Gridphase WEB

DEWESoft®

SOFTWARE USER MANUAL

Gridphase WEB

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About this document

This is the user's manual for the GRIDPHASE WEB software application. Dewesoft Gridphase is a phase identification system for use in power grids. The system comprises three main components namely the Gridphase Handheld device, Gridphase reference device and the Gridphase web multitenancy cloud application. The technical reference manuals for the Gridphase reference device and Gridphase handheld devices are available in a separate document. Detailed technical specifications are available in the corresponding datasheets for both Gridphase reference and Gridphase handheld devices.

Legend

The following symbols and formats will be used throughout the document.

Important
It gives you important information about the subject.
Please read carefully!

Hint
It gives you a hint or provides additional information about a subject.

Example
Gives you an example of a specific subject.

Introduction

The Gridphase web application provides the customer with different integration options and enables the compensation of transformer vector groups in the network. With vector group compensation the unified phase frame can be achieved for the complete distribution network.

Signing in

Dewesoft Gridphase web application can be accessed from https://gridphase.gridinstruments.com with your email address that needs to be registered by the system administrator. For that please contact our office. After that input your email address and you will receive an email with confirmation code with which you sign in. There is no need for a password. Each time you log out or login in on a new computer you will need to enter your email address and then you will be prompted to input a 6 digit code which you will receive via email.

Web overview

The web application was designed for easy use. You can see your login info on the bottom right where you can also logout and there is a main menu on the left side that has **Your organizations** main tabs.

Devices

Under devices you can see all devices assigned to your organization. These include your handheld field use devices as well as your reference devices that you can connect to. New delivered devices are already assigned to your organization.
Each device has its own serial number (Device ID column) and name which can be easily changed to be more clear by pressing the orange icon under the actions column. Device type (handheld / reference) is also described.
Serial numbers correspond to the ones written at the back of each device.

Devices are paired to your reference automatically and can't access reference points that are not in your organization. This does not omit the operational capabilities in other zones as long as the grids are connected.

Network load

Network load functionality allows the utility to make phase loading of end customers available for the installers that are using the Gridphase system. The loading of end-points (customers) needs to be loaded into application, the CSV format with example is shown below.

```
None
customer_number,meter_id,transformer_id,customer_phasing,total_line_impedance_zabs,total_neutral_impedance_zabs,contracted_power,voltage_l1_avg,voltage_l2_avg,voltage_l3_avg,voltage_l1_p1,voltage_l2_p1,voltage_l3_p1,voltage_l1_p99,voltage_l2_p99,voltage_l3_p99,voltage_max,voltage_min,current_l1_avg,current_l2_avg,current_l3_avg,current_l1_p1,current_l2_p1,current_l3_p1,current_l1_p99,current_l2_p99,current_l3_p99,current_max,voltage_imbalance_max,location
224809293202388,29868271,Katapult-1,123,0.222,0.25,27.600,198.7,240.64,234.67,195.61,231.72,209.63,247.12,248.99,247.68,240.64,198.7,26.1,16.69,15.09,19.14,12.13,6.0,26.16,31.28,30.33,40,16.65,POINT (45.780604 14.042281)
```

The required fields are as follows:

Field name	Field description	Format	Example
customer_number	Customer ID	String	224809293202388
meter_id	Meter serial number	String	29868271
transformer_id	Secondary substation ID	String	Katapult-1
customer_phasing	Phasing sequence	String	123
total_line_impedance_zabs	Thevenin line impedance in Ohm	Float	0.222

