

RTU-COM Compact Outstation

Installation and Connection Guide

28.05

RTU-COM

Regulations for the installation and operation of electrical systems

The RTU-COM devices are produced under the attention of the relevant regulations and appointments, especially to IEC 1010-1.

The RTU-COM is classified according to DIN VDE (IEC664-1) 0110: Insulation coordination 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 appointment in IEC 1010-1, table J1.

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.

DIN VDE 0100
Erection of power installations with rated voltages below 1000V.

DIN VDE 0106
Protections against electrical shock part 100: Actuating members positioned close to parts liable to shock.

Modems: GSM

GSM modem are 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

Modems: PSTN

RTU-COM with integrated dial-up modem types V32bis and V34bis is designed, tested and approved according to the directive 98/482/EC of 20 July 1998-CTR21.
EC-R& TTE directive marking is
CE0682X

Installation and application hints**Documentation**

This documentation includes hints for the installation and wiring of the RTU-COM module. Additional information have to be taken from the data sheet and modem AT command manuals.

Qualified personnel

The RTU-COM modules conduct partly dangerous contact voltages at their connectors.

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.

IEC 1131
Programmable controllers
Part 2: Equipment requirements and tests.

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 RTU-COM module devices are 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).

Touching parts which are alive can force heavy injuries of health.

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

- in dealing with dangerous voltages.
- in the use of specifications and standards. In particular VDE- and accident prevention regulations.

Use according to the rules

The RTU-COM module was developed, manufactured, tested and documented while observing the relevant standards. When observing the valid regulations for installation, commissioning and maintenance, the product poses no danger to health and objects in normal case.

Use according to the rules means that the RTU-COM module is operating and maintained exclusively in the form as described in the functional- and module description documents. Especially the technical data for the process-circuits and the supply should be regarded.

Any liability for the consequences of incorrect use or after unauthorized repairs is rejected.

WARNING CAUTIONS



Earth the devices

Before connecting any power to the device, 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.

Regard the earthing principles for the serial peripheral bus (direct or capacitive earthing)



Connecting of the supply voltage

A terminal block feeding dangerous contact voltages (supply, input/output channels) should only be plugged or with drawn in off load state.

- **Protect the device from dampness, dirt and damage during transport, storage and operation.**
- **Do not operate device outside of the specified technical data.**
- **Operate device according to the protection degree IP20 (DIN 40050)**

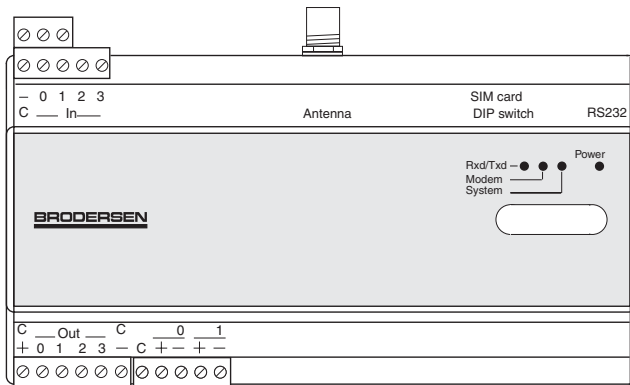
Mount into a closed cubicle or rack if the environmental conditions that requires.

- **Do not obstruct the ventilation for cooling**
Do not cover the ventilation slots by cables or wires.
- **Lead signal - and power- lines separately**
Capacitive and inductive interferences of the power lines to signal lines should be prevented by appropriate cable laying (distance, crossing).
- **GSM Emission**
There may be a hazard associated with the operation of your GSM Modem close to an adequately protected personal medical devices such as hearing aids and pacemakers. 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 also 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.

