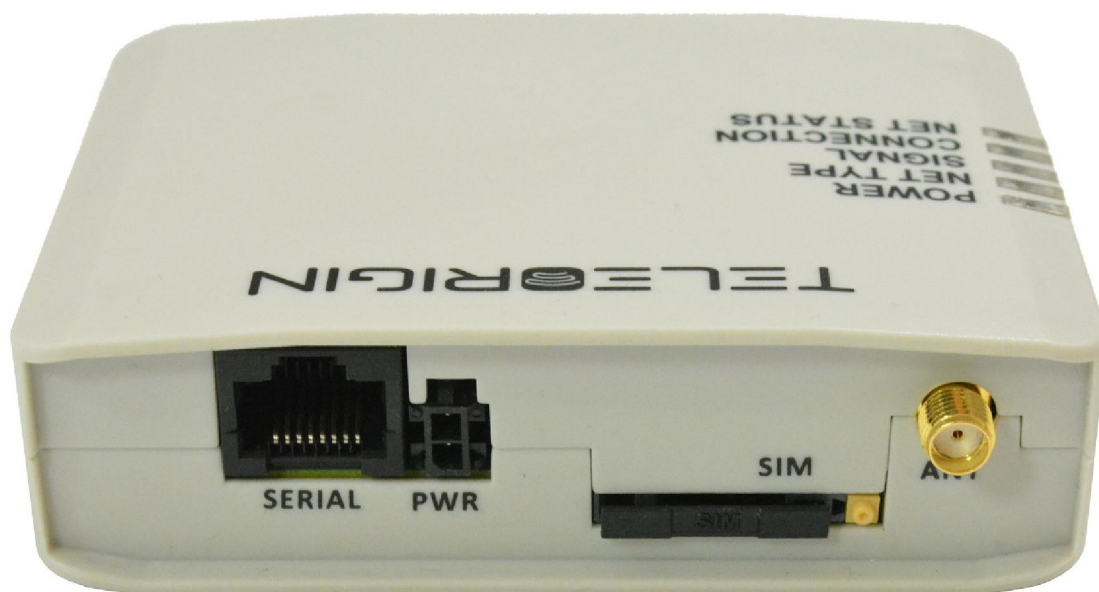


RB900SG

USER MANUAL



2G/3G/LTE/LPWA



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APPLICABILITY TABLE

Modem	Short description
RB900SG-L2	2G+LTE Cat. M1 + LTE Cat. NB1 modem version
RB900SG-L5	2G+LTE Cat. M1 + LTE Cat. NB2 modem version
RB900SG-E5	4G Cat. 4 modem version
RB900SG-E1	4G Cat. 1 modem version
RB900SG-U6	3G Global modem version
RB900SG-U5	3G Dual band modem version

1. Overview

The RB900SG Terminal is the complete modem solution for wireless m2m applications. It offers high level LPWA/2G/3G/4G features and RS232/485/422 communication interfaces and USB interface for configuration. Together with its small size and wide power supply range, it is easy to integrate it with energy meters.

The RB900SG terminal enabling high speed data transmission, SMS and TCP/IP communication. The device can be controlled by standard AT commands and configured by RB-Setup application, thus making it the complete SMT platform for m2m solutions.

This document contains full RB900SG modem description and gives information about installation and using it.

2. Product variants

RB900SG modem variants and its description are listed below.

Model	Description
RB900SG-U5.X.X.2.X.X	Dual band 3G modem
RB900SG-U6.X.X.2.X.X	Quad band 3G modem
RB900SG-E1.X.X.2.X.X	LTE Cat. 1 modem
RB900SG-E5.X.X.2.X.X	LTE Cat. 4 modem
RB900SG-L2.X.X.2.X.X	2G/LTE Cat. M1 & NB1 modem
RB900SG-L5.X.X.2.X.X	2G/LTE Cat. M1 & NB2 modem

It is possible to use SIM-CHIP solution. Example P/N of the modem with SIM-CHIP:

RB900SG-L2.X.C.2.X.X – 2G/LTE Cat. M1 & NB1 modem with SIM-CHIP

Last parameter in P/N depends on modem accessories. Please check available accessories in [11. Accessories](#)

3. Complete package contents



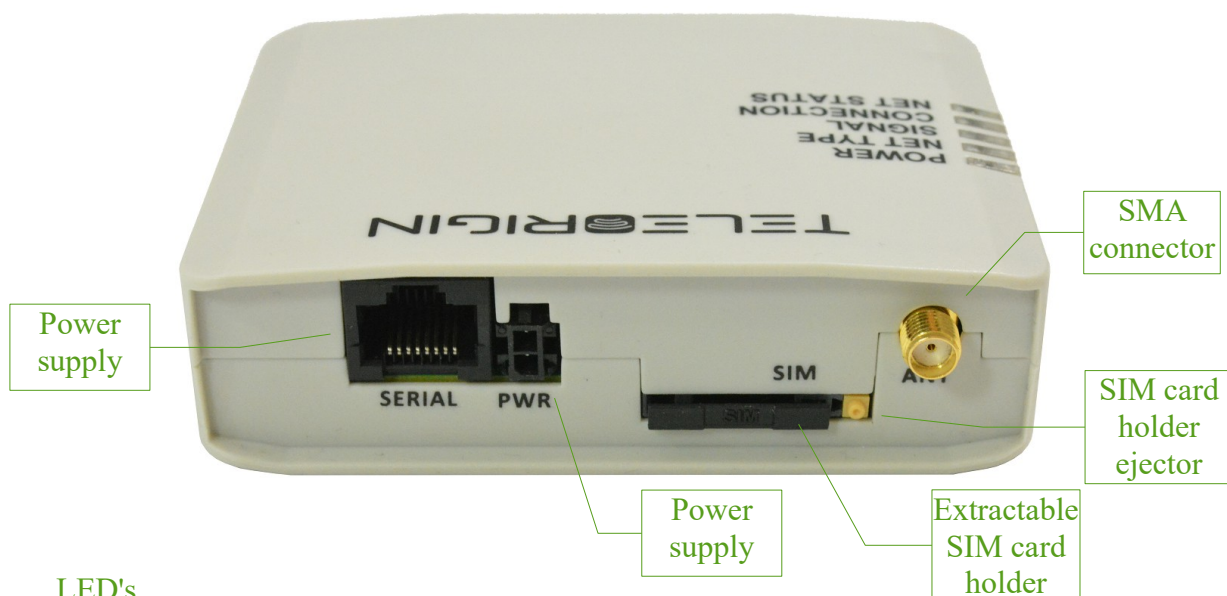
Standard package contains:

- RB900SG modem (item A)
- RJ45 cable (item B)

Please check additional accessories in [11. Accessories](#)

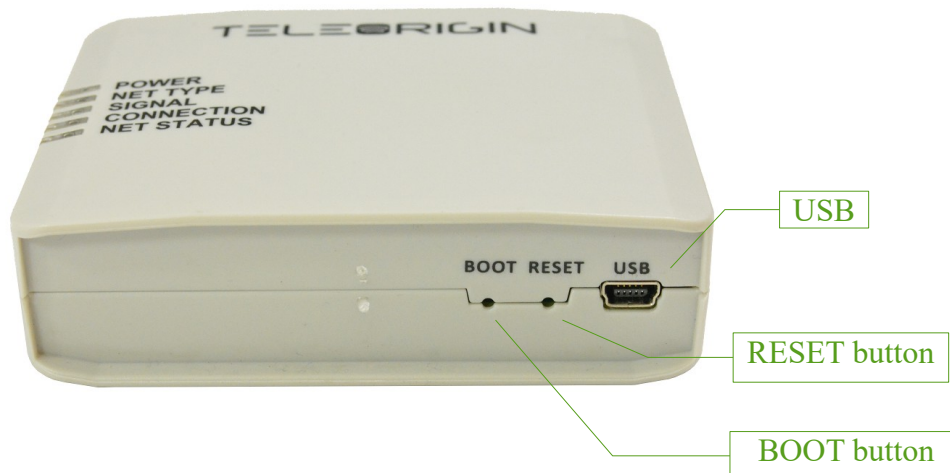
4. General presentation

4.1 Product pictures



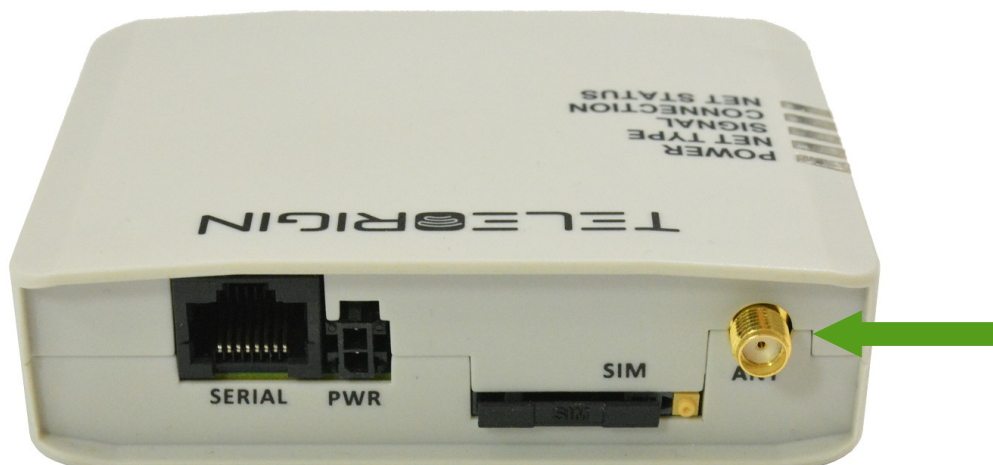
LED's

POWER	●
NET TYPE	●
SIGNAL	●
CONNECTION	●
NET STATUS	●



4.2 External connections

4.2.1 GSM antenna connector



An SMA “ANT” input is used to connect external GSM/UMTS/LTE antenna. To establish a connection with a GSM/UMTS/LTE network, an external antenna must be used. Type of antenna depends of GSM/UMTS/LTE coverage. In good circumstances (level of received signal is high) use antenna contained in the package. If the range of GSM/UMTS/LTE is low or none, an outdoor or indoor (for instance in place where GSM/UMTS/LTE range is sufficient) antenna should be used.

Note: *If there is no antenna connected to SMA connector, the connection with GSM/UMTS/LTE network is impossible.*

4.2.2 GNSS antenna connector

An SMA “GNSS” input is used to connect an external GPS/Glonass antenna. To establish connection with GPS/Glonass satellites and check the coordinates of the device, an external antenna must be used and should be located outdoors. GNSS is optionally available in RB900SG-L2 and RB900SG-L5 modem variants.

4.2.3 USB Interface

RB900SG terminal is equipped with a USB interface (as shown below). Type of connector is miniUSB. It is used for device configuration.



4.2.4 RS232/RS485/RS422 interfaces

The RB900SG terminal is equipped with RS232/RS485/RS422 interfaces in RJ45 socket. Use the jumper to switch between interfaces. All available jumper positions are presented in [7.1. Setting up the modem](#)

