



# **DPD Android App**

## **Threephase Multifunction Monitoring Relay with NFC Communication**

### **User Manual**



DPD is a three-phase multifunction configurable monitoring relay suitable for both Delta and Star mains.

It protects loads from wrong phase sequence, neutral and phase loss, additionally voltage, frequency and asymmetry thresholds can be set and provide output signals.

DPD is delivered with a set of factory settings, among the two available ones, which are the most commonly used.

If factory default parameters are not completely suitable they can be modified according to own requirements, by Windows PC or Android tablet and smartphone.

A Desktop and an Android apps are available, allowing to select on screen the required settings, save them, for future use and send the new configuration to the device to be configured.

NFC communication can also be used, by means of the proper app, to download the configuration from one device and to send the same configuration to n devices.

About factory settings, see "DPD DEFAULT PARAMETERS" table on the last page.



## DPD Manager Installation

System requirements for ANDROID APP:

- OS : Android operating system 4.1 or higher
  - COMMUNICATION : Built in NFC reader / writer
- o Download the ANDROID APP from Google Store

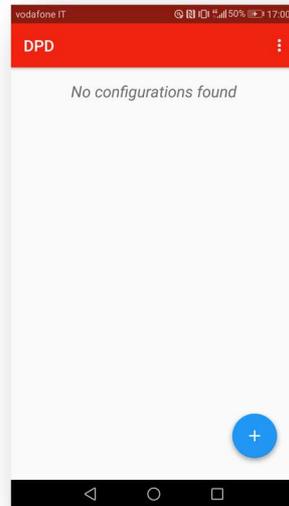
<https://play.google.com/store/apps/details?id=us.belka.dpd&hl>



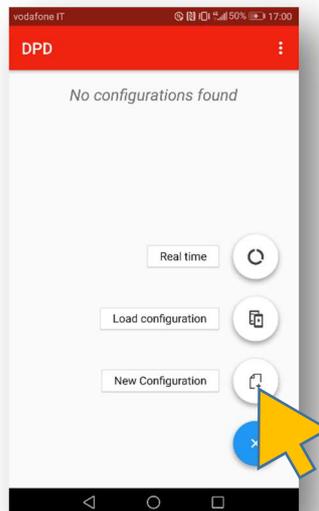
- o Launch the app by tapping the DPD App icon



## Create DPD Configurations

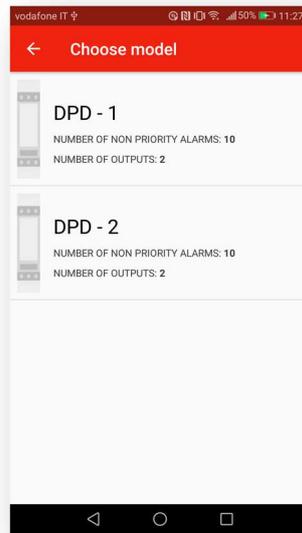


- At first App start the screen will be as shown above.
- Tap on  to select the required function

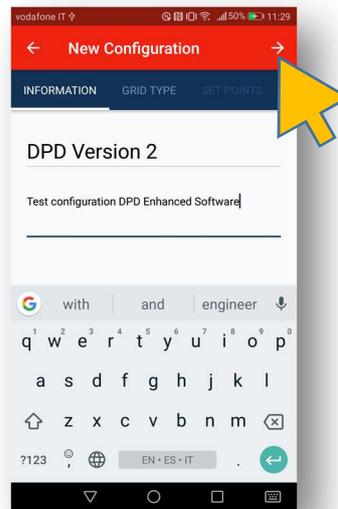


- A menu will appear with 3 choices. A new configuration can be created by tapping on "New configuration"



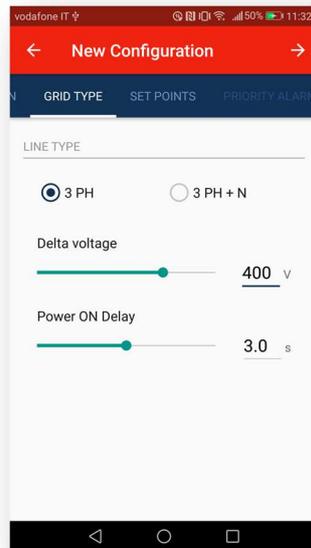


- In this page the DPD version has to be selected.
- If the DPD has been purchased after November 2017 DPD-2 has to be selected, Else select DPD-1.