total_neutral_impedance_zabs	Thevenin neutral impedance in Ohm	Float	0.25
contracted_power	Contracted power in kW	Float	27.600
voltage_l1_avg	Average L1 voltage	Float	198.7
voltage_l2_avg	Average L2 voltage	Float	240.64
voltage_l3_avg	Average L3 voltage	Float	234.67
voltage_l1_p1	1st percentile of voltage in L1	Float	195.61
voltage_l2_p1	1st percentile of voltage in L2	Float	231.7
voltage_l3_p1	1st percentile of voltage in L3	Float	209.63
voltage_l1_p99	99th percentile of voltage in L1	Float	247.12
voltage_l2_p99	99th percentile of voltage in L2	Float	248.99
voltage_l3_p99	99th percentile of voltage in L3	Float	247.68
voltage_max	Max voltage across all three phases in the last time period	Float	240.64
voltage_min	Min voltage across all three phases in the last time period	Float	198.7
current_l1_avg	Average current in L1	Float	26.1
current_l2_avg	Average current in L2	Float	16.69
current_l3_avg	Average current in L3	Float	15.09
current_l1_p1	1st percentile of current in L1	Float	19.14
current_l2_p1	1st percentile of current in L2	Float	12.13
current_l3_p1	1st percentile of current in L3	Float	6.0
current_l1_p99	99th percentile of current in L1	Float	26.16

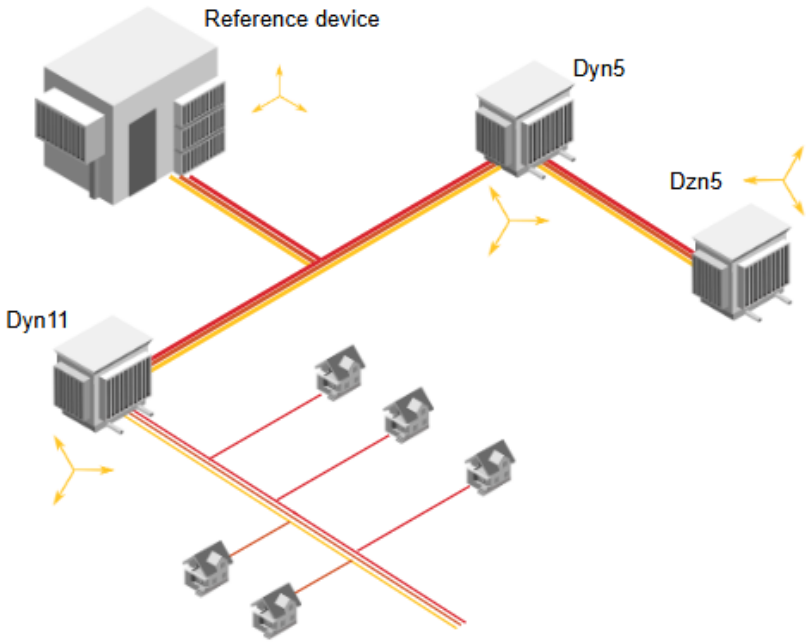
current_l2_p99	99th percentile of current in L2	Float	31.28
current_l3_p99	99th percentile of current in L3	Float	30.33
current_max	Max current across all three phases in the last time period	Float	40
voltage_imbalance_max	Max voltage imbalance (Vmax - Vmin) in the last time period	Float	16.65
location	Location of the end node	Position	POINT (45.780604 14.042281)

