating the GPS receiver or connected components.

### DUAL SIM modem

Please note that the modem emits radio waves when it is switched on. These can interfere with other equipment or be harmful to human health.

For this reason, please observe the following instructions if you are using the DUAL SIM modem.

- If you wear a medical device, ask your doctor or the device manufacturer about how to prevent hazards. Medical devices such as pacemakers or hearing aids can be affected by the radio transmissions of modems.
- If you wear a pacemaker, keep the modem away from the pacemaker.
- Switch off the modem as soon as you are close to petrol stations, chemical plants, biogas plants or other locations where combustible gases or fumes can occur. These gases can be ignited by a spark and explode.
- Maintain a minimum distance of 20 cm (8 inches) between the antenna of the modem and your body.
- Never switch on the modem in an aircraft. Ensure that it is not accidentally switched on during flight.

## 1.2 Intended use

The product is intended for accurate positioning of agricultural vehicles.



The product is intended exclusively for use in agriculture. The manufacturer shall not be held responsible for any other use of the system.

The operating instructions form part of the product. The product may only be used in accordance with these operating instructions.

The manufacturer cannot be held liable for any personal injury or property damage resulting from such non-compliance. All risk arising from improper use lies with the user.

### 1.3 Layout and meaning of warnings

All safety instructions found in these Operating Instructions are composed in accordance with the following pattern:

	 <b>WARNING</b>
	<p>This signal word identifies medium-risk hazards, which could potentially cause death or serious physical injury, if not avoided.</p>

	 <b>CAUTION</b>
	<p>This signal word identifies hazards that could potentially cause minor or moderate physical injury or damage to property, if not avoided.</p>

#### NOTICE

This signal word identifies hazards that could potentially cause damage to property, if not avoided.

There are some actions that need to be performed in several steps. If there is a risk involved in carrying out any of these steps, a safety warning will appear in the instructions themselves.

Safety instructions always directly precede the step involving risk and can be identified by their bold font type and a signal word.

Example

1. **NOTICE!** This is a notice. It warns that there is a risk involved in the next step.
2. Step involving risk.

### 1.4 Disposal



When it has reached the end of its service life, please dispose of this product as electronic scrap in accordance with all applicable waste management laws.

## 2 Product description

### 2.1 About the DUAL SIM modem

With the DUAL SIM modem, it is possible to use two SIM cards independently of one another. By default, both SIM cards receive data during operation.

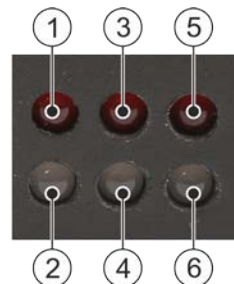
If one of the SIM cards should lose reception, the other one will continue to work. This minimises the risk of a complete loss of reception.



①	Connection for the GPS receiver	⑤	SIM card slot 1
②	Connection for the power supply	⑥	Connection for antenna 1
③	Status LEDs	⑦	SIM card slot 2
④	Connection for the mini USB cable	⑧	Connection for antenna 2

### 2.2 Meaning of the LED lights

The GPS receiver has six LED lights, which display the current status of the GPS receiver.



Light	Status	Meaning
①	Flashing	GPS data is being received.
②	Lit	The modem is supplied with power through the power cable.
	Flashing	The modem is supplied with power through a mini USB

Light	Status	Meaning
		cable.
③	Flashing	SIM card is receiving data.
④	Lit	SIM card 2 has a permanent Internet connection.
	Flashing (2s):	SIM card 2 does not have a permanent Internet connection.
	Flashing (1s):	SIM card 2 is not registered.
⑤	Flashing	SIM card 1 is receiving data.
⑥	Lit	SIM card 1 has a permanent Internet connection.
	Flashing (2s):	SIM card 1 does not have a permanent Internet connection.
	Flashing (1s):	SIM card 1 is not registered.

## 3 Assembly instructions

### 3.1 Installing the modem

#### Procedure



To install the modem in the vehicle:

1. Find a dry area in the vehicle cab. Make sure that the distance between the modem, connection distributor, GPS receiver and antenna is not too big, so that the cable length is sufficient.

2. Firmly attach the modem.

⇒ You can now connect the individual components.