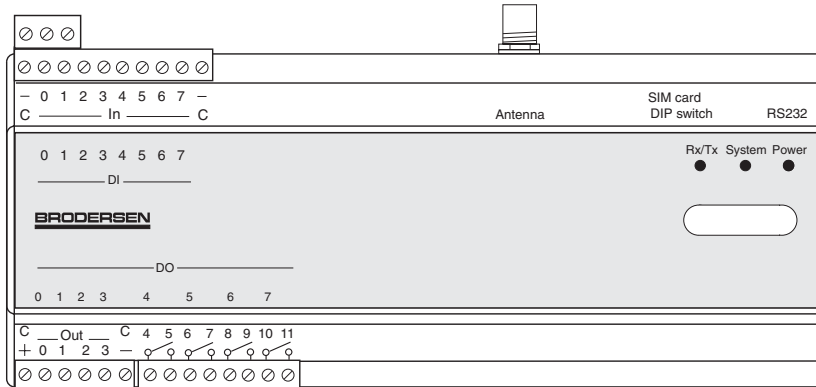
RTU-COM

Layout and dimension drawings

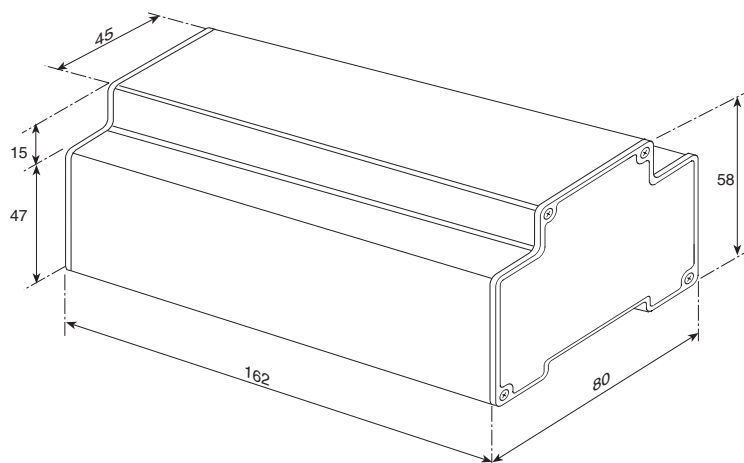
UCR-4XX/10XX



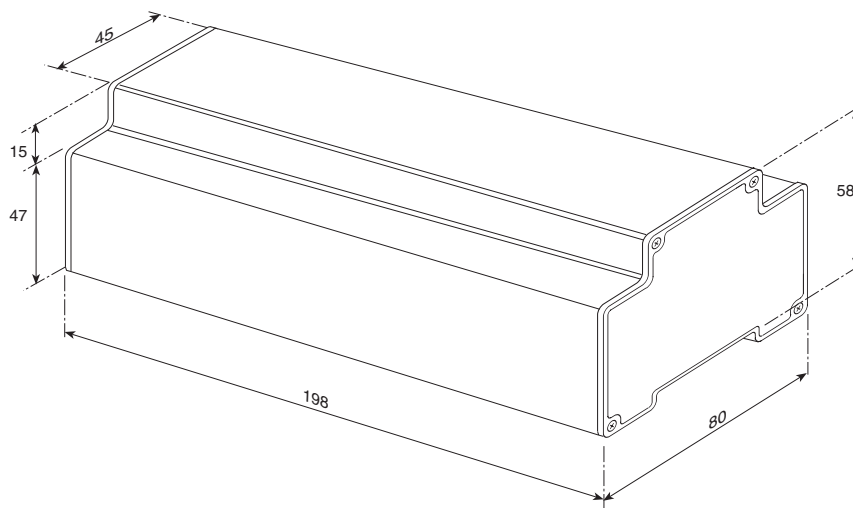
UCR-8DIO



UCR-4XX/10XX



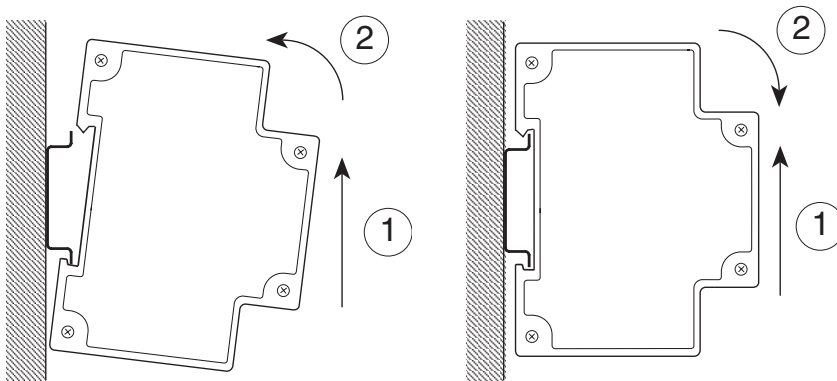
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RTU-COM

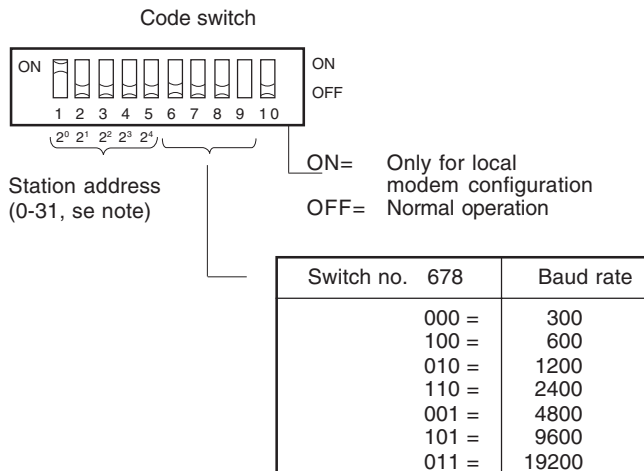
Mounting instruction

The RTU is mounted on a 35mm DIN-rail (EN50022). For mounting and de-mounting-see the drawings below.



CODE SWITCH/ADDRESS SELECTOR

The code switch of the RTU-COM selects the station address, baud rate, etc.



Note:

The station address is defined as the sum of the binary value selected using switch 1-5 and the binary value of the logical address defined in the configuration table (default = 0).

