



GC-10 Wireless Control Box



Installation Guide





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GC-10

Regulations for installation and operation of GC-10

The GC-10 complies with all relevant regulations according to a.o. EN/IEC61010-1.

The GC-10 is classified according to; DIN VDE (EN/IEC60664-1) 0110: Insulation co-ordination for equipment within low-voltage systems:

Part 1: Principles, requirements and tests.

- Pollution degree 2.
Only non-conductive pollution occurs except that occasionally a temporary conductivity caused by condensation is to be expected.
- Over voltage category II
is in accordance with the specification in EN/IEC61010-1, table J1.

DIN VDE 0113

Electrical equipment of machines part 1:
General requirements

DIN VDE 0160

Electronic equipment for use in electrical power installations and their assembly into electrical power installations.

EN/IEC61131

Programmable controllers
Part 2: Equipment requirements and tests.

Integrated GSM

The GSM modem is designed, tested and approved according to the following specifications:

Radio: TBR19Ed. 3 (10/1996)
TBR31Ed. 2 (03/1998)
EMC: ETS 300342-1:1997

EC-R& TTE directive marking is
CE0681

Installation and application info

Please note that the user has to ensure that the devices and the components belonging to them are mounted under the attention of such safety regulations and standards as may from time to time be in force. Relevant standards are:

DIN VDE 0100

Erection of power installations with rated voltages below 1000V.

DIN VDE 0 106

Protections against electrical shock part 100: Actuating members positioned close to parts liable to shock.

If the pollution degree 2 (VDE 0110) can not be guaranteed or an ongoing protection against direct contact is required the devices should be mounted into appropriate cubicles.

If the GC-10 is coupled with or fed by power-frequency voltage networks of overvoltage category III, qualified protective provisions have to be taken to guarantee overvoltage category II according to VDE 0110 at the terminal connectors (e.g. surge voltage protectors).

Qualified personnel

The GC-10 modules conduct partly dangerous contact voltages at their connectors. Touching parts which are alive can cause heavy injuries.

Installation, commissioning and maintenance of such systems is therefore only allowed by technical trained personnel. It should have relevant knowledge:

- in dealing with dangerous voltages.
- in the use of specifications and standards.

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The GC-10 module was developed, manufactured, tested and all documentation prepared while observing all relevant standards. When observing the valid regulations for installation, commissioning and maintenance, the product presents no danger to persons and objects under normal conditions.

Brodersen Controls cannot accept any liability for the consequences of misuse or unauthorized repairs.

WARNING CAUTIONS



Earthing of the GC-10

Before connecting any power to the GC-10, make sure that the earth terminal is wired to protective earth. The earthing may be removed only if it is certain that no more power is being supplied to the device.



Connecting of the supply voltage

A terminal block carrying dangerous contact voltages (supply, input/output channels) should only be plugged in or removed when the device is switched off.

- **Protect the device from dampness, dirt and damage during transport, storage and operation.**
- **Do not operate the device other than as specified in the technical data.**
- **Operate device according to the protection degree IP20 (DIN 40050)**
- **Mount into a closed cubicle or rack if the environmental conditions so requires.**
- **Lead signal- and power-lines separately**
Capacitive and inductive interference

of the power lines to signal lines should be prevented by appropriate cabling (distance, crossing).

- **GSM Emission**

The operation of the GC-10 within the vicinity of inadequately protected personal medical devices, such as hearing aids or pacemakers may create a hazard. Consult the manufactures of the medical device to determine if it is adequately protected.

- **GSM Emission**

Operation of your GSM Modem close to other electronic equipment may cause interference if the equipment is inadequately protected. Observe any warning signs and manufacturers recommendations.

- **Installation Personnel**

Ensure that the installation has been performed by a qualified personnel.

