

## MoRoS GPRS 1.3



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<b>1</b>	<b>Safety</b> .....	<b>6</b>
<b>2</b>	<b>Scope of Delivery</b> .....	<b>8</b>
<b>3</b>	<b>Usage According to the Regulations</b> .....	<b>9</b>
<b>4</b>	<b>Technical Data</b> .....	<b>10</b>
4.1	Physical Features.....	10
4.2	Technological Features .....	11
<b>5</b>	<b>Display and Control Elements</b> .....	<b>12</b>
5.1	Meaning of the Displays .....	13
5.2	Function of the Control Elements.....	14
<b>6</b>	<b>Connections</b> .....	<b>15</b>
6.1	Front Panel Connections .....	15
6.2	Terminal Connections on the Top.....	16
6.3	Terminal Connections on the Bottom .....	17
6.4	Pin Assignment of the Serial Interface .....	18
<b>7</b>	<b>Function Overview</b> .....	<b>19</b>
<b>8</b>	<b>Meaning of the Symbols and the Formatting in this Manual</b> .....	<b>21</b>
<b>9</b>	<b>Mounting</b> .....	<b>22</b>
<b>10</b>	<b>Initial Operation</b> .....	<b>26</b>
<b>11</b>	<b>Operating Principle</b> .....	<b>28</b>
11.1	Operating the Web Interface.....	28
11.2	Control Elements of the Web Interface of the MoRoS GPRS 1.3 .....	29
11.2.1	Main Menu / Start Page.....	29
11.2.2	Menu Basic Settings .....	30
11.2.3	GSM/GPRS Menu.....	32
11.2.4	Menu DNS .....	32
11.2.5	Menu Dial-in .....	34
11.2.6	Menu Dial-out .....	35
11.2.7	Menu Port forwarding .....	36
11.2.8	Menu Inputs.....	36
11.2.9	Menu Outputs .....	38
11.2.10	Menu System.....	38
<b>12</b>	<b>Functions</b> .....	<b>41</b>
12.1	Basic Settings .....	41
12.1.1	Web Interface (User Name, Password, Remote Configuration) .....	41
12.1.2	Set IP Addresses or Retrieve via DHCP .....	42
12.1.3	Setting up the DHCP Server .....	42
12.1.4	Setting up the Serial Ethernet Gateway.....	44
12.2	DNS .....	44
12.2.1	Setting up DNS Forwarding.....	44
12.2.2	Setting up the Dynamic DNS Update.....	45
12.3	GSM/GPRS .....	46
12.3.1	Enter SIM card PIN.....	46
12.3.2	Set the daily login and logout .....	46
12.3.3	Set Network Mask .....	47

<b>12.4</b>	<b>Dial-in</b> .....	<b>47</b>
12.4.1	Set the Dial-In Server .....	47
12.4.2	Automatic callback .....	48
<b>12.5</b>	<b>Dial-out</b> <b>50</b>	
12.5.1	Set the Dial-Out Server .....	50
12.5.2	Set up Leased Line Operation .....	51
12.5.3	Set up a Periodical Dial-out Connection Setup.....	52
12.5.4	Setting up a Dialing Filter.....	52
<b>12.6</b>	<b>Port Forwarding</b> .....	<b>53</b>
12.6.1	Creating a Port Forwarding Rule .....	53
12.6.2	Defining the Exposed Host .....	54
<b>12.7</b>	<b>Proxy</b> .....	<b>54</b>
12.7.1	Configuring the MoRoS GPRS 1.3 Proxy Server .....	54
12.7.2	Set up an URL Filter .....	55
<b>12.8</b>	<b>Inputs</b> .....	<b>55</b>
12.8.1	Query the State of the Inputs.....	55
12.8.2	Set up a Dial-out Connection via Switch Input.....	56
12.8.3	Trigger SMS Dispatch through Input 1.....	56
<b>12.9</b>	<b>Outputs</b> .....	<b>57</b>
12.9.1	Query the Output States .....	57
12.9.2	Switch Outputs .....	57
<b>12.10</b>	<b>System Configuration</b> .....	<b>57</b>
12.10.1	Display System Messages .....	57
12.10.2	Downloading the Last System Messages.....	58
12.10.3	Setting the Time and the Time Zone.....	58
12.10.4	Synchronizing the Time via the NTP Server.....	58
12.10.5	Reset.....	59
12.10.6	Updating the Firmware of the MoRoS GPRS 1.3 .....	60
12.10.7	Download the Configuration File from the MoRoS GPRS 1.3 .....	62
12.10.8	Uploading the Configuration File to the MoRoS GPRS 1.3 .....	62
<b>13</b>	<b>Waste Disposal</b> .....	<b>64</b>
13.1	Repurchasing of legacy systems.....	64
<b>14</b>	<b>Licenses</b> .....	<b>65</b>
14.1	GNU GENERAL PUBLIC LICENSE .....	65
14.2	GNU LIBRARY GENERAL PUBLIC LICENSE.....	68
14.3	Other Licenses .....	73
<b>15</b>	<b>International Safety Instructions</b> .....	<b>76</b>
15.1	Safety Precautions .....	76
15.2	Compliance with FCC Rules and Regulations .....	77
<b>16</b>	<b>Tables and Diagrams</b> .....	<b>79</b>
16.1	List of Tables.....	79
16.2	List of Diagrams.....	79
<b>17</b>	<b>Glossary</b> .....	<b>81</b>

# 1 Safety

## Danger!



**Moisture und liquids from the environment may seep into the interior of the device.**

**Risk of death through shock hazard when touching it!**

The MoRoS GPRS 1.3 may not be used in wet or damp environments, or in or very close to water. Install the device at a dry location, protected from water spray. Switch the power supply off before you do any work on a device which may have been in contact with moisture.

## Danger!



**Overvoltage.**

**Fire hazard!**

The modem must be secured with a suitable fuse against overvoltage.

## Warning!



**Short circuits and damage due to improper repairs and opening of maintenance areas.**

**Fire, breakdown and risk of injury!**

Only trained personnel are allowed to open the MoRoS GPRS 1.3 and to repair it.

## Note

**Damage of the device due to overvoltage!**

**Voltage peaks from the power supply may damage the device.**

Install suitable overvoltage protection.

## Note

**Damage due to chemicals!**

**Ketones and chlorinated hydrocarbons dissolve the plastic housing and damage the surface of the device.**

Never let the device come into contact with ketones (e.g. acetone) or chlorinated hydrocarbons, such as dichloromethane.



## 2 Scope of Delivery

The scope of delivery for the MoRoS GPRS 1.3 includes all accessories listed below. Please check if all accessories are included in the box. If a part is missing or damaged, please contact your distributor.

- 1 MoRoS GPRS 1.3
- 1 Manual
- 1 Quick Installation Guide

The scope of delivery of the MoRoS GPRS 1.3 does not include optional accessories. The following parts are available from your distributor or from INSYS MICROELECTRONICS:

- GSM antenna for external wall
- GSM antenna with magnetic base
- Patch antenna

### 3 Usage According to the Regulations

The MoRoS GPRS 1.3 may only be used for the purposes specified in the function overview. In addition, it may be used for the following purposes:

- Usage and mounting in an industrial cabinet.
- Switching and data transmission functions in machines according to the machine directive 2006/42/EG.
- Usage as data transmission device for a PLC.

The MoRoS GPRS 1.3 may **not** be used for the following purposes and used or operated under the following conditions:

- Controlling or switching of machines and systems which do not comply with the directive 2006/42/EG.
- Usage, controlling, switching and data transmission in machines or systems which are operated in explosive atmospheres.
- Controlling, switching and data transmission of machines, which may involve risks to life and limb due to their functions or when a breakdown occurs.

## 4 Technical Data

### 4.1 Physical Features

**Danger!**



**Overvoltage.**

**Fire hazard!**

The MoRoS GPRS 1.3 must be secured with a suitable fuse against overvoltage.

All specified data was measured with a nominal input voltage, at full load, and an ambient temperature of 25 °C. The threshold value tolerances are subject to typical fluctuations.

Physical Feature	Value
Operating voltage	10.0.60 V DC voltage
Power input sleep	2.5 W
Power input connection	3.5 W
Level inputs	Level HIGH = 4-12V Level LOW = 0-1 V
Current consumption of an active input against GND (internal 5V)	Typically 0.5 mA
Switch output, maximum switch voltage	30 V (DC) / 42V (AC)
Switch output, maximum current load	1 A (DC) / 0.5 A (AC)
Transmitted output:	
EGSM 850 and 900: Class 4	2 W
GSM 1800 and 1900: Class 1	1 W
Weight	8.82 oz
Dimensions (Width x Depth x Height)	2.17 in x 4.33 in x 2.95 in
Temperature range	0 °C – 55 °C
Maximum allowed humidity	95% non-condensing
Protection class	Housing IP40, Terminals IP20

**Table 1: Physical Features**

## 4.2 Technological Features

Technological Feature	Description
Supported mobile communication standards	GPRS multislots class 12, coding scheme 1 to 4; SMS, CSD,
Quadband GSM/GPRS module - GSM frequencies	850, 900, 1800, 1900 Mhz
Support	PBCCH
SIM card reader	Support for 1.8 V and 3.3 V SIM cards
Mobile Station	Class B

**Table 2: Technological Features**

## 5 Display and Control Elements

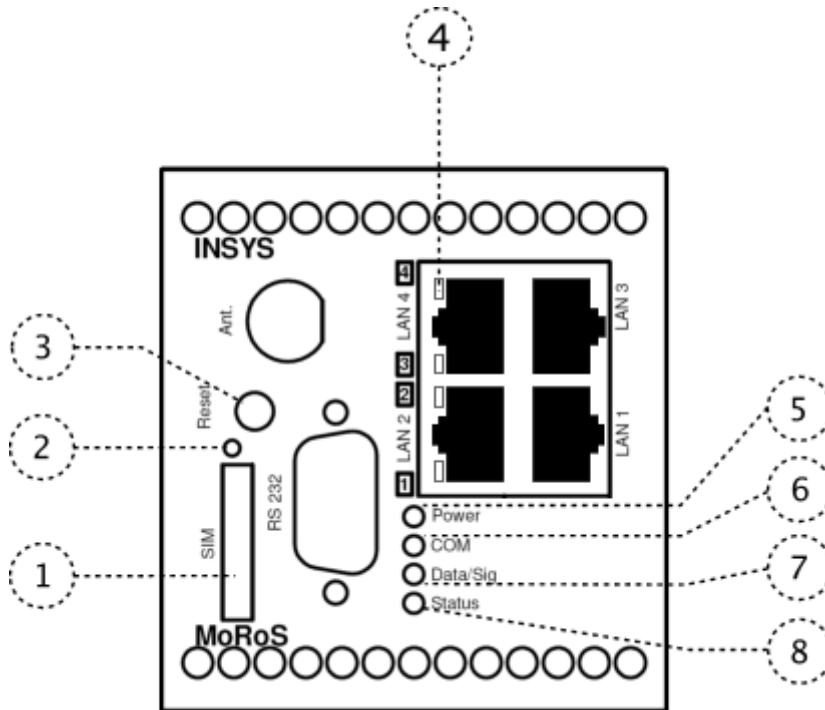


Figure 1: LEDs on the front panel

Position	Description
1	SIM card holder
2	SIM card holder eject button
3	Reset key
4	4 switch port status LEDs
5	Power LED
6	COM LED
7	Data/signal LED
8	Status LED

Table 3: Description of the LEDs on the front panel of the device

## 5.1 Meaning of the Displays

Description	Display	Meaning
Switch port status LED (default setting)	LED yellow LED green LED blinks	Link with 10 Mbit/s Link with 100 Mbit/s Data traffic
Power LED	LED green	Supply voltage available
Data/signal LED	LED off, LED COM off  LED blinks, LED COM off  LED blinks, LED COM orange	No field strength  Signal field strength display (see Table 5) PPP data traffic
COM LED	LED green  LED orange	Connection is being established.  Connection is established (PPP).
Status LED	LED red	Initialization phase or firmware update active, or failure.

Table 4: Meaning of the LED displays

Blinking interval LED signal	Priority	Signal quality
Always on	25 .. 31	Optimum
16.7 Hz	23 .. 24	Very good
7.1 Hz	21 .. 22	
3.8 Hz	19 .. 20	Good
2.6 Hz	17 .. 18	Poor
Off	<17 or 99 (not detectable)	Insufficient

Table 5: Blinking code of the data/signal LED

## 5.2 Function of the Control Elements

Description	Operation	Meaning
Reset key	Press once for a short time.	Resets the MoRoS GPRS 1.3 via software and restarts it. (Soft reset)
Reset key	Press at least 3 seconds.	Resets the hardware of the MoRoS GPRS 1.3 and restarts it. (Hard reset)
Reset key	Press three times for a short time within 2 seconds.	Deletes all settings of the MoRoS GPRS 1.3 and resets the device to the factory defaults.
SIM card holder eject button	Press with a pointed object.	Ejects the SIM card holder.

**Table 6: Description of the functions and meaning of the control elements**

## 6 Connections

### 6.1 Front Panel Connections

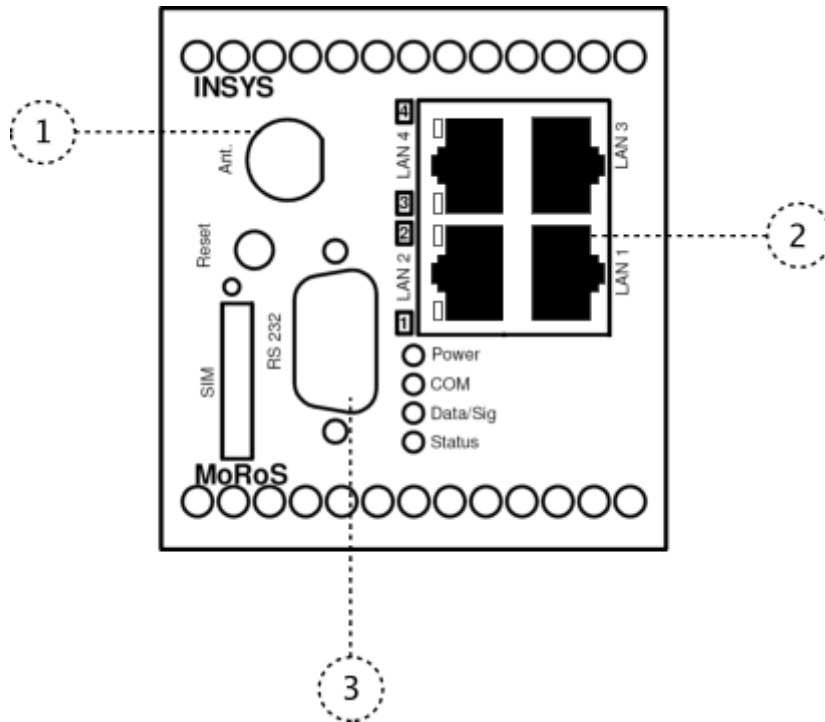
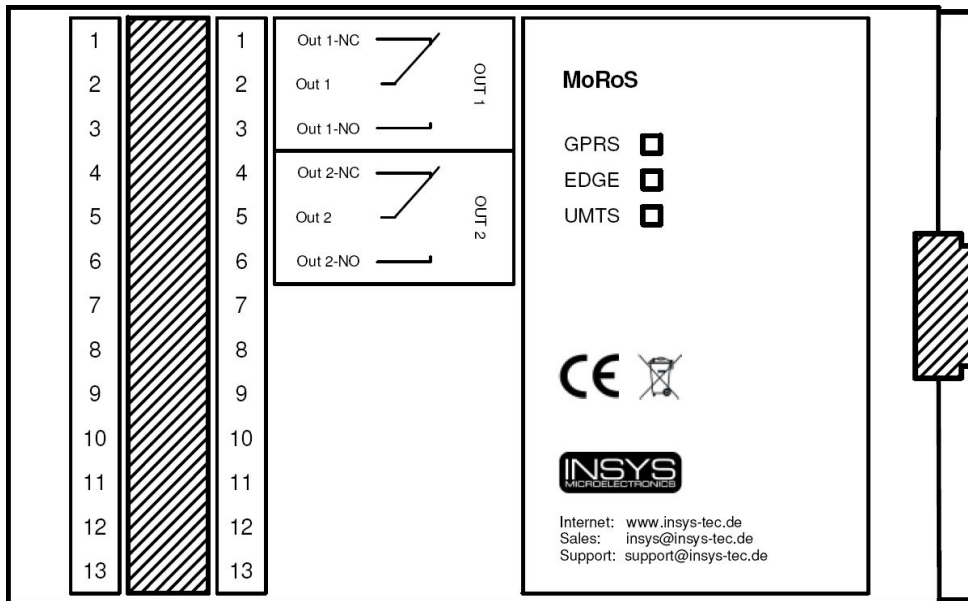