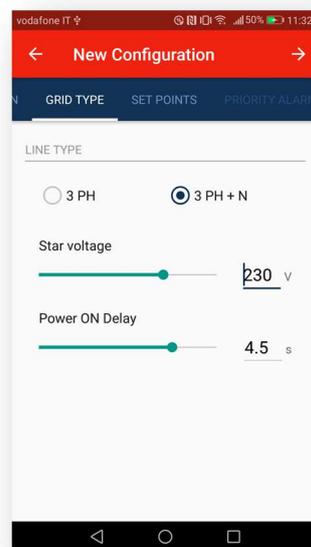


- In the first project page we can input name and description
- Then we tap on top right arrow to go to next configuration page.





- "Grid Type page". Select Line type: three phase with neutral or without neutral grid type.
- Select the grid nominal voltage: In case 3PH grid type is selected the voltage value is Line to Line, in case of 3PH+N Line type, the Voltage value is Line to Neutral.

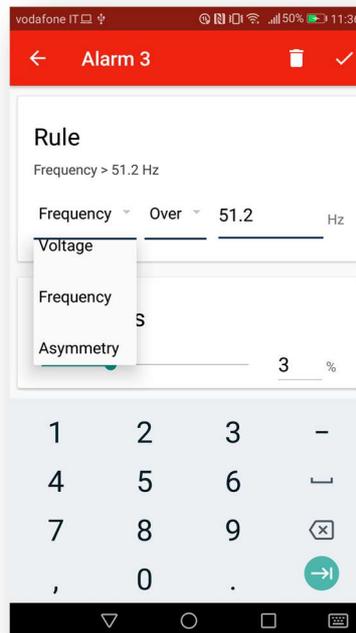


- "Power ON Delay" time delays the actual line monitoring at device start-up. Delay can be configured from 0 to 6s.
- Press the right top arrow to go to next configuration page.



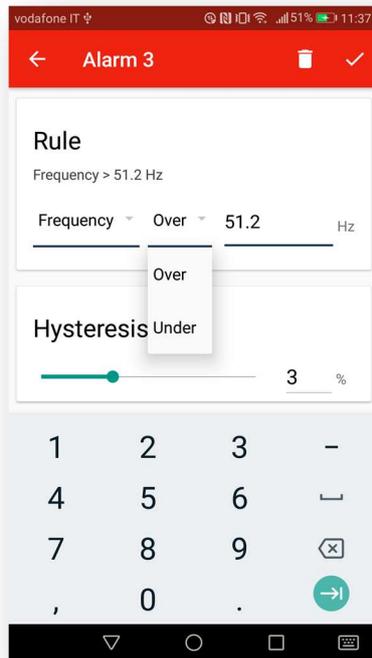


- Up to 10 alarms can be configured.
- Select one by one the alarms that are required to be set.

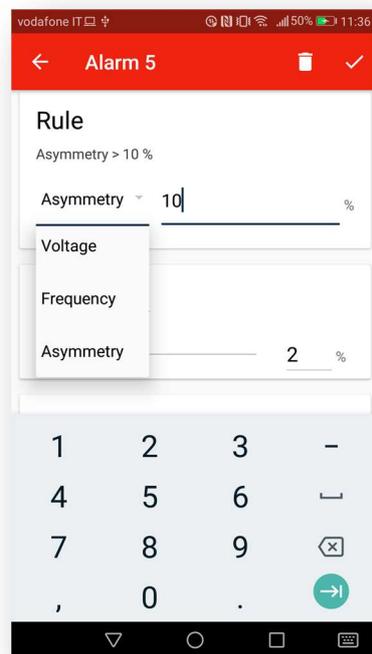


- Each one of the 10 alarms can be set as above: select among voltage, frequency or asymmetry.