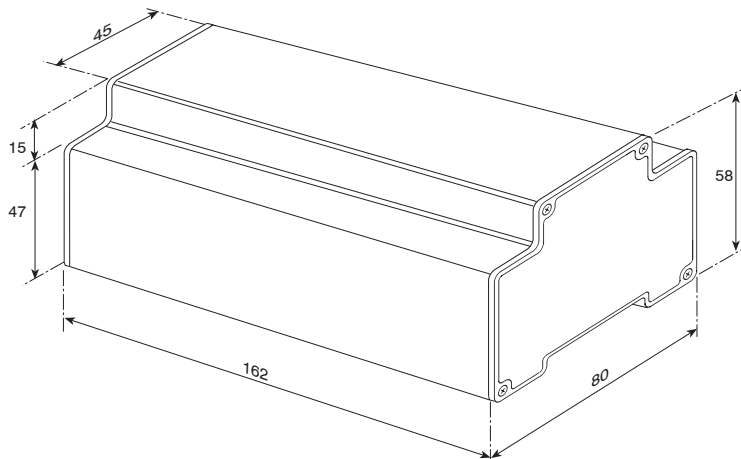
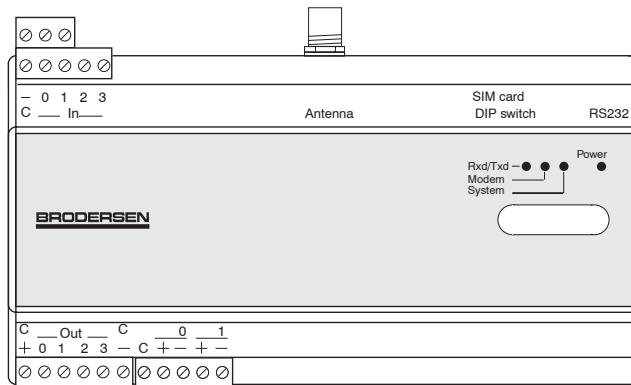
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Layout and dimension drawings



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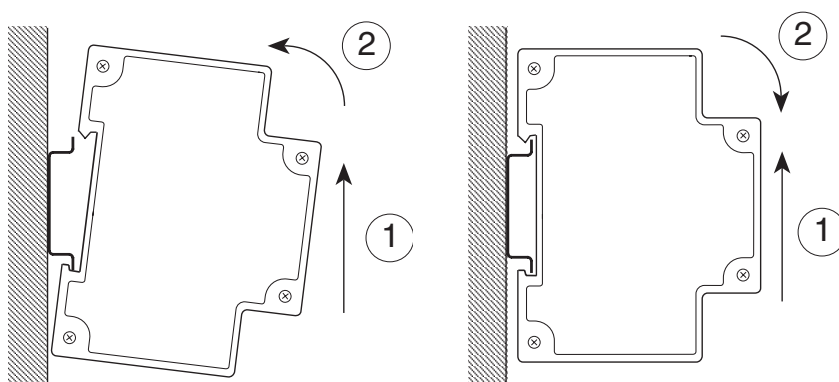
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Mounting instruction

The GC-10 is mounted on a 35mm DIN-rail (enclosed in the package). Mount the DIN rail on a wall or in a suitable panel or box. Note that you must have space for the antenna and wiring.

For mounting and de-mounting the GC-10 on the DIN rail - see the drawings below.



CODE SWITCH/ADDRESS SELECTOR

The code switch of the GC-10 is normally not used and must under normal operation be set as shown below.

The code switch is used for special features like station address, communication baud rate settings and GSM mode setup.





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Wiring Diagram - general

Terminal blocks for I/O and power supply are plug-in connectors with screw terminals. It is recommended to use ferrules on wires. Programming cable are connected via 6-pole RJ11 connector.