Figure 2: Connections on the front panel of the device

Position	Description
1	GSM antenna connection (FME plug)
2	Switch port for Ethernet connection
3	Serial Interface (RS232 jack)

Table 7: Description of the connections on the front panel of the device

## 6.2 Terminal Connections on the Top



**Figure 3: Connections on the top of the device**

Terminal	Description	Description
1	OUT 1-NC	Output 1 normally closed
2	OUT 1	Output 1
3	OUT 1-NO	Output 1 normally open
4	OUT 2-NC	Output 2 normally closed
6	OUT 2	Output 2
6	OUT 2-NO	Output 2 normally open

**Table 8: Description of the connections on the top of the device**

### 6.3 Terminal Connections on the Bottom

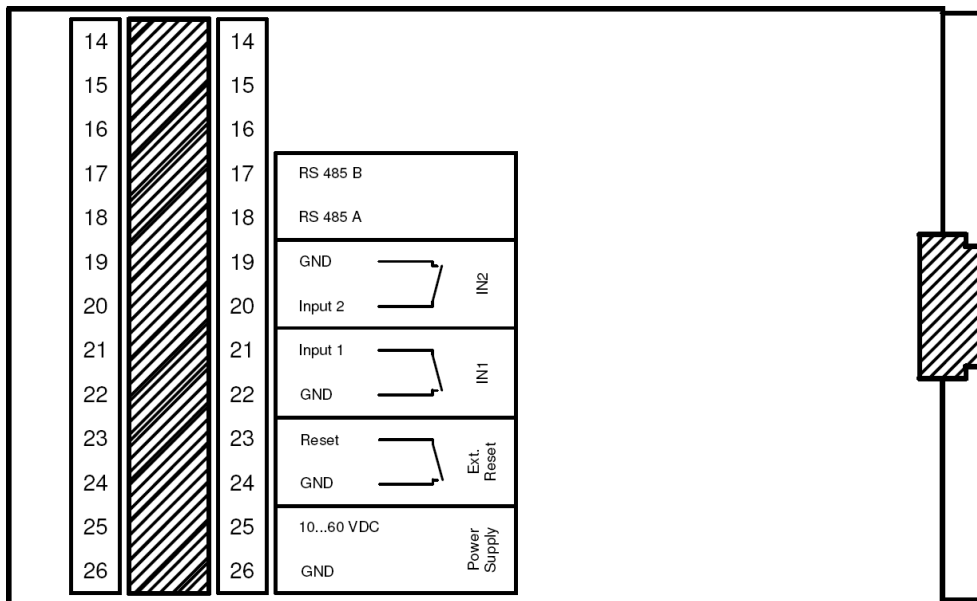


Figure 4: Connections on the bottom of the device

Terminal	Description	Description
17	RS 485B	Reserved for future applications
18	RS 485A	Reserved for future applications
19	GND	Ground
20	Input 2	Input 2
21	Input 1	Input 1
22	GND	Ground
23	Reset	Reset input
24	GND	Ground
25	10 ... 60VDC	Power supply 10V - 60V DC
26	GND	Ground

Table 9: Description of the connections on the bottom of the device

## 6.4 Pin Assignment of the Serial Interface

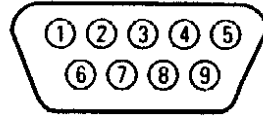


Figure 5: 9-pin Sub-D jack at the device

Pin	Signal	Description
1	DCD	Data Carrier Detect
2	RXD	Receive Data
3	TXD	Transmit Data
4	DTR	Data Terminal Ready
5	GND	Ground
6	DSR	Data set ready
7	RTS	Request to send
8	CTS	Clear To Send
9	RI	Ring Indication

Table 10: Description of the pin allocation of the Sub-D jack

## 7 Function Overview

The MoRoS GPRS 1.3 offers the following functions:

- **Configuration over web interface**

All functions of the MoRoS GPRS 1.3 can be configured and set via a web interface. The access to the web interface is protected with a user name and password query. The TCP port which is used to access the web interface can be set freely.

- **Serial Ethernet gateway**

The MoRoS GPRS 1.3 can output arriving data from a certain network port at the serial interface. Also, data arriving at the serial interface are sent to an IP remote terminal. Together with the INSYS VCOM driver, the Serial Ethernet gateway enables the transparent transmission of a serial connection via a network.

- **NAT and Port forwarding**

The MoRoS GPRS 1.3 is a router, which can also send data packets via NAT and port forwarding. According to defined rules, the MoRoS GPRS 1.3 will send incoming IP packets to definable ports and port areas at IP addresses and ports in the LAN.

- **Dial-in PPP server**

The MoRoS GPRS 1.3 may be used as a PPP dial-in server. Similar to an Internet provider, a caller can establish a PPP connection to the MoRoS GPRS 1.3, to access the network behind it.

- **Establishing a PPP connection via an incoming call (callback)**

The MoRoS GPRS 1.3 identifies calls and will automatically establish a PPP connection to a previously determined remote terminal (e.g. an Internet provider). The caller who triggers the connection setup can identify himself via a PPP authentication method or his phone number.

- **Automatic dialing of a PPP terminal (dial-out)**

The MoRoS GPRS 1.3 will establish a connection to a PPP terminal (e.g. Internet provider), as soon as it registers outgoing network traffic. You can use rules to define which network traffic or network participant may trigger the connection setup.

- **PPP Leased line operation**

The MoRoS GPRS 1.3 can establish and maintain a constant connection via a dial-up line. This makes it possible to communicate with a network via a dial-up connection such as a "leased line".

- **Periodic PPP connection setup**

The MoRoS GPRS 1.3 can establish and terminate a PPP connection time-controlled. Fixed times can be set for the connection setup and termination.

- **SMS dispatch via pulses at the switch input**

A particular SMS to a particular recipient can be triggered via the number of pulses at the alarm input 1.
- **Digital switch outputs and inputs**

The MoRoS GPRS 1.3 has two potential-free switch outputs, which can be used to switch other functions in an application. The MoRoS GPRS 1.3 also has digital inputs, which are used to establish connections or to send messages via SMS.
- **Time synchronization via NTP**

The MoRoS GPRS 1.3 can synchronize its system time via the Network Time Protocol with an NTP server in the Internet. The system time will thus always be current and the internal clock need not be set manually. In addition, the time and the date can be set manually, if no NTP server is available.
- **HTTP and HTTPS proxy with URL filter**

The proxy may be used to limit the access to web addresses for applications in the local network of the MoRoS GPRS 1.3. The MoRoS GPRS 1.3 supports the HTTP and HTTPS protocols.
- **Downloadable log files**

The system messages of the MoRoS GPRS 1.3 can be downloaded as text files via the web interface.
- **Downloadable configuration files**

The configuration of the MoRoS GPRS 1.3 can be downloaded as file. The files can be used as backup copy to configure the MoRoS GPRS 1.3 after a factory reset, or for convenient loading of a similar configuration into different MoRoS GPRS 1.3.
- **Firmware update via web interface**

The firmware of the MoRoS GPRS 1.3 can be updated via the web interface.

## 8 Meaning of the Symbols and the Formatting in this Manual

This section describes the definition, formatting and symbols used in this manual. The various symbols are meant to help you read and find the information relevant to you.

### **Bold print: This will tell you what the following steps will result in**

After that, there will be a detailed explanation why you could perform the following steps to be able to reach the objective indicated first.

- An arrow will indicate prerequisites which must be fulfilled to be able to process the subsequent steps in a meaningful way. You will also learn which software or which equipment you will need.
- 1.** ***One individual action step: This tells you what you need to do at this point. The steps are numbered for better orientation.***
- ✓ A result which you will receive after performing a step will be marked with a check mark. At this point, you can check if the previous steps were successful.
- ⓘ Additional information which you should take under consideration are marked with a circled "i". At this point, we will indicate possible error sources and tell you how to avoid them.
- *Alternative results and steps are marked with an arrow. This will tell you how to reach the same results performing different steps, or what you could do if you didn't reach the expected results at this point.*

## 9 Mounting

This chapter describes how to mount the MoRoS GPRS 1.3 to a DIN rail, connect it to the power supply and disassemble it again.

### Danger!



**Exposed electrical components!**

**Risk of death through electric shock hazard!**

Prior to the installation, switch the power of the cabinet off and secure it against being switched on again.

### Danger!



**Moisture und liquids from the environment may seep into the interior of the MoRoS GPRS 1.3.**

**Risk of death through shock hazard when touching it!**

The MoRoS GPRS 1.3 may not be used in wet or damp environments, or in or very close to water. Install the device at a dry location, protected from water spray. Switch the power supply off before you do any work on a device which may have been in contact with moisture.

### Note

**The device could be destroyed if the wrong power supply is used.**

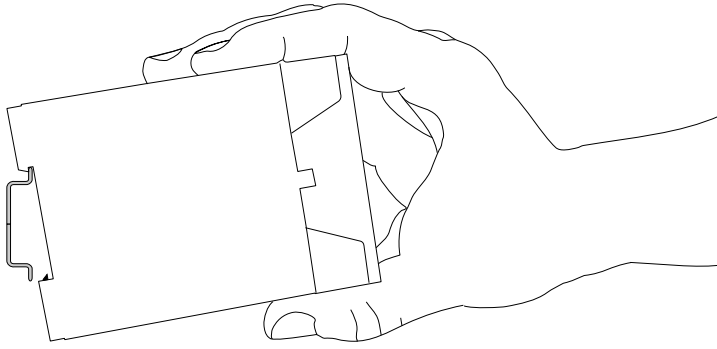
**If the MoRoS GPRS 1.3 is used with a power supply which has a larger voltage than the allowed operational voltage of the MoRoS GPRS 1.3, the device is destroyed.**

Make sure that you use the suitable power supply. The chapter "Technical Data" has the information about the correct voltage range for the MoRoS GPRS 1.3.

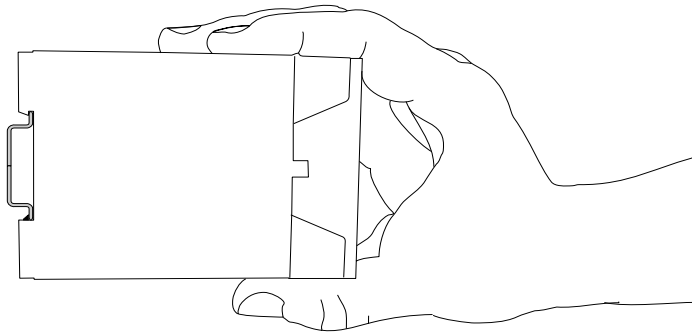
### Mount the device to the DIN rail

Instructions on how to mount the MoRoS GPRS 1.3 to a DIN rail:

- 1. Position the device at the DIN rail as seen in the following diagram. There are two snap-in hooks at the outer edge of the DIN rail groove of the MoRoS GPRS 1.3. Hook them into place behind the upper edge of the DIN rail when connecting the device.**



- 2. Lift the MoRoS GPRS 1.3 perpendicular to the DIN rail until the plastic spring of the third, flexible snap-in hook engages in the DIN rail.**



- ✓ The MoRoS GPRS 1.3 is now completely mounted.

### Connecting the power supply

- The device has already been mounted to the DIN rail.
- The power supply is connected and switched off.

- 1. Connect the ground lead of the power supply to the terminal "GND".**
- 2. Connect the plus pole of the power supply to the terminal for the power supply.**

### Disassemble the device from the DIN rail

Instructions on how to disassemble the MoRoS GPRS 1.3 from a DIN rail in a cabinet:

- You will need a Philips screwdriver with a 4.5 mm blade.
- The power supply of the cabinet is switched off and secured against being switched off accidentally.
- All cables at the MoRoS GPRS 1.3 are disconnected.

### Danger

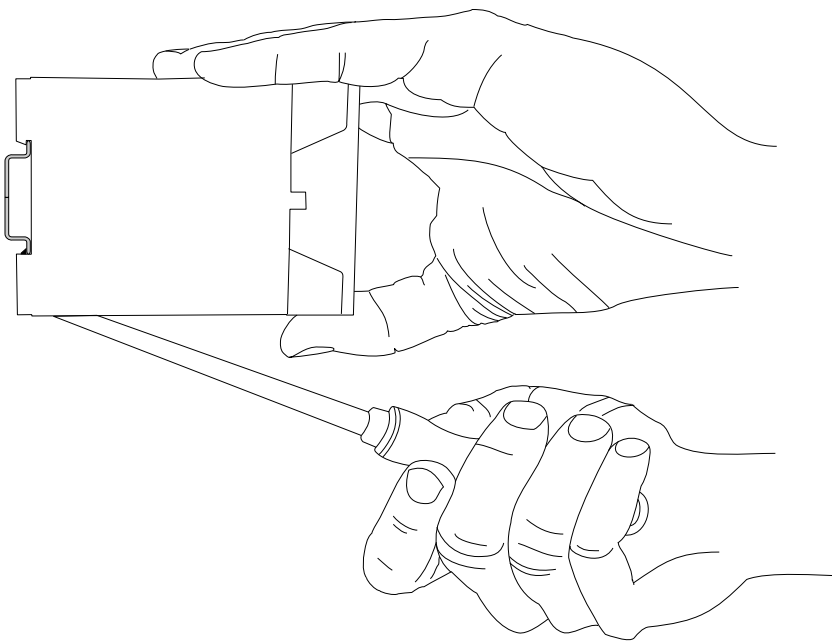


**Exposed electrical components!**

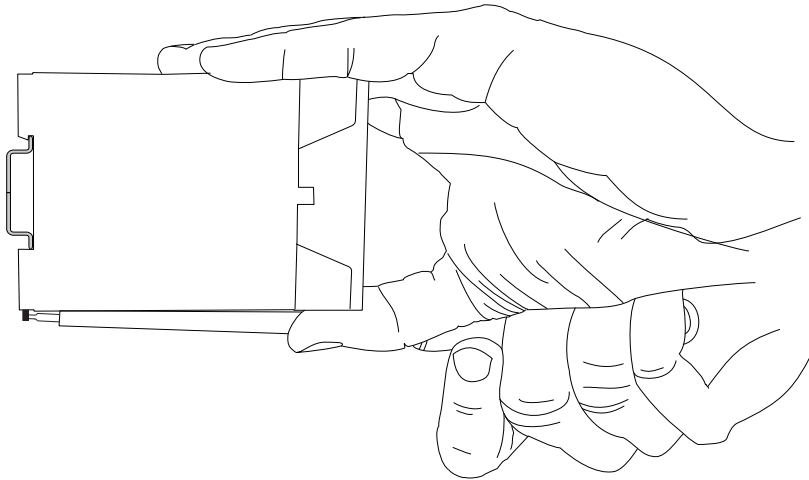
**Risk of death through electric shock hazard!**

Prior to the disassembly, switch the power off and secure it against being switched on again.

