ADVANGRID

Wireless 3-phase 4-wire Power Monitoring Sensor

AdvanGrid GridLink

User Manual



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GRIDLINK INSTALLATION MANUAL

This manual explains how to set up a GridLink device and contains the rules for operating it. Please read this manual before setting up and using the GridLink device. The manufacturer doesn't take any responsibility for any damage that has been done to the device while not following the installation and exploitation requirements in this manual. The manufacturer doesn't take any responsibility for fully or partially lost data caused by unprofessional actions made by a third party.

WORK SAFETY REQUIREMENTS

- Installing and servicing the GridLink device is an increased hazard job, that can be done only by a specially trained electrician.
- Personnel doing GridLink setup, maintenance, and check-ups must be qualified and certified to do electrical work.
- Live-line working must be done with extreme caution and according to all regulations regarding live-line, electrical work, and personal safety in your country.

PREPARATION BEFORE INSTALLATION

Find out the type and voltage of the electricity grid. The GridLink device can only be used in 0.4kV 3-phase electricity grids with a neutral.

Before installing the GridLink device, make sure that the particular device configuration fits the electrical wiring and parameters. Check if the Rogowski coils or current transformers can be wrapped around the chosen cables or busbars and choose the appropriate voltage connection option - magnetic connectors ur crocodile clips.

There's also a need to take note of the location where the device will be placed. If the device will be placed in a metallic distribution board, you need to check if an outer GSM antenna is required to improve the signal strength (see chapter 4).



GRIDLINK SETUP

1. Installing Rogowski coils or current transformers

Installation starts with mounting Rogowski coils or current transformers on the electrical conductors. The Rogowski coils and current transformers are marked with phase numbers. It's important for making a correct voltage connection and phase load traceability. Also, it's important to note the direction of the arrow on the Rogowski coil- it needs to be pointed from the electricity source to the load (see picture 1.1.).



Picture 1.1.

Make sure that the coil loop's fixation mechanism is properly closed. In the process of setting up the device you must follow the state of the cable connector and make sure that it's not exposed to any harmful factors (water, mud, oil, etc.).

The surplus cable length should be rolled up in a loop with a diameter no smaller than 15cm and fastened in a way that the connector and coil aren't exposed to unnecessary strain.

When the coils have been set up, they can be connected to the GridLink device.

2. GridLink setup un connecting Rogowski coils

GridLink can be mounted on a 35mm DIN rail (using the included mounts) or in any appropriate place while making sure that it isn't hanging by its cables and there isn't unnecessary strain on the connectors.

It is recommended to mount the device as far as possible from hot objects and in places where the temperature doesn't exceed 50°C. Also, any unnecessary exposure to direct sunlight should be avoided. In places where there are no shadows the device's cover should be pointed north.



Picture 2.1.

When using Rogowski coils the coils can be connected/disconnected when there is current flowing in the conductor.

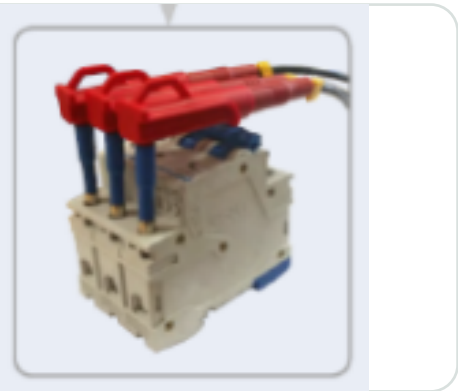
There are a few GridLink generations, some come with external coil connectors, some without. When connecting the coil connectors the white lines on both connectors must be aligned and then you can plug them in (see picture 2.1.). The phase markings on the device and Rogowski coils must be the same.

When working in humid conditions it's recommended to spray moisture-repellent aerosol on the connector contacts.

