

# gMUC Installation Instructions

## Safety

### General information:

The gMUC is compliant with the European EN50428:2010-02 standard. The gMUC is to be installed by qualified electricians only, according to the generally recognized technological rules and the regulations for the set-up of information technology equipment and devices.

The gMUC is not designed to be connected to IT systems for the electrical power supply.

Before using this device, please carefully read through these installation instructions.

While in operation, the gMUC must be covered by a panel or an enclosure that offers sufficient protection against contact with dangerous voltages. Only the raised front area with the operating displays, customer interfaces and keypad may be touched directly.

### Disconnection from the power supply circuit:

An easily accessible, all-pole circuit breaker in the power supply circuit is required for the house installation. Alternatively, a single-pole circuit breaker can be used in the outer conductor as long as a distinct neutral conductor has been integrated into the supply line. In Germany, the circuit breaker must at least meet the requirements of the DIN VDE series 0100 standard.

### Installation fuse:

The house installation requires an installation fuse that complies with the DIN VDE series 0100 standard and is properly adapted to the cable cross-section of the power supply line. The additional short-circuit protection must have a selectivity of  $I > 1500A$ .

### Transient overvoltages

The gMUC is a device in the Overvoltage Category II. If the gMUC is likely to be exposed to higher transient overvoltages than those in Overvoltage Category II when connected, it will be necessary to take further safety precautions for the installation.

### Cable routing:

The distance between antenna/data lines and lines carrying dangerous voltages must be at least 10 mm.

### Antenna installation:

When installing an antenna outdoors, it is absolutely necessary that the antenna is installed properly by qualified technicians.

The outdoor antenna must be grounded to protect it against lightning strikes. The outdoor antenna shield must be reliably connected with the protective ground.

The corresponding national installation guidelines must be followed for the installation process. In the USA, this is the National Electric Code NFPA 70, Article 810.

In Germany, this is the VDE 0185 (DIN EN 62305) Parts 1 to 4 series of standards for buildings equipped with lightning protection systems and the VDE 0855 (DIN EN 60728-11) series of standards if there is no lightning protection system installed.

The recommended radiation limits of the German Commission on Radiological Protection ([www.ssk.de](http://www.ssk.de)) from 13/14 September 2001 must be observed.

## Intended use

The gMUC is a transmission device for the remote inquiry and remote monitoring of electricity, heating, gas and

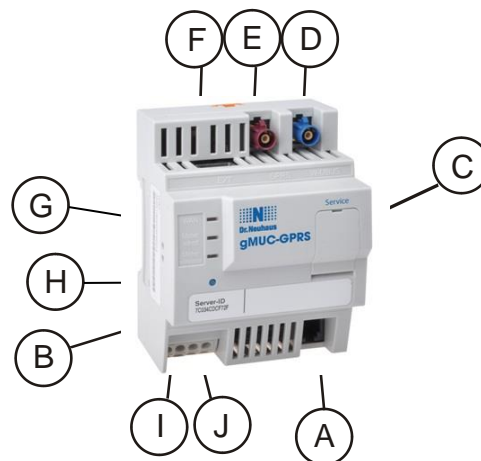
water meters. It uses a GPRS service or a DSL service for data transmission.

## Radio interference

The gMUC is a Class A device. These devices can cause radio interference in residential areas; in this case, the operator may be required to take the measures necessary to eliminate any problems.

## Operating elements

The gMUC enclosure does not have to be opened either for its installation or for its operation. All the operating elements can be accessed from the outside:



Description	
A	RS485 / RS232 meter interface (RJ10)
B	Server ID
C	Service interface (RJ45 behind protective flap)
D	Connection for Wireless Mbus antenna (RF868)
E	Connection for GPRS/GSM antenna
F	WAN interface (RJ45)
G	Operating indicators (WAN, METER)
H	Sensor
I	Power supply connection
J	Gate input/output X3, X4

## Insert SIM card and connect device

First insert the SIM card and connect all the devices to the different gMUC interfaces; do not connect the power supply until this has been done.

### Inserting the SIM card

The SIM card slot is located on the right-hand side.

Insert the SIM card with the contacts facing down and the cut-off corner facing to the front straight into the SIM card slot until the SIM card clicks into place.



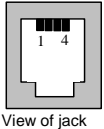
**Caution:** Make sure that the SIM card really locks into place in the SIM card slot when you insert it.

The SIM card PIN number has to be configured in the gMUC.

If you want to remove the SIM card again, press lightly against the top edge of the card. The card will be released and pushed up slightly so that you can pull it out of the card slot.