1. ***Insert the Philips screwdriver into the flexible snap-in hook of the MoRoS GPRS 1.3 as shown in the diagram.***



2. ***Turn the Philips screwdriver into the direction of the MoRoS GPRS 1.3 as shown in the diagram.***



- ✓ The plastic spring of the snap-in hook is pulled apart.
- 3. ***While you hold the plastic spring of the snap-in hook stretched apart, pull the MoRoS GPRS 1.3 away from the DIN rail.***
- 4. ***De-hook the MoRoS GPRS 1.3 and take it off, perpendicularly to the DIN rail.***

## 10 Initial Operation

This chapter describes how to activate the MoRoS GPRS 1.3, i.e. how to connect the MoRoS GPRS 1.3 to a PC, and how to prepare it for the configuration.

### Connect the MoRoS GPRS 1.3 to a GSM antenna and a PC

How to connect the MoRoS GPRS 1.3 to a PC via a network cable interface.

- The power supply of the MoRoS GPRS 1.3 is switched off.
  - You will need Cat. 5 network patch cables.
  - You will need a network card at the PC.
  - You will need a suitable GSM antenna (available from IN-SYS MICROELECTRONICS).
1. ***Locate the RJ45 jack of the network card at the PC.***
  2. ***Make sure not to use the ISDN jack, but the jack of the network card, which you want to use to configure the MoRoS GPRS 1.3.***
  3. ***Plug one end of the network cable into the RJ45 jack of the PC network card, and the other end into a network jack at the MoRoS GPRS 1.3 switch.***
  4. ***Connect the GSM antenna to the antenna jack of the MoRoS GPRS 1.3.***

### Insert the SIM card into the MoRoS GPRS 1.3.

How to insert the SIM card into the MoRoS GPRS 1.3.

- The power supply of the MoRoS GPRS 1.3 is switched off.
  - You will need a working SIM card of your mobile provider.
  - You will also need the according PIN.
  - You will need a pointed object to operate the eject button of the SIM card holder, e.g. a screwdriver with a 1.5 mm blade.
1. ***Press the eject button of the SIM card holder with the pointed object.***
- ✓ The SIM card holder will slide a little bit further out of the housing.
2. ***Remove the SIM card holder.***
  3. ***Insert your SIM card into the card holder.***
- ⓘ The SIM card will only fit into the SIM card holder in one position. Make sure that the SIM card does not extend over the card holder.
4. ***Insert the SIM card holder together with the SIM card into the MoRoS GPRS 1.3. The contacts of the SIM card must face the left housing wall.***

5. ***Using one finger, carefully push the SIM card holder with the inserted SIM card into the housing, until the card holder snaps into place.***
6. ***Switch the power supply of the MoRoS GPRS 1.3 back on.***

### **MoRoS GPRS 1.3 configuration**

- The MoRoS GPRS 1.3 is connected to the PC.
- The power supply of the MoRoS GPRS 1.3 is switched on.
- You have the required access rights to change the IP address of the network card to which the MoRoS GPRS 1.3 is connected.

#### **1. *Change the IP address of the network card to which the MoRoS GPRS 1.3 is connected to an address which starts with 192.168.1.***

- *As an alternative, you may also configure your network card to "Automatic address allocation". The integrated DHCP server of the MoRoS GPRS 1.3 will then allocate an address from the according address range to your network card.*

- ⓘ Do not use the address 192.168.1.1. This is the IP address of the MoRoS GPRS 1.3, set as factory default. For example, use 192.168.1.2 as IP address for the network card in your PC.

#### **2. *Open an Internet browser and point it to the URL "http://192.168.1.1".***

- ✓ The web browser will load the start page of the MoRoS GPRS 1.3.
- *If you see the message in your browser window that the page with this address cannot be found, follow the following steps: Check if your MoRoS GPRS 1.3 receives power. If yes, most probably the wrong IP address is set in the MoRoS GPRS 1.3. In this case, reset your device to the factory defaults by pressing the reset key three times for a short time and repeat step 2.*

- ✓ A dialogue will prompt you to enter a user name and password for authentication.

#### **3. *Enter the user name "insys" and the password "moros".***

- ⓘ User name and password are set as factory defaults. If the registration at the web interface does not work with the data entered, just reset your MoRoS GPRS 1.3 to the factory defaults: Press the reset key at the MoRoS GPRS 1.3 three times within one second and repeat this instruction from step 2.

- ✓ You should now see the start page of the web interface.

- ✓ The MoRoS GPRS 1.3 is successfully installed and ready for configuration.

## 11 Operating Principle

This chapter describes the basis procedures to operate and configure a MoRoS GPRS 1.3. It will also give you an overview of the control elements of the web configuration. To help you find the necessary control elements for your configuration tasks, later chapters will refer to the figures of the interface in this chapter.

The MoRoS GPRS 1.3 is configured and operated with the help of a web-based interface. The interface itself is displayed and operated using a web browser such as Mozilla Firefox or Microsoft Internet Explorer.

### 11.1 Operating the Web Interface

The web interface allows easy configuration of the MoRoS GPRS 1.3 with the help of a web browser. All functions of the MoRoS GPRS 1.3 can be configured via the interface. The operation is mostly self-explanatory. The interface also provides an online help feature, which describes the meaning of possible settings of the MoRoS GPRS 1.3.


#### Configuration and settings of the MoRoS GPRS 1.3 with the web interface.

How to configure the MoRoS GPRS 1.3 with the web interface.

- The MoRoS GPRS 1.3 is connected to a network and switched on.
- A PC, which is physically connected to the same network as the MoRoS GPRS 1.3.
- The PC is configured in a way that it is also logically connected to the MoRoS GPRS 1.3 in the same network. The first three digits of the IP address of the PC and the MoRoS GPRS 1.3 must be identical. For example, the MoRoS GPRS 1.3 has the IP address 192.168.1.1. and the PC has the IP address 192.168.1.2.
- A new generation web browser such as Mozilla Firefox or Microsoft Internet Explorer is installed on the PC.


#### 1. **Start the web browser.**

#### 2. **Enter the IP address of the MoRoS GPRS 1.3 in the address line.**

 The factory default IP address of the MoRoS GPRS 1.3 is **192.168.1.1**.

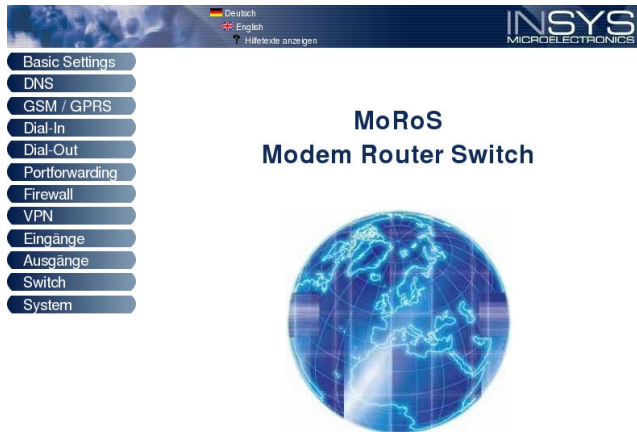
✓ A dialogue will prompt you to enter the user name and the password for authentication.

#### 3. **Enter the user name and the password and click OK.**

 The default factory setting of the web interface for the **User name** is "insys; the **Password** is "moros".



The start page of the web interface is displayed.



4. ***Use the menu on the left side to select the area, in which you want to change settings.***
  5. ***Enter the required settings.***
  6. ***Click on the button  (e.g. page 30, Figure 7, position 1) on the according configuration page to save the settings.***
- i** After you completed the configuration changes, always click the button . Otherwise the settings will be lost as soon as you switch to another page or close the browser.

## 11.2 Control Elements of the Web Interface of the MoRoS GPRS 1.3

In the following, the individual pages of the web interface are displayed. These illustrations should help you find the different settings in the interface.

### 11.2.1 Main Menu / Start Page

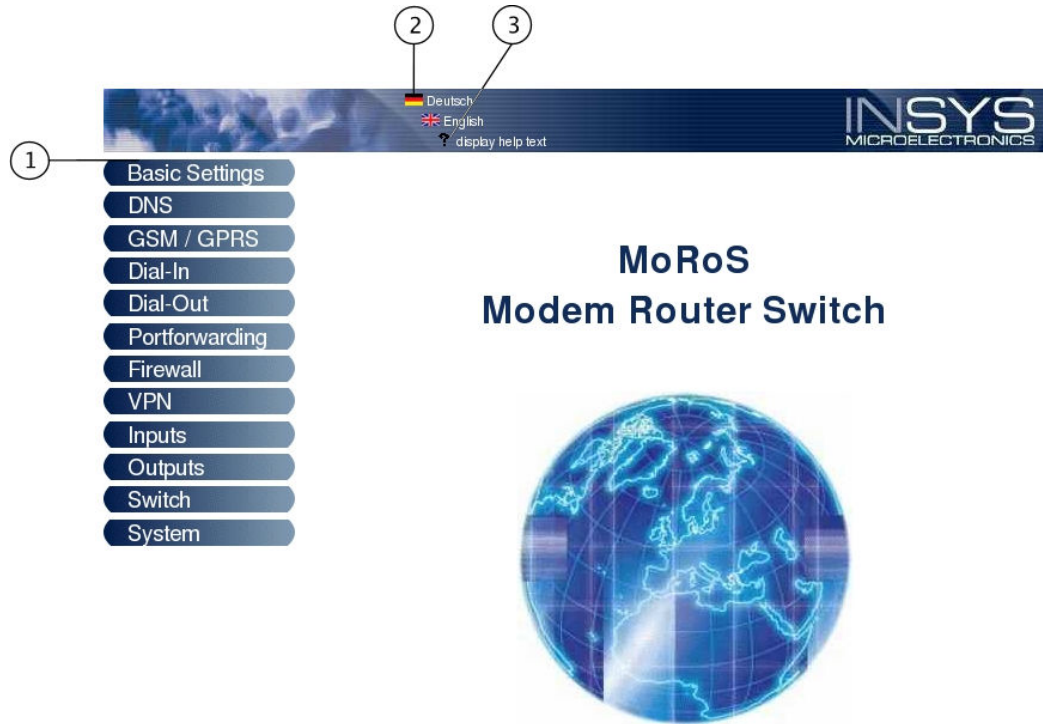


Figure 6: Web interface MoRoS GPRS 1.3

### 11.2.2 Menu Basic Settings

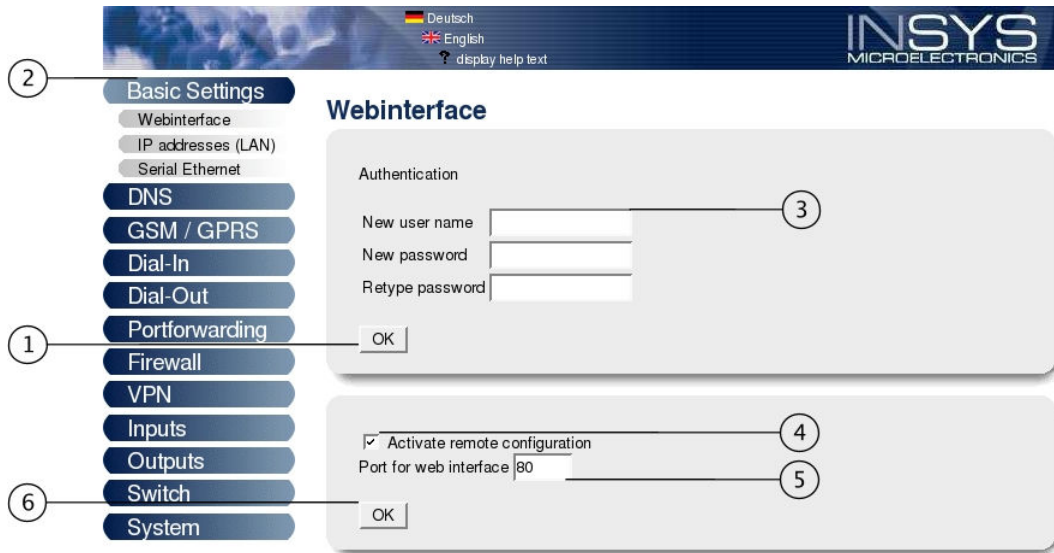


Figure 7: Web interface MoRoS GPRS 1.3 - Menu "Basic settings", Page "Web interface"

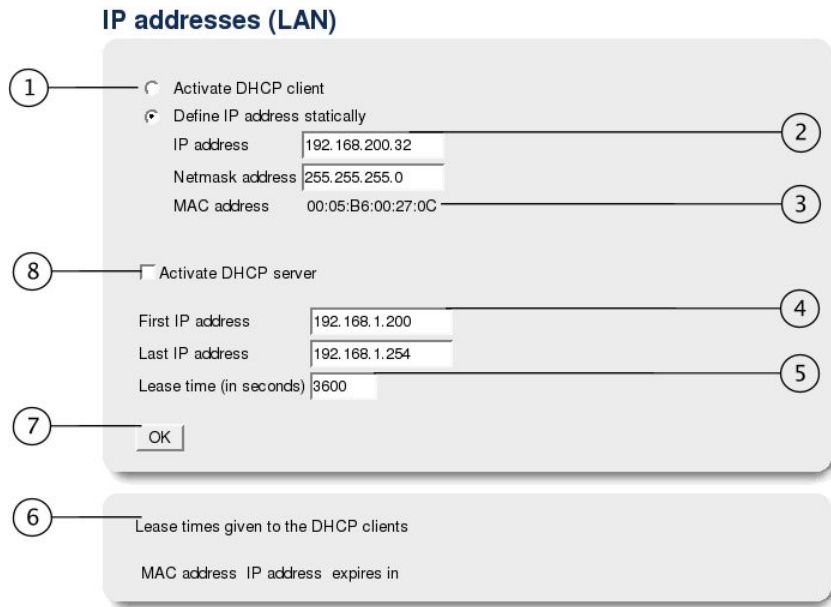


Figure 8: Web interface MoRoS GPRS 1.3 - Menu "Basic settings", Page "IP addresses (LAN)"

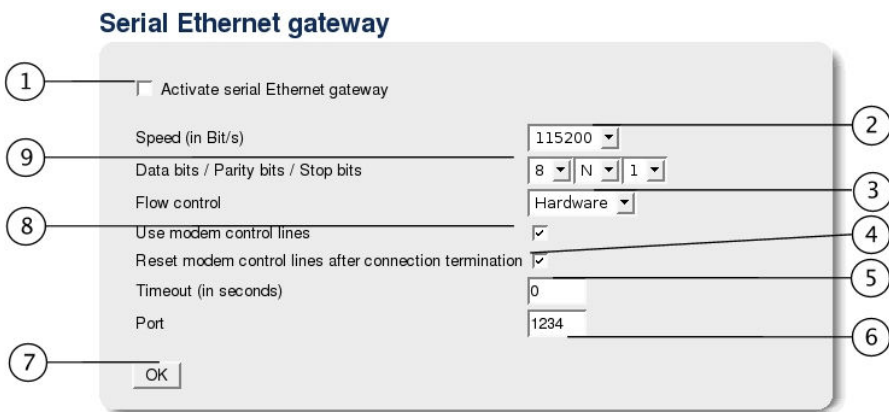


Figure 9: Web interface MoRoS GPRS 1.3 - Menu "Basic settings", Page "Serial Ethernet gateway"