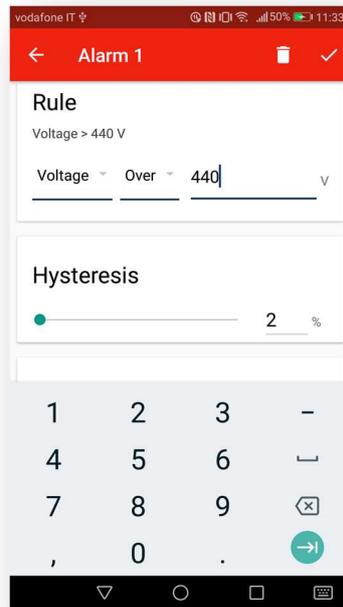


- After having selected, for instance frequency as in the example above, select whether, it is Over-frequency or Under-frequency detection, that you require.



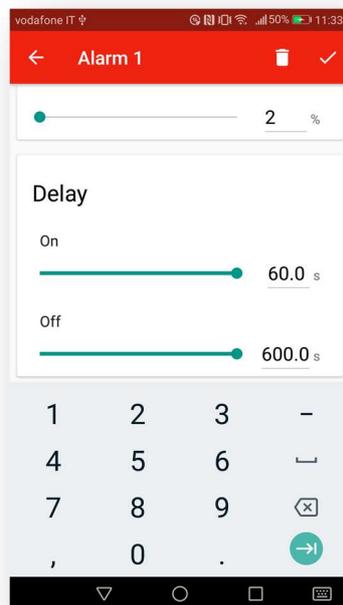
- Asymmetry selection doesn't have Over nor Under, just the percentage.





- When the measurement type and value is set, hysteresis can also be adjusted.

### Scroll the page down until bottom

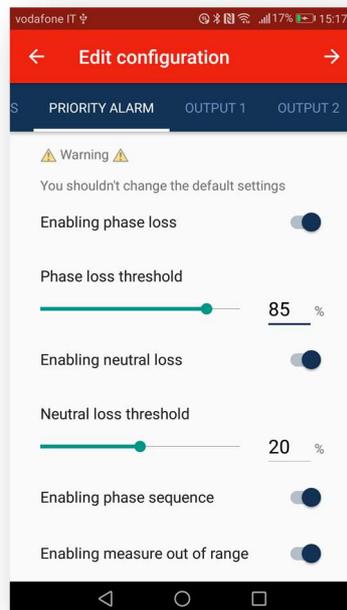


- Delay on Alarm and Alarm OFF delay can be set. Delay OFF up to 10', whilst delay on alarm up to 60s.
- Tap on the top right tick ✓ when finished.



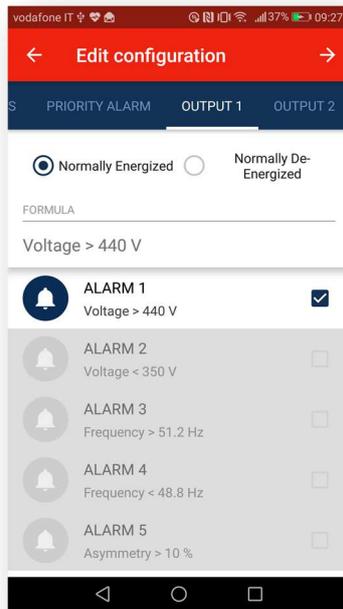


- Configured alarms would be with dark background with the indication of the setting type and value.
- When all alarms are set press the "next" arrow to go to next configuration step

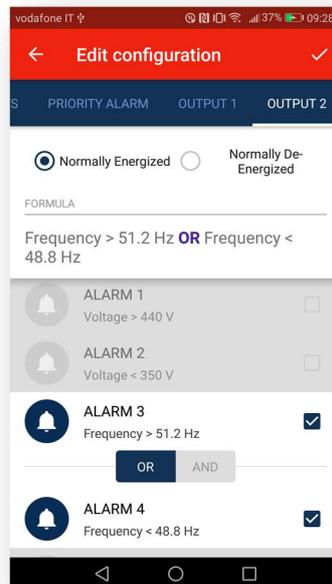


- In the "priority alarm" page phase loss, neutral loss, phase sequence and out of range measurements alarms can be enabled or disabled. It is not advised to change these setting unless aware of their functions!