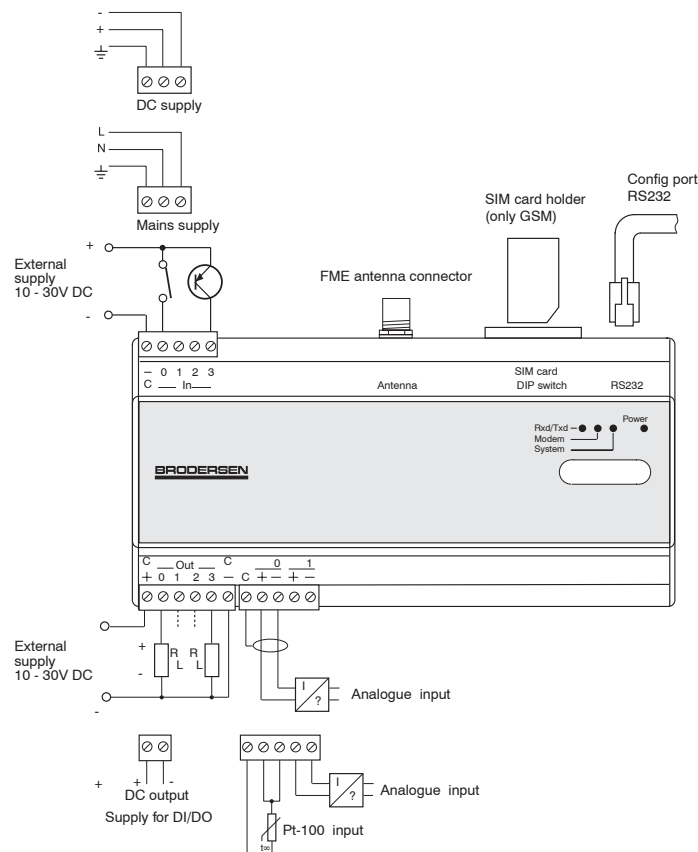
Wire size

Earth and power supply: max. 2,5mm² (earth wiring must be 2,5mm² and kept as short as possible)

Other connectors: Max. 1,5mm² with ferrules.

For specific wiring examples - see at the end of this section.

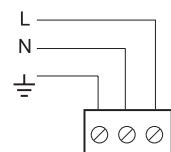
General - Wiring diagram



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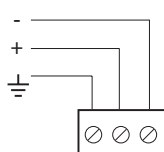
Power Supply

Version 10



Mains supply

Version 50



VDC supply

Earthing: Connect to PE conductor - wire as short as possible.

Version 10:

L: 115-230VAC Mains supply

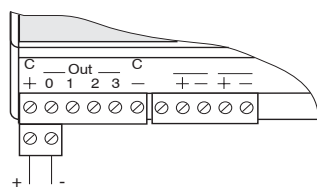
N: 0V Mains supply (neutral).

Version 50:

+: +V DC positive

-: 0V negative

Supply output



Supply for I/O etc.

12V max. 4,8W

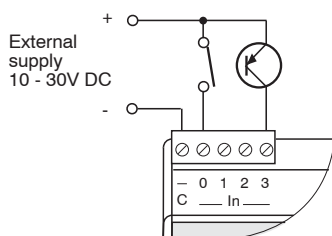


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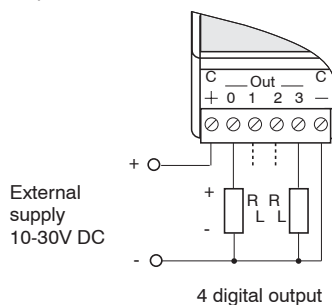
Digital Input

To activate the inputs an external voltage is required, use e.g. the 12V supply from the GC-10. Must be connected via potential free contacts.



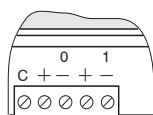
Output Wiring

4 PNP collector outputs - all equipped with opto couples.
Max. 0,5A pr. input and max. 1A in total for 4 outputs.



Analogue Input (voltage or current)

Are configured from the factory according to the last digit in the type no:
D1=0-10V, D2=4-20mA, D6=0-20mA.
The shield must be connected to the common terminal (C). The connector for analogue inputs have gold plated contacts and is special marked.

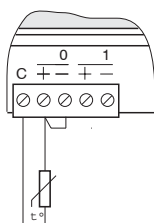


Analogue input

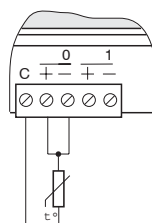
Analogue input (Pt-100 sensor input)

1 Pt-100 sensor input. Are configured from the factory. Standard range -50-100°C. 2 or 3 wire is supported.

2-wire



3-wire



Sensor cable length above 30m is not recommended. If cable length is more than 5m 3-wire sensors is recommended to avoid offset unaccuracy caused by loss in cables.

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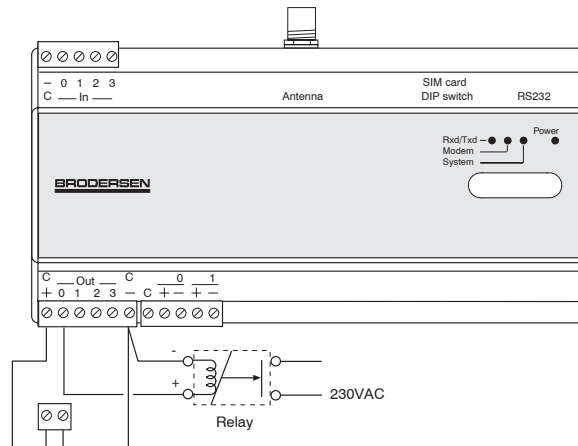