### 11.2.3 GSM/GPRS Menu

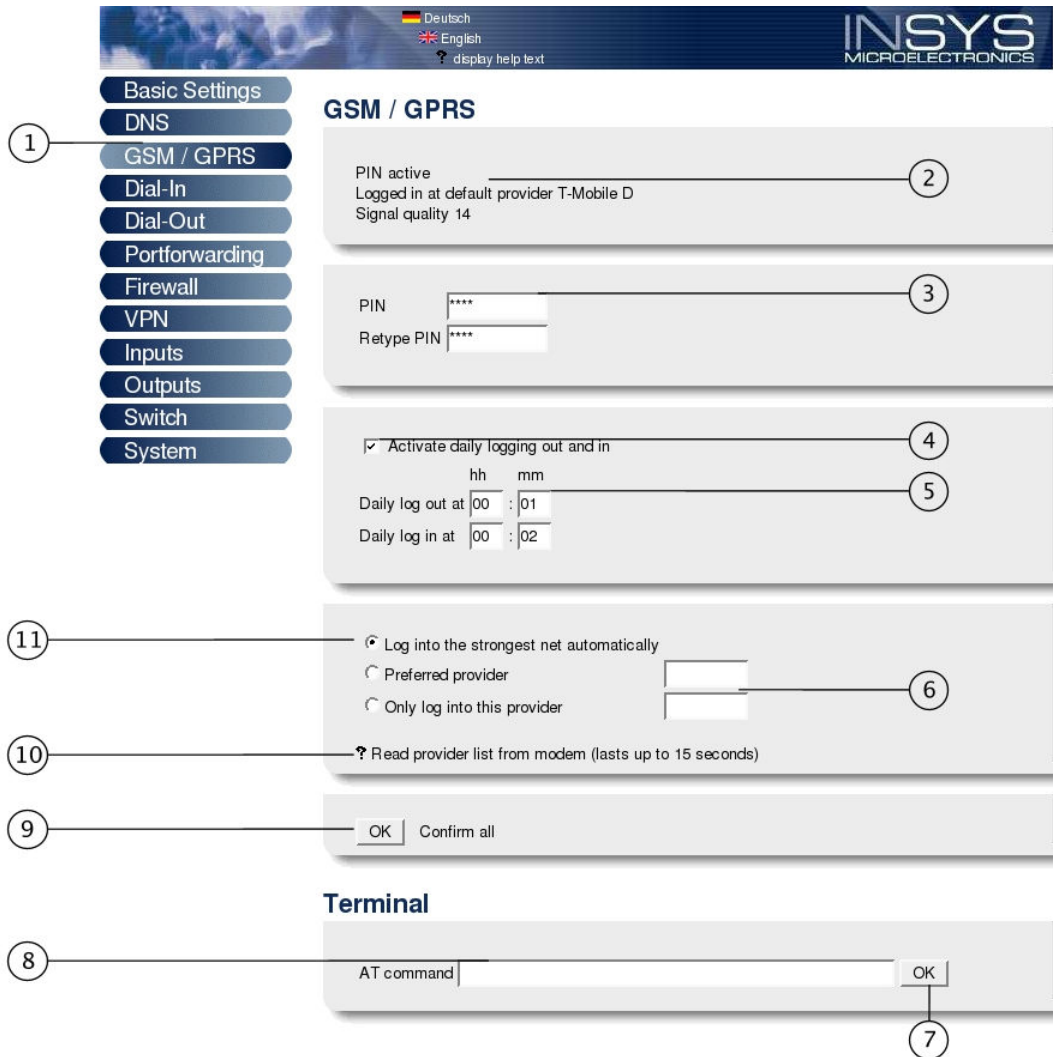


Figure 10: Web interface MoRoS GPRS 1.3 - Menu "GSM/GPRS"

### 11.2.4 Menu DNS

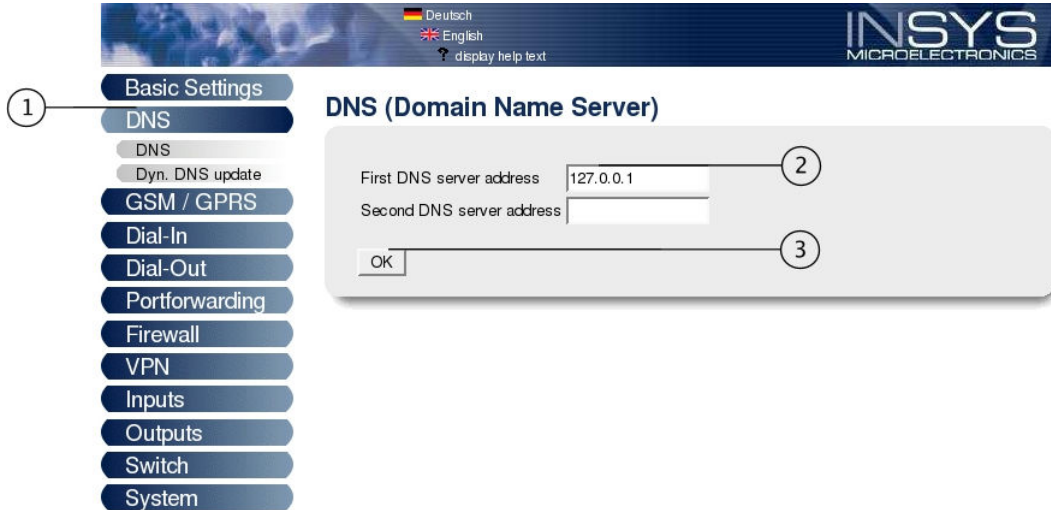


Figure 11: Web interface MoRoS GPRS 1.3 - Menu "DNS", Page "DNS"

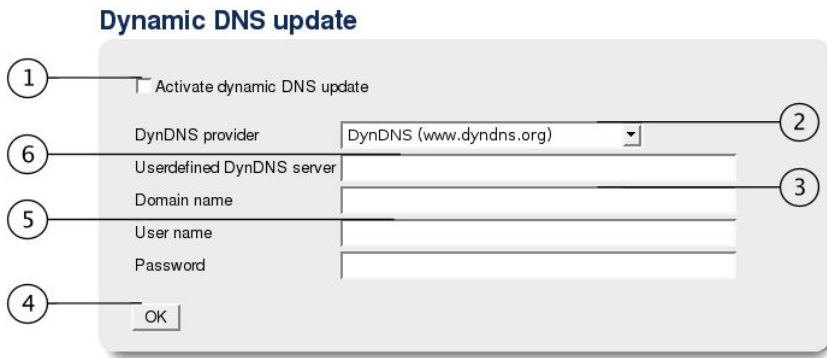


Figure 12: Web interface MoRoS GPRS 1.3 - Menu "DNS", Page "Dynamic DNS update"

### 11.2.5 Menu Dial-in

The screenshot shows the 'Dial-In' configuration page in the MoRoS GPRS 1.3 web interface. The interface includes a top navigation bar with language options (Deutsch, English) and a 'display help text' link. A left sidebar contains menu items: Basic Settings, DNS, GSM / GPRS, Dial-In (highlighted), Dial-Out, Portforwarding, Firewall, VPN, Inputs, Outputs, Switch, and System. The main content area is titled 'Dial-In' and contains several sections:

- Activate Dial-In:** A radio button selection between 'Yes' and 'No'. Callout 2 points to the 'No' option.
- Idle time (in seconds):** A text input field with the value '0'. Callout 3 points to this field.
- Number of rings before answer:** A text input field with the value '1'. Callout 4 points to this field.
- Activate NAT:** A checked checkbox.
- Authentication for Dial-In:** A checked checkbox. Callout 5 points to this checkbox.
- User Authentication Table:** A table with columns for 'User name', 'Password', and 'Authentication with PAP/CHAP'. Callout 6 points to the 'CHAP' column. Callout 13 points to the 'User name' column.
- IP addresses for PPP connection (WAN):** A section with two text input fields: 'Own IP address' (value: 192.168.254.1) and 'Remote IP address' (value: 192.168.254.2). Callout 7 points to the 'Own IP address' field, and callout 8 points to the 'Remote IP address' field.
- Activate callback:** An unchecked checkbox. Callout 12 points to this checkbox.
- After successful PPP authentication:** Radio button options for 'After successful PPP authentication' (selected) and 'After a call from these caller IDs'. Callout 11 points to the selected radio button. Callout 9 points to the input field for caller IDs.
- Buttons:** 'OK' and 'Confirm all' buttons at the bottom. Callout 10 points to the 'OK' button.

Figure 13: Web interface MoRoS GPRS 1.3 - Menu "Dial-in"

### 11.2.6 Menu Dial-out

The screenshot shows the 'Dial-Out' configuration page in the MoRoS GPRS 1.3 web interface. The interface is in German, as indicated by the language selector at the top. The sidebar on the left contains the following menu items: Basic Settings, DNS, GSM / GPRS, Dial-In, Dial-Out (selected), Portforwarding, Firewall, VPN, Inputs, Outputs, Switch, and System. The main content area is titled 'Dial-Out' and contains the following settings:

- 2:** 'Activate Dial-Out' with radio buttons for 'Yes' and 'No' (selected).
- 3:** 'Telephone number' field with 'Target A' and 'Target B' sub-headers. Target A contains '\*99\*\*\*1#'.
- 4:** 'User name' and 'Password' fields.
- 4:** 'Authentication' section with radio buttons for 'PAP' and 'CHAP' for both 'Target A' and 'Target B'. Below these are radio buttons for 'PAP or CHAP'.
- 5:** 'Access Point Name' field with 'apn.provider' entered for both targets.
- 6:** 'Idle time (in seconds)' field with '20' entered.
- 6:** 'Maximal connect-time (in seconds)' field with '0' entered.
- 17:** 'Request DNS server address' checkbox, which is checked.
- 7:** 'Connect immediately and hold connection' checkbox, which is unchecked.
- 7:** 'Interval for checking connection (in minutes)' field with '60' entered.
- 8:** 'Type to check the connection' section with radio buttons for 'DNS request' and 'Ping to'. 'DNS request' is selected, and the field contains 'european.orsn.net'.
- 8:** 'Ping to' field with 'www.XYZ.xyz' entered.
- 14:** 'Connect automatically once a day at' checkbox, which is unchecked. The time is set to 14:00 (hh:mm).
- 13:** 'Disconnect automatically once a day at' checkbox, which is unchecked. The time is set to 14:30 (hh:mm).
- 12:** 'Enable Dial-Out filters' checkbox, which is unchecked.
- 9:** 'Ports for Dial-Out rules' section with a table for Port 1, Port 2, and Port 3. The table has four rows: 'Allow packets from these ports to initiate dialing', 'Deny packets from these ports to initiate dialing', 'Allow dialing to these destination ports', and 'Deny dialing to these destination ports'. All cells in the table are empty.
- 11:** 'IP-Addresses for Dial-Out rules' section with a table for IP address 1, IP address 2, and IP address 3. The table has four rows: 'Allow these machines to initiate dialing', 'Deny these machines to initiate dialing', 'Allow dialing to these destination machines', and 'Deny dialing to these destination machines'. All cells in the table are empty.
- 10:** 'OK Confirm all' button.

Figure 14: Web interface MoRoS GPRS 1.3 - Menu "Dial-out"

### 11.2.7 Menu Port forwarding

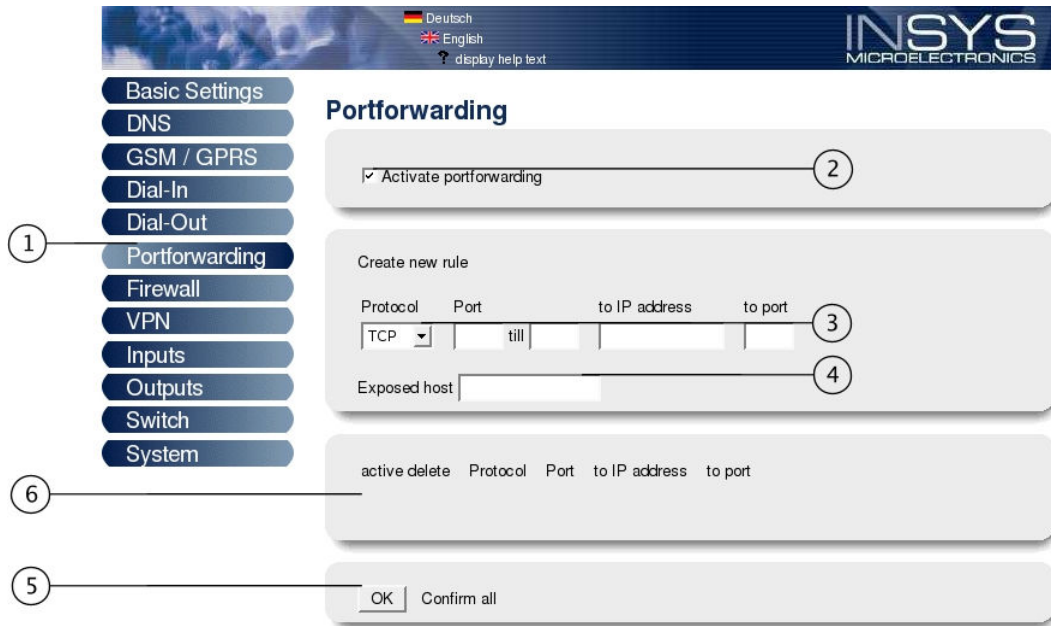


Figure 15: Web interface MoRoS GPRS 1.3 - Menu "Port forwarding"

### 11.2.8 Menu Inputs

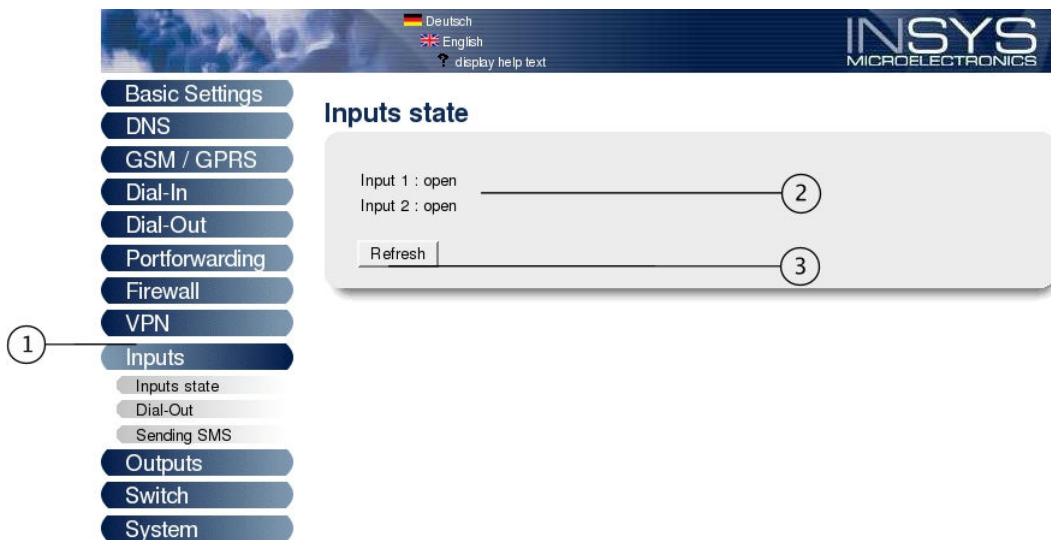


Figure 16: Web interface MoRoS GPRS 1.3 - Menu "Inputs", Page "Status inputs"

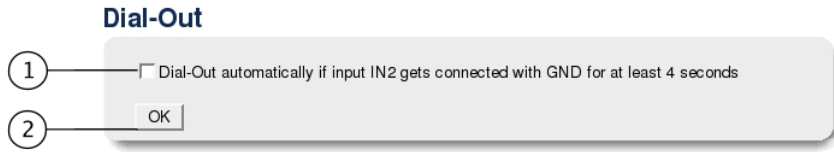


Figure 17: Web interface MoRoS GPRS 1.3 - Menu "Inputs", Page "Dial-out"