Parsers

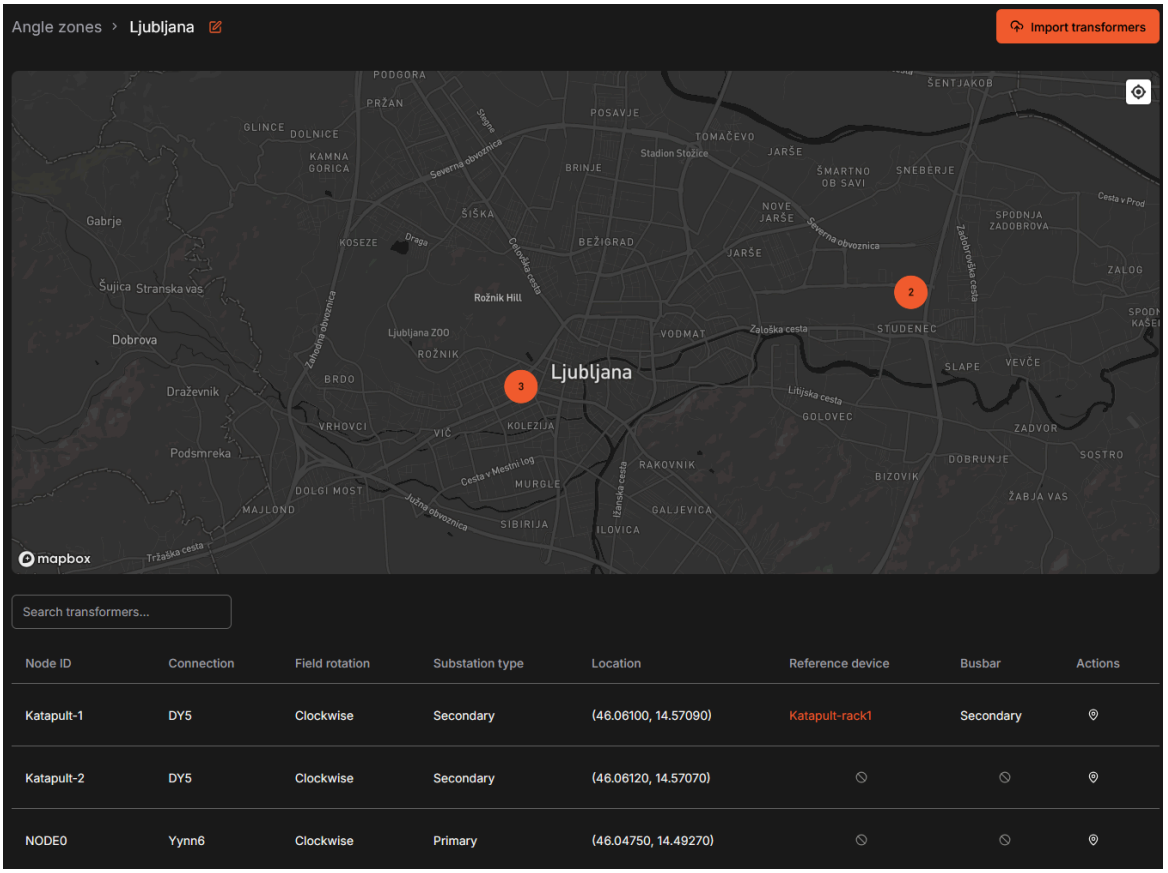
A meter serial number is encoded in a bar or QR code and engraved on a meter. Usually the code includes more parameters besides a meter serial number. A parser is thus needed to automatically extract the serial number from a QR code scan. It is possible to add a parser with a name and REGEX in format "([A-Za-z0-9]+)" . By clicking on the added parser you can also test it by inputting into the test field.

Angle zones

To make vector group compensation automatic, you need to set up the angle zones in the Gridphase web application.



You add a new angle zone with the Add angle zone button on the top right of the screen. A prompt will open where you name it, and provide a radius that the mobile app will consider when looking for upstream supply points -- these will be the substations (primary and secondary) that will be uploaded into the application. When saved you can click on it and an interactive map will appear.