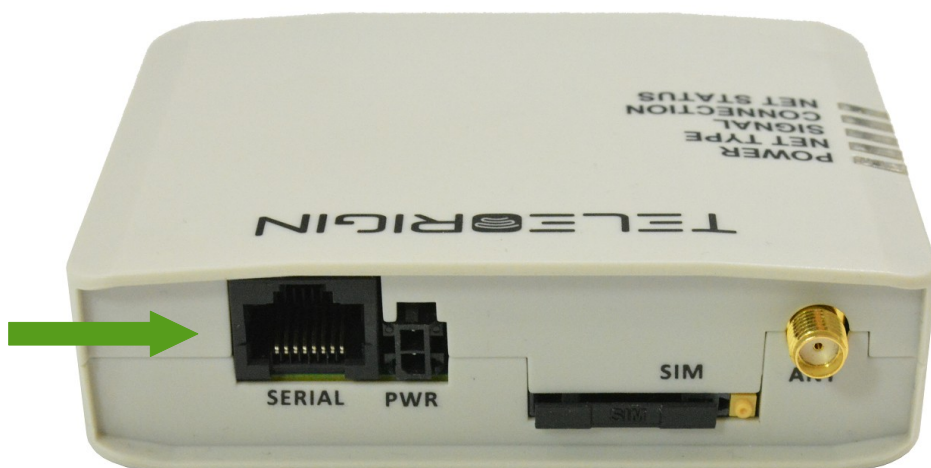
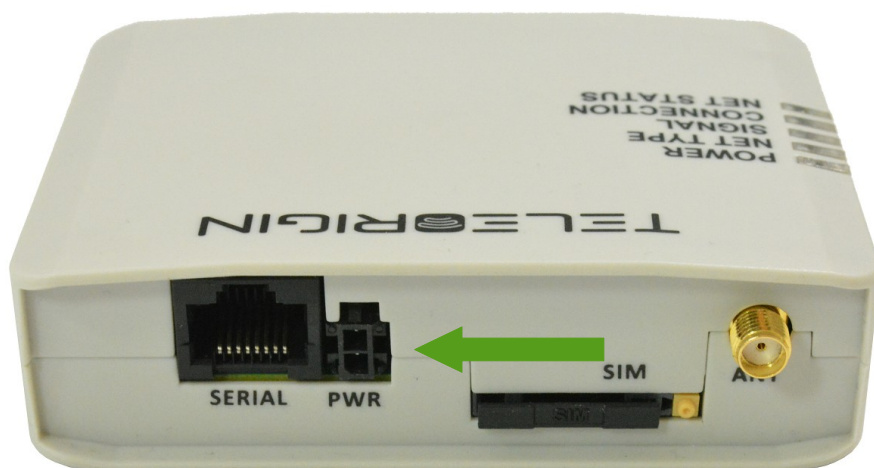


Table of RJ45 serial connector:

RJ45	RS232	RS422	RS485
1	VCC	VCC	VCC
2	-	TX-	DATA-
3	-	-	-
4	TX	TX+	DATA+
5	RX	RX+	DATA+
6	GND	GND	GND
7	DTR	RX-	DATA-
8	-	-	-

4.2.5 Power supply connector

The power supply connector is a 2-pin connector for external DC power supply connection, which can handle voltage from range 5..30 V DC, 2.5 W max. continuous power.



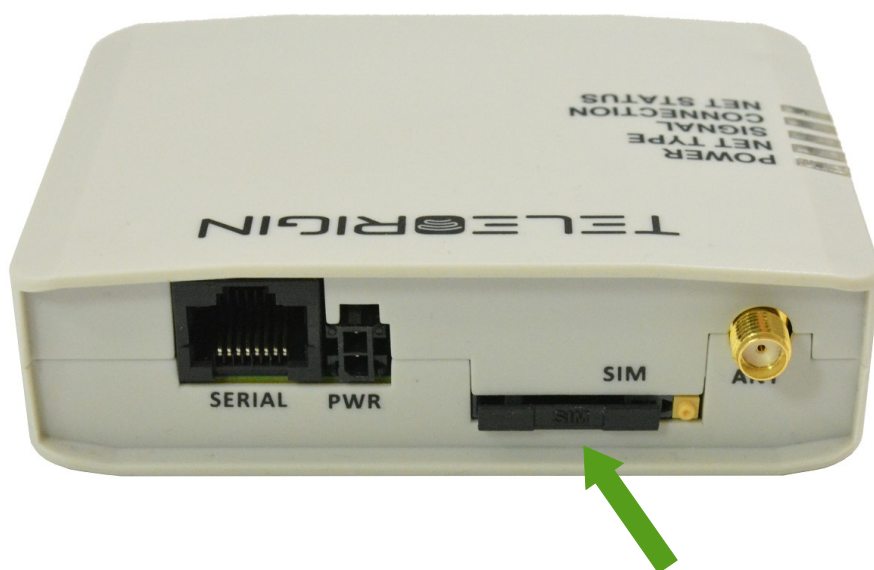
No.	Singal	I/O	Description
+	V+BATTERY	I	5 V – 30 V DC
-	GND	-	Ground

Attention!

An attempt to power terminal from a DC source outside of 5..30 V range may result in the physical destruction of the device.

4.2.6 SIM card holder

A SIM card holder is placed at the front of the RB900SG terminal (as shown below), and is accessible externally. To insert a SIM card into the holder, press the **yellow button**, eject the little drawer, place the SIM card inside and insert drawer into the modem (you will hear „click”). To operate the module in a GSM/UMTS/LTE/LPWA network, it is necessary to insert a SIM card obtained from the network operator.



4.3 Product sticker

Product stickers are on the modem and on the box of the product. They includes the following informations and markings:

- product serial number (IMEI)
- model signature
- CE marking
- 15-digit bar code
- manufacturer address



Device sticker



Box sticker

5. Basic features and services

Basic features and available services for RB900SG are contained in table below.

Feature/service	Description
Standard	Supported Bands: <u>RB900SG-L2:</u> - Cat M1/Cat NB1: LTE FDD: B1/B2/B3/B4/B5/B8/B12/B13/B18/B19/B20/B26/B28 - LTE TDD: B39 (For Cat M1 Only) - EGPRS: 850/900/1800/1900MHz <u>RB900SG-L5:</u> - LTE Cat M1/Cat NB2/EGPRS <u>RB900SG-E5:</u> - LTE FDD: B1/B3/B7/B8/B20/B28A - WCDMA: B1/B8 - GSM: 900/1800MHz <u>RB900SG-E1:</u> - LTE FDD: B1/B3/B7/B8/B20/B28A* - WCDMA: B1/B8 - GSM: 900/1800MHz <u>RB900SG-U6:</u> 800/850/900/1900/2100MHz @UMTS 850/900/1800/1900MHz @GSM <u>RB900SG-U5:</u> 900/2100MHz@UMTS 900/1800MHz@GSM Physical: 100 x 70 x 27 mm - Weight 170 g
Interfaces	Connectors - SMA for GSM antenna - SMA for GPS antenna (option) SIM Card 3.0V / 1.8V - STK 3.1 Connectivity - RS232/485/422 - USB 2.0 HS (configuration)
SMS	MO/MT Text and PDU mode
GSM/LTE supplementary services	TCP/IP
Power supply	5V – 30V DC