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Switch wired to first digital input:



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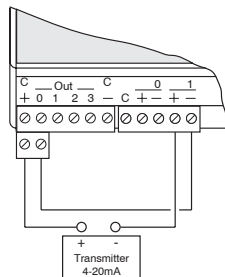


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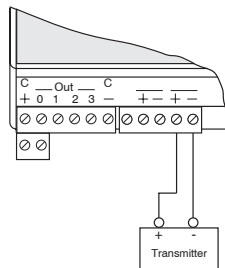
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Analogue input wired to a pressure terminal

Option 1 Loop powered 4-20mA.



Option 2 - Not loop powered transmitter (4-20mA or 0-10V).

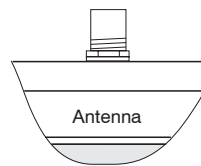


Programmer/RS232 port wiring

Pin no	Signal	Description/Remarks
1	SG	Signal ground
2	RTS	Not used
3	RX	Receive data (in)
4	TX	Transmit data (out)
5	CTS	Not used
6	GND	Not used

GSM antenna and SIM cards

FME antenna connector



Connector for dual band antenna. In case of longer cable is required it is highly recommended to keep the total damping for cable below 10dB.

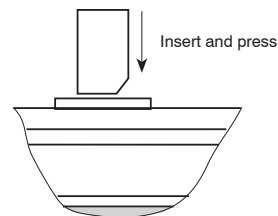
Note: GC-10 must **NOT** be power up without antenna. Powering up without antenna or with wrong antenna (like single band type) may damage the GSM engine.

SIM card

The GC-10 is equipped with an external SIM card holder.

SIM card holder.

Place the SIM card as shown below. Firmly press the card all down. The card will now be fixed in the holder. If you want to release it, press again the SIM card down and lift your finger and a spring will release and lift your SIM card.



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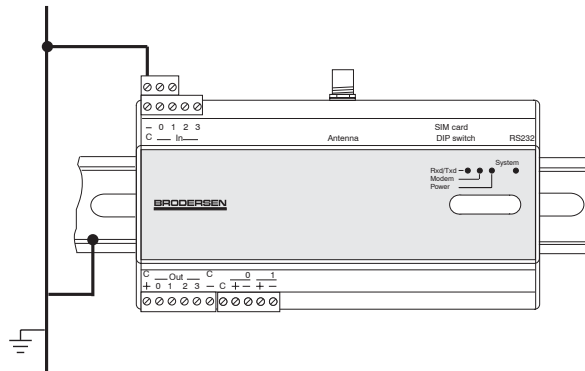


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Application ground wiring

An protective ground back plane is recommended in the panel. The GND terminal on the GC-10 and the DIN rail must be connected direct to the grounded back plane.



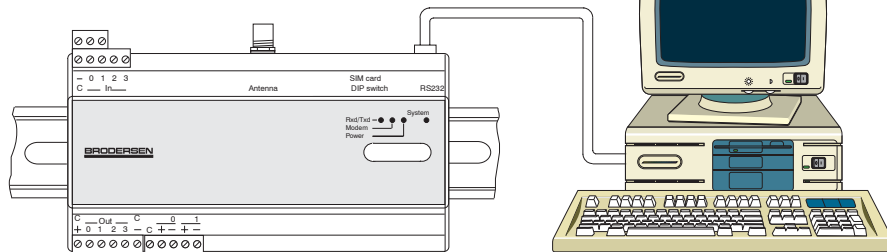


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Configuration of the GC-10

The GC-10 is configured with a PC running the configuration program. Connect a PC with a serial cable to the GC-10 programmer port (cable UCC-301).



Indicators

4 LEDs are placed on the front of the GC-10.

System LED:

On= Application program running OK
Off= Application program error
Flashing = General Error.

Power LED:

On= Power on
Off= Power off

Modem LED (GSM):

On= Searching for network
Flashing slowly= Connected to network and off-line.
Flashing faster= Connected to network and on-line.

Rxd/Txd LED:

Indicate RX/TX communication activity to modem interface.

Document notes:

This installation and connection guide is subject to change without notice.
Technical data sheet and other applicable document are available through your local distributor and on our company homepage: www.brodersencontrols.com

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