dercoord.org

RUT installation instructions

For DEYE inverter, v.08/03/2025

www.dercoord.org
info@dercoord.org

GENERAL

The Teltonika RUT device is an Internet router with IoT capabilities, onto which we have installed additional special software for monitoring and controlling the inverter.

NB! The RUT device is password protected and cannot be accessed. If you need to change the settings due to network topology or other reasons, please contact info@dercoord.org and we can change the device parameters remotely.

NB! When restoring factory settings (factory reset), the necessary settings and installed special software will also be deleted and the device will no longer be suitable for monitoring and controlling the inverter, but it can still be used for normal purposes as a completely basic (IoT) network router.

INSTALLATION

The best place to install the RUT device is as close to the inverter as possible to avoid data communication errors caused by signal loss etc. when reading/writing data between the inverter and the RUT. It is always advisable to choose a longer LAN internet connection cable than a longer Modbus cable. If necessary, you can use wifi . See below.

As a first step: take a photo of the label on the back of the RUT device and save this information, because if you screw the RUT device to the wall, you will need to remove the device from the wall again later to see the information on the back side.

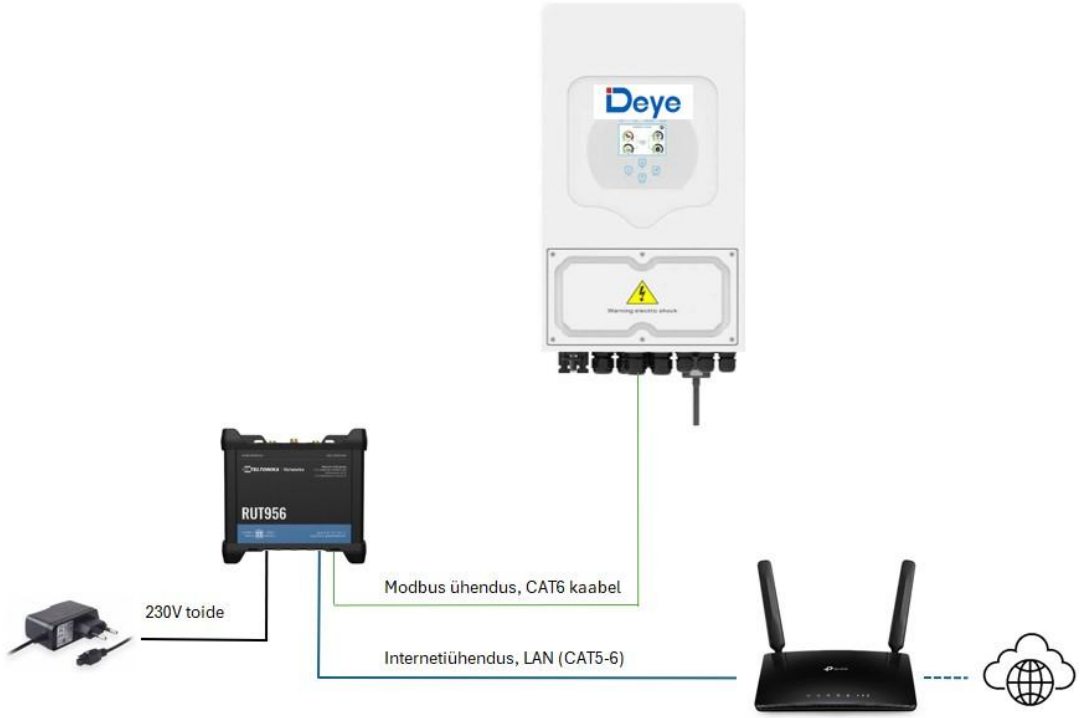
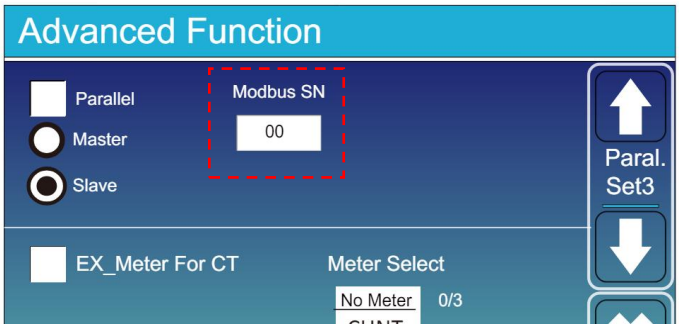