6. Using the modem

6.1 Setting up the modem

To set up the modem, follow these steps:

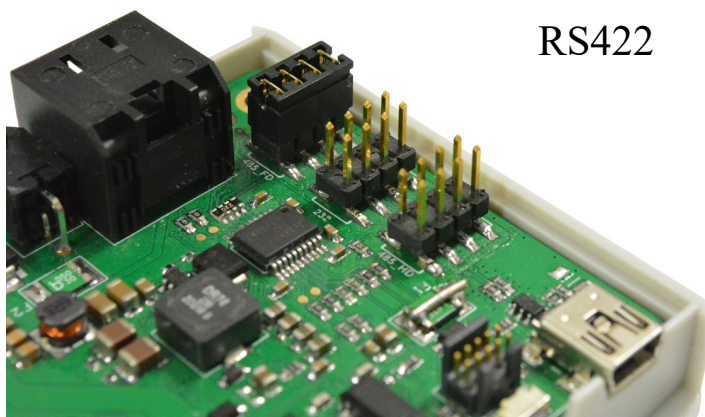
- Eject SIM card holder using yellow button and pull out the drawer.



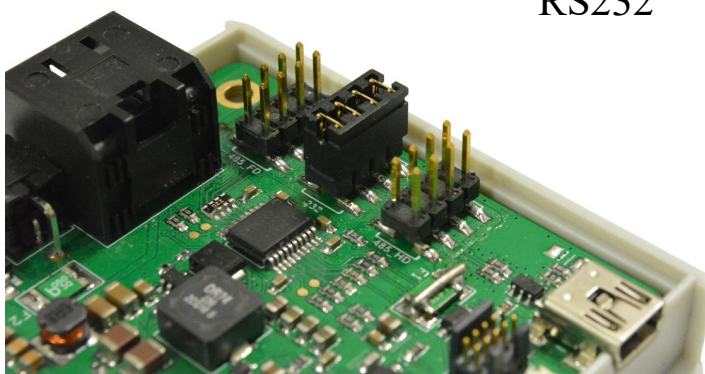
- Insert your SIM card into drawer.
- Verify if SIM card fits in the drawer properly (as shown below).
- Insert the drawer into the modem.



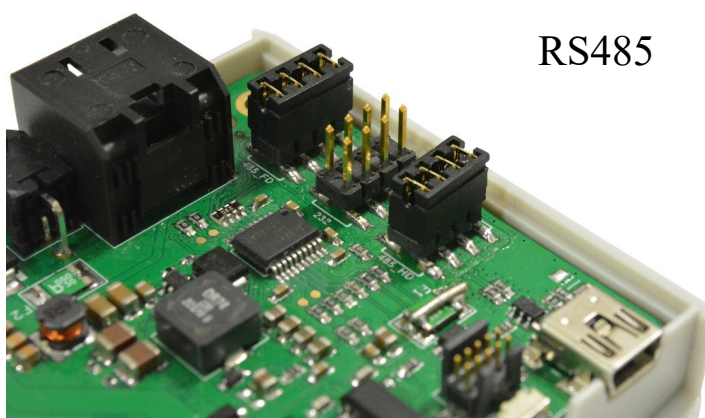
- Insert a jumper to one of the connector to set the right serial port. Possible jumper positions are described in a picture below



RS422

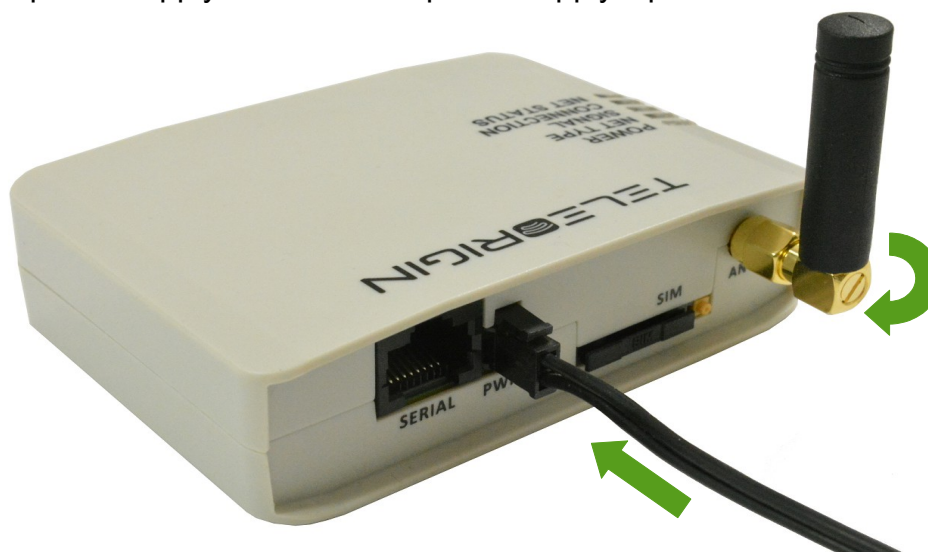


RS232



RS485

- Plug the power supply cable into the power supply input



- Connect the modem using RS232/RS485/RS232 RJ45 cable to meter or miniUSB cable to PC with configuration software
- Now the modem is ready to work.

6.2 Mounting the modem

To mount the modem inside the meter housing, please use one of the handles.



6.3 Checking the communication with the modem

Once the modem is connected you can check communication between RB900SG terminal and the PC using Teleorigin Manager configuration software. To communicate with the modem, use USB interface.

Using application you can set SIM PIN, APN, username/password, antenna configuration and TCP listen port. On the right side of program you can see standard informations from modem which are signal strength, registered network name, firmware/IMEI/model of GSM/LTE module and local IP address.

If a connection with the modem cannot be established do the following:

- Check if the modem is connected with PC via USB interface.
- Check if the number of COM port is correct.

6.4 Status of the modem (LEDs)

The operational status of the RB900SG Terminal is shown by external LEDs placed on the front panel of the modem.

