

VARIOMOD Meter modems

EN Installation guide

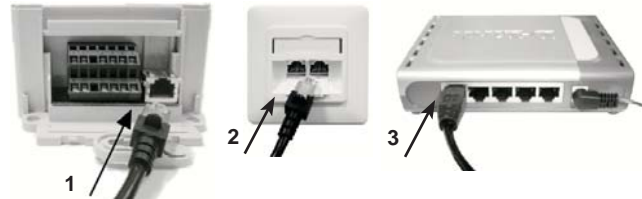
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Edition: 18.11.2013, Product specifications are subject to change without notice! VARIOMOD-BIA-E-2.30

Assembly and installation

Network connection of VARIOMOD^{ethernet}

To connect the module to a network, plug the network cable into the left socket [1]. The plug must snap in. The other side of the network cable is plugged into a network socket [2], into a switch [3] or into a network socket of a computer.

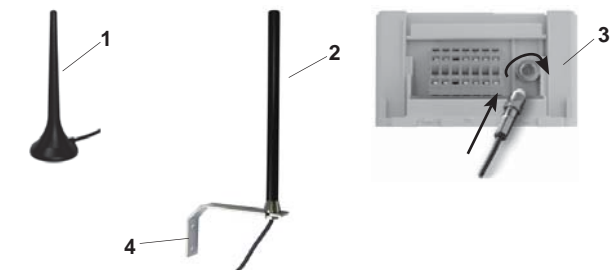


Assembly of the antenna at VARIOMOD^{GPRS}

! DANGER!

Danger of life due to lightning!

- With the assembly of an external antenna, available as an optional accessory, the assembly fixing bracket has to be earthed against lightning by a specialist.



The FME jack of the magnetic base antenna [1] or the optional outdoor antenna [2] is screwed into the FME plug [3] of the module. To guarantee optimal reception, the antenna should be mounted outside meter cabinets, upright on a magnetic surface.

Important notes

Target group

This manual is intended for technicians, who are responsible for assembly, connection and maintenance of the devices. The devices are only allowed to be installed and put into operation by qualified electricians in accordance with the generally accepted rules of engineering and the regulations, which are relevant for the installation of telecommunications facilities and terminal devices.

Intended use

The VARIOMOD devices have to be used only for transferring measurement data in conjunction with approved measuring instruments in accordance with the technical description and after proper installation.

Maintenance and warranty information

The devices are maintenance-free. Damages (e.g. caused during transportation or storage) must not be made repaired. The guarantee will be rendered null and void if the device is opened. The same applies if a defect is caused by external influences (e.g. lightning, water, fire, extreme temperatures and weather conditions, incorrect or negligent use or handling respectively).

Basic safety instructions

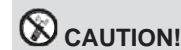
The following safety instructions have to be considered:

- The devices have to be inspected for outward signs of transportation damage prior to installation.
- Check the connection conditions at the site. Especially pay attention to the stress conditions for the modem connection.
- Use only suitable tools for connection.



Contact of parts under voltage is life-endangering!

- Operate the devices always in closed condition.



Radio transmitter can interfere with the functionality of electronic devices! Observe prohibition of mobile communication!

The VARIOMOD^{GPRS} module contains a radio transmitter which can interfere with the functionality of the electronic device. This applies in particular for not correctly isolated medical instruments and equipment.

- Ask the attending physician or the manufacturer of the medical instruments and equipment
- Observe warning signs and do not operate the device in an area where mobile communication is prohibited.

CAUTION!

Damage of the VARIOMOD^{GPRS} caused by high short circuit current!

The modem is designed to operate at a DC power supply with a short circuit current of 288 A.

- Take measures to limit the short circuit current of the DC supply system, if it exceeds 288 A.

General description

The VARIOMOD is a device for transmitting data for remote enquiries and remote monitoring of electricity-, gas-, or water meters. It has three interfaces: RS232, RS485 and CL1 (20 mA current interface).

The following modem versions are available:

- VARIOMOD^{GPRS}
- VARIOMOD^{ethernet}
- VARIOMOD^{analog}

Insert/remove the SIM card at VARIOMOD^{GPRS}

CAUTION!