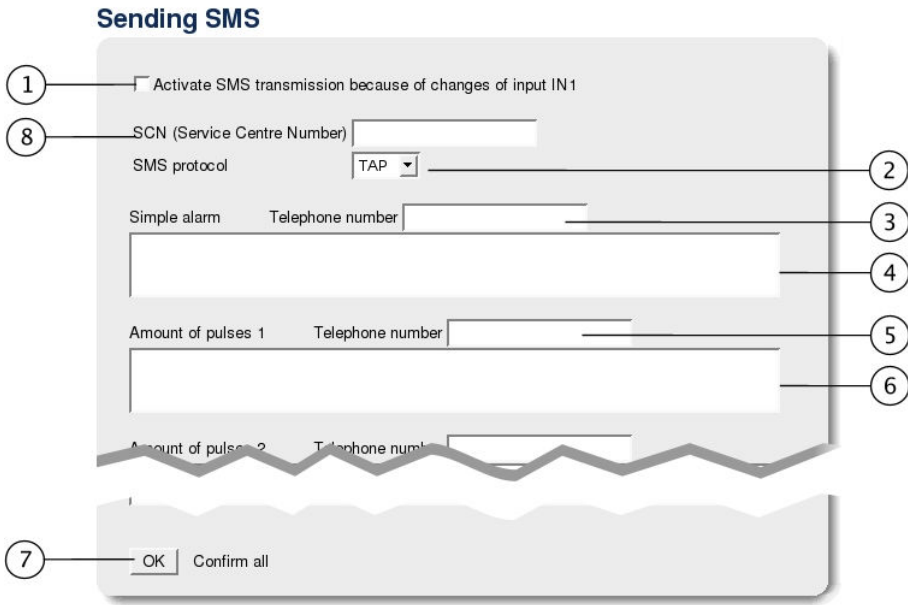


Figure 18: Web interface MoRoS GPRS 1.3 - Menu "Inputs", Page "SMS dispatch"

### 11.2.9 Menu Outputs

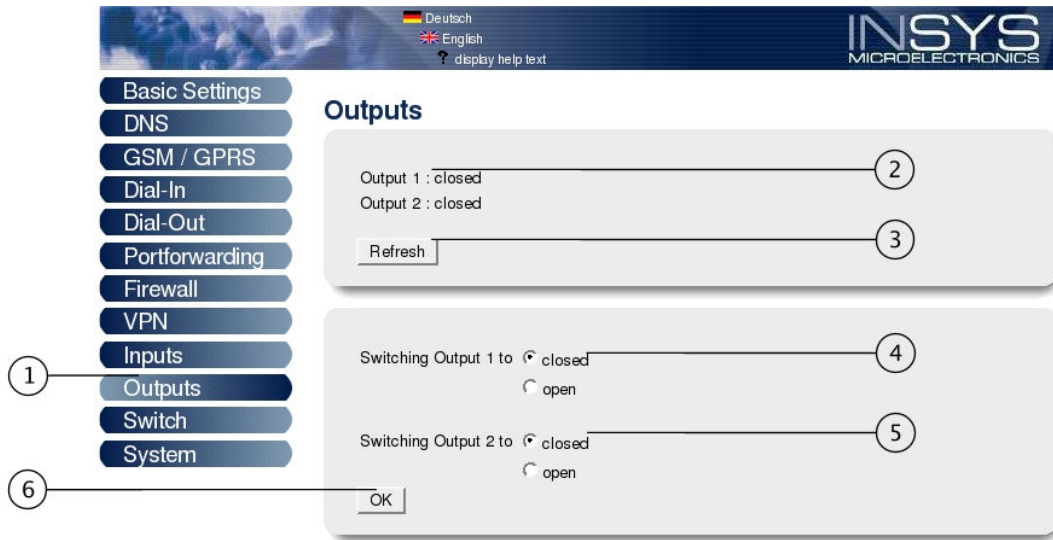


Figure 19: Web interface MoRoS GPRS 1.3 - Menu "Outputs"

### 11.2.10 Menu System

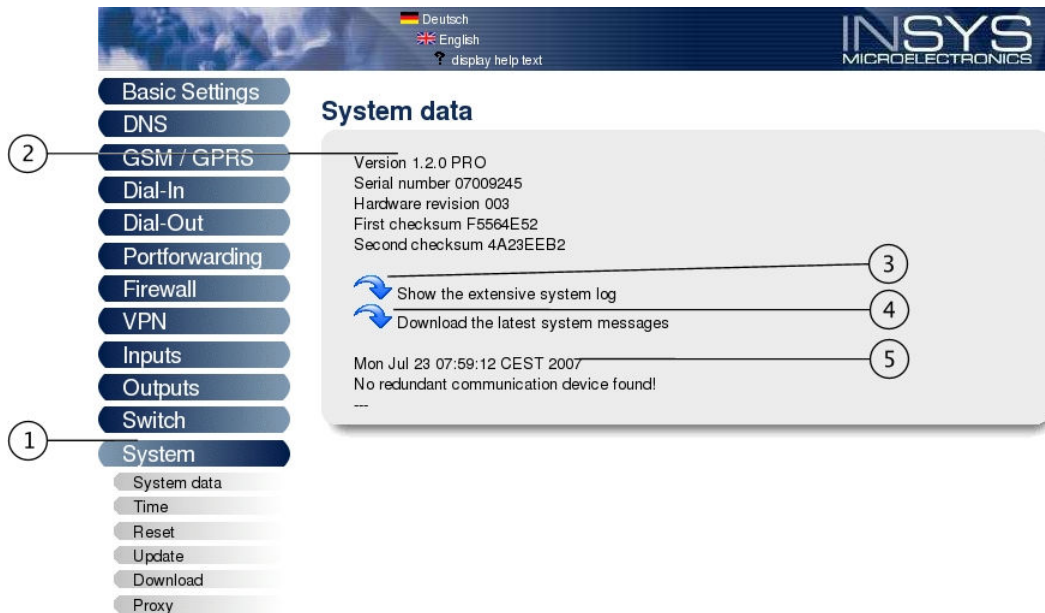


Figure 20: Web interface MoRoS GPRS 1.3 - Menu "System", Page "System data"

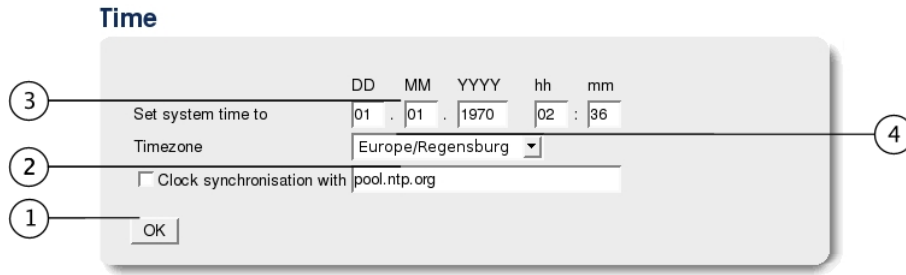


Figure 21: Web interface MoRoS GPRS 1.3 - Menu "System", Page "Time"

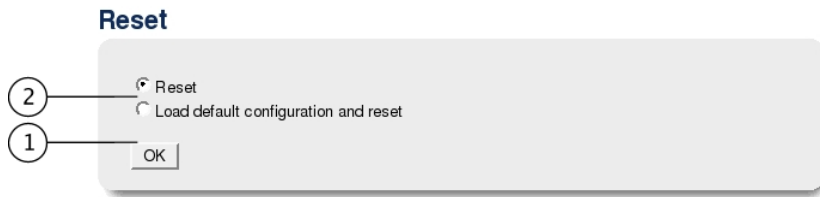


Figure 22: Web interface MoRoS GPRS 1.3 - Menu "System", Page "Reset"

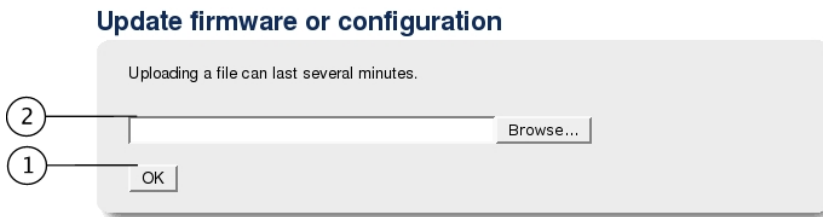


Figure 23: Web interface MoRoS GPRS 1.3 - Menu "System", Page "Firmware or configuration update"

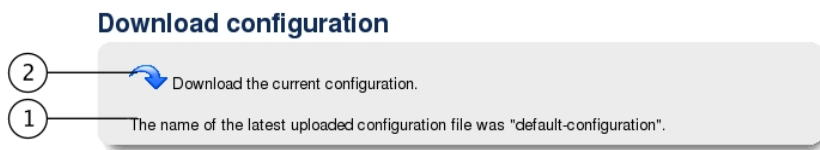


Figure 24 Web interface MoRoS GPRS 1.3 - Menu "System", Page "Configuration download"

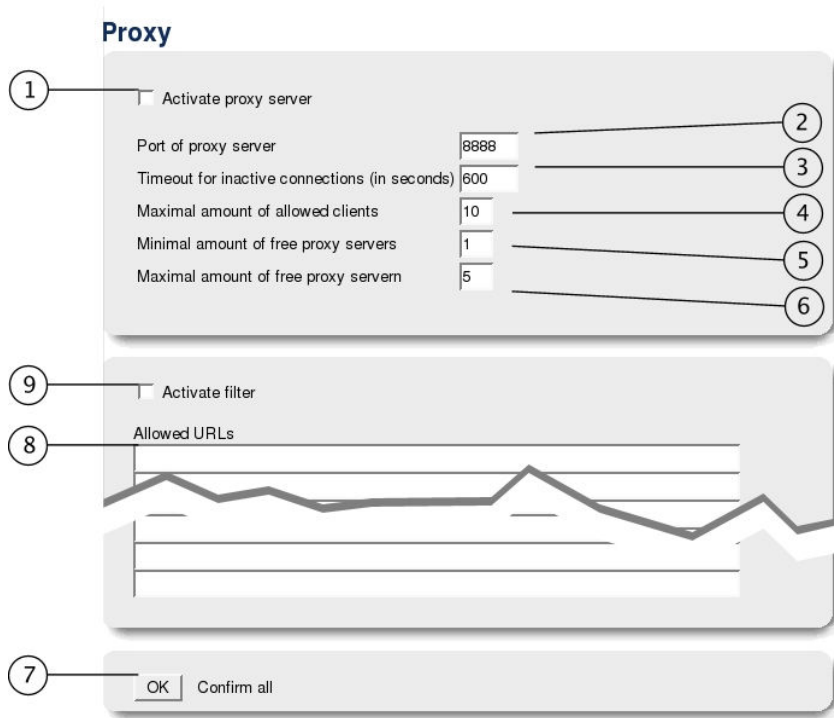


Figure 25: Web interface MoRoS GPRS 1.3 - Menu "System", Page "Proxy"

## 12 Functions

### 12.1 Basic Settings

#### 12.1.1 Web Interface (User Name, Password, Remote Configuration)

The web interface is used to configure the MoRoS GPRS 1.3. It is protected from unauthorized access by a user name and password query. As a standard, the web interface can be accessed from a computer from the internal network. If the remote configuration is activated, you can also access the web interface from the external network. You can define the port, at which the interface can be accessed from the internal and the external network of the MoRoS GPRS 1.3.

##### Configuration with the web interface

**User name and password** are entered in the menu "Basic setting" on the page "Web interface" (Figure 7, page 30 above, position 3).

The **remote configuration** is activated via the checkbox "Activate remote configuration" (Figure 7, page 30 above, position 4).

The **Web interface port** is defined in the entry field "Web interface port" (Figure 7, page 30 above, position 5). As default, port 80 is set for the web interface of the MoRoS GPRS 1.3.

**Save the settings** by clicking "OK" (Figure 7, page 30 above, position 1).

### 12.1.2 Set IP Addresses or Retrieve via DHCP

It must be possible to access the MoRoS GPRS 1.3 in the LAN at a certain IP address. Either manually enter a static IP address, or prompt the MoRoS GPRS 1.3 to retrieve the IP address during each system start and cyclically from another DHCP server in the LAN.

#### Configuration with the web interface

To set the **static IP address**, select "Static IP address" in the menu "Basic settings" on the page "IP addresses", using the radio buttons (Figure 8, page 31 above, position 1).

In the entry field "IP address" (Figure 8, page 31 above, position 2) **enter the IP address** of the MoRoS GPRS 1.3 in the LAN and the **network mask**.

To retrieve a **dynamic IP address** from another DHCP server in the LAN, select the radio button "Activate DHCP client" (Figure 8, page 31, above, position 1).

Save the settings by clicking "OK" (Figure 8, page 31 above, Position 7).

The **MAC address of the MoRoS GPRS 1.3** can be found in the entry fields for the IP address and the network mask under "MAC address" (Figure 8, page 31 above, position 3) on this page.

### 12.1.3 Setting up the DHCP Server

On request, the DHCP server of the MoRoS GPRS 1.3 can automatically allocate other devices in the LAN an address. This automatically allocated, dynamic IP addresses are only valid for a certain time. The validity of the IP addresses allocated by the DHCP server are controlled via the "Lease time". If there is already a DHCP server in the network, in which the MoRoS GPRS 1.3 is used, this function must absolutely be disabled in the MoRoS GPRS 1.3.

#### Configuration with the web interface

To set up the **DHCP server**, activate the checkbox "Activate DHCP server" in the menu "Basic settings" on the page "IP addresses" (Figure 8, page 31 above, position 8).

In the entry field "First IP address" (Figure 8, page 31 above, position 4), enter the **first IP address** of the address range, from which the DHCP server of the MoRoS GPRS 1.3 allocates addresses in the LAN. In the entry field "Last IP address" (Figure 8, page 31 above, position 5), enter the **last IP address** of the address range. The IP address range of the DHCP server must be located in the same network as the IP address of the MoRoS GPRS 1.3.

In the entry field "Lease time" (Figure 8, page 31 above, position 4), enter a **Validity period** in seconds for the **IP addresses** to be allocated from the DHCP server. The default value is 3.600 seconds.

**Save the settings** by clicking "OK" (Figure 8, page 31 above, position 7).

Further down on the page, you can view the IP addresses allocated by the DHCP server, and their "Lease time" (validity period) (Figure 8, page 31 above, position 6).



## 12.1.4 Setting up the Serial Ethernet Gateway

The serial Ethernet gateway enables the addressing of serial end devices from the local network of the MoRoS GPRS 1.3 or from a remote network, which are connected to the serial interface of the MoRoS GPRS 1.3. The data which is sent to a configurable network port of the MoRoS GPRS 1.3 is output at the serial interface of the MoRoS GPRS 1.3. In the variant Pro, the serial interface can also be used to connect a redundant communication device. In this case, the interface can not be used as serial Ethernet gateway.

### Configuration with the web interface

To set up the **serial Ethernet gateway**, activate the checkbox "Activate serial Ethernet gateway" in the menu "Basic settings" on the page "Serial Ethernet gateway" (Figure 9, page 31 above, position 1).

The **port**, which the serial Ethernet gateway uses to accept a TCP connection, is entered in the entry field "Port" (Figure 9, page 31 above, position 6).

The **speed of the serial interface** is set in the entry field "Speed (in Bit/s)" (Figure 9, page 31 above, position 2).

The **data flow control** (RTS/CTS handshake) is set in the entry field "Flow control" (Figure 9, page 31 above, position 3). If the connected serial device does not support the RTS/CTS lines, you must deactivate the flow control.

The **data format of the serial interface** is set in the entry field "Data bits" (Figure 9, page 31 above, position 9).

To use the **control lines** DCD and DTR, activate the checkbox "Use control lines" (Figure 9, page 31 above, position 8).

To **reset the control lines after the connection is terminated**, activate the checkbox "Reset control lines after the connection was terminated" (Figure 9, page 31 above, position 4).

To **automatically terminate a TCP connection, if no data transfer** occurs any more, set a value in seconds in the entry field "Timeout" (Figure 9, page 31 above, position 5). If no data transfer occurs for the time set, the TCP connection, which was established by a computer to the serial Ethernet gateway, is closed. To ensure that the connection is never terminated, set the value Zero. The value Zero is the default setting.