The table below shows what is the meaning of LEDs.

LED name	LED color	Description
POWER	red	Lights when modem is power on
NET TYPE	green	- on: LTE - 750ms on, 250ms off: 3G - 250ms on, 750ms off: 2G - off: no network
SIGNAL	green	- on: CSQ ≥ 25 - 750ms on, 250ms on: CSQ ≥ 16 - 250ms on, 750ms off: CSQ ≥ 6 - off: CSQ < 6 or device not registered to the network
CONNECTION	green	- on: tcp server on and client connected to the server - 500ms on, 500ms off: tcp server on, no client connected - off: tcp server off
NET STATUS	green	- on: voice calling - 125ms on, 125ms off: data transfer is ongoing - 1800ms on, 200ms off: idle - 200ms on, 1800ms off: network searching - off: gsm off

6.5 RESET and BOOT buttons

To reset the device you can use RESET button on the right of the miniUSB connector. BOOT button is used for programming.

7. Troubleshooting

7.1 No connection/communication with the modem

If there is no communication with the modem take the following steps:

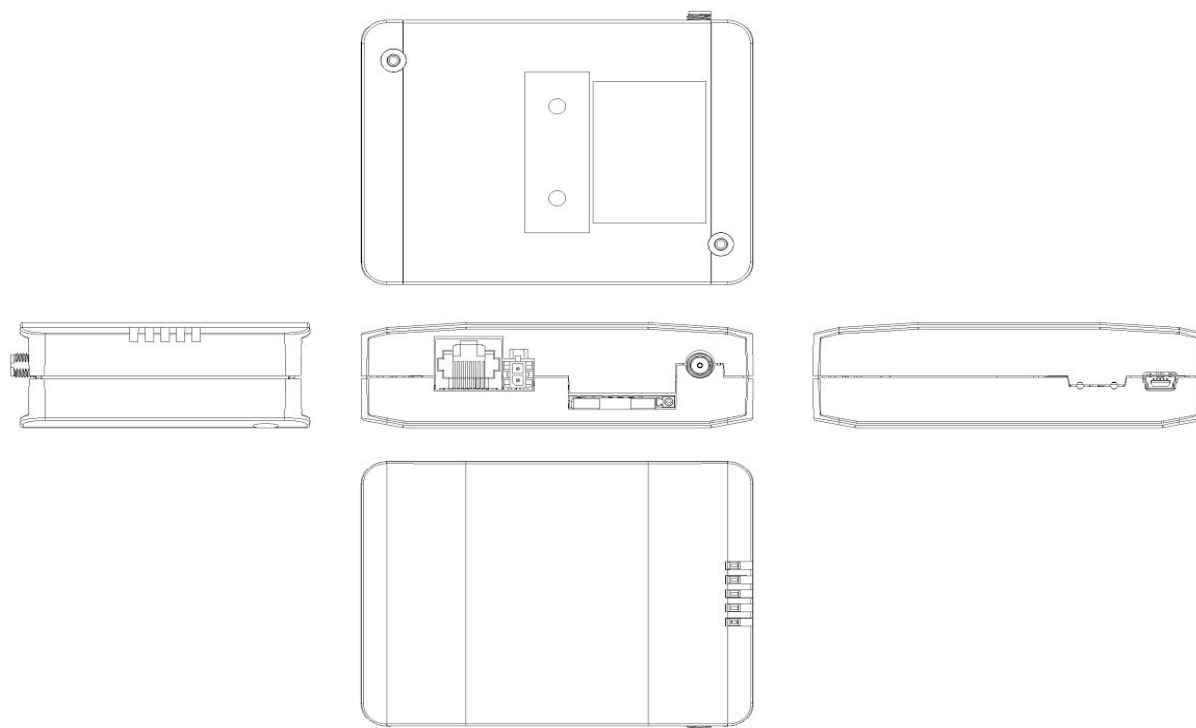
- Check all external connections of the modem (serial interfaces, USB, power supply)
- Verify if the power supply is correct (see Power supply)
- Check if the COM port is correctly
- Check if the program used for communication works properly and if there is no other program interfering. If yes, close the interfering program.

8. Technical specifications

8.1 Mechanical specifications

Max. dimensions	100 x 70 x 27 mm
Weight	≈ 120 g
Volume	170 cm ³

8.2 Housing description (dimension diagram)



9. Electrical specification

9.1 Power supply

- Nominal voltage range: 5..30 V, 10%
- Maximum continuous (average) supply power: 2.5 W
- Maximum continuous (average) supply current: 200 mA at 12V, 100 mA at 24V

9.2 RF specifications

RB900SG-L2:

Network	Band	Primary	Diversity	Sensitivity (dBm)	
				Cat M1/3GPP	Cat NB1 ¹⁾ /3GPP
LTE	LTE-FDD B1	Supported	Not Supported	-107.0/-102.7	-112.5/-107.5
	LTE-FDD B2			-106.7/-100.3	-112.5/-107.5
	LTE-FDD B3			-106.8/-99.3	-113/-107.5
	LTE-FDD B4			-106.9/-102.3	-112.5/-107.5
	LTE-FDD B5			-107.0/-100.8	-114/-107.5
	LTE-FDD B8			-107.3/-99.8	-113/-107.5
	LTE-FDD B12			-107.7/-99.3	-113.5/-107.5
	LTE-FDD B13			-106.5/-99.3	-112/-107.5
	LTE-FDD B18			-107.5/-102.3	-113.5/-107.5
	LTE-FDD B19			-107.1/-102.3	-114/-107.5
	LTE-FDD B20			-107.2/-99.8	-114/-107.5
	LTE-FDD B26			-107.1/-100.3	-113/-107.5
	LTE-FDD B28			-107.2/-100.8	-113/-107.5
	LTE-TDD B39			TBD /-103	Not Supported
Network	Band	Primary	Diversity	Sensitivity (dBm)	
				GSM/3GPP	
GSM	GSM850/EGSM900	Supported	Not Supported	-109/-102	
	DCS1800/PCS1900			-108.5/-102	

RB900SG-L5:

Network	Band	Primary	Diversity	Sensitivity (dBm)	
				Cat M1/3GPP	Cat NB2
LTE	LTE-FDD B1	Supported	Not Supported	-105.5/-102.3	Not Supported
	LTE-FDD B2			-105.5/-100.3	
	LTE-FDD B3			-104.8/-99.3	
	LTE-FDD B4			-104.7/-102.3	
	LTE-FDD B5			-105.1/-100.8	
	LTE-FDD B8			-104.8/-99.8	
	LTE-FDD B12			-105.5/-99.3	
	LTE-FDD B13			-104.8/-99.3	
	LTE-FDD B14			-105.5/-99.3	
	LTE-FDD B18			-105/-102.3	
	LTE-FDD B19			-105.2/-102.3	
	LTE-FDD B20			-105.1/-99.8	
	LTE-FDD B25			-105.4/-100.3	
	LTE-FDD B26*			-104.8/-100.3	
	LTE-FDD B27			-105.5/-100.8	
	LTE-FDD B28			-104.3/-100.8	
	LTE-FDD B66			-104.2/-101.8	
	LTE-FDD B71			Not Supported	
	LTE-FDD B85			-106/-99.3	

Network	Band	Primary	Diversity	Sensitivity (dBm)	
				Cat M1/3GPP	Cat NB2 ¹⁾ /3GPP
LTE	LTE-FDD B1	Supported	Not Supported	-105.4/-102.3	-116/-107.5
	LTE-FDD B2			-105.6/-100.3	-117/-107.5
	LTE-FDD B3			-104.5/-99.3	-114/-107.5
	LTE-FDD B4			-104.2/-102.3	-115/-107.5
	LTE-FDD B5			-105/-100.8	-115/-107.5
	LTE-FDD B8			-104.8/-99.8	-115/-107.5
	LTE-FDD B12			-105.2/-99.3	-116/-107.5
	LTE-FDD B13			-104.8/-99.3	-116/-107.5
	LTE-FDD B14			-105.2/-99.3	Not Supported
	LTE-FDD B18			-105/-102.3	-116/-107.5
	LTE-FDD B19			-105/-102.3	-116/-107.5
	LTE-FDD B20			-105/-99.8	-116/-107.5
	LTE-FDD B25			-105.2/-100.3	-116/-107.5
	LTE-FDD B26*			-104.6/-100.3	-116/-107.5
	LTE-FDD B27			-105.4/-100.8	Not Supported
	LTE-FDD B28			-104/-100.8	-116/-107.5
	LTE-FDD B66			-104.2/-101.8	-116/-107.5
	LTE-FDD B71			Not Supported	-112/-107.5
	LTE-FDD B85			-106/-99.3	-116/-107.5

Network	Band	Primary	Diversity	Sensitivity (dBm)	
				Cat M1/3GPP	Cat NB2 ¹⁾ /3GPP
LTE	LTE-FDD B1	Supported	Not Supported	-104.6/-102.3	-115/-107.5
	LTE-FDD B2			-104.8/-100.3	-115/-107.5
	LTE-FDD B3			-103.9/-99.3	-115/-107.5
	LTE-FDD B4			-104.3/-102.3	-115/-107.5
	LTE-FDD B5			-104.4/-100.8	-115/-107.5
	LTE-FDD B8			-104.4/-99.8	-115/-107.5
	LTE-FDD B12			-104.7/-99.3	-115/-107.5
	LTE-FDD B13			-103.8/-99.3	-115/-107.5
	LTE-FDD B14			-104.4/-99.3	Not Supported
	LTE-FDD B18			-104.4/-102.3	-115/-107.5
	LTE-FDD B19			-104.7/-102.3	-115/-107.5
	LTE-FDD B20			-104.4/-99.8	-115/-107.5
	LTE-FDD B25			-104.7/-100.3	-114/-107.5
	LTE-FDD B26*			-104.4/-100.3	-114/-107.5
	LTE-FDD B27			-104.4/-100.8	Not Supported
	LTE-FDD B28			-104.3/-100.8	-115/-107.5
	LTE-FDD B66			-104.4/-101.8	-115/-107.5
	LTE-FDD B71			Not Supported	-115/-107.5
	LTE-FDD B85			-104.9/-99.3	-115/-107.5
Network	Band	Primary	Diversity	Sensitivity (dBm)	
				GSM/3GPP	
GSM	GSM850/EGSM900	Supported	Not Supported	-107/-102	
	DCS1800/PCS1900			-107/-102	

RB900SG-E5:

Frequency	Primary	Diversity	SIMO	3GPP
EGSM900	-108.6dBm	NA	NA	-102dBm
DCS1800	-109.4 dBm	NA	NA	-102dbm
WCDMA B1	-109.5dBm	-110dBm	-112.5dBm	-106.7dBm
WCDMA B8	-109.5dBm	-110dBm	-112.5dBm	-103.7dBm
LTE-FDD B1 (10M)	-97.5dBm	-98.3dBm	-101.4dBm	-96.3dBm
LTE-FDD B3 (10M)	-98.3dBm	-98.5dBm	-101.5dBm	-93.3dBm
LTE-FDD B7 (10M)	-96.3dBm	-98.4dBm	-101.3dBm	-94.3dBm
LTE-FDD B8 (10M)	-97.1dBm	-99.1dBm	-101.2dBm	-93.3dBm
LTE-FDD B20 (10M)	-97dBm	-99dBm	-101.3dBm	-93.3dBm
LTE-FDD B28A (10M)	-98.3dBm	-99dBm	-101.4dBm	-94.8dBm

RB900SG-E1:

Frequency	Primary	Diversity	SIMO	3GPP
EGSM900	-108.6dBm	NA	NA	-102dBm
DCS1800	-109.4 dBm	NA	NA	-102dbm
WCDMA B1	-109.5dBm	-110dBm	-112.5dBm	-106.7dBm
WCDMA B8	-109.5dBm	-110dBm	-112.5dBm	-103.7dBm
LTE-FDD B1 (10M)	-97.5dBm	-98.3dBm	-101.4dBm	-96.3dBm
LTE-FDD B3 (10M)	-98.3dBm	-98.5dBm	-101.5dBm	-93.3dBm
LTE-FDD B7 (10M)	-96.3dBm	-98.4dBm	-101.3dBm	-94.3dBm
LTE-FDD B8 (10M)	-97.1dBm	-99.1dBm	-101.2dBm	-93.3dBm
LTE-FDD B20 (10M)	-97dBm	-99dBm	-101.3dBm	-93.3dBm
LTE-FDD B28A (10M)	-98.3dBm	-99dBm	-101.4dBm	-94.8dBm