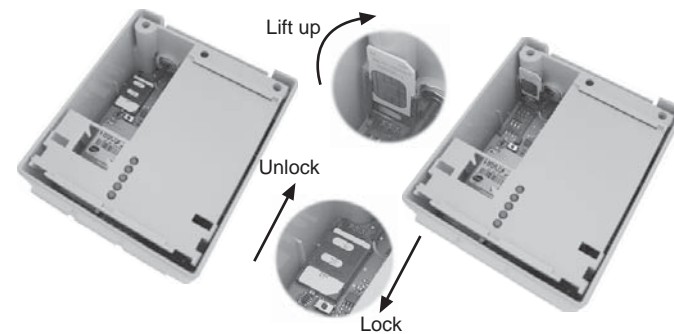
Damage of the SIM card!

- Only insert the SIM card into the VARIOMOD^{GPRS} when the device is disconnected from the power supply.

Before final assembly of the module a SIM card has to be inserted, which has been activated for the data transfer. SIM cards with a deactivated PIN or a PIN „0000“ can be used. If a SIM card with another PIN should be inserted, the module has to be reconfigured via the VARIOMOD Manager. The SIM card is not part of the delivery!

Lock and unlock the SIM card holder

Insert and remove the SIM card



Connecting the VARIOMOD^{analog} to the analogue telephone network

To connect the VARIOMOD^{analog} to the analogue telephone network, plug the telephone cable into the socket next to the terminal block [1]. The plug has to snap in. The other end of the telephone cable has to be plugged into the telephone socket [2] respectively the telephone system.

The telephone line has to be laid in a distance according to DIN EN 50174-2 from the supply lines.



Terminal overview

1	2		4	5	6	7
Alarm	Alarm		CL1+	CL1-	RS232 TxD	RS232 RxD
8	9		11	12	13	14
L+	N-		RS485 B(+)	RS485 A(-)	GND	GND

Terminal number	Terminal designation	Function
1	Alarm	E. g. automatic sending SMS or Email
2	Alarm	E. g. automatic sending SMS or Email
4	CL1+	Positive connection of the CL1 interface
5	CL1-	Negative connection of the CL1 interface
6	RS232 TxD	Transmission line of the RS232 interface
7	RS232 RxD	Receiving line of the RS232 interface
8	L+	AC-L/DC positive pole
9	N-	AC neutral conductor/DC negative pole
11	RS485 B (+)	„Positive“ connection of the RS485 interface
12	RS485 A (-)	„Negative“ connection of the RS485 interface
13	GND	Ground
14	GND	Ground

Scope of delivery

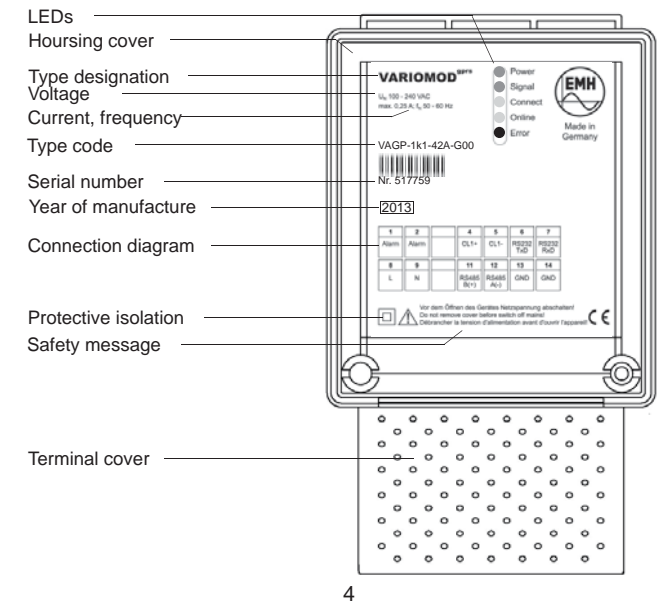
Check the contents of the packaging for completeness before starting to install and commission the device.