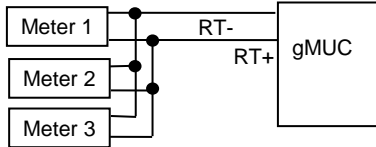
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## RS485 meter interface (RJ10-(4P4C) jack):

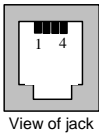


Interface for the connection of an RS485 electronic meter with 1107 protocol acc. to EN 62056-21. The bus connection is terminated to  $Z=100\ \Omega$  (nominal) (RT+ to RT-) and the cable length limited to 1000m. Internal SELV power circuits are not electrically isolated.

Pin	Signal
1	-
2	GND
3	RT-
4	RT+

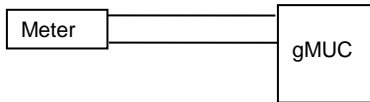


## RS232 meter interface (RJ10-(4P4C) jack):

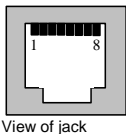


Interface for the connection of an optical button or an infrared interface for communication with a meter (e.g. eHZ). No electrical isolation from the internal SELV power circuits.

Pin	Signal
1	-
2	GND
3	TX
4	RX



## Service interface (RJ45-(8P8C) jack; shielded):



Service interface for the connection of a maintenance PC with 10-Base-T or 100-Base-T Ethernet interface. Auto recognition of the bit rate and the cable type (CAT-5 Crossover or Patch 1-to-1).

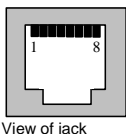
The service interface is covered by a flap. Use a pointed, flat object, e.g. the tip of a knife, to open the flap. If no device is connected, close the flap again.

The service interface has the following IP address: 192.168.168.10

Pin	Sig.	Description	Pin	Sig.	Description
1	TX+	Data from gMUC	3	RX+	Data to gMUC
2	TX-	Data from gMUC	6	RX-	Data to gMUC

No other pins are connected

## WAN interface (RJ45-(8P8C)-jack; shielded):



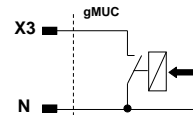
WAN interface for the connection of a DSL connection or DSL router with 10-Base-T or 100-Base-T Ethernet interface. Auto recognition of the bit rate and the cable type (CAT-5 Crossover or Patch 1-to-1).

The extension interface is currently without a function.

Pin	Sig.	Description	Pin	Sig.	Description
1	TX+	Data from gMUC	3	RX+	Data to gMUC
2	TX-	Data from gMUC	6	RX-	Data to gMUC

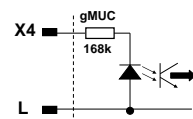
No other pins are connected

## Gate output/gate input (spring terminals)



### Gate output X3:

Relay 230 V / 100mA against N line. **The output is currently without a function.**



### Gate input X4:

Optocoupler 230 V against N line. Input resistance 186 kOhms. **The input is currently without a function.**

## Power supply connection (2 x spring terminal)

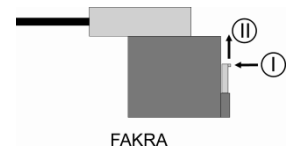


Spring terminals to connect the 230-volt network (-10%/+10%) to the power supply. Lines 0.75mm<sup>2</sup> to 2.5mm<sup>2</sup>, rigid, 10mm without insulation. To remove, press with a screw driver between both insertions poles.

## Connecting and removing antennas

The GSM/GPRS antenna is connected to the FAKRA-D (red) antenna jack. The wireless M-Bus antenna is connected to the FAKRA-C (blue) antenna jack. The antennas are to be installed so that they provide sufficient signal quality. Make sure that there are no larger metal objects (e.g. reinforced concrete) located in the direct vicinity of the antennas because this can have a negative effect on signal quality. Make sure that there is a distance of at least 1 m between the two antennas. Observe the information that comes included with your antenna.

**Note:** To disconnect the antenna from the gMUC, press the release lever (I) on the FAKRA plug. For some FAKRA plugs, it is necessary to pull the lever upwards slightly first (II).



## Light-emitting diodes (LEDs)

The gMUC is equipped with three light-emitting diodes that indicate its operating mode:

Item	Flashing pattern	gMUC
WAN	100% on	WAN connection active
	50% on / 50% off	WAN connection in progress
	10% on / 90% off	WAN connection error
	100% of	WAN connection off
METER (wired)	Flash	Meter packet received (wired)
METER (wireless)	Flash	Meter packet received (wireless)

100% corresponds to approx. 1 second

## Sensor - currently without a function

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