RB900SG-U6:

Frequency	Receive Sensitivity (Typ.)
GSM850	-109.6dBm
EGSM900	-108.5dBm
DCS1800	-110dBm
PCS1900	-108dBm
UMTS850/800	-110dBm
UMTS900	-110dBm
UMTS1900	-109.5dBm
UMTS2100	-110.5dBm

RB900SG-U5:

Frequency	Receive Sensitivity (Typ.)
EGSM900	-109.5dBm
DCS1800	-110.5dBm
UMTS2100	-110dBm
UMTS1900	-110.5dBm
UMTS900	-110dBm
UMTS850	-110.5dBm

9.3 External antenna

The external antenna is connected to the modem via SMA connector. The antenna must have the parameters shown below in the table.

Antenna frequency range	Supporting GSM, UMTS or LTE frequencies
Impedance	50 Ω
DC impedance	0 Ω
Gain	0 dBi w/o cable; 2dBi w/ cable
VSWR (with cable)	-10 dB

The antenna chosen for working with the modem should best fit to the circumstances of the environment it is used in. When the modem is placed in a room, or somewhere where the range of networks signal is too low, an outdoor or a specific indoor antenna should be used.

9.4 Environmental characteristic

Table below gives the environmental operating conditions of RB900SG terminal.

Attention!

Exceeding the values may result in permanent damage to the module.

Parameter	Conditions	Min	Max	Unit
Ambient Operating Temperature		-20	60	°C
Storage Temperature		-40	85	°C
ESD	At antenna connector Contact Air At interface connector		± 6 ± 15 ± 1	KV
Humidity		5	85	%

10. Safety recommendations

10.1 General Safety

Please follow safety regulations regarding the use of radio equipment due to the possibility of radio frequency interference. Read the following advice carefully.

Switch **off** GSM/LTE terminal when:

- in an aircraft – using cellular telephones in aircraft may endanger the operation of the aircraft; it is illegal
- at a refuelling point
- in any area with potentially explosive atmosphere which could cause an explosion or fire
- in hospitals and any other places where medical equipment is in use

Respect restrictions of the use of radio equipment in any area or place where there are signs that using cellular telephones is forbidden or dangerous.

Using a GSM/LTE modem close to other electronic equipment may also cause interference if the equipment is inadequately protected. It may lead to damage or failure of the GSM modem or the other equipment.

10.2 Care and Maintenance

The RB900SG terminal is an electronic product that should be treated with care. Please follow the suggestions shown below to ensure the modem's life for many years.

- Do not expose RB900SG to any extreme circumstances like high temperature or high humidity
- Do not keep modem in dirty and dust places
- Do not disassemble the RB900SG modem
- Do not expose the modem to any water, rain or steam
- Do not drop, shake or knock your modem
- Do not place your modem close to magnetic devices – credit cards, etc
- The use of third party equipment or accessories, not made or authorized by Elproma Electronics, may invalidate the warranty of the modem and/or cause failure or permanent damage to the modem
- Do not expose the modem to children under 3 years old

10.3 Responsibility

The modem is your responsibility. Please treat it with care, and respect local regulations. This is not a toy – keep it out of the reach of children.

Try to use security features (PIN etc.) to block unauthorized use or theft.

11. Accessories

The pictures below shows optional accessories for RB900SG terminal.

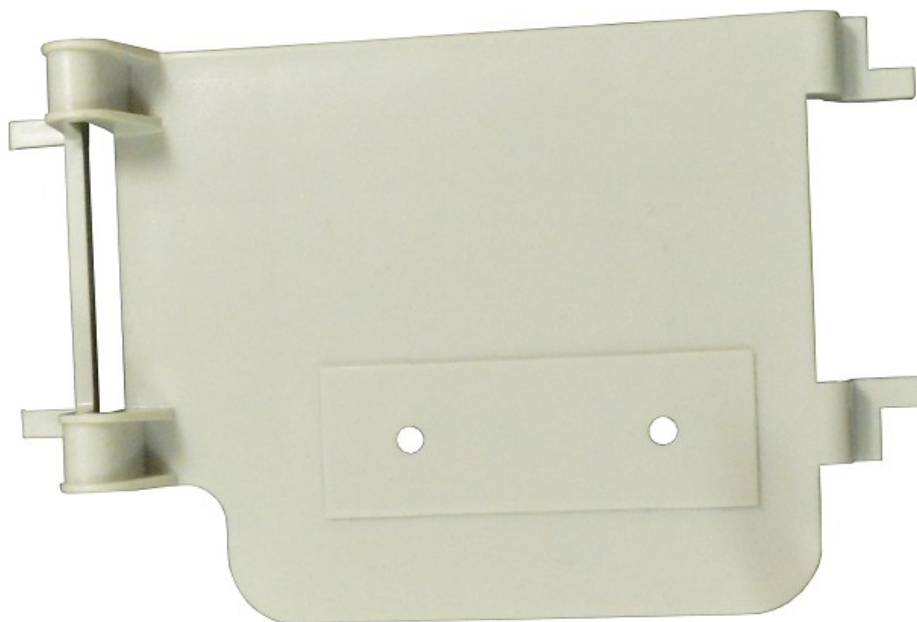
25cm RJ45 – RJ45 cable:



Handle 1:



Handle 2:



Handle screws:



LTE antenna:



Accessories P/N are listed in a table below.