3. Connecting the voltage cable

The magnetic connectors can be easily connected to circuit breaker screw heads (Picture 3.1.);

Crocodile clips are used for open busbars and cable connections (Picture 3.1.);





(Picture 3.1.)

When installing a GridLink device, the neutral must always be the first connected voltage wire.
When removing the device, the neutral must be disconnected last.

When connecting the voltage wires, special attention must be paid to the neutral connection place. Make sure that the contact surface is clean and decrease the probability that the neutral connection could be lost while installing and using the GridLink device.

The voltage phase wire connecting order is not important, but make sure that the phase markings fit the markings on the Rogowski coils.

When connecting the phase wires to live conductors be ready for some sparking that occurs because of the transition processes in the device. As the device is fed from the 3rd phase the sparking will be more severe than in the other phases.

To minimize load on the GridLink components, the phase connection should be performed fast to avoid repeating sparks because of a bad connection.

After installing the voltage connection make sure that there is no unnecessary strain on the connectors because of the weight of cables or other factors as it could lead to a loss of contact.

After setting up the device you need to make that the connection is correct and that the device has a connection to the mobile carrier.



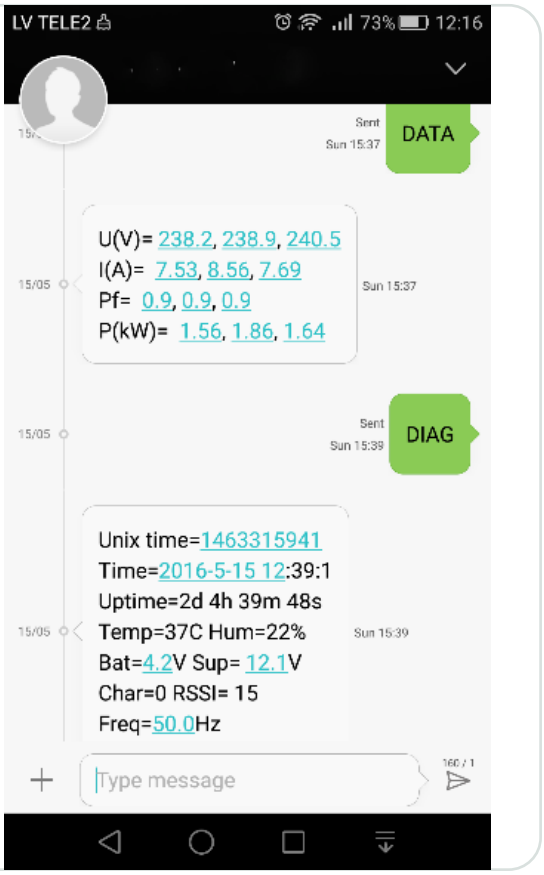
4. Checking the connection

You can check the connection by sending an SMS from your phone to the device. If the device isn't responding by sending an SMS back to you, there might be a need to connect the GSM antenna to the device.

You can get various information by sending SMS messages to the device (Picture 4.1.):

- send an SMS with the text "DATA" to get data about electrical parameters from the device. It shows the voltage, current, active power, and power factor for every phase;
- by sending an SMS with the text "DIAG" you can see various diagnostic data. The most important parameter is RSSI (received signal strength indication)- it shows the signal strength from the mobile carrier. This number can be anywhere from 0 to 31. If it's lower than 10, the quality of the data connection to the server will be impacted negatively
- "INFO"- acquires identification data;
- "FLIPIPGA"- switches the current measurement range from 400A to 2000A and vice versa.

Pay attention to the sign before the active power and the power factor. A low power factor can be a sign that the phase wires aren't connected correctly. A negative active power can show up because the Rogowski coils or current transformers are installed in the wrong direction.





(Picture 4.1.)

If the RSSI of a device indoors is lower than 10, you must connect the GSM antenna (Picture 4.1.) and put it somewhere with a better signal. The antenna can also be useful outdoors when the signal is weak and it's not possible to position the device in the direction of the cell tower.