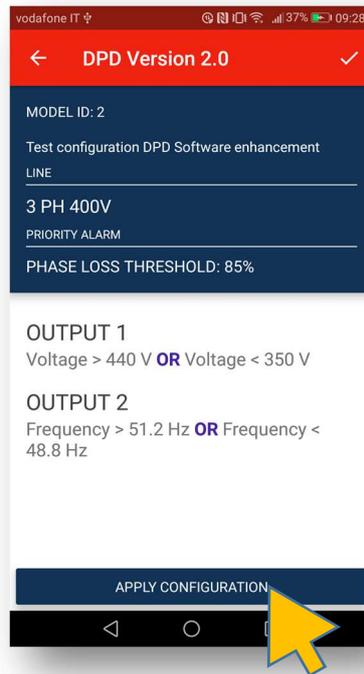


- On "output 1" page the one or more of the previously set alarms are associated to output.

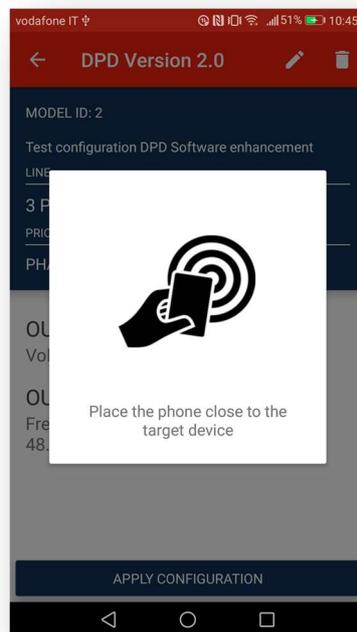


- When more alarms are set they are associated with "OR" or "AND" function.
- Output relay can be configured to operate as "Normally Energised" or "Normally de-energised". Normally energised will turn off relay upon alarm.
- When finished tap the tick ✓ to complete the complete configuration.



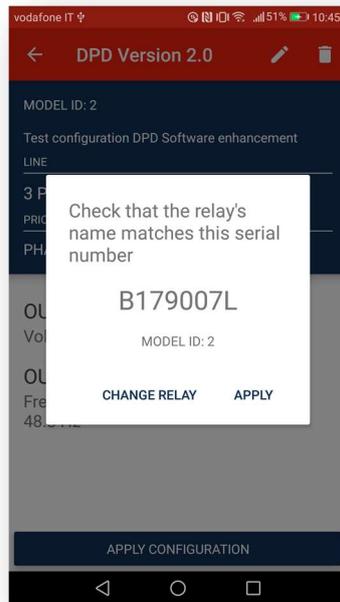


- This last page summarises the project configuration settings.
- If the configuration is correct tap "Apply Configuration" to upload it to target DPD/s.



- When popup appears place the smartphone NFC reader next to DPD front face.



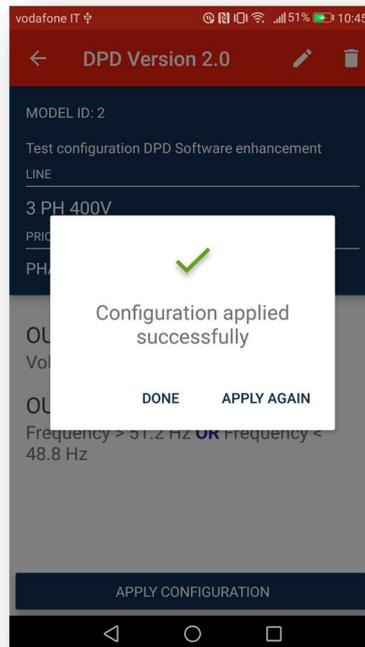


- When a DPD has been tracked, the popup shown above appears. As there might be more than one DPD, next to the target device, it is necessary to check whether it is the correct target device. Check it with the one marked on the DPD front face.