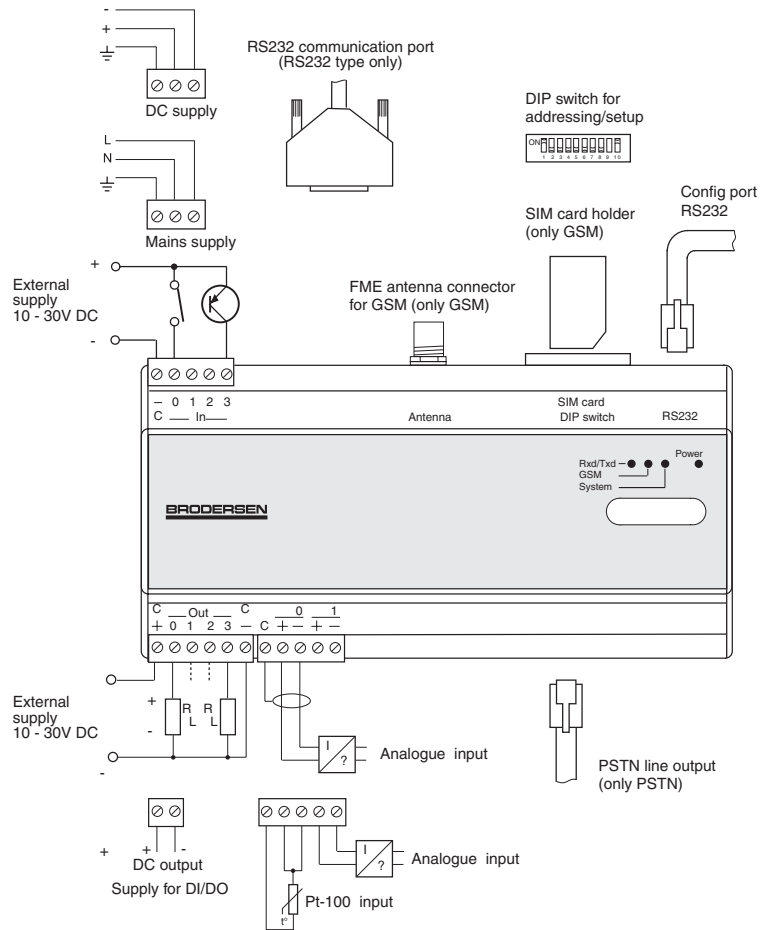
Wiring Diagram - general

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 or direct connected equipment (External Leased Line Modem, Ethernet Modem etc.) and PSTN line are connected via 6-pole RJ11 connector.

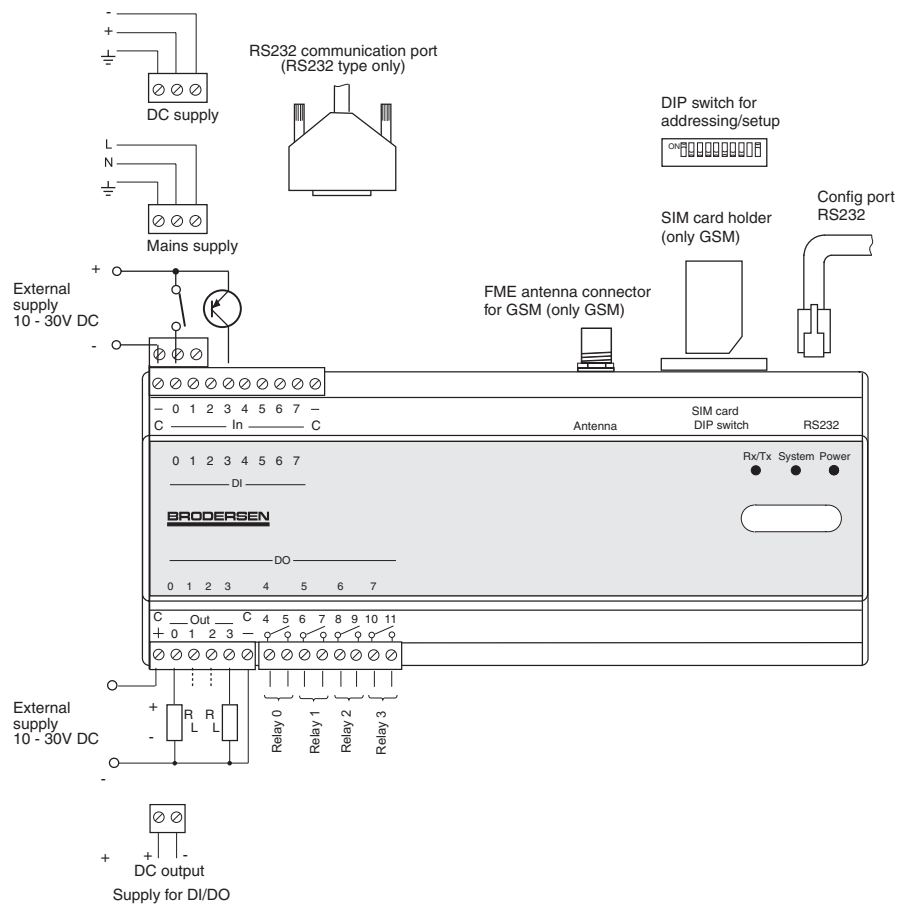
Wire size

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.