Fig. Basic installation diagram

1. The inverter's MODBUS SN must be changed - all values other than "0" or “00” are suitable. Also applies when using multiple inverters in parallel - master inverter SN must not be 0 or 00.

   Inverter MODBUS SN change is done via Deye Cloud/ Solarman via the app or from the inverter's LCD screen: Settings -> Advanced functions from the settings page (see below)

   NOTE: The inverter will restart when this setting is changed and then resume in normal work mode.



2. The RUT device requires 230V power supply.
   a. Connect the RUT device’s power supply to a 230V power outlet using the power adapter.

b. The device, plugged into the mains, starts working and flashes the lights + creates a wi-fi network called RUTXXX. The password for the wi-fi network can be found on the device sticker (label on back side). The device takes up to a few minutes to start up and be operational.

3. RUT device requires internet connection*
    a. Connect a LAN cable from your local network router / switch to the **WAN port** of the RUT device **.**

       The WAN port is labeled with the appropriate letters “WAN”, it is the last one from the edge of the device, next to the green 6-pin connector.

       If a network cable is not available, consider using *a powerline adapter* or similar solution for a stable wired connection.

    b. Check if the RUT device has a internet connection to the outside world
        i. Log in to the RUTXXX wifi network and try opening e.g. **www.dercoord.org** in your browser.

4. **NB! The RUT device is assigned a fix . LAN IP address 192.168.2.1** . If there is another device with the same address on the network, this may cause a conflict and the connection will be disrupted. Change the IP address of the other device or temporarily leave only the RUT device on the network and contact info@dercoord.org so that we can remotely change the device's IP address to a suitable one. If you already know when ordering that you need a different IP address, please let us know in advance. See also the section Remote Management .

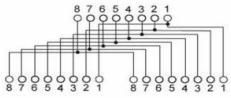
5. The RUT device needs to be connected to the inverter to communicate with it.
    a. Connect the Modbus cable adapter (green connector on one end, RJ45 network cable socket on the other end) to the RUT device.

Photo: Internet cable and modbus cables connected correctly.

b. Connect a CAT network cable to the RUT and the inverter BMS port:

   i. LV i.e. low voltage battery inverter – use a port splitter – this way the battery BMS communication and RUT device remain connected in parallel

      The port splitter must definitely be of the so-called 1:1 type , i.e. with an uncrossed connection. For example. https://www.yeint.ee/it-multimeedia/arvutivork/arvutivorgu-materjal/arvutivorgu-adapterid/goobay-68911-ee-utp-10-100-pordi-jagaja-1-1



      NB! Depending on the inverter FW (update to latest), you can also try using the Mod(e)bus port for connecting the RUT. This is especially helpful with non-DEYE brand batteries which also have modbus communication active and thus interfere with data read/write commands from RUT.

   ii. HV i.e. high voltage battery inverter – use a free BMS port (BMS2) or Mod(e)bus/RS485 port depending on the inverter FW version. If the

connection fails, try moving the cable around or, in the case of an occupied port, try the approach with a port splitter in the previous point.

c. NB! If possible, use the highest quality, e.g. CAT6 cable to reduce false signals caused by communication interference between the inverter and the dercoord system.

6. Go to www.dercoord.org and register as a user with your desired email address.
   a. The second step in the user registration process is to click on the confirmation link in the email sent.
      i. If you haven't received an email with a confirmation link, check your spam folder.