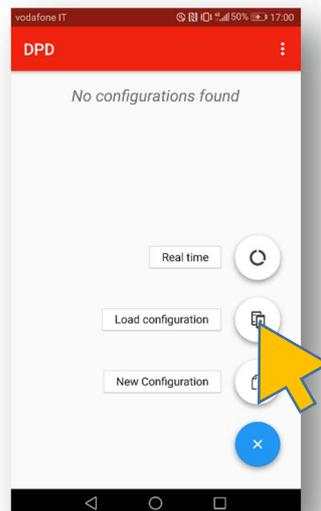
- If the DPD is the correct one tap "Apply", else tap "Change relay" and try again.





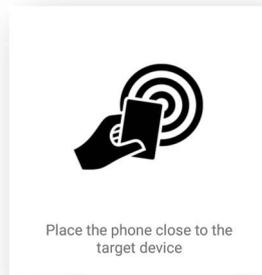
- When the above displayed popup appears the configuration has been successfully uploaded to DPD and it is possible to exit, by tapping "Done" or apply the same configuration to another device, by tapping "Apply Again".

### **Load Configuration from another DPD**

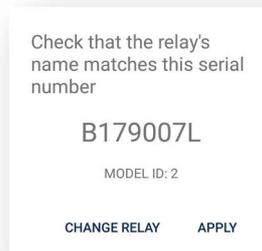


- The configuration can be downloaded from an already configured DPD to replicate its configuration on another device or modify it before using it.

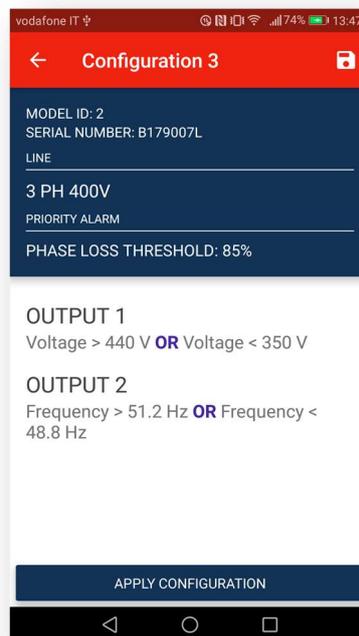




- When the popup appears place the phone next to the DPD front face.



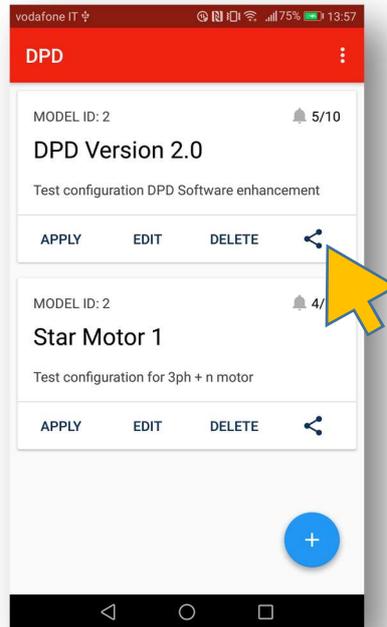
- Check the serial number of the source DPD.



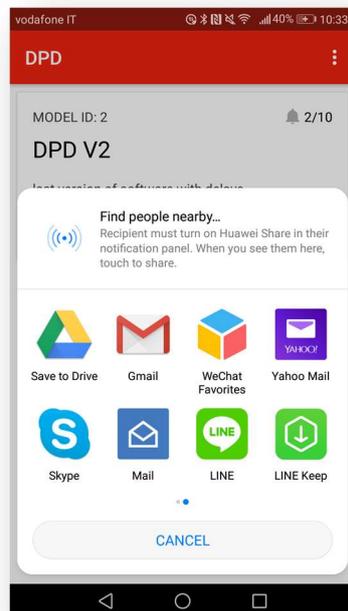
- When the summary page appears, download is complete and configuration can be saved, modified or sent to another device.