Accessory	Part no.
25cm RJ45 -RJ45 cable	RJ451125CMCA
Handle 1	RB9HANDLEA1
Handle 2	RB9HANDLEA2
Screws	RB9SCREWS03
LTE antenna	LTEANT0B04EX
Internal antenna	LTEANTP062IN
Battery powered option (additional accumulator)	ACC700B000IN

12. Conformity Assessment Issues

The RB900SG has been assessed in order to satisfy the essential requirements of the RED 2014/53/EU directive to demonstrate the conformity against the harmonised standards with the final involvement of a Notified Body.



13. Safety Recommendations

READ CAREFULLY

Be sure the use of this product is allowed in the country and in the environment required. The use of this product may be dangerous and has to be avoided in the following areas:

- Where it can interfere with other electronic devices in environments such as hospitals, airports, aircrafts, etc
- Where there is risk of explosion such as gasoline stations, oil refineries, etc

It is responsibility of the user to enforce the country regulation and the specific environment laws.

Do not dismantle the product; any sign of tampering will compromise the warranty validity.

We recommend following the instructions of the hardware user guides for the correct wiring of the product. The product has to be fitted with a stabilized voltage source and the wiring has to be conform to the security and fire prevention regulations.

The product has to be handled with care, avoiding any contact with the pins, because electrostatic discharges may damage the product itself. The same cautions have to be taken for the SIM, checking carefully the instruction for its use. Do not insert or remove the SIM when the product is in power saving mode.

The system integrator is responsible of the functioning of the final product; therefore, care has to be taken to the external components of the module, as well as of any project or installation issue, because the risk of disturbing the GSM network or external devices or having impact on the security. Should there be any doubt, please refer to the technical documentation and the regulations in force.

Every module has to be equipped with a proper antenna with the correct specifications. The antenna has to be installed with care in order to avoid any interference with other electronic devices and has to guarantee a minimum distance from people (20 cm). If these requirements cannot be met, the system integrator has to assess the final product against the SAR regulations.

1. The unit does not provide protection from lightning and surge. For outdoor installation use outdoor nonmetallic case, safety approved according UL 50. Additionally you should provide protection from lightning and over-voltage according to the national code.

2. Be sure that the use of this product is allowed in the country and in the environment required. The use of this product may be dangerous and has to be avoided in the following areas: Where it can interfere with other electronic devices in environments such as hospitals, airports, aircrafts, etc. Where there is risk of explosion such as gasoline stations, oil refineries, etc. It is responsibility of the user to enforce the country regulation and the specific environment regulation. Do not dismantle the product; any sign of tampering will compromise the warranty validity. We recommend following the instructions of the hardware user guides for the correct wiring of the product. The product has to be supplied with a stabilized voltage source and the wiring has to conform to security and fire prevention regulations. The product has to be handled with care, avoiding any contact with the pins because electrostatic discharge may cause damage. Same caution have to be

taken when handling the SIM, please carefully check the instructions for its use. Do not insert or remove the SIM when the product is in power saving mode. The system integrator is responsible for the functioning of the final product; therefore, care has to be taken with the external components of the unit, as well as with any project or installation issue, because the risk of disturbing the GSM network and external devices, or having an impact on security. If in doubt, please refer to the technical documentation and the regulations in force. Every unit has to be equipped with a proper antenna with exact specifications. The antenna has to be installed with care in order to avoid any interference with other electronic devices and has to guarantee a minimum distance from the body (20 cm/8"). In case this requirement cannot be satisfied, the system integrator should assess the final product against the SAR regulations. The European Community provides some directives for the electronic equipment introduced on the market. All the relevant information available on the European Community website:

<http://europa.eu.int/comm/enterprise/rtte/dir99-5.htm>

The text of the Directive RED 2014/53/EU regarding telecommunication equipment is available, while the applicable Directives (Low Voltage and EMC) are available at:

http://europa.eu.int/comm/enterprise/electr_equipment/index_en.htm

14. List of Acronyms

ACM	Accumulated Call Meter
ASCII	American Standard Code for Information Interchange
AT	Attention commands
CB	Cell Broadcast
CBS	Cell Broadcasting Service
CCM	Call Control Meter
CLIP	Calling Line Identification Presentation
CLIR	Calling Line Identification Restriction
CMOS	Complementary Metal-Oxide Semiconductor
CR	Carriage Return
CSD	Circuit Switched Data
CTS	Clear To Send
DAI	Digital Audio Interface
DCD	Data Carrier Detected
DCE	Data Communications Equipment
DRX	Data Receive
DSR	Data Set Ready
DTA	Data Terminal Adaptor
DTE	Data Terminal Equipment
DTMF	Dual Tone Multi Frequency
DTR	Data Terminal Ready
EMC	Electromagnetic Compatibility
ETSI	European Telecommunications Equipment Institute
FTA	Full Type Approval (ETSI)
GPRS	General Radio Packet Service
GSM	Global System for Mobile communication
HF	Hands Free
IMEI	International Mobile Equipment Identity
IMSI	International Mobile Subscriber Identity
IRA	Internationale Reference Alphabet
ITU	International Telecommunications Union
IWF	Inter-Working Function
LCD	Liquid Crystal Display

LED	Light Emitting Diode
LF	Linefeed
ME	Mobile Equipment
MMI	Man Machine Interface
MO	Mobile Originated
MS	Mobile Station
MT	Mobile Terminated
OEM	Other Equipment Manufacturer
PB	Phone Book
PDU	Protocol Data Unit
PH	Packet Handler
PIN	Personal Identity Number
PLMN	Public Land Mobile Network
PUCT	Price per Unit Currency Table
PUK	PIN Unblocking Code
RACH	Random Access Channel
RLP	Radio Link Protocol
RMS	Root Mean Square
RTS	Ready To Send
RI	Ring Indicator
SAR	Specific Absorption Rate (e.g. of the body of a person in an electromagnetic field)
SCA	Service Center Address
SIM	Subscriber Identity Module
SMD	Surface Mounted Device
SMS	Short Message Service
SMSC	Short Message Service Center
SPI	Serial Protocol Interface
SS	Supplementary Service
TIA	Telecommunications Industry Association
UDUB	User Determined User Busy
USSD	Unstructured Supplementary Service Data

15. Online support

Elproma provides a range of online support which includes:

- the latest version of this document
- technical support
- latest version of RBSetup application

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THANK YOU