Contents of the packaging:

- 1 VARIOMOD modem
- 1 Operation and Installation guide
- Accessories (depending on the type version):
 - GPRS: magnet base antenna with a connection cable (2,5 m), (FME connector)
 - Analogue: TAE cable (3 m); connections TAE plug N-coded and modular plug

If the content is not complete or is damaged, please contact your source of supply. Please retain the packaging materials in case you need to return or store the device.

Housing and display elements



Power supply

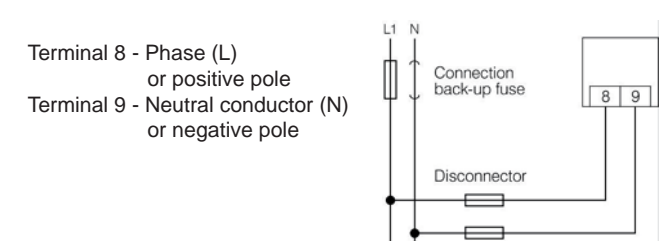


Danger to life due to electrical shock! Risk of fire!

Installation fuses is required in the power supply circuit! The installation must not be performed in energised condition!

- Use an installation fuse according to IEC 60364-4 in the power supply circuit, which is adequate to the wire
- In the installation use an easily accessible, all-pole disconnecting device in the power supply circuit.
- Alternatively, use a 1-pole disconnecting device, if a unique neutral conductor is inserted in the power supply circuit.
- Use an additional short circuit protection with a fuse rating of I > 1500 A, considering the valid technical connection requirements.

The power of 100 V AC...240 V AC at 50...60 Hz or 135 V DC ... 240 V DC is supplied via the following terminals:



Terminal 8 - Phase (L) or positive pole
Terminal 9 - Neutral conductor (N) or negative pole

Alarm input



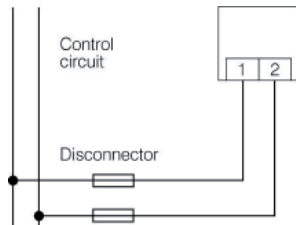
Danger to life due to electrical shock!

Disconnection of the modem from control circuits under voltage!

- Ensure that the circuit of the alarm input (terminal 1 and 2) can be disconnected by an easily accessible, all-pole disconnecting device. The disconnecting device has to meet at least the requirements of IEC 60364-4.

The control of the alarm input with 100 V AC...240 V AC at 50...60 Hz or 135 V DC ... 240 V DC take place via the following terminals:

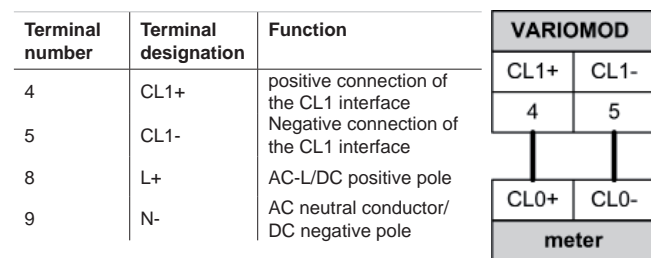
- Terminal 1 - Phase (L) or positive pole
- Terminal 2 - Neutral conductor (N) or negative pole



Commissioning

Connecting the meter to the CL1 interface

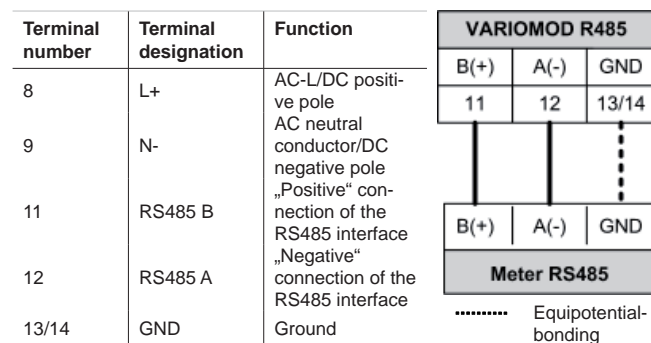
Connect the VARIOMOD and the meter according to the connection diagram.