Importing zones

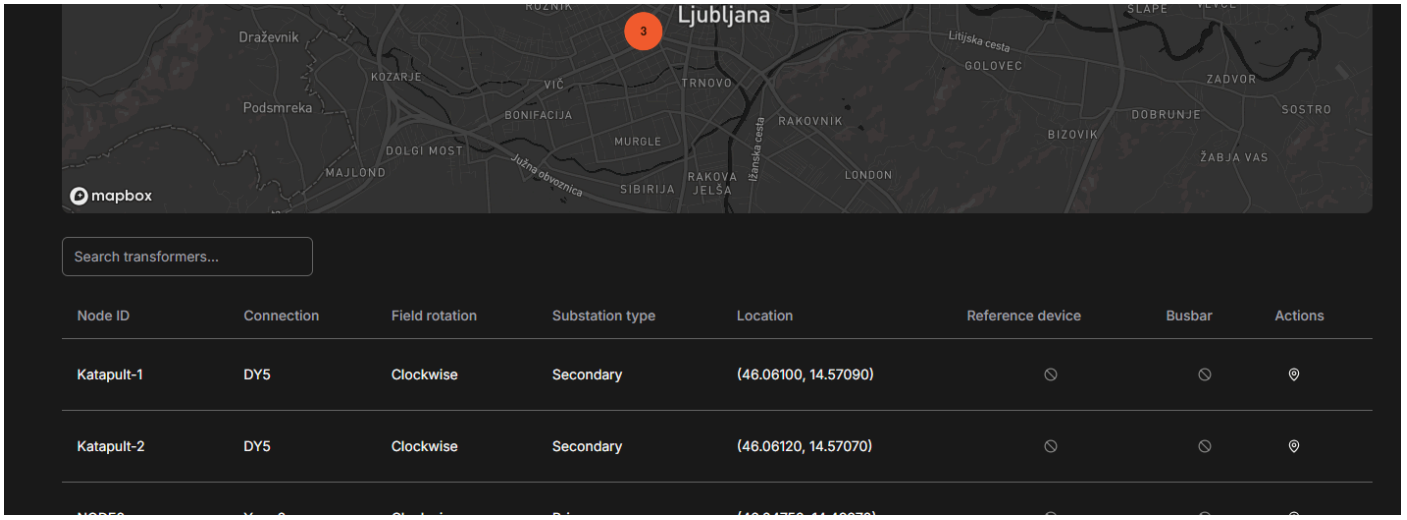
To import your nodes/transformators use an Import transformers button on top right and import the .csv file with new transformers you wish to add. If there are already existing transformers in a zone you can select an add only new as import mode. The format for import is:

NAME, CONNECTION, VECTORGROUP, FIELDROTATION ,SUBSTATIONTYPE, geometry

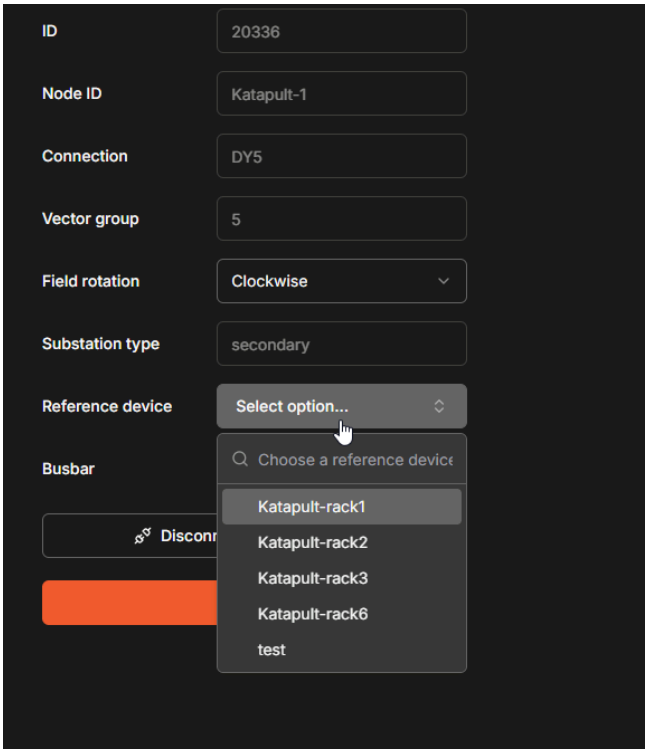
Example:
NODE0,Ynn6,6,123,1,POINT (latitude longitude)

where field rotation 123 is clockwise and substation type 1 is primary while type 2 is secondary.
Apart from field rotation this can't be edited later.