**Save the settings** by clicking "OK" (Figure 9, page 31 above, position 7).

## 12.2 DNS

### 12.2.1 Setting up DNS Forwarding

You may use the MoRoS GPRS 1.3 as DNS relay server. When the MoRoS GPRS 1.3 is configured as DNS server at the locally connected network devices, the MoRoS GPRS 1.3 will either forward the DNS queries to the previously configured DNS servers in the Internet, or will use the IP addresses sent during the PPP connection setup as DNS server.

### Configuration with the web interface

To make sure that the MoRoS GPRS 1.3 uses the DNS servers sent during the

PPP connection setup, enter the address 127.0.0.1 in the menu "DNS" in the entry field "First DNS server address" (Figure 11, page 33 above, position 2), as recommended in the basic setting. Network clients, which retrieve their IP address as well as the DNS configuration via DHCP from the MoRoS GPRS 1.3, will receive the IP address of the MoRoS GPRS 1.3 as the first DNS server.

For the MoRoS GPRS 1.3 to be able to forward the DNS queries to **defined name servers**, enter the addresses of the according name servers in the entry fields "First DNS server address" and "Second DNS server address" (Figure 11, page 33 above, position 2).

**Save the settings** by clicking "OK" (Figure 11, page 33 above, position 3).

### 12.2.2 Setting up the Dynamic DNS Update

The MoRoS GPRS 1.3 can forward the IP address, which it was allocated during the dial-in into the Internet, to a DynDNS provider, so it can be reached from the Internet with a domain name. This means that the network behind the MoRoS GPRS 1.3 can always be reached with the same domain name from the Internet, also for dynamically allocated IP addresses (if the allocated IP address for incoming connections is not protected). The MoRoS GPRS 1.3 will update the IP address connected to the domain name at the DynDNS provider during each dialup. For this function, you will need an account with a DynDNS provider.

#### Configuration with the web interface

To **set up the dynamic DNS update**, activate the checkbox "Activate dynamic DNS update" in the menu "DNS" on the page "Dyn. DNS update" (Figure 12, page 33 above, position 1).

Select a **DynDNS provider** from the dropdown menu "DynDNS provider" (Figure 12, page 33 above, position 2).

To **define your own DynDNS server**, select the entry field "Custom server" in the dropdown menu "DynDNS provider" (Figure 12, page 33 above, position 2), and enter a DynDNS server in this field (Figure 12, page 33 above, position 6).

Enter the **domain name that needs to be updated** in the entry field "Domain name" (Figure 12, page 33 above, position 3).

Enter the **user name and password** of your DynDNS account in the entry fields "User name" and "Password" (Figure 12, page 33 above, position 5).

**Save** your settings by clicking "OK" (Figure 12, page 33 above, position 4).

## 12.3 GSM/GPRS

### 12.3.1 Enter SIM card PIN

For the MoRoS GPRS 1.3 to log into the mobile network and to establish connections via GSM and GPRS, it will need the PIN of the inserted SIM card (if the SIM card is protected by a PIN).

#### *Note!*

#### **Possible locking of the SIM card!**

**If a wrong PIN is entered, the SIM card may be locked, resulting in the MoRoS GPRS 1.3 not being able to log into the mobile network.**

When entering or changing the PIN, make sure that you enter the correct PIN for the SIM card. The SIM card may be unlocked using the according PUK. To unlock the SIM card with the PUK, you will need a mobile phone in which you can insert the locked SIM card and enter the PUK.

#### **Configuration with the web interface**

Enter the **PIN of the inserted SIM card** in the menu "GSM / GPRS" in the entry field "PIN" (Figure 10, page 32 above, position 3). To confirm the correct entry, enter the PIN once more into the field "Repeat PIN" (Figure 10, page 32 above, position 3).

**Save the settings** by clicking "OK" (Figure 10, page 32 above, position 9).

### 12.3.2 Set the daily login and logout

Within 24 hours, the MoRoS GPRS 1.3 can log into and out of the mobile network at certain times via a time controller. This enables you to limit the connection to certain times. Using periodic login and logout, you will increase the availability of the MoRoS GPRS 1.3, which may otherwise be impaired by several circumstances, which require a re-login into the network. We recommend using this function.

#### **Configuration with the web interface**

Enter the **desired login time** in the menu "GSM/GPRS" in the entry field "Daily login at" (Figure 10, page 32 above, position 5) in the format "hh:mm" ein.

Enter the **desired logout time** in the menu "GSM/GPRS" in the entry field "Daily login at" (Figure 10, page 32 above, position 5) in the format "hh:mm" ein.

Activate the checkbox "Activate daily login and logout" to turn the function on.

**Save the settings** by clicking "OK" (Figure 10, page 32 above, position 9).

### 12.3.3 Set Network Mask

You can determine, into which mobile network the MoRoS GPRS 1.3 should log into. Your SIM card must support roaming. The MoRoS GPRS 1.3 can then connect to the strongest available network at the location, with a certain preferred network (which may not necessarily the strongest available network), or exclusively with the network of a certain provider. If you determine a "preferred provider", the MoRoS GPRS 1.3 will attempt to always connect to a network of this provider. If the connection attempt to the network of the preferred provider fails, the MoRoS GPRS 1.3 will connect to the best available network of any provider.

#### Configuration with the web interface

To **select the type of network**, use the radio buttons in the menu "GSM / GPRS" (Figure 10, page 32 above, position 11) to choose if the MoRoS GPRS 1.3 should log into the strongest network, to a preferred provider and its network, or exclusively into the network of a provider determined by you.

To ensure that the **MoRoS GPRS 1.3 gives preference to the network of a certain provider when logging in**, use the radio buttons in the menu "GSM / GPRS" (Figure 10, page 32 above, position 11) to select the option "Preferably log into this provider". Enter the number of the provider in the entry field (Figure 10, page 32 above, position 6). You can obtain the number of the provider using the link under the question mark next to "Read provider list from modem ..." (Figure 10, page 32 above, position 10). To read the data, a SIM card must be inserted and the MoRoS GPRS 1.3 must be logged into a GSM/GPRS network.

To ensure that the **MoRoS GPRS 1.3 logs exclusively into the network of a certain provider**, use the radio buttons in the menu "GSM / GPRS" (Figure 10, page 32 above, position 11) to select the option "Exclusively log into this provider". Enter the number of the provider in the entry field (Figure 10, page 32 above, position 6). You can obtain the number of the provider using the link under the question mark next to "Read provider list from modem ..." (Figure 10, page 32 above, position 10).

**Save the settings** by clicking "OK" (Figure 10, page 32 above, position 9).

## 12.4 Dial-in

### 12.4.1 Set the Dial-In Server

You can use the MoRoS GPRS 1.3 as dial-in server or incoming PPP server. The dial-in function allows for computers to connect remotely via modem through the MoRoS GPRS 1.3 to the network behind the MoRoS GPRS 1.3. Similar to the dial-in at an Internet provider, users will authenticate themselves via user name and password at the MoRoS GPRS 1.3. To authenticate the PPP users, the methods PAP or CHAP are available. Suc-

cessfully authenticated users can establish a PPP connection to access the network of the MoRoS GPRS 1.3.

### Configuration with the web interface

To **activate** the **dial-in server**, select the radio button "Activate dial-in" in the Menu "Dial" (Figure 13, page 34, above, position 2).

Define the **number of ring tones**, after which the MoRoS GPRS 1.3 will answer the call. Enter the number of ring tones until going off-hook into the entry field "Ring tones until call acceptance". (Figure 13, page 34, above, position 4)

You can define an **idle time**, after which the dial-in connection is closed as soon as no data transfer occurs any more. Enter the time in seconds in the entry field "Idle time" (Figure 13, page 34, above, position 3). If the connection should remain established although there is an idle time, enter the value "0".

**As an option**, you can define the **IP addresses of the end points of the PPP connection**, if these addresses have already been allocated to one of the networks of the {{{PRODUKTBEZEICHNUNG}}} or at a remote network (Figure 13, page 34, above, position 7 and 8). As default, the IP address of the {{{PRODUKTBEZEICHNUNG}}} is 192.168.254.1. The standard address of the remote terminal is 192.168.254.2.

To use **PPP authentication based on user names and passwords**, activate the checkbox "Authentication for dial-in" (Figure 13, page 34, above, position 5). If you deactivate this checkbox, any caller may establish a PPP connection.

To a turn the NAT function off and on, use the checkbox „Activate NAT“ (Figure 13, page 34, above, Position 14). The NAT function for Dial-IN is activated by default. For some configurations it is useful to deactivate this function, e. g. when a device from within the LAN of the MoRoS GPRS 1.3 requestes a connection to the in-dialing device and this device answers the request on one port with a connection from another port.

**Save the settings**, by clicking "OK" (Figure 13, page 34, above, position 10).

## 12.4.2 Automatic callback

You can trigger an automatic callback to a predefined destination phone number of the MoRoS GPRS 1.3 with a data call or a phone call. You can set authorized callers for these numbers. The callers can identify themselves via the PPP authentication methods PAP or CHAP, or via their CLIP phone number. The connection, which is then established by the MoRoS GPRS 1.3, must first be configured in the menu "Dial-out" (Figure 14, page 35 above, position 1). Only connections to the preconfigured dial-out destination are possible.

### Configuration with the web interface

To **trigger a dial-out connection through a caller**, activate the checkbox "Activate automatic callback" (Figure 13, page 34, above, position 11). The dial-out connection, which is triggered through a caller, must first be configured in the menu "Dial-out" (Figure 14, page 35, above, position 1).

To enable callers to trigger a connection, they must either identify themselves

via PPP authentication or their phone numbers. In the radio button selection (Figure 13, page 34, above, position 10), choose either "After successful PPP authentication" or "After a call from one these numbers".

**Save the settings**, by clicking "OK" (Figure 13, Page 34, above, Position 9).

## 12.5 Dial-out

### 12.5.1 Set the Dial-Out Server

You can use the MoRoS GPRS 1.3 as dial-out server. The MoRoS GPRS 1.3 will automatically establish a PPP connection to a remote terminal, when the network traffic occurs in the direction of the network of the terminal. The network traffic which may trigger a connection setup can be limited by rules. This optional "Dialing filter" will ensure that only packets from/to certain IP addresses or from/to certain ports trigger the dial-out connection. This dial-out connection can be compared with the dial-in of a PC into the Internet. Only after this dial-in, it will be possible to transfer IP data (e.g. web contents) or to remotely access devices in the local network of the MoRoS GPRS 1.3, for example.

#### Configuration with the web interface

To **turn on the dial-out server**, select "Yes" in the option "Activate dial-out" of the menu "Dial-out" (Figure 14, page 35 above, position 2).

For a **GSM-CSD connection**, enter the **phone number of the PPP terminal** (e.g. the Internet provider) in the entry field "Phone number" for destination A (Figure 14, page 35 above, position 3). You may enter a further phone number (or `*99***1#` for a GPRS connection, see below) for destination B. The MoRoS GPRS 1.3 will always use the destination which was last used for successfully establishing a PPP connection. If the connection to destination x does not work, the MoRoS GPRS 1.3 will attempt to reach the other destination, and vice versa.

For a **GPRS connection**, enter `*99***1#` into the entry field at "Phone number" for destination A (Figure 14, page 35 above, position 3). For destination A, enter the APN of your mobile provider into the field "Access Point Name" (Figure 14, page 35 above, position 18), which is used to establish a GPRS connection. You can enter one more APN for destination B. As an alternative, you may also define a GSM-CSD connection with a traditional phone number for destination B.

Enter the **User name and password** for the PPP dial-in destinations A and B (Figure 14, page 35 above, position 3).

Select the **PPP authentication method (PAP or CHAP)** to be used for destinations A and B in the selection "Authentication" (Figure 14, page 35 above, position 4).

Enter a value for **"Idle time"** to define how long the connection will remain established, if no data transfer takes place. Enter the required time into the field "Idle time" (Figure 14, page 35 above, position 5) in seconds. To maintain the connection for an unlimited time, enter the value "0".

Enter a value in the field **Maximum connect time** to limit the duration of a connection. If you enter a maximum connection time, the connection will be closed after this time period has expired. To keep the connection open, without any time restrictions (until the connection is terminated for other reasons), enter the value "0" in the field "Maximum connection time" (Figure 14, page 35, above, position 6).

**Save the settings** by clicking "OK" (Figure 14, page 35, above, position 10).

## 12.5.2 Set up Leased Line Operation

You can set up the MoRoS GPRS 1.3 to permanently maintain a PPP connection. This operating mode is interesting for private networks with no minute charges, or for billing models, for which only the transmitted data volume is charged for (e.g. GRPS networks). In this operating mode, the MoRoS GPRS 1.3 will immediately establish the connection after the system start. The MoRoS GPRS 1.3 checks the connection periodically on its function. The connection check can be performed either via a DNS query of a host name or via PING at a host.

### Configuration with the web interface

To **set up a leased line**, activate the checkbox "Immediately establish and maintain a connection" in the menu "Dial-out" (Figure 14, page 35, above, position 16).

If necessary, enter another time in minutes for the **connection checkup** in the entry field "Interval of the connection setup" (Figure 14, page 35, above, position 7). The default setting is 60 minutes. If a closed connection is determined after this time, the MoRoS GPRS 1.3 will attempt to re-establish the connection after one minute. If the attempt fails, there will be another attempt after 5 minutes. The next attempt will take place after 30 minutes; if this attempt fails as well, the MoRoS GPRS 1.3 will attempt to re-establish the connection every 60 minutes.

Select the **method for the connection check** in the selection "Connection check type" (Figure 14, page 35, above, position 15) and enter a host name or an "IP address". The two methods have a different effect. A failed DNS request terminates a possibly existing connection and re-establishes the connection. A failed ping will make sure that the connection is re-initiated, if it was closed after the last data packet or ping. The existing connection is not terminated, if the ping is not responded to.

**Save the settings**, by clicking "OK" (Figure 14, page 35, above, position 10).

### 12.5.3 Set up a Periodical Dial-out Connection Setup

The MoRoS GPRS 1.3 can establish and terminate the previously configured dial-out connection time-controlled. The dial-out connection is established and terminated daily at a certain time.

This function will trigger individual events; no blocking time or similar is defined. Example: If a logout is defined for 2 pm and an automatic login at 4 pm, other events within this period could also trigger a connection setup (dial-out), e.g. a simple packet according to the dialing filter. The connection is also automatically terminated after an automatic log, if the configured "Idle time" has expired, for example.

#### Configuration with the web interface

To **establish a connection daily at a certain time**, activate the checkbox "Establish a connection daily at" in the menu "Dial-out" (Figure 14, page 35, above, position 14) and enter a time for the connection setup in the entry fields for hours and minutes.

To **terminate a connection daily at a certain time**, activate the checkbox "Terminate a connection daily at" in the menu "Dial-out" (Figure 14, page 35, above, position 14) and enter a time for the termination of the connection in the entry fields for hours and minutes.

**Save the settings**, by clicking "OK" (Figure 14, Page 35, above, Position 10).

### 12.5.4 Setting up a Dialing Filter

To avoid unnecessary costs due to undesired dial-out events, a dialing filter may be activated as an option. With this dialing filter, the network traffic which could trigger a dial-out event can be restricted. After a dial-out connection is established, however, all participants in the network may access the dial-out connection and transmit IP data.

Certain ports or IP addresses may be authorized or forbidden. For example, if a participant is allowed to trigger the dial-out connection using a specific IP address, then all other IP addresses are automatically blocked for triggering a connection, which have not been specifically permitted. If by mistake a port or an address are declared both allowed and forbidden, then the MoRoS GPRS 1.3 will remove the entries for the forbidden ports and addresses, which intersect with allowed entries, during the saving process. The allowed ports will be maintained.

#### Configuration with the web interface

To activate the dialing filter, mark the checkbox "Activate dialing filter" (Figure 14, page 35 above, position 12).

To **only allow connections from individual ports**, enter the allowed ports in the field "Packets from this port may initiate a connection" (Figure 14, page 35, above, Position 9). As an alternative, you may also **exclude certain ports** by entering port numbers in the fields of "Packets from these ports may not initiate a connection". Analogously, you may allow or forbid connections to certain destination ports.