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Connecting the meter to the RS485 interface

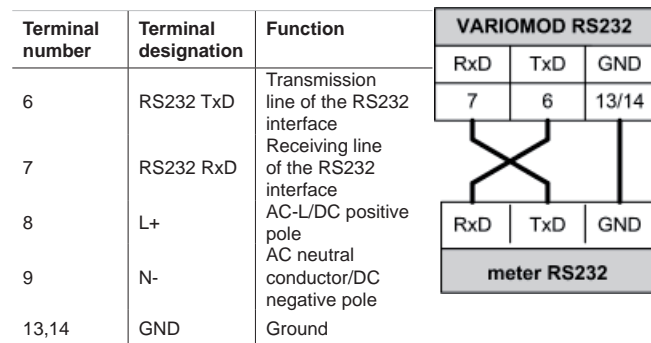
Connect the VARIOMOD to the meter according to the connection diagram.



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Connecting the meter to the RS232 interface

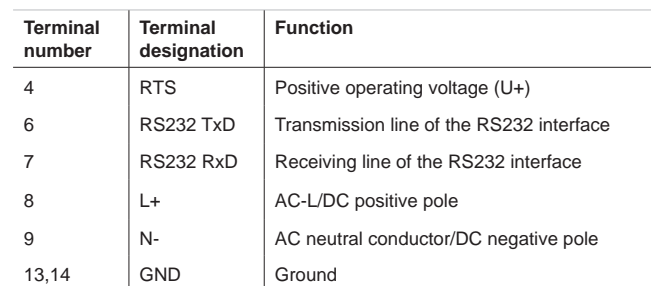
Connect the VARIOMOD and the meter according to the connection diagram.



Connecting an OKK to the RS232 interface

This kind of connection is only possible at the VARIOMOD^{GPRS} in a special version without CL1 interface.

Connect the optical communication adapter (OKK) and the VARIOMOD^{GPRS} according to the connection diagram.



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To switch on the VARIOMOD

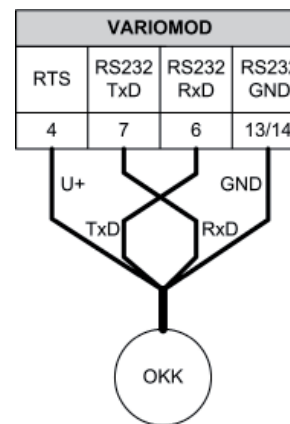
After applying power (Power-LED lights/flashes) or after a reboot (reset), the VARIOMOD performs an initialisation. This process normally takes between 20 and 30 seconds.

If the Error-LED flashes or lights-up, a fault has occurred. In this case, please contact your supplier.

LED functions

LED	VARIOMOD ^{analog}	VARIOMOD ^{GPRS}	VARIOMOD ^{ethernet}
Power (green)	Flashes: Initialisation	Flashes: Initialisation	–
	Lights up: Voltage applied	Lights up: Voltage applied, registered in the GPRS network	Lights up: Voltage applied
	Off: No voltage applied	Lights up: Voltage applied	Lights up: Voltage applied
Signal (green)	Lights up: Connected to the analogue telephone network	Flashes: Indication of the field strength, switching time or number of flashes is the measurement taken for the field strength Lights up: Very good reception	Lights up: Connected to the network
Connect (yellow)	Flashes: Connection buildup Fast flashes: IPT log in in progress Lights up: Connection established/ IPT log in has taken place (in IPT mode)		
Online (yellow)	Flashes: Data transfer; data being sent or received		
Error (red)	Flashes: Error Lights up: Error		

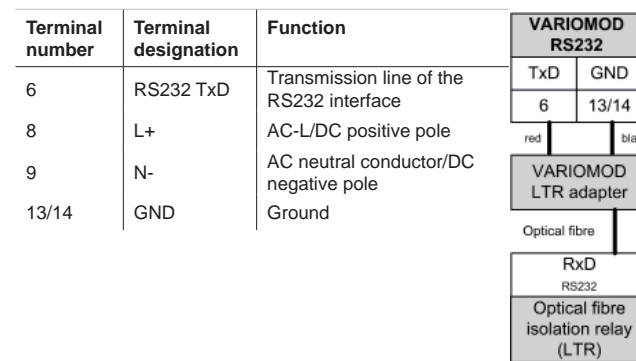
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Connecting an optical fibre isolation relay (LTR) to the RS232 interface

This kind of connection is only possible at the VARIOMOD^{GPRS}.

