WIRELESS REPEATER SOFTWARE
For RPT230bat

U S E R M A N U A L

Rev. 1.0a

7 "Iskarsko shausse" blvd, building 4
1528 Sofia, Bulgaria
tel/fax: +359-2-9758105
www.gineers.com
office@gineers.com

TABLE OF CONTENTS

1. General information 3

2. Installation 4

3. Working with PC software RPT230batt 4
Setting a repeater 5
Additional information 7
Settings window 7

4. Quick start guide 7

5. Contacts 8

7 "Iskarsko shausse" blvd, building 4
1528 Sofia, Bulgaria
tel/fax: +359-2-9758105
www.gineers.com
office@gineers.com

1. General information

Wireless repeater RPT230bat is intended to be used on sites, where wireless m-bus coverage is poor and the installer does not have access to regular power supply (230Vac or 12/24 Vdc or Vac). This repeater in general works as a normal repeater with power supply, with some limitations in order to preserve battery power. The principle is as follows:

- Repeater can be programmed to work every day, for a period 1-23 hours
- Repeater can be programmed with starting hour every day
- When in active mode repeater re-sends every telegram in the air
- When in passive mode, repeater runs just the internal clock
- It does not limit meters via manufacturer, medium or ID (will be added as an option in near future)
- Repeater does not limit transmission hops
- Programming is made through the air, using serial number of the repeater and some sort of wireless transceiver, easier with our WMR-IoT v2
- Battery life depends mainly on the number of hours that the repeater will work every day

The general purpose of this User Manual is to give details of how the software operates and how to set properly main parameters of a wireless repeater on battery, RPT230bat.

To use the software user needs a wireless m-bus transceiver, like our WMR-IoT, v2. Of course, it is possible to use other types of transceivers, but in some cases this could need some adjustments to the software, which we are ready to make for separate cases.

By default repeater comes in "Storage" mode, which means repeater is not active at all. Each repeater is programmed to work for 2 hours, starting from 08:00 am each day. To activate a repeater user must press a button on the board. Then the repeater will go in normal operating mode and will start to work every day at 08:00. Moreover, when the button is pressed, repeater will start to work immediately for a defined period of time (15 minutes). This gives the opportunity to set it immediately and not to wait the starting hour. After the period passed – repeater will go to sleep mode and become active again next day, at the defined starting hour.
If a repeater is put in Active mode, but for some reason user wants to put it back in Storage mode – this is possible via setting command, implemented in the software.

Software can be used free of charge. Regular updates are made and uploaded on our site. We also can do custom changes by request.

7 "Iskarsko shausse" blvd, building 4
1528 Sofia, Bulgaria
tel/fax: +359-2-9758105
www.gineers.com
office@gineers.com

2. Installation

User should do the following steps:

2.1. Install FTDI-based drivers, if You are using our WMR-IoT, v2

2.2. Plug-in WMR-IoT in a free USB port (1.1, 2.0, 3.0)

2.3. Install software, if it comes as an installation file (setupRPT230bat.exe) or unzip in folder of choice, if it comes as RPT230bat.zip

You are ready to go! Start RPT230bat software. First thing to do is to go in menu Tools-> Settings and set proper serial port for communication. You can see the correct number in "Device Manager". Speed of communication is always 19200 bps, None, 8,1 – if WMR-IoT v2 is used for the setting.

Software requirements are low – you can use any computer with an USB port and Windows operation system (98, XP, Windows 7,8,10,11). Just install the drivers needed for a particular wireless m-bus dongle, used to transmit and receive the commands.

3. Work with PC software RPT230bat

The software is an easy and simple program, developed to set main parameters of repeater on battery. It gives also some extra possibilities for the user to check the repeater strength and coverage.

It is very important to remember, that each repeater can be set **ONLY** by using its own unique Serial number/ID. The serial number is written on the right side on each repeater, among with some other technical details.

Again, initial working parameters of each repeater, are as follows:

- Working period – 2 hours every daya
- Starting hour – 08:00 am each day
- Working wireless mode – T+C
- Serial number – written on the right side of the enclosure
- Serial port parameters – 19200, None, 8, 1, if Gineers transceiver is used

Main window of the program looks like below:

7 "Iskarsko shausse" blvd, building 4
1528 Sofia, Bulgaria
tel/fax: +359-2-9758105
www.gineers.com
office@gineers.com