To **only allow connections from individual IP addresses**, enter the allowed IP addresses in the field "These computers may initiate a connection" (Figure 14,

page 35, above, position 11). As an alternative, you may also **exclude certain IP addresses** by entering the IP address in the fields at "These computers may not initiate a connection". Analogously, you may allow or forbid connections to certain IP addresses.

**Save the settings**, by clicking "OK" (Figure 14, Page 35, above, Position 10).

## 12.6 Port Forwarding

### 12.6.1 Creating a Port Forwarding Rule

When including the Internet as communication network, private and public IPs are distinguished. To be able to access the private IP addresses from the Internet, which are mostly used in local networks, the technologies NAT and port forwarding are used. In the Internet, only the public IP address of the MoRoS GPRS 1.3 can be reached. This IP address can be used to also access the local end terminals in the network of the MoRoS GPRS 1.3 from the Internet, if NAT and port forwarding are used.

The MoRoS GPRS 1.3 allows port forwarding. The MoRoS GPRS 1.3 routes incoming packets from outside of the network to certain computers within the network. Outgoing packets of these connections from the network are being routed back to their destinations outside of the network. At certain ports, the MoRoS GPRS 1.3 routes incoming data packets to one port of a certain destination address. You can use rules to define which packets from the outside are routed to which addresses and ports in the network. This means that you can make certain services available to computers in the network, using the phone network.

#### Configuration with the web interface

To **activate port forwarding**, mark the checkbox "Port forwarding" in the menu "Dial-out" (Figure 15, page 36 above, position 2).

To **create a forwarding rule**, select the protocol (TCP or UDP) and the port range for the incoming packets at the MoRoS GPRS 1.3. Enter an IP address for the routing destination in the entry field "To IP address" and a port in the entry field "To port"; this is the address and the port where the packets are routed to.

To **delete an already created rule**, activate the check box "Delete" (Figure 15, page 36 above, position 6) and then click on "OK" (Figure 15, page 36 above, position 5).

To **deactivate an already created rule**, deactivate the check box "Active" (Figure 15, page 36 above, position 6) and then click on "OK" (Figure 15, page 36 above, position 5).

The rules in the list are processed from top to bottom. If two rules contradict each other (for example, the same port is used twice), only the rule which is further up in the list will be processed.

## 12.6.2 Defining the Exposed Host

As an option, the MoRoS GPRS 1.3 can forward all packets which do not comply with any port forwarding rule, to a predefined computer in the LAN, also called "Exposed Host" (for example, for diagnostic purposes). The setting for the "Exposed Host" is in principle a port forwarding rule without criteria, which therefore applies to all packets. The "Exposed Host" contains all packets which have not been requested by the local network of the MoRoS GPRS 1.3 or which have not been forwarded to a participant in the local network by a port forwarding rule. If no "Exposed Host" is configured, these incoming packets are discarded.

### Configuration with the web interface

To **define an "Exposed Host"**, enter the IP address of a computer in the LAN in the entry field "Exposed Host" in the menu "Dial-out" (Figure 15, page 36 above, position 4). This IP address must be accessible to all ports from the outside.

**Save the settings** by clicking "OK" (Figure 15, page 36 above, position 5).

## 12.7 Proxy

### 12.7.1 Configuring the MoRoS GPRS 1.3 Proxy Server

The MoRoS GPRS 1.3 provides a proxy server. It does not serve as a cache for frequently accessed websites. It is used to delay the connection timeouts for dialing connections that load slowly (e.g. via modem) and to filter undesired URLs. (e.g. www.xyz.xx).

The proxy supports the HTTP and HTTPS protocols.

### Configuration with the web interface

To **switch the proxy server of the MoRoS GPRS 1.3 on**, activate the checkbox "Activate proxy server" in the menu "System" on the page "Proxy" (Figure 25, page 40 above, position 1).

In the entry field "**Proxy server port**" (Figure 25, page 40 above, position 2), enter the port, which you want to use to access the proxy server from the internal network at the IP address of the MoRoS GPRS 1.3.

To **terminate connections after a certain time, which seem to be inactive**, you can adjust the time in the entry field "Timeout for inactive connections" (Figure 25, page 40 above, position 3).

To **avoid overloading the MoRoS GPRS 1.3**, you can restrict the number of clients which can connect to the MoRoS GPRS 1.3 at the same time. Enter the maximum number of simultaneously authorized clients in the entry field "Maximum number of authorized clients" (Figure 25, page 40 above, position 4).

To **increase the availability of the proxy** you can define a minimum number of proxy server processes. Enter the desired number of proxy server processes that are always running on the MoRoS GPRS 1.3 into the entry field "Minimum

number of free proxy servers".

To **avoid overloading the MoRoS GPRS 1.3 with proxy requests**, you can define a maximum number of proxy server processes. For each client request, an individual proxy server process is started on the MoRoS GPRS 1.3. Enter the desired maximum number of simultaneous proxy server processes in the entry field "Maximum number of free proxy servers" (Figure 25, page 40 above, position 5). If more requests are received than available as proxy servers, the additional requests are rejected.

**Save the settings** by clicking "OK" (Figure 25, page 40 above, position 7).

## 12.7.2 Set up an URL Filter

With the help of the URL filter, the proxy of the MoRoS GPRS 1.3 can restrict possible URLs, which can be accessed by computers from the internal network of the MoRoS GPRS 1.3. This will allow only access to URLs which are entered in the filter list. All other URLs are blocked. To allow access to the Internet only via the proxy, the firewall must be activated. Without the firewall, the access to any URLs would be possible just by bypassing the proxy.

At the clients (e.g. a web browser on a PC), which establish connections via the proxy, the IP address of the proxy must be defined.

### Configuration with the web interface

To **switch the URL filter on**, activate the checkbox "Activate filter" (Figure 25, page 40 above, position 9).

To **enter an authorized URL** which is accessible from the internal network, enter the desired URL in the entry fields "Authorized URLs" (Figure 25, page 40 above, position 8).

To **delete an URL** from the list, delete the text of the URL from the list (Figure 25, page 40 above, position 8).

**Save the settings** by clicking "OK" (Figure 25, page 40 above, position 7).

## 12.8 Inputs

### 12.8.1 Query the State of the Inputs

The MoRoS GPRS 1.3 has digital inputs, which may trigger a PPP connection setup or sending messages via SMS. The inputs are closed when connected with GND. They are opened when there is no connection with GND. The states of the two inputs can be queried via the web interface.

### Configuration with the web interface

To **query the states of the inputs**, click on the button "Update" in the menu "Inputs" on the page "Input states" (Figure 16, page 36 above, position 3). Af-

ter the page has been reset, you can view the states of the inputs on the same page next to "Input 1:" and "Input 2:" (Figure 16, page 36, above, position 2).

### 12.8.2 Set up a Dial-out Connection via Switch Input

The MoRoS GPRS 1.3 can establish a preconfigured dial-out connection, after the input IN2 is closed for 4 seconds, i.e. connected to "GND". When activating the input, a dial-out is performed as configured in the according menu. The connection will remain as long as the connection configuration allows.

#### Configuration with the web interface

To **trigger a dial-out connection by closing IN2**, activate the checkbox "Trigger a dial-out connection through input IN2 ..." (Figure 17, page 37 above, position 1).

**Save the settings** by clicking "OK" (Figure 17, page 37 above, position 2).

### 12.8.3 Trigger SMS Dispatch through Input 1

The MoRoS GPRS 1.3 can send an SMS to a phone number when closing the input 1. There are two pulse types: a long pulse with a duration of a minimum of 4 seconds, and individual pulses, which are shorter than 1 second.

The long pulse triggers the SMS message for the simple alarm. The short pulses trigger the dispatch of the SMS messages for the according number of pulses.

SMS messages can be up to 140 characters long.

Dial-out and dial-in connections have priority over the sending of SMS. If a request to send an SMS arrives during a connection, this SMS will only be sent after the existing connection is terminated. If several SMS requests arrive during a connection, they are buffered and then sent after the termination of the connection, individually and in succession.

#### Configuration with the web interface

To **switch the sending of SMS messages on**, first activate the checkbox "SMS dispatch when changing ..." (Figure 18, page 37 above, position 1).

To make sure that the sending of SMS works, enter the **number of an SMS service center** in the entry field "SCN (Service Center Number)" (Figure 18, page 37 above, position 8). If your MoRoS GPRS 1.3 is connected to a telephone system, enter the number for getting an outside line together with the service center number.

If necessary (not for GSM/GPRS), select the **SMS protocol of your SMS service center** in the dropdown menu "SMS protocol" (Figure 18, page 37 above, position 2). Your SMS service center provider will tell you which protocol to use.

To send **a message** through an individual, **4 second pulse**, enter a destination phone number in the entry field "Phone number" (Figure 18, page 37 above, position 3). The number format depends on the requirements of the service

center. Request further details on the number format of the destination phone number by your sms service center operator. Enter the SMS message text in the entry field (Figure 18, page 37 above, position 4).

To send **a message** for a number of **short, 1 second, pulses** scroll further down on the page "SMS dispatch" to the entry field for the desired number of pulses. Enter (e.g. for a short pulse) a destination phone number in the entry field "Phone number" (Figure 18, page 37 above, position 5). Enter the SMS message text in the entry field (Figure 18, page 37 above, position 6).

**Save the settings** by clicking "OK" (Figure 18, page 37 above, position 7).

## 12.9 Outputs

### 12.9.1 Query the Output States

The MoRoS GPRS 1.3 has digital outputs, whose status you can query and change via the web interface.

#### Configuration with the web interface

To **query the states of the outputs**, click on the button "Update" in the menu "Outputs" on the page "Output states" (Figure 19, page 38 above, position 3). You can see the state of the outputs next to the text "Output 2:" after you re-loaded the page. (Figure 19, page 38 above, position 2).

### 12.9.2 Switch Outputs

The switch outputs of the MoRoS GPRS 1.3 can be updated via the web interface.

#### Configuration with the web interface

To **switch the states of the outputs**, use the radio buttons to select "Open" or "Closed" for each output in the menu "Outputs" on the page "Output states" (Figure 19, page 38 above, positions 4 and 5).

**Save the settings** by clicking "OK" (Figure 19, Page 38, above, Position 6).

## 12.10 System Configuration

### 12.10.1 Display System Messages

The MoRoS GPRS 1.3 displays system data such as firmware version, serial number, hardware version or firmware checksum, together with short system messages about events and errors on the system data page. For analysis purposes, you can see the detailed messages of the MoRoS GPRS 1.3 on the web interface.

### Configuration with the web interface

To view the **detailed system messages via the web interface**, click on the arrow next to the text "Display the detailed system log" (Figure 20, page 38 above, position 3).

## 12.10.2 Downloading the Last System Messages

The MoRoS GPRS 1.3 displays short system messages (Figure 20, page 38 above, position 5) about events and errors on the page "System data". For analysis purposes, you can download the last messages of the MoRoS GPRS 1.3 in a file which contains all system messages.

### Configuration with the web interface

To **download the system messages of the MoRoS GPRS 1.3**, click on the arrow next to the text "Downloading the last system messages" (Figure 20, page 38 above, position 4).

## 12.10.3 Setting the Time and the Time Zone

The MoRoS GPRS 1.3 has an internal clock to control time-controlled events. This clock must be set to ensure that time-controlled events are processed precisely to the desired time, and that system messages are dated correctly.

### Configuration with the web interface

To **set the time and the date**, enter the values for day, month, year, hour and minutes in the entry fields "DD MM YYYY hh mm" (Figure 21, page 39 above, position 3).

Select your **Time zone** and activate **automatic daylight-saving** as an option.

**Save the settings** by clicking "OK" (Figure 21, page 39 above, position 1).

## 12.10.4 Synchronizing the Time via the NTP Server

The clock of the MoRoS GPRS 1.3 can be updated automatically via an NTP server from the Internet. During each connection setup, the MoRoS GPRS 1.3 will attempt to synchronize the time from the specified NTP server. In contrast to the time, the time zone must be manually adjusted to the location of the MoRoS GPRS 1.3.

### Configuration with the web interface

To **synchronize the time and the date via NTP server**, activate the checkbox "Time synchronization via" and enter the name of an NTP server or its IP address in the entry field (Figure 21, page 39 above, position 2).

Set up **the time zone of the location of the MoRoS GPRS 1.3**, by selecting it from the dropdown menu "Time zone" (Figure 21, page 39 above, position 4).

**Save the settings** by clicking "OK" (Figure 21, page 39 above, position 1).

### 12.10.5 Reset

You can reset the MoRoS GPRS 1.3 via the web interface or by pressing the reset key on the front of the device. You can simply restart your device or reset all settings to the factory defaults. Use the reset key to trigger a restart of the MoRoS GPRS 1.3 by pressing it once, at a minimum for three seconds. Pressing the reset key three times for a short time within two seconds loads the factory defaults of the MoRoS GPRS 1.3.

#### Configuration with the web interface

To **restart the MoRoS GPRS 1.3**, use the radio buttons "Restart" in the menu "System" on the page "Reset" (Figure 22, page 39 above, position 2). Click on OK (Figure 22, page 39 above, position 1) to perform the restart.

To **restart the MoRoS GPRS 1.3 and to reload the factory defaults at the same time**, use the radio buttons "Load basic settings and restart" in the menu "System" on the page "Reset" (Figure 22, page 39 above, position 2). Click on OK (Figure 22, page 39 above, position 1) to perform the restart and to reset the MoRoS GPRS 1.3 to the factory default.

## 12.10.6 Updating the Firmware of the MoRoS GPRS 1.3

You can update the firmware of the {{PRODUKTBEZEICHNUNG}}. The firmware is a combination of operating system and programs, in which the functions of the {{PRODUKTBEZEICHNUNG}} are implemented. To update the firmware, you will need two files with a new firmware, which you may receive from your sales partner, or from INSYS MICROELECTRONICS.

### Note

#### Function loss due to faulty update!

**During a connection termination during the update and a following restart, the MoRoS GPRS 1.3 may lose its function.**

As long as the red LED at the MoRoS GPRS 1.3 lights up, you are not permitted to perform any actions at the web interface, you should not pull the power plug and you should not perform a reset.

After a failed update, do not restart the MoRoS GPRS 1.3, but call the INSYS MICROELECTRONICS support.

### Note

#### Loss of availability!

**Through a firmware update, your MoRoS GPRS 1.3 may use its earlier configuration. Your MoRoS GPRS 1.3 can then only be accessed from the local network via its standard IP address 192.168.1.1.**

Perform critical updates only locally, read the file "ReadMe.txt" that comes with the firmware, or contact the INSYS MICROELECTRONICS support.

### Complete update of the MoRoS GPRS 1.3 firmware

The following steps must be performed to update the firmware of a MoRoS GPRS 1.3.

- You have access to the web interface.
- If you access the web interface of the MoRoS GPRS 1.3 via a dial-up connection, the connection must be maintained long enough to perform the uploads. The option "Maximum connection time" should be set to "0" for the update, also for the "Idle time".
- You have ensured that the power supply of the MoRoS GPRS 1.3 can not be switched off during the update procedure.
- You have both firmware files; one file with the name "ulmage" and a second one with the name "uRamDisk". The files can be found on the PC from which you want to perform the update.

→ You have read the included file "ReadMe.txt".