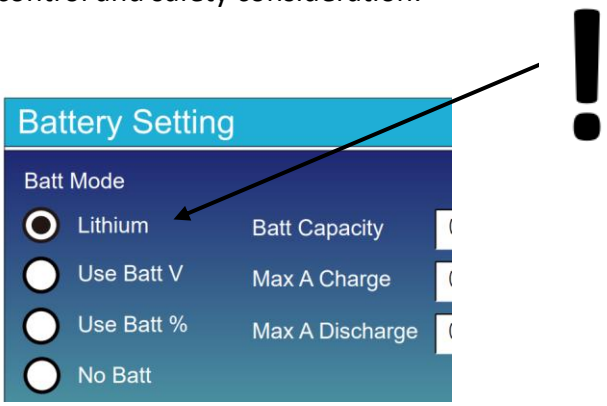
   b. Upon successful registration, the dercoord.org system main page will open and you will be able to start a step-by-step guided flow to add your site.

   c. When asked for the serial number of the RUT device. Enter the 10-digit SN from the RUT device label. You can also find the same code on the RUT device box.

7. The setup flow also asks to check and confirm the inverter settings, which can later be edited on the **CONFIG** page. On this page you will also be able to add detailed info about your **electricity import/export fees** and you **can add solcast features** for PV forecasting once you sign up there.

Guidance for battery settings:

Battery mode
Only LITHIUM mode is supported, ie. CAN/RS485 communication is a must for system control and safety consideration.



Battery nominal V and A setting
HV GB-L batteries – number of batteries x2 x51.2V, n. 4 batteries 409.6V
HV BOS-G batteries – number of batteries x51.2V, n. 12 batteries for 614.4V
LV batteries – 51.2V
Batteries from other manufacturers – refer to the specification.

When determining the amps, refer to the maximum allowed by the inverter and/or the appropriate setting for the cabling when determining the nominal. For example: 12kW 3F inverter , 240A, if the cabling is also min. 95mm2 or more.

PS! We strongly suggest using the “peak shaving” function and setting the max W your mains breaker can handle. For instance 25A 3P system – 15000-16000W

Additional information

8. The RUT device also comes with 4G and Wi-Fi antennas and a GPS antenna. They do not need to be connected in today's *beta* solution. There are also accessories for adding one connector and SIM, for future use - keep them.

9. Connecting the Wi-Fi antennas to the RUT device allows you to use the Wi-Fi network the RUT device creates according to your needs. For example, using it for Deye inverter’s Deye Cloud/ Solarman connection, if the inverter uses a Wi-Fi logger . The network name is RUTXXX and the password to access the wifi network is on the device label on the back side.

   * It is possible to connect the RUT device to a local wi-fi network, but a more reliable LAN cable solution is preferred. By writing to info@dercoord.org , in addition to the LAN connection, we can also activate a wi-fi connection, including a backup network connection - this requires remote access to the RUT device.

   ** In addition, it is possible to add a SIM card (or 2) to the RUT device for an additional backup network connection in case the wifi / lan network is disrupted or a conflict occurs in the settings. By writing to info@dercoord.org we can activate the SIM card - this requires remote access to the RUT device. NB! The use of mobile data is probably economically unreasonable, as the device uses approximately 5+GB of data per month, even more when installed in parallel with inverters .

10. The router's vacant LAN ports (3) can also be successfully used based on your needs. For example, for a Deye inverter’s Deye Cloud/ Solarman connection when using a LAN logger.

11. For remote management, it is necessary that the RUT device can establish a connection with the Teltonika RMS system. For example, to resolve the backup connection in p. 9

(mobile or wifi) or the IP conflict in p. 3, the device must first be moved to the LAN network or resolve the IP conflict using an alternative network.

Remote management is also needed to be working for updating the RUT device FW.

If the device is located on a network with severely limited ports or other network rules, follow the instructions in the following link for network configuration and set your network accordingly: https://wiki.teltonika-networks.com/view/What_IP_addresses_and_ports_are_used_by_RMS%3F