**Wiring diagram
UCR-4XX/10XX**

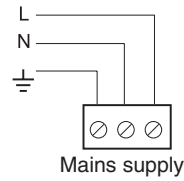


**Wiring Diagram
UCR-8DIO**

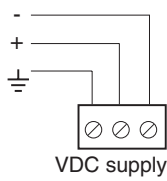


Power Supply

Version 1x



Version 00, 30 and 50



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

Version 1x:

L: 115-230VAC Mains supply
N: 0V Mains supply (neutral).

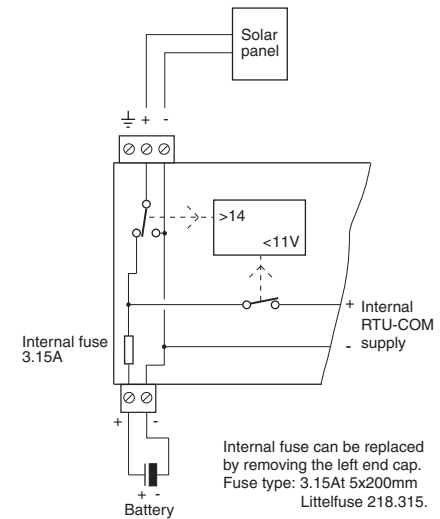
Version 00,30 and 50:

+: +V DC positive
-: 0V negative

Battery/Solar panel

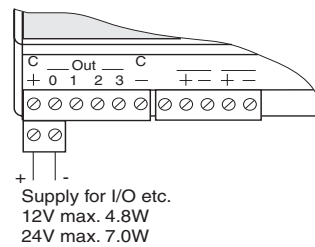
Only type 40.

Please note that the power connector on top of the module is for Solar panel **ONLY**. Battery or bench supply connection to these terminals may damage the module.



Supply output

Version 00, 10, 30 and 50.

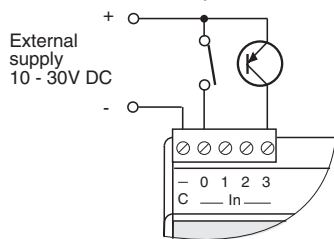


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Digital Input / S0 counter Wiring

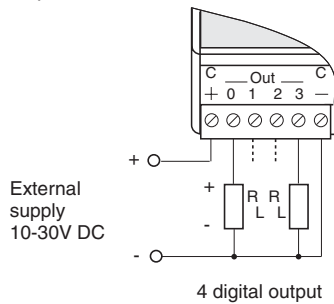
To activate the inputs an external voltage is required, use e.g. the 12V supply from the RTU.

Input 0 and 1 is used for S0 counter inputs. Must be connected via potential free contacts.

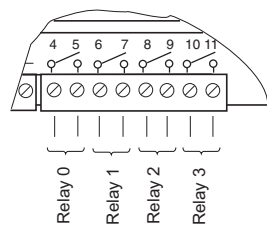


Output Wiring

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



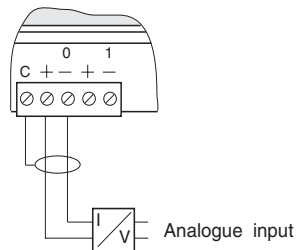
Relay Output



Analogue Input (voltage or current)

2 analogue inputs. Are configured from the factory according to the last digit in the type no: D1=0-10V, D2=4-20mA, D6=0-20mA.

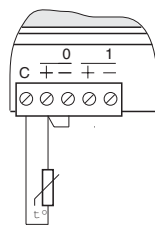
The shield must be connected to the common terminal (C). The connector for analogue inputs have gold plated contacts and is special marked.



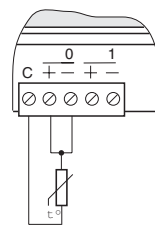
Analogue input (Pt-100 sensor input)

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.

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

PSTN Line Interface Wiring

The telephone line interface is via a 6 pole RJ11 connector

Pin No.	Signal Name	IO Type	Interface
1	-	-	Not used. No connection needed
2	-	-	Not used. No connection needed
3	A	BI	Bi-directional phone line (A=TIP)
4	B	BI	Bi-directional phone line (B=RING)
5	-	-	Not used. No connection needed
6	-	-	Not used. No connection needed

The wiring conform with standard wiring used in voice and data modems.