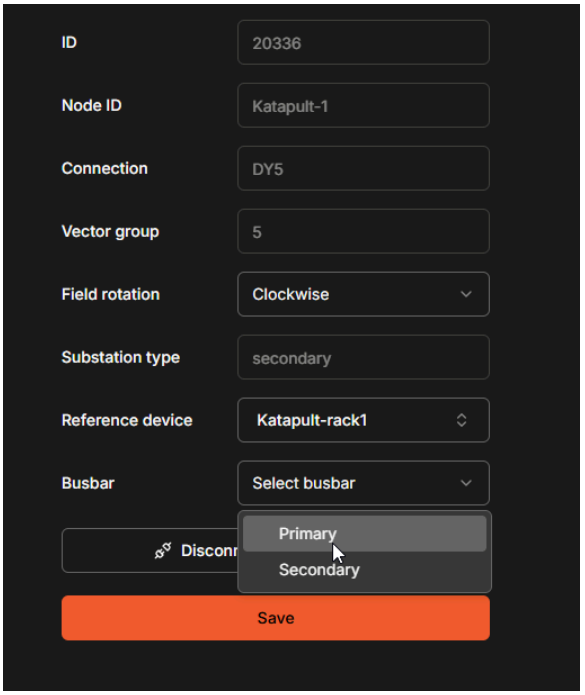
After having imported nodes you can, by clicking on them, assign a reference device from your organization and a busbar type.
Upon adding the list of substations, you need to assign a reference device to a node so the system will be able to calculate the correct angle correction at the point of field measurement. You do this by clicking on the node ID that corresponds to the substation where the reference device is installed.



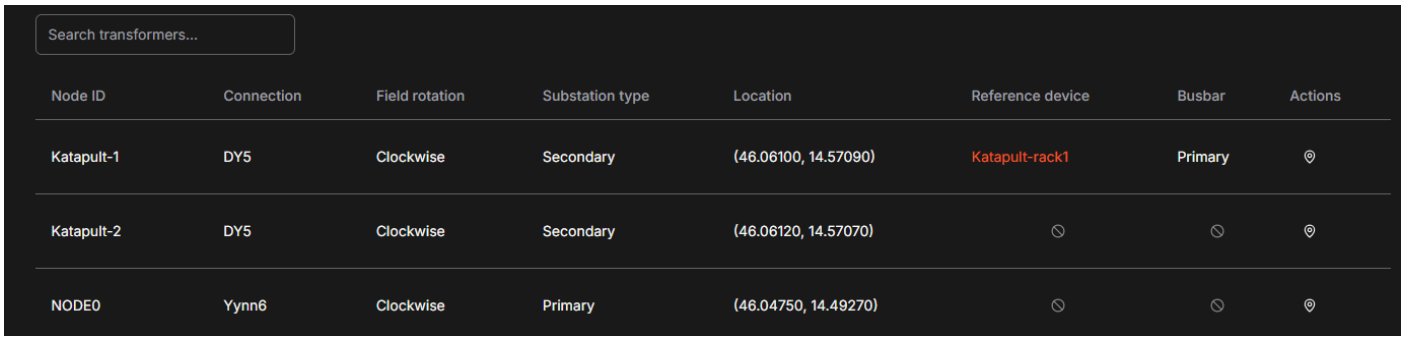
You then select the reference device from the drop down menu



Afterwards you select the side of the transformer the reference device is connected to (primary or secondary).