## Configuration File Exporting



- Configuration files can be exported. Top on the share icon as shown above

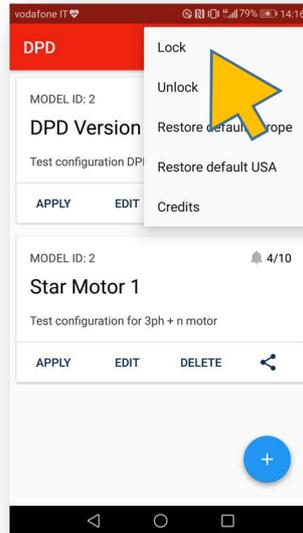


- File can saved on cloud, sent by mail, skyped etc.
- Recipient has to download file and open it with DPD.

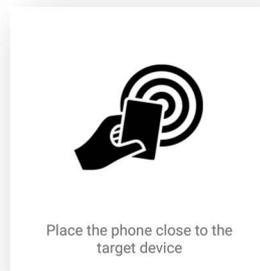


## Device locking / unlocking

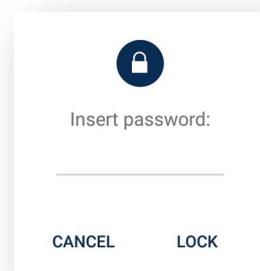
- When commissioned DPDs can be locked to avoid configuration tampering



- From top right menu, select "Lock".

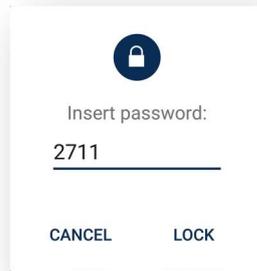


- Place the smartphone next to DPD front face

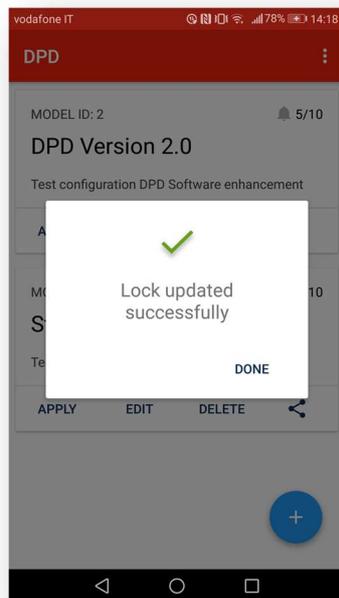


- Insert a 4 digit numerical password





- Press lock after password input



### IMPORTANT!

AFTER THE DEVICE HAS BEEN LOCKED IT IS NOT POSSIBLE TO UNLOCK IT WITHOUT POWER SUPPLY!

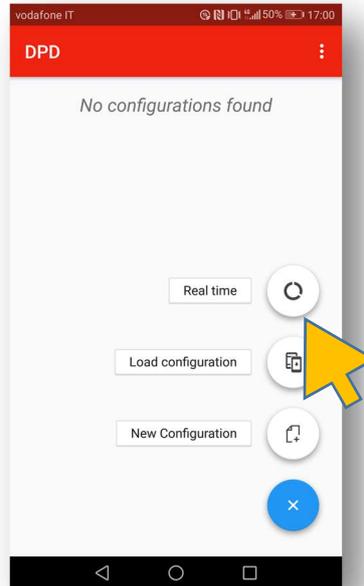
- To unlock apply the same procedure by pressing "Unlock".
- In case the password has been lost, please contact Carlo Gavazzi customer service: please remember to provide the number written on the DPD front face. A password will be provided, by the service, which solely valid for the device whose number has been provided.

Once device has been unlocked the old password is lost and new one can be introduced

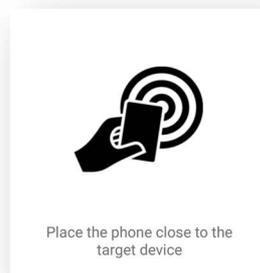


## Real Time Readings

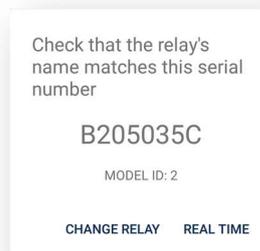
The real time reading it is only possible when the device is under operation.