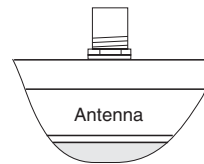
Interface RS232 wiring

RS232 communication port connector (9-pole sub-D)

Pin no	Signal	Description/Remarks
1	DCD	Data carrier detect (in)
2	RX	Receive data (in)
3	TX	Transmit data (out)
4	DTR	Data terminal ready (out)
5	SG	Signal ground
6	DSR	Data set ready (in)
7	RTS	Request to send (out)
8	CTS	Clear to send (in)
9	RI	Ringing indicator (in)

GSM antenna and SIM cards

FME antenna connector for GSM (only GSM)



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.

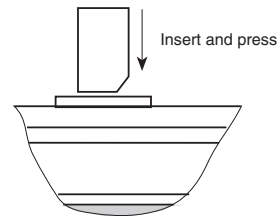
Note: RTU-COM must **NOT** be power up without antenna. Powering up without antenna or with wrong antenna (like single band type) may damage the GSM engine.

SIM card

The RTU-COM is equipped with both external and internal SIM card holder.

External SIM card holder.

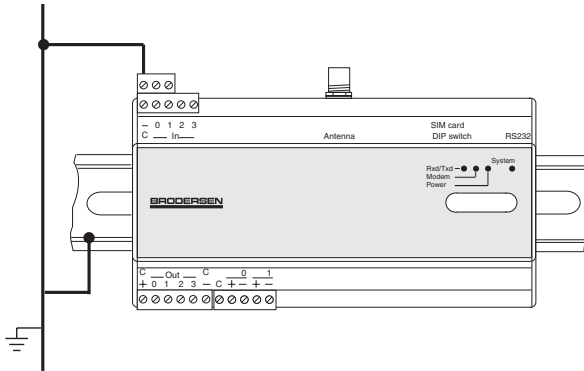
Place the SIM card as shown below. Firmly press the card all down. The card will now be fixed in the holder. If you want to release it, press again the SIM card down and lift your finger and a spring will release and lift your SIM card.



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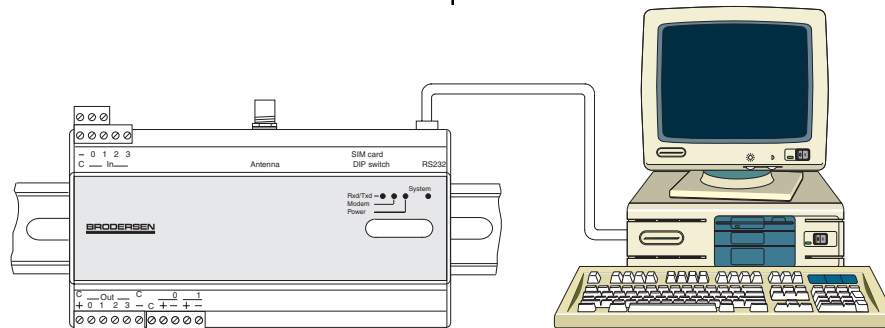
Application ground wiring

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



Configuration of the RTU-COM

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

**Indicators**

4 LEDs are placed on the front of the RTU-COM.

System LED:

On= Application program running OK
Off= Application program stopped
Flashing = Error.

Power LED:

On= Power on
Off= Power off
Flashing= Power save mode.

Modem LED (GSM):

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

Modem LED (PSTN):

Led indicate DCD (data carrier detect)

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

Waste and disposal notice

This Electronic device falls under

DIRECTIVE 2002/96/EC OF THE
EUROPEAN PARLIAMENT AND OF THE
COUNCIL
of 27 January 2003
on waste electrical and electronic
equipment (WEEE)