### 3.2 Installing the antennas

	 <b>CAUTION</b>
	<p><b>Crushing hazard from a very strong magnet</b> The base of the antenna is a very strong magnet.</p> <ul style="list-style-type: none"> <li>◦ Never insert your fingers between the base of the antenna and a metal surface.</li> <li>◦ Grip the antenna firmly in your hands, but do not place your fingers on the magnetic base.</li> </ul>

#### NOTICE

The antenna requires an unobstructed view of the sky.

- Mount the antenna on the roof of the vehicle cab.
- Avoid placing the antenna in the shade.

#### Procedure

To install the antennas:

1. Find two suitable locations on the roof of the vehicle: as far away as possible from the installed GPS receiver and from each other.
2. Use alcohol to clean the locations on which you want to install the antennas.
3. Stick the double-sided adhesive pads onto the cleaned surfaces.
4. Clean the provided metal plates.
5. Remove the protective paper from the adhesive pads and stick the metal plates onto them.
6. Place the antennas on the metal plates.

⇒ You have now installed the antennas.



### 3.3 Connecting the components

#### NOTICE

##### Kink damage to the antenna cable

The antenna cable can become damaged if it is bent during installation.

- Do not bend the antenna cable.

#### Procedure

To connect the components:

You have installed a GPS receiver on the roof of your vehicle.

You have installed the modem. [→ 8]

You have installed the antennas. [→ 8]

1. Route the GPS receiver cable from the connection distributor out of the vehicle cab.
2. Connect the cable to the GPS receiver.
3. Connect the connection distributor to the steering job computer or the terminal using the connector cable.
4. Route the antenna cable into the vehicle cab.
5. Connect the antenna cable to the modem.
6. Connect the power cable to the modem.

⇒ You have successfully connected the components.

### 3.4 Inserting the SIM cards

You need the SIM cards to dial into the GSM network. Make sure that your provider offers high connection quality in your area. It may be possible to obtain a better GSM signal with a different provider.

We recommend using SIM cards from two different providers. A different network is then still available if the connection gets lost.

You have to use mini-sized SIM cards.

#### NOTICE

##### Data loss

All data on the SIM card before working with the modem will be deleted.

- Before inserting the SIM card, ensure that it does not contain necessary data.

### NOTICE

#### Data volume too low

The data volume made available by your provider is too low. To find out what happens if your data volume is used up, please contact your provider.

- Ensure that your data tariff provides a data volume of at least 200 MB.

#### Procedure

To insert the SIM card:

- The power supply is switched off.

1. Open the SIM card slot for SIM card 1 by carefully pulling it out.



2. Insert the SIM card. In doing so, make sure that the SIM card is in the right position.



3. Then close the SIM card slot.



4. Repeat this procedure for the second SIM card.

### 3.5

#### Installing the configuration software

#### Procedure

- You have received the zip archive with the configuration software from Müller-Elektronik.

1. Create a folder on your PC for the installation, e.g. "RTKMD".
2. Unzip the zip archive into the folder.

⇒ You can now use the software.

### 3.6

#### Connecting the modem to a PC

#### Procedure

1. Connect the modem to your PC using a mini USB cable. You do not need an external power supply.

⇒ You can start the configuration software.

## 3.7

### Starting the configuration software

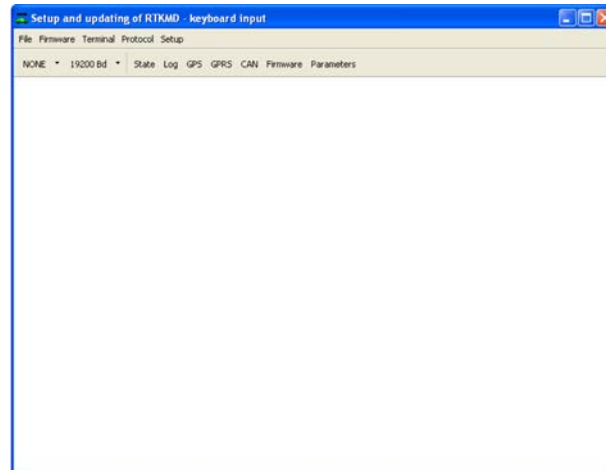
#### Procedure

- You have installed the configuration software. [→ 10]
- You have connected the modem to the PC. [→ 10]
- 1. Execute the "RTMD.exe" file.
- ⇒ You can configure the modem.

## 4 Modem configuration

The configuration software for the modem serves to perform all of the required settings.

After starting the configuration software, the following window appears:



To configure the modem, you must adjust the settings in the "Parameters" window . You must only configure the parameters that are mentioned in this manual. All of the other parameters do not need to be configured.

