

...the broadest narrowband money can buy



## Quick Start - RE400

6/1/2010

### 1. The first start of radio modem

- Don't connect radio modem in your LAN before settings! Default IP address of radio modem may be already used in your network.
- Do not switch on more than one radio with default settings at any one time! Only switch on the next one after setting and storing IP parameters in the first one.
- Interconnect ETH connector of radio modem with your PC using standard cable.
- Switch on power (PoE or AUX). PWR and ETH LED have to light. After 20 sec. STATUS starts to blink in green.
- Set IP and mask of your PC to 192.168.1.233, mask 255.255.255.0 (check user manual).
- Start www browser on address 192.168.1.2.
- Set radio modem configuration and Save it.
- Select a unique IP address of each radio modem within the network.

	Radio	RS232	Ethernet
<b>Product</b> Type: RE410 Ser No.: 7412811 FW ver.: 2.1.10.0	Frequency MHz    kHz    Hz <input type="text" value="398"/> <input type="text" value="750"/> <input type="text" value="000"/>	Baud rate <input type="text" value="19200"/>	IP <input type="text" value="192"/> <input type="text" value="168"/> <input type="text" value="1"/> <input type="text" value="2"/>
	Channel spacing <input type="text" value="25 kHz / 10.4 kbps"/>	Data bits <input type="text" value="8"/>	Mask <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="255"/> <input type="text" value="0"/>
	RF Power <input type="text" value="0.5W"/>	Parity <input type="text" value="None"/>	GW <input type="text" value="192"/> <input type="text" value="168"/> <input type="text" value="1"/> <input type="text" value="2"/>
	Fragment threshold [bytes] <input type="text" value="1480"/>	Stop bits <input type="text" value="2"/>	
<b>Diagnostics</b> <a href="#">Ping</a> <a href="#">Error log</a>	Repeater <input type="text" value="No"/>	Idle [bytes] <input type="text" value="10"/>	
<b>Settings</b> <a href="#">RE400 config</a>	Number of repeaters <input type="text" value="0"/>	MTU [bytes] <input type="text" value="4000"/>	
		Handshake <input type="text" value="None"/>	
	<input type="button" value="Default"/>	<input type="button" value="Read"/>	<input type="button" value="Save"/>
		<input type="button" value="Save to file"/>	
	Open file: <input type="text"/>	<input type="button" value="Procházet..."/>	

© RACOM, Mirova 1283, 592 31 Nove Mesto na Morave, Czech Republic, Tel.: +420 565 659 511, E-mail: racom@racom.eu, [www.racom.eu](http://www.racom.eu)

- When IP address is changed, connection with radio modem is lost. Next communication is possible after change of IP address in www browser, possibly in your PC.

- Connect application to radio modem via ETH or SCC.
- Communication is indicated by LEDs (see manual).
- Before configuring the next radio delete table Art (Start, Run, arp -d) in the PC.

## 2. Connectors

### 2.1. Antenna

There is a SMA-jack antenna connector on panel of radio modem. On your antenna cable use only respective type of connector of respective impedance: SMA-plug, 50 Ω. It is recommended to use antenna coaxial cables like this: RG58 up to 10 m, RG213 up to 25 m, H1000 for longer.



Fig. 1: Antenna connector SMA

- Radio modem may be destroyed when antenna or dummy load antenna is not connected!

### 2.2. Serial interface

Tab. 1: RS232 - DSUB9F pins

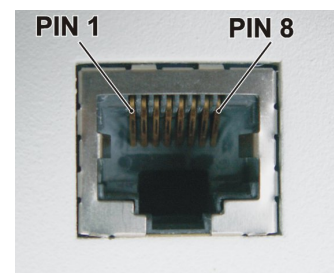
pin	signal	pin	signal
1	CD	6	DSR
2	RxD	7	RTS
3	TxD	8	CTS
4	DTR	9	+PWR
5	GND		



Fig. 2: RS232, DSUB9 female

### 2.3. Ethernet interface

- Ethernet connector RJ-45 for 10BaseT and 100BaseT meets fully standard of Power over Ethernet IEEE802.3af.
- Radio modem recognizes standard or cross cable and adapts itself automatically.



### 2.4. Power supply - possibilities

- AUX – via RS232 DSUB9 connector, using pins 5 and 9 (see Tab.1). Voltage 10,5–30 V, nominal 13,8 V. *Fig. 3: RJ-45F*
- PoE – via Ethernet connector RJ-45 using PoE standard IEEE802.3af. Voltage 38–57 V. Common version of supplying:
  - plus to pins 4+5
  - minus to pins 7+8
  - the polarity can be inverted also
 Other options with PoE adapter see the standard IEEE802.3af.
- ! Only ONE from above power possibilities can be used !