- Tap onto "Real Time"

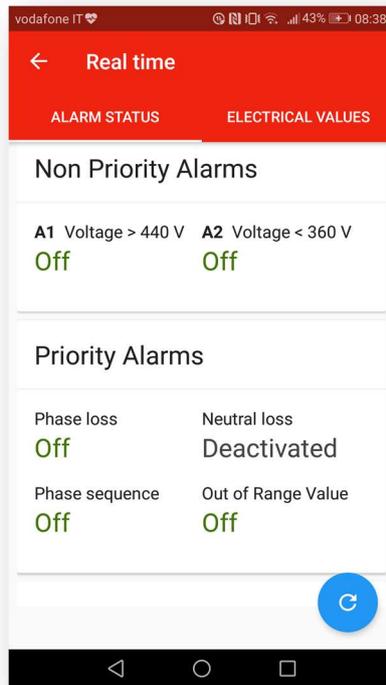


- Place smartphone next to DPD front face.

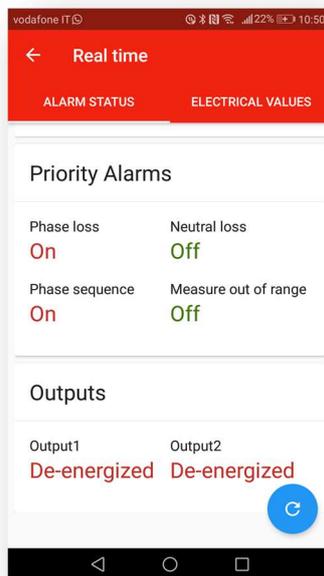


- Confirm is the tracked relay is the correct one.



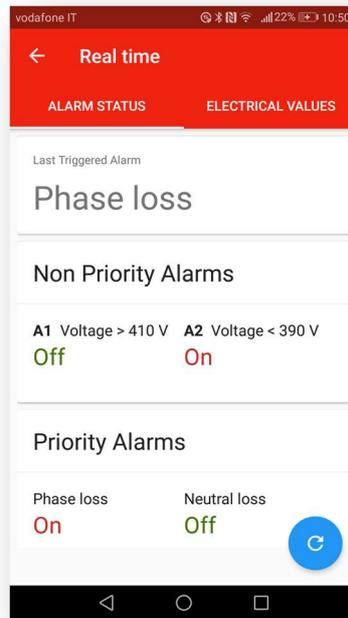


- In the "Real time" page there are 2 folders: Alarm status and electrical values.
- The folder displayed above is the "Alarm status" one.
- Non priority alarms status is shown only if configured. Priority alarms status is always shown: Off, On or deactivated.

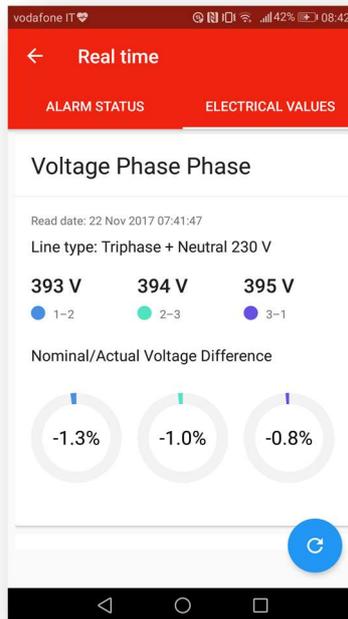


- On the page bottom the 2 outputs states is displayed



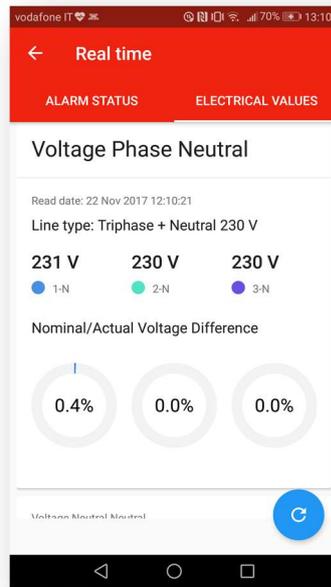


- On the page top the last triggered Alarm is displayed. This will remain until replaced by a new alarm or deleted when DPD is turned OFF.