### Procedure

To configure the modem, proceed as follows:

You have executed the "RTKMD.exe" file.

1. Select the COM port that you used to connect the modem to your PC.
  - ⇒ In the Windows device manager, the port is shown as "USB Serial Port". If the port does not appear, you may need to install the required drivers. The required drivers can be found in the "Drivers" folder of the zip archive that you have unzipped onto your PC.
2. Click on "Parameters".
  - ⇒ The "Parameters" window opens.
3. Click on the "Phone setup" tab.
4. Click on "Read parameters".
  - ⇒ The current configuration of the modem is loaded and displayed.
5. Configure the parameters for "Phone #1" and "Phone #2". [→ 13]
6. Click on the "Data transfers" tab.
7. Configure the parameters in the "Common parameters" area. [→ 14]
8. Click on the "NTRIP setting" tab.
9. Configure the parameters in the "Server NTRIP" area. [→ 14]
10. Click on the "Peripherie" tab.

11. Configure the parameters in the "GPS setting" area. [→ 14]
  - ⇒ You have configured all of the required parameters.
12. Click on "Write parameters".
  - ⇒ The configuration will be sent to the modem.
  - ⇒ The following message appears: "Write parameters also to EEPROM ?"
13. Click on "Yes".
  - ⇒ The configuration will be permanently stored.
14. Close the software.
  - ⇒ The configuration of the modem is complete.
  - ⇒ You can now use the modem.

## 4.1

### "Phone setup" tab

#### Phone #1/#2

Parameter	Description	Entry
SIM card pin	PIN for the SIM card in the modem.	Number. If the SIM card is used without a PIN, do not enter a number.
sending SMS	Selection as to whether text messages should be sent from this SIM card.	"No".
GPRS: APN	Connection to the provider.	Provider URL or IP address, e.g. "web.vodafone.de".
GPRS: user	Name for the Internet access. The name is the same for all users of a provider.	Name that was given by the provider. Some providers do not require entering a name.
GPRS: password	Password for the Internet access. The password is the same for all users of a provider.	Password that was given by the provider. Some providers do not require entering a password.

## 4.2 "Data transfers" tab

### 4.2.1 "Servers settings" tab

#### Common parameters

Parameter	Description	Entry
device identification	Unique modem ID. If there is no ID entered here, please contact Müller-Elektronik.	Number.

### 4.2.2 "NTRIP setting" tab

#### Server NTRIP

Parameter	Description	Entry
mount point	Entry of a correction data source from a correction service.	Name of the correction data source.
user	Name from the correction service to identify the customer account.	Letters and numbers.
password	Password for the identification name.	Letters and numbers.

## 4.3 "Peripherie" tab

#### GPS setting

Parameter	Description	Entry
mode GPS	Status for NMEA messages.	"normal".
baud rate [Bd]	Baud rate for communication with the GPS receivers.	"19200".

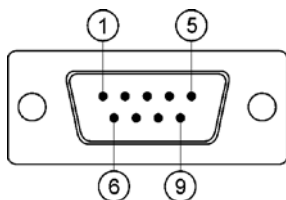
## 5 Technical specifications

### 5.1 Technical data for the DUAL SIM modem

Power supply:	10 - 24 V
Temperature range (operation):	-25 - 55 °C
Temperature range (storage):	-40 - 70 °C
Data transmission at 12 V	250 mA
Data transmission at 24 V	150 mA
Mobile reception at 12 V	45 mA
Mobile reception at 24 V	27 mA

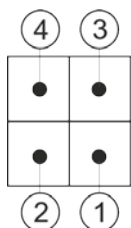
### 5.2 Connector pin assignment

#### 5.2.1 9-pin Sub-D connector



Pin no.	Signal	Pin no.	Signal
1	+12V	6	nc
2	TXD +/-7	7	CTS +/-7
3	RXD +/-7	8	RTS +/-7
4	nc	9	nc
5	GND		

#### 5.2.2 4-pin Molex plug



Pin no.	Signal	Pin no.	Signal
1	GND	3	+12-24V
2		4	

## 6 List of accessories

### DUAL SIM modem – Components

Item number	Item name
3030248926	DUAL SIM modem with connection distributor, with 2 GSM/GPRS antennas and with connector cable
3030248927	DUAL SIM modem
3030248928	Connection distributor with connector cable
31302478	Connector cable
31300583	Dust protection cap for the connector cable