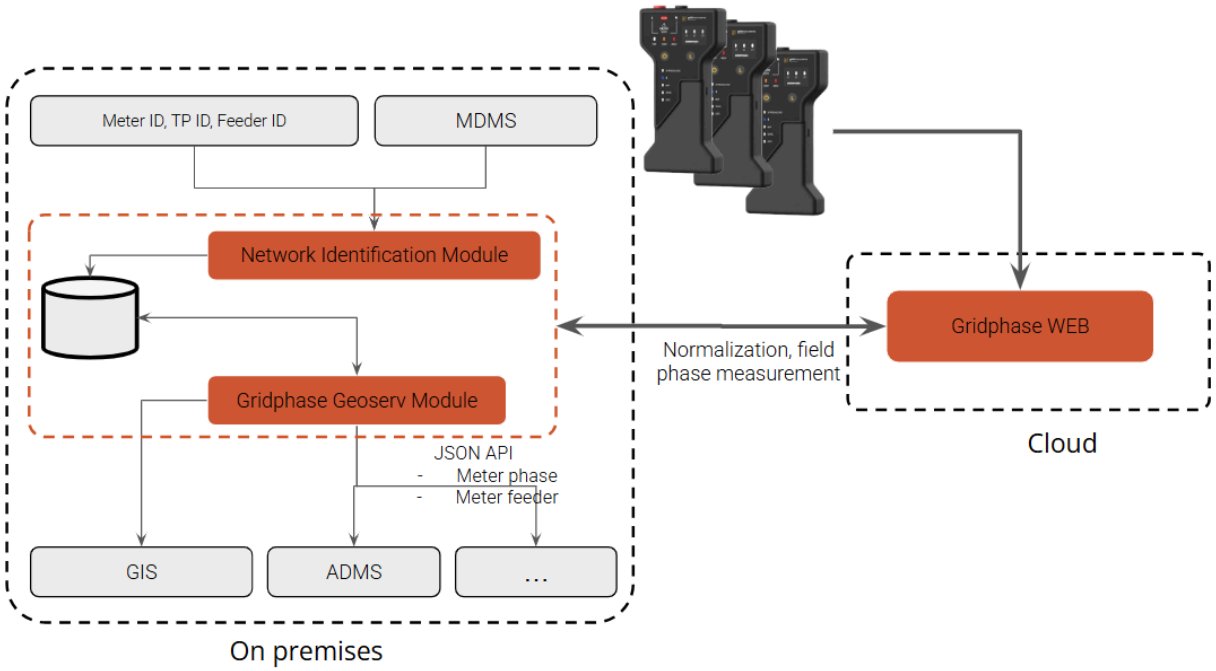


After saving, the reference device will appear in the substation list like this



Measurements

This feature of the system enables you to make field measurements with your handheld devices and directly upload them to the web application. With external integration into the Network Identification Module (NIM) it is possible to integrate this information into the Geographic Information System (GIS). Figure below shows the system diagram.



If the NIM module is not present on the premises other functions of the Gridphase WEB application will still work; you just won't be able to integrate directly with the GIS and other backend information systems. If the NIM is present, then you have two types of measurements that you can save. One is node measurement, which updates the phase information about a certain consumer node (meter). The other is measurement for phase group normalization. Phase groups are nodes on the secondary substation that are connected to the same electrical phase, but it is not known which. In order to assign them a correct electrical phase, a single node in that group needs to be measured with a Gridphase handheld unit. Measurement assigns a true electric phase to that group. Phase groups across the network are then aligned to true electric phases. This process usually follows a data analytics based phase identification process based on smart meter measurements.