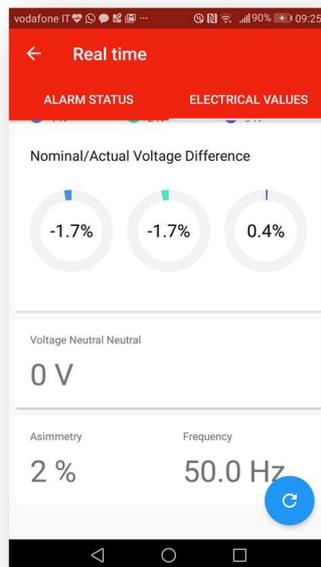


- Tapping on the "Electrical Values" folder the top part of the page displays the Line to Line voltages on the 3 phases.
- Graphs show the deviation from the set line voltage.



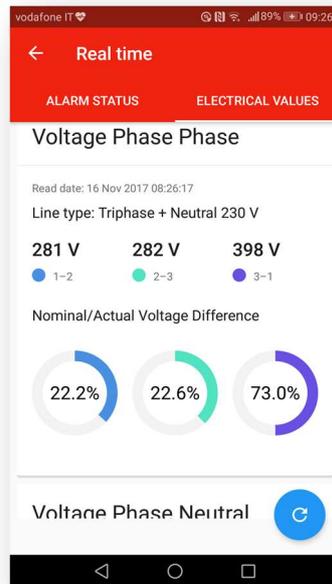


- When the line type is Threephase + Neutral a second set of measurements is displayed with the Line to neutral readings.



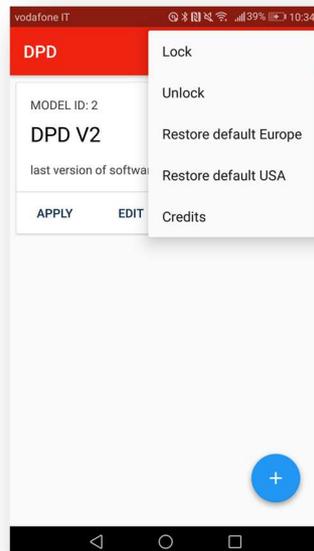
- On the page bottom, Asymmetry and line frequency readings are displayed.





- The big filling in the bar graphs indicates anomalies at a glance.
- Positive deviations are on the right side (CW) whilst negative deviations on the left side (CCW)
- The bar filling is proportional up to 30% then it is considered out of range and the bar filling remains the same.

### Factory Setting Restoring



- Two different factory defaults are available if necessary to set DPD to original set.



## DPD DEFAULT PARAMETERS

PAGE	ITEM	PART NUMBER	
		DPD02DM44	DPD02DM44B
GRID TYPE	LINE TYPE	DELTA	DELTA
	RATED LINE VOLTAGE	400VAC	240 VAC
	POWER ON DELAY	0s	0s
SETPOINTS	ALARM 1	OVERVOLTAGE	OVERVOLTAGE
	Voltage Value	440VAC	264 VAC
	Hysteresis	2%	2%
	Delay ON	0s	0s
	Delay OFF	0s	0s
	ALARM 2	UNDERVOLTAGE	UNDERVOLTAGE
	Voltage Value	360VAC	216 VAC
	Hysteresis	2%	2%
	Delay OFF	0s	0s
PRIORITY ALARMS	PHASE LOSS ENABLE	ON	ON
	PHASE LOSS THRESHOLD	85%	85%
	NEUTRAL LOSS	NOT ACTIVE	NOT ACTIVE
	PHASE SEQUENCE ENABLE	ON	ON
	OUT OF RANGE MEASUREMENT	ON	ON
OUTPUT 1	ASSIGNMENT	ALARM 1	ALARM 1
	LOGIC	NORMALLY ENERGIZED	NORMALLY ENERGIZED
	LOGIC OPERATORS	NONE	NONE
OUTPUT 2	ASSIGNMENT	ALARM 2	ALARM 2
	LOGIC	NORMALLY ENERGIZED	NORMALLY ENERGIZED
	LOGIC OPERATORS	NONE	NONE

DPD02DM44B settings are in general those commonly used in the USA