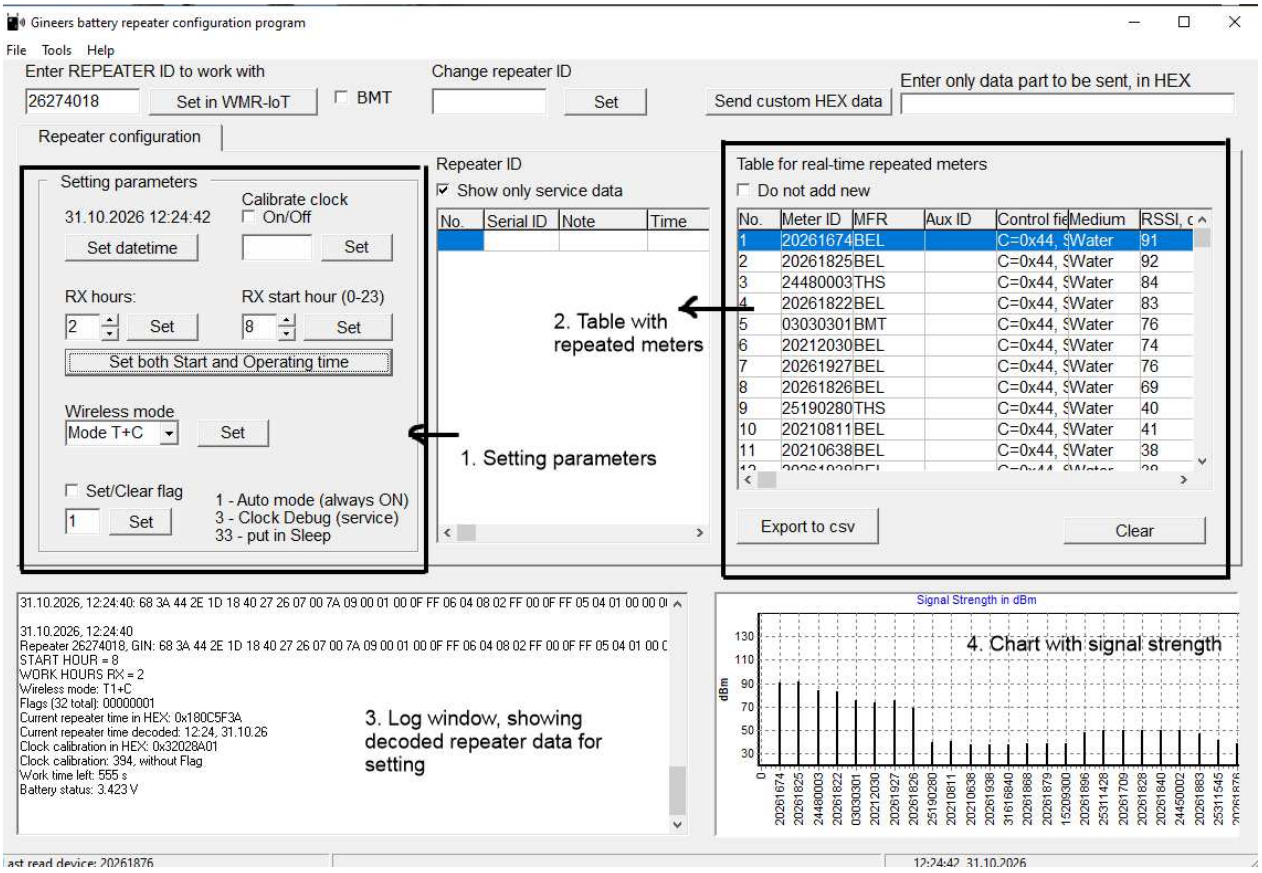


Fig. 1. Main view of RPt230bat setting software

The program window is divided to 5 important areas, as shown on the picture. The purpose of this areas is as follows:

1 - Setting parameters
2 – Table, which shows ONLY repeated meters
3 – Log window
4 – Chart, showing signal strength of the repeated telegrams

Setting a repeater

Assuming that a WMR-IoT is plugged into a USB port and serial port parameters are correct (check TAB Settings), first thing to do is to enter correct serial number in the field "Enter REPEATER ID to work with".

Then be sure that the repeater is in active working mode. If you are not sure – just press the button ON on the board, as shown on the picture below:

7 "Iskarsko shausse" blvd, building 4
1528 Sofia, Bulgaria
tel/fax: +359-2-9758105
www.gineers.com
office@gineers.com