**1. Write down the most important settings from the web interface of the MoRoS GPRS 1.3.**

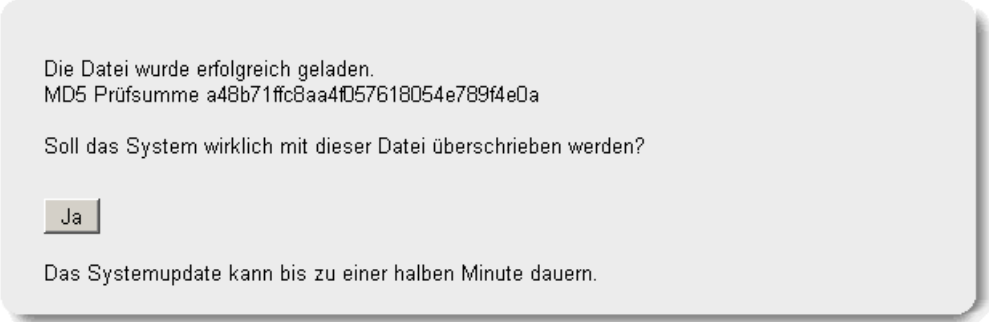
**i** Not in all cases will the configuration file of the old firmware be compatible with the new configuration after the update. Read the file "ReadMe.txt", which you have received together with the firmware files. If the old and the new configuration file are compatible, you can download the old configuration prior to the update and use it at a later date.

**2. In the menu "System", switch to the page "Update" (Figure 23, page 39, above).**

**3. Click on **Browse ...** and select the file "ulmage".**

**4. Click on **OK**, to start the update.**

✓ A page with a security query is displayed.



Die Datei wurde erfolgreich geladen.  
MD5 Prüfsumme a48b71ffc8aa4f057618054e789f4e0a

Soll das System wirklich mit dieser Datei überschrieben werden?

Das Systemupdate kann bis zu einer halben Minute dauern.

Die Datei wurde erfolgreich in den flüchtigen Speicher geladen. Die MD5-Prüfsumme sollte mit der Datei verglichen werden, die aufgespielt werden sollte. Mit Klick auf "OK" wird die Datei an den richtigen Ort geschrieben.

**Vorsicht!**

Während des gesamten Updatevorganges leuchtet die rote LED "Status" auf. Solange die rote LED leuchtet, darf unter keinen Umständen der Schreibvorgang abgebrochen werden, d.h.

- die Spannungsversorgung darf auf keinen Fall ausfallen oder ausgeschaltet werden und
- im Browserfenster mit der Konfigurationsoberfläche dürfen keine anderen Einstellungen ausgelesen oder geschrieben werden.

Wenn der Updatevorgang gestört wird, kann der Router unter Umständen nicht mehr starten!

**5. Confirm the query with **Yes**.**

✓ The update procedure starts. The time until the file is completely transmitted to the MoRoS GPRS 1.3 varies, depending on the firmware size.

✓ The browser waits.

✓ During the update, the status LED at the MoRoS GPRS 1.3 lights up red.

- ✓ After the completed update, a page is displayed which confirms the successful update procedure. Do not perform any action at the web interface until this page is displayed.

Das Systemupdate wurde erfolgreich beendet.  
 Um das neue System zu aktivieren ist ein Neustart notwendig.

- 6. ***Proceed with the second file "uRamdisk" as with the first file, without performing a restart. Repeat the steps from step 3.***

- 7. ***In the menu "System", switch to the page "Reset" and select "Restart".***

- ✓ The new firmware is now active.

- 8. ***It may be necessary to reload the default settings after the restart, to have a correct configuration, in case the old configuration is incompatible to the new one.***

### 12.10.7 Download the Configuration File from the MoRoS GPRS 1.3

You can download the configuration of the {{PRODUKTBEZEICHNUNG}} via the web interface. With this file, you can configure other, equal devices, or safely store a functioning configuration.

#### Configuration with the web interface

To **download the configuration of the MoRoS GPRS 1.3**, click on the blue arrow in the menu "System" on the page "Download" (Figure 24, page 39 above, position 2). The browser will prompt you to save the file.

### 12.10.8 Uploading the Configuration File to the MoRoS GPRS 1.3

You may upload a previously downloaded configuration file to the MoRoS GPRS 1.3, to replace the current configuration of the MoRoS GPRS 1.3 by the settings in the file.

#### Uploading the configuration file of the MoRoS GPRS 1.3

→ You have a configuration file for your version of the MoRoS GPRS 1.3.

- 1. ***In the web interface of the MoRoS GPRS 1.3, under "System", switch to the page "Update" (Figure 23, page 39, above).***
- 2. ***Click on Browse ... and select the configuration file (e.g. configuration.bin).***
- 3. ***Click on OK, to start the upload.***



A page with a security query is displayed.

Die Datei wurde erfolgreich geladen.  
MD5 Prüfsumme a48b71fc8aa4f057618054e789f4e0a

Soll das System wirklich mit dieser Datei überschrieben werden?

Das Systemupdate kann bis zu einer halben Minute dauern.

Die Datei wurde erfolgreich in den flüchtigen Speicher geladen. Die MD5-Prüfsumme sollte mit der Datei verglichen werden, die aufgespielt werden sollte. Mit Klick auf "OK" wird die Datei an den richtigen Ort geschrieben.

**Vorsicht!**

Während des gesamten Updatevorganges leuchtet die rote LED "Status" auf. Solange die rote LED leuchtet, darf unter keinen Umständen der Schreibvorgang abgebrochen werden, d.h.

- die Spannungsversorgung darf auf keinen Fall ausfallen oder ausgeschaltet werden und
- im Browserfenster mit der Konfigurationsoberfläche dürfen keine anderen Einstellungen ausgelesen oder geschrieben werden.

Wenn der Updatevorgang gestört wird, kann der Router unter Umständen nicht mehr starten!

4.

**Confirm the query with .**



The update procedure of the configuration starts.



After the completed upload, a page is displayed which confirms the successful update procedure.

Das Systemupdate wurde erfolgreich beendet.  
Um das neue System zu aktivieren ist ein Neustart notwendig.

5.

**In the menu "System", switch to the page "Reset" and select "Restart".**



The new configuration is now active.

## **13 Waste Disposal**

### **13.1 Repurchasing of legacy systems**

According to the new WEEE guidelines, the repurchasing and recycling of legacy systems for our clients is regulated as follows:

**Please send those legacy systems to the following address, carriage prepaid:**

Frankenberg-Metalle  
Gärtnersteite 8  
D-96450 Coburg

**This regulation applies to all devices which were delivered after August 13, 2005.**

## 14 Licenses

The software technologies and programs of the firmware used in the MoRoS GPRS 1.3 are partly bound to the following licenses. The source code of the firmware components of the MoRoS GPRS 1.3 which are bound to these licenses may be obtained from INSYS MICROELECTRONICS on request.

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Version 2, June 1991

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Original SSLeay

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The implementation was written so as to conform with Netscape's SSL.

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## 15 International Safety Instructions

The following Siemens safety instructions in English apply to the used GSM/GPRS engine TC63. Following US FCC specifications, each device must have a sticker with a note referring to the “FCC ID” attached.

### 15.1 Safety Precautions

The following safety precautions must be observed during all phases of the operation, usage, service or repair of any cellular terminal or mobile incorporating TC63. Manufacturers of the cellular terminal are advised to convey the following safety information to users and operating personnel and to incorporate these guidelines into all manuals supplied with the product. Failure to comply with these precautions violates safety standards of design, manufacture and intended use of the product. Siemens AG assumes no liability for customer’s failure to comply with these precautions.

When in a hospital or other health care facility, observe the restrictions on the use of mobiles. Switch the cellular terminal or mobile off, if instructed to do so by the guidelines posted in sensitive areas. Medical equipment may be sensitive to RF energy.

The operation of cardiac pacemakers, other implanted medical equipment and hearing aids can be affected by interference from cellular terminals or mobiles placed close to the device. If in doubt about potential danger, contact the physician or the manufacturer of the device to verify that the equipment is properly shielded. Pacemaker patients are advised to keep their hand-held mobile away from the pacemaker, while it is on.

Switch off the cellular terminal or mobile before boarding an aircraft. Make sure it cannot be switched on inadvertently. The operation of wireless appliances in an aircraft is forbidden to prevent interference with communications systems. Failure to observe these instructions may lead to the suspension or denial of cellular services to the offender, legal action, or both.

Do not operate the cellular terminal or mobile in the presence of flammable gases or fumes. Switch off the cellular terminal when you are near petrol stations, fuel depots, chemical plants or where blasting operations are in progress. Operation of any electrical equipment in potentially explosive atmospheres can constitute a safety hazard.

Your cellular terminal or mobile receives and transmits radio frequency energy while switched on. Remember that interference can occur if it is used close to TV sets, radios, computers or inadequately shielded equipment. Follow any special regulations and always switch off the cellular terminal or mobile wherever forbidden, or when you suspect that it may cause interference or danger.

Road safety comes first! Do not use a hand-held cellular terminal or mobile when driving a vehicle, unless it is securely mounted in a holder for speakerphone operation. Before making a call with a hand-held terminal or mobile, park the vehicle.

Speakerphones must be installed by qualified personnel. Faulty installation or operation can constitute a safety hazard.

**IMPORTANT!**

Cellular terminals or mobiles operate using radio signals and cellular networks. Because of this, connection cannot be guaranteed at all times under all conditions. Therefore, you should never rely solely upon any wireless device for essential communications, for example emergency calls.

Remember, in order to make or receive calls, the cellular terminal or mobile must be switched on and in a service area with adequate cellular signal strength.

Some networks do not allow for emergency calls if certain network services or phone features are in use (e.g. lock functions, fixed dialing etc.). You may need to deactivate those features before you can make an emergency call. Some networks require that a valid SIM card be properly inserted in the cellular terminal or mobile.

## 15.2 Compliance with FCC Rules and Regulations

The FCC Equipment Authorization Certification for the TC63 reference application is listed under the

*FCC identifier QIPTC63*

*IC: 267W-TC63*

*granted to Siemens AG.*

The TC63 reference application registered under the above identifier is certified to be in accordance with the following Rules and Regulations of the Federal Communications (FCC).

Power listed is ERP for Part 22 and EIRP for Part 24

“This device contains GSM and GPRS Class12 functions in the 900 and 1800MHz Band which are not operational in U.S. Territories.

This device is to be used only for mobile and fixed applications. The antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. Users and installers must be provided with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance. Antennas used for this OEM module must not exceed 8.4dBi gain (GSM 1900) and 2.9dBi (GSM 850) for mobile and fixed operating configurations. This device is approved as a module to be installed in other devices.”

Manufacturers of mobile or fixed devices incorporating TC63 modules are advised to include instructions according to above mentioned RF exposure statements in their end product user manual.

Please note that changes or modifications not expressly approved by the party responsible for compliance could void the user’s authority to operate the equipment.

If the final product is not approved for use in U.S. territories the application manufacturer shall take care that the 850 MHz and 1900 MHz frequency bands be deactivated and that band settings be inaccessible to end users. If these demands are not met (e.g. if the AT interface is accessible to end users), it is the responsibility of the application manufacturer to always ensure that the application be FCC approved regardless of the country it is marketed in. The frequency bands can be set using the command **AT^SCFG="Radio/Band"[,<rbp>][, <rba>]**.

The FCC label of the module must be visible from the outside. If not, the host device is required to bear a second label stating, "Contains FCC ID QIPTC63".

## 16 Tables and Diagrams

### 16.1 List of Tables

Table 1: Physical Features.....	10
Table 2: Technological Features.....	11
Table 3: Description of the LEDs on the front panel of the device .....	12
Table 4: Meaning of the LED displays .....	13
Table 5: Blinking code of the data/signal LED .....	13
Table 6: Description of the functions and meaning of the control elements .....	14
Table 7: Description of the connections on the front panel of the device .....	15
Table 8: Description of the connections on the top of the device.....	16
Table 9: Description of the connections on the bottom of the device .....	17
Table 10: Description of the pin allocation of the Sub-D jack .....	18

### 16.2 List of Diagrams

Figure 1: LEDs on the front panel.....	12
Figure 2: Connections on the front panel of the device.....	15
Figure 3: Connections on the top of the device.....	16
Figure 4: Connections on the bottom of the device.....	17
Figure 5: 9-pin Sub-D jack at the device.....	18
Figure 6: Web interface MoRoS GPRS 1.3 .....	30
Figure 7: Web interface MoRoS GPRS 1.3 - Menu "Basic settings", Page "Web interface" .....	30
Figure 8: Web interface MoRoS GPRS 1.3 - Menu "Basic settings", Page "IP addresses (LAN)" .....	31
Figure 9: Web interface MoRoS GPRS 1.3 - Menu "Basic settings", Page "Serial Ethernet gateway" .....	31
Figure 10: Web interface MoRoS GPRS 1.3 - Menu "GSM/GPRS" .....	32
Figure 11: Web interface MoRoS GPRS 1.3 - Menu "DNS", Page "DNS" .....	33
Figure 12: Web interface MoRoS GPRS 1.3 - Menu "DNS", Page "Dynamic DNS update" ..	33
Figure 13: Web interface MoRoS GPRS 1.3 - Menu "Dial-in" .....	34
Figure 14: Web interface MoRoS GPRS 1.3 - Menu "Dial-out" .....	35
Figure 15: Web interface MoRoS GPRS 1.3 - Menu "Port forwarding" .....	36
Figure 16: Web interface MoRoS GPRS 1.3 - Menu "Inputs", Page "Status inputs" .....	36
Figure 17: Web interface MoRoS GPRS 1.3 - Menu "Inputs", Page "Dial-out" .....	37
Figure 18: Web interface MoRoS GPRS 1.3 - Menu "Inputs", Page "SMS dispatch" .....	37
Figure 19: Web interface MoRoS GPRS 1.3 - Menu "Outputs" .....	38
Figure 20: Web interface MoRoS GPRS 1.3 - Menu "System", Page "System data" .....	38
Figure 21: Web interface MoRoS GPRS 1.3 - Menu "System", Page "Time" .....	39
Figure 22: Web interface MoRoS GPRS 1.3 - Menu "System", Page "Reset" .....	39

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Figure 23: Web interface MoRoS GPRS 1.3 - Menu "System", Page "Firmware or configuration update" .....	39
Figure 24 Web interface MoRoS GPRS 1.3 - Menu "System", Page "Configuration download".....	39
Figure 25: Web interface MoRoS GPRS 1.3 - Menu "System", Page "Proxy" .....	40

## 17 Glossary

This describes the most important terms and abbreviations of this manual.

- AT command:** Commands to devices such as modems to set up this device.
- CHAP:** *Challenge Handshake Authentication Protocol*; an authentication protocol often used for -> PPP connections.
- DHCP:** *Dynamic Host Configuration Protocol*; DHCP servers can dynamically design an IP address and other parameters to DHCP clients on request.
- Dial-in:** MoRoS can be called via a dial-in connection and then create a connection to the LAN.
- Dial-out:** MoRoS can use a Dial-up to make calls and to perform Internet connections, for example.
- Gateway:** This is a machine that works like a -> Router. In contrast to the router, a gateway can also route data packets from different hardware networks.
- ISP:** Internet Service Provider; an ISP can be called using a dial-up connection (e.g. with an analogue modem or ISDN-TA). The ISP will then provide access to the Internet via this dial-up connection.
- LAN:** *Local Area Network*; a network of computers which are located relatively close to each other.
- MAC address:** *Media Access Control Address*. A MAC is a part of an Ethernet interface. Each Ethernet interface has a unique global number, the MAC address.
- PAP:** *Password Authentication Protocol*; an authentication protocol often used for -> PPP connections.
- PPP:** *Point to Point Protocol*; a protocol, which connects two machines via a serial line to enable the exchange of TCP/IP packets between those two machines.
- Router:** This is a machine in a network, which is responsible for the incoming data of a protocol to be forwarded to the planned destination or sub network.
- Switch:** A device that can connect several machines with the Ethernet. In contrast to a hub, a switch will "think" by itself, i.e. it can remember the MAC addresses connected to a port and directs the traffic more efficiently to the individual ports.
- URL:** *Uniform Resource Locator*; this is the address used by a service to be found in the web browser. In this manual, an URL is mostly entered as the IP address of the MoRoS.
- WAN:** *Wide Area Network*; a network consisting of computers, which are located far away from each other.