Measurements

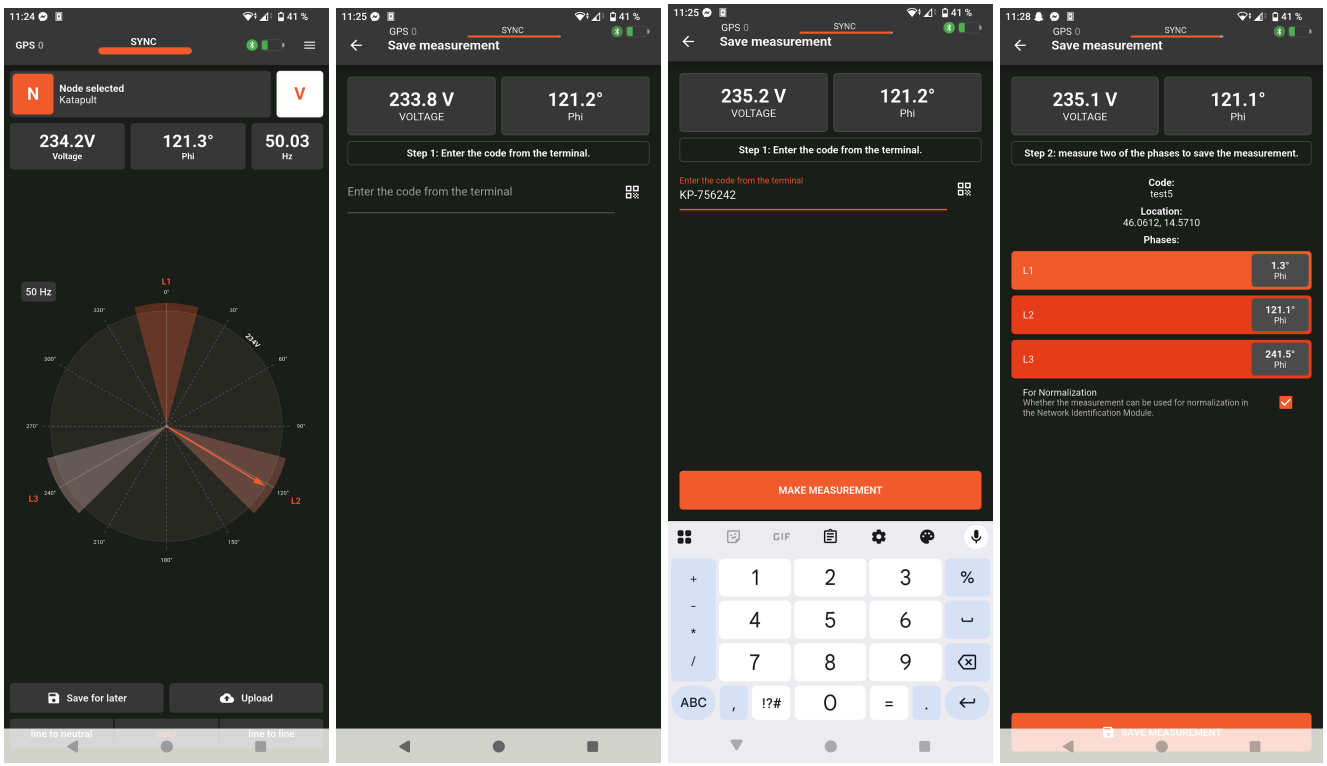
Export CSV | Delete all

Meter ID	Terminal 1	Terminal 2	Terminal 3	Latitude	Longitude	Date Time	Normalization	Actions
70069200	179.254			46.0472877	14.4929272	Mar 7, 2025, 8:18 AM		
70069200	179.22			46.0472171	14.4928593	Mar 7, 2025, 8:18 AM		
70028936	119.676	359.373	239.978	46.0472506	14.4928622	Mar 7, 2025, 8:21 AM	✓ TR: 0010834d	
70069200	358.863			46.0472548	14.4928812	Mar 7, 2025, 8:35 AM	✓ TR: 0010834d	

How to make and save a measurement

To upload the measurements to the web app, click the **Upload** button on the bottom of the screen in the mobile Gridphase application. In the next screen you can input a terminal/meter ID (it can also be a custom ID) or you can click on the QR code icon to scan a bar code or QR code of the terminal.

After that click the make measurement button and prompt you to make a measurement of two phases in order you want them to be at this terminal. The third one is calculated automatically.
You can also opt to measure only one phase and save this measurement.



If you want this terminal to be able to become a reference point later you can opt for the **For normalization** option.

By clicking the **SAVE MEASUREMENT** button the measurement will be uploaded to the cloud along with ID and location.

If you want to identify phasor later or when in offline mode you can do this by clicking save for later. The app hold the measurement for p to 6 hours.

Hint

If you made a mistake you can just click on the phase again to delete the measurement. Then you can make a new one.

Viewing the measurements in web

Right after upload you can see all measurements in your measurements tab in the web application. They are sorted by data and time. You can delete them by clicking on the trash icon or export them in .csv format.
If For normalization option was selected you can also see NIM (Network Identification Module) data which tells you to which transformer this terminal is paired to. To see the data go to the phase normalization tab.