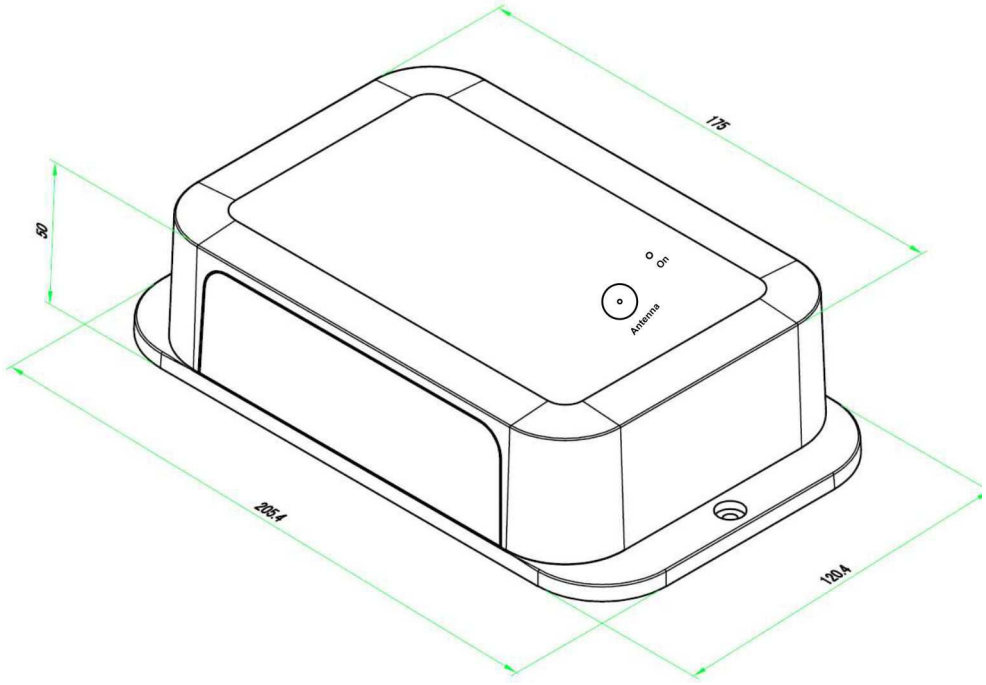


Fig. 2. Putting RPT230bat in active mode – press button ON with thin object

Now everything is ready for the real setting actions. The following parameters can be changed, using the options in "*Section 1*" of the program:

- Date and Time of a repeater
- Working wireless mode – possible T,S,C, T+C
- Working period each day – from 1 to 23 hours
- Starting time of each period – from 00 to 23
- Setting or clearing flags – mainly putting repeater back in storage mode

After each successful setting (or on each received telegram), repeater will answer with a telegram, in which all main parameters are transmitted. This telegram is decoded and shown in the *"Log window"*, so user can check are the parameters correct. In each of the telegrams the following info is shown:

- Working mode
- Current date and time of the repeater
- Working period
- Clock calibration

Clock calibration is a process in the factory, that adjusts the frequency of the internal quartz, used in the repeater clock. The idea is to lower as much as possible the drift in time of a particular quartz, so the datetime of the repeater stays stable during the years. The best possible adjust is to have a quartz with 5ppm drift, which means deviation with around 5 minutes each year. In the real world, even with calibration, consider this value to be

7 "Iskarsko shausse" blvd, building 4
1528 Sofia, Bulgaria
tel/fax: +359-2-9758105
www.gineers.com
office@gineers.com

something between 5 to 10 ppm. So user must have this in mind when setting the repeater starting and work hours, if this is important to be inline with external wireless concentrators, used to collect the data.

Additional information
On the right side of the program user can see two tables, in which are shown meters data, catched in the air. One of them is showing ONLY repeated meters. This info can come by any repeater around, but still the telegram is repeated somewhere for sure.
On the bottom of the program is shown as a chart the signal strength of each valid meter telegram received. This is measured in dBm and give us additional information which meters comes from the repeater of interest, because the signal strength depends on the physical distance between the repeater and the receiver we are using.

Settings window
The main parameters to be set, are the serial port parameters. If an USB device is used, then usually after installing drivers user will see a virtual COM port. Which one exactly is the one needed can be seen in *Device Manager* of Windows. Go to Device Manager and check section Ports to see which are available. Then set correctly name of the COM port, speed, parity and data bits. As written before, if WMR-IoT v2 is used, parameters should be 19200, None, 8, 1.

Once parameters are saved, the software will run with these settings every time started, unless the user changes the settings again.

4. Quick start guide

In order to put quickly device in operating mode, following steps should be make:

- plug the USB wireless dongle (WMR-IoT) in an USB port;
- set the proper COM port name, speed of 19200, None, since this is default speed and parity that WMR-IoT works;
- enter in the field "Enter REPEATER ID to work with" the serial number of the repeater You want to set;
- if repeater is in sleep or storage mode – with thin object press button ON through the small hole in repeater enclosure (the hole near the SMA antenna plug)
- set/change parameters of interest – date and time, working hours, start hour, wireless mode

7 "Iskarsko shausse" blvd, building 4
1528 Sofia, Bulgaria
tel/fax: +359-2-9758105
www.gineers.com
office@gineers.com

5. Contacts

"GINEERS" Ltd. - Electronics, automation and software

1528, Sofia, Bulgaria

7 "Iskarsko shausse" blvd, building 4

phone/fax: +359 2 975 81 05

office@gineers.com

If any questions, suggestions or troubles using this program, please write to support@gineers.com