Connect the optical fibre isolation relay (LTR) and the VARIOMOD^{GPRS} via a VARIOMOD LTR adapter according to the connection diagram.



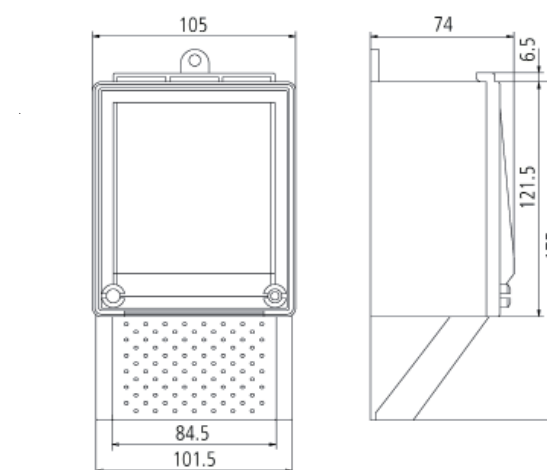
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Technical data

Voltage	100...240 V AC (± 10%) 135...240 V DC (± 10%)
Current	max. 0,25 A
Frequency	50...60 Hz
Temperature range	Specified operating range: -25...+55 °C Limit range for storage and transport: -40...+80 °C
Humidity	max. 95 %, non condensing
Type of protection	Housing: IP 54
Spring terminals	2,5 mm ² single-wire or fine-wire; 1,5 mm ² fine-wired with connector sleeve
Weight	approx. 400 g

The modul meets the requirements of the German meter certification.

Housing dimensions



Dimensions in [mm]

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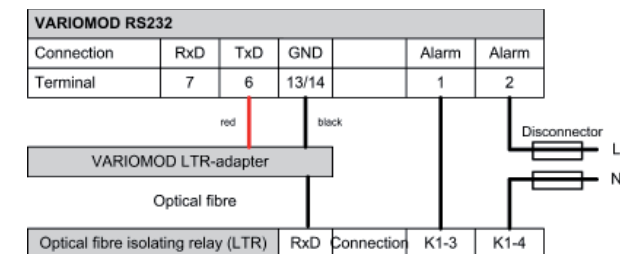
Connecting an optical fibre isolation relay (LTR) to the RS232 interface with switching control via the alarm input

This kind of connection is only possible at the VARIOMOD^{GPRS}.

The connection of the VARIOMOD^{GPRS} at the optical fibre isolation relay (LTR) has to be done at the switching output K1, to ensure the interaction with the EMH control centre.

Example for the connection of the optical fibre isolation relay (LTR) and the VARIOMOD^{GPRS} via a VARIOMOD LTR adapter:

Terminal number	Terminal designation	Function
1	Alarm	E. g. automatic sending SMS or Email
2	Alarm	E. g. automatic sending SMS or Email
6	RS232 TxD	Transmission line of the RS232 interface
8	L+	AC-L/DC positive pole
9	N-	AC neutral conductor/DC negative pole
13/14	GND	Ground



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Abbreviations

DIN	Deutsches Institut für Normung e.V. (German Standards Institute)
EN	European Standard
GPRS	General Packet Radio Service
GSM	Global System for Mobile Communications (worldwide valid standard for mobile communication)
IEC	International Electrotechnical Commission
IP	Ingress Protection
PIN	Personal Identification Number
SIM	Subscriber Identity Module
TAE	Telecommunication access unit

The current EU declaration of conformity can be requested at any time.

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