## 2.5. Indication LEDs Appearance of radio modem

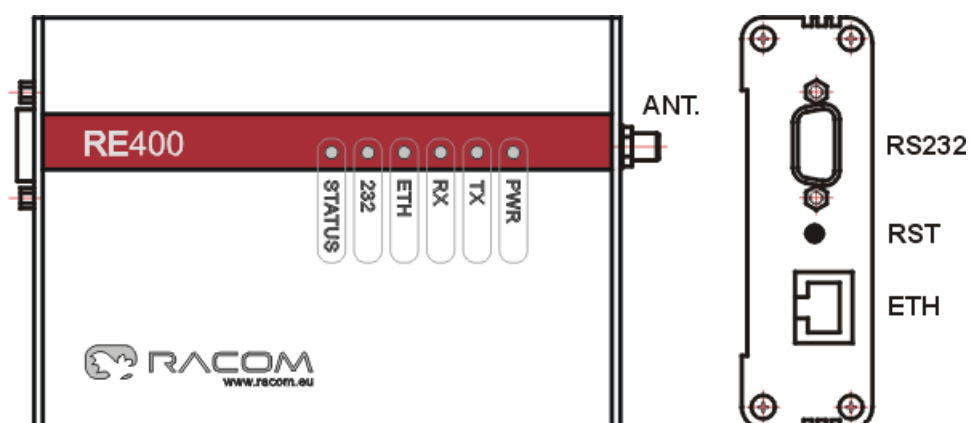


Fig. 4: Appearance of radio modem

### LED meanings

- |        |  |
|--------|--|
| PWR    | <ul style="list-style-type: none"> <li>• Yellow – AUX (power via RS232)</li> <li>• Green – PoE (power via Ethernet)</li> </ul>   |
| TX     | <ul style="list-style-type: none"> <li>• Red - transmitting</li> </ul>   |
| RX     | <ul style="list-style-type: none"> <li>• Green – RF sync</li> <li>• Yellow – there is a signal stronger then -80 dBm on radio channel</li> </ul>   |
| ETH    | <ul style="list-style-type: none"> <li>• Yellow – connected with 100 Mb/s speed</li> <li>• Yellow blinking – data transfer with speed of 100 Mb/s</li> <li>• Green - connected with 10 Mb/s speed</li> <li>• Green blinking – data transfer with speed of 10 Mb/s</li> </ul>                                   |
| 232    | <ul style="list-style-type: none"> <li>• Green – data receiving</li> <li>• Yellow – data transmitting</li> </ul>   |
| STATUS | <ul style="list-style-type: none"> <li>• status of operating system</li> <li>• Green blinking with period 2 sec ON, 1 sec OFF – main mod</li> <li>• Yellow blinking with period 1 sec ON, 1 sec OFF – Service mode</li> <li>• Yellow blinking with period 0,2 sec ON, 0,2 sec OFF – Bootloader mode</li> </ul> |

### 3. Table of Technical Parameters

**Tab. 2: Technical parameters**

Frequency range	RE400: 373.25–484 MHz		
Channel bandwidth	25 kHz or 12.5 kHz or 6.25 kHz *		
Frequency step	5 kHz or 6.25 kHz		
Method of setting working frequency	software		
Rx/Tx switching time	< 1.5 ms		
Data security on RF channel	32 bit CRC		
Receiver sensitivity for BER 10 <sup>-3</sup>	better than -107 dBm		
Output power software adjustable	Low	0.5 W	
	High	2 W	
Data rate in RF channel	2.6 kbps in 6.25 kHz channel *		
	5.2 kbps in 12.5 kHz channel		
	10.4 kbps in 25 kHz channel		
Interfaces	Ethernet, RS232		
Antenna connector	SMA		
MTBF (Mean Time Between Failures)	>100 000 hodin		
Power method	AUX	PoE	
Power supply	10.8–30 V (nomin. 13.8 V)		38–57 V
Power consumption (cca)	Idle state (Rx)	430 mA/13.8 V	145 mA/48 V
	Low power Tx	700 mA/13.8 V	230 mA/48 V
	High power Tx	950 mA/13.8 V	310 mA/48 V
Operating temperature range	-25 až +55 °C		
Storage temperature range	-35 až +85 °C		
Case dimensions	137 × 96 × 31 mm		
Weight	0.3 kg		

\* Channel spacing 6.25 kHz is not approved under EU rules.