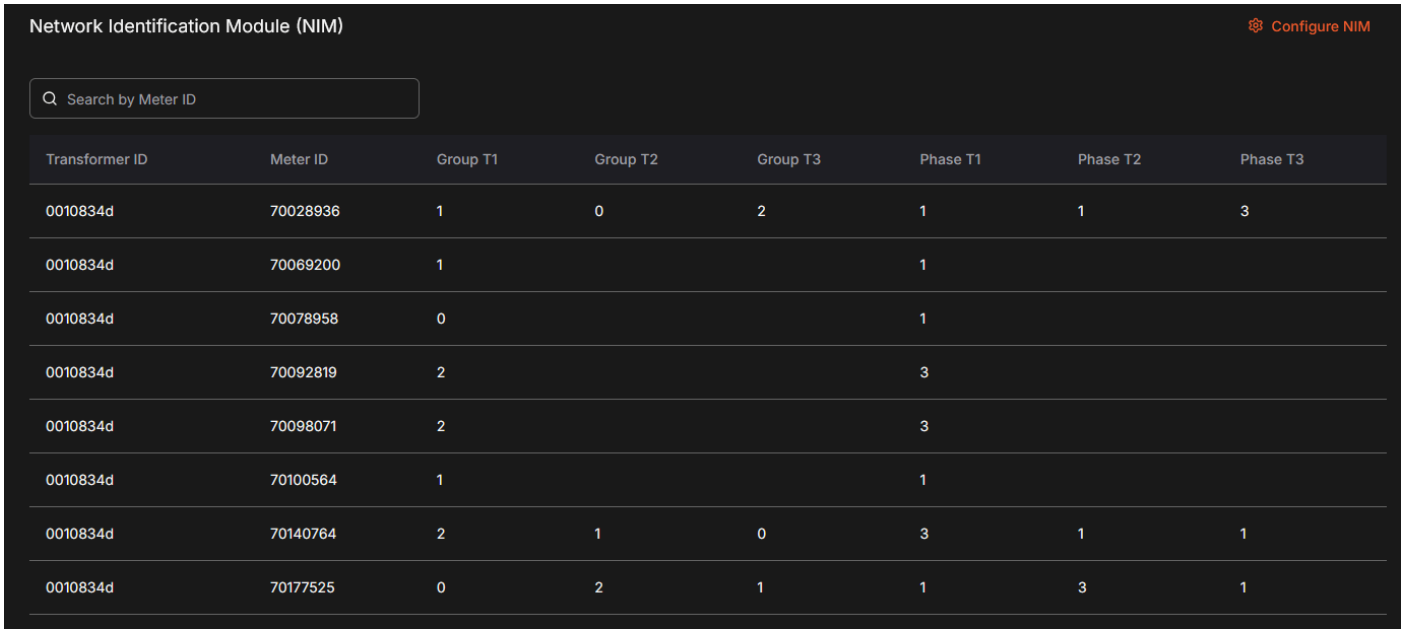
If NIM is set up you can see to which transformer the node, where measurement was done, is connected to. This pairing is done on the basis of node ID.

Phase normalization

For this feature to work you need to connect to NIM (Network Identification Module) server by clicking Configure NIM on the top right corner of the screen and input endpoint and an authentication token. After that a list with all the transformers and meters will appear and their connection.

Network Identification Module

NIM serves as a translator between your data and phase normalization and exposure system. It makes intermediate phase **groups** that are derived from the analytics based phase identification aligned to true electric phases. It also exposes the phase measurements through the GeoServ server to backend IT systems like GIS.



Transformer ID	Meter ID	Group T1	Group T2	Group T3	Phase T1	Phase T2	Phase T3
0010834d	70028936	1	0	2	1	1	3
0010834d	70069200	1			1		
0010834d	70078958	0			1		
0010834d	70092819	2			3		
0010834d	70098071	2			3		
0010834d	70100564	1			1		
0010834d	70140764	2	1	0	3	1	1
0010834d	70177525	0	2	1	1	3	1

Here you can search by Meter ID, which allows you to quickly find the wanted transformer ID of that meter and clearly see the phase data.

End note

This manual is a brief introduction to the Gridphase environments and cloud application use. We understand each network has some unique characteristics and we can help you set up the angle-zones and customer loading information as well as integration with the Network Information Module.

Documentation version history

Version	Date	Notes
V25-1	26.9.2025	Clear this table and fill in the relevant data