



DPD Manager

Mobile Apps for DPD setup via NFC communication

User Manual



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

It protects loads from wrong phase sequence, neutral and phase loss, additionally voltage, frequency and asymmetry setpoints 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, tablet or smartphone.

Windows and Mobile apps allow to select the required settings on screen, save them for future use and send the new configuration to the DPD or DPDs to be configured.

NFC communication can also be used, by means of the proper app, to download the configuration from one DPD and to send the same configuration to other DPDs.

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

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DPD Manager Installation

System requirements:

- OS 4.1 or higher for Android smartphone and tablet
- OS 14.1 or higher for iOS smartphone

NFC: communication with built-in NFC reader/writer

Apps download:

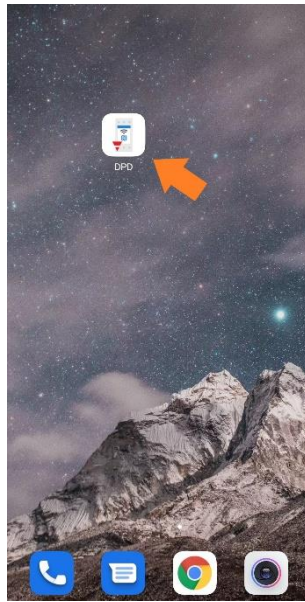
The Mobile Apps can be downloaded with the following methods:

- For Android devices: align the NFC antenna of the smart device to the NFC antenna of the DPD (near the NFC logo), it will take to the Google Play Store.
- Direct link or QR code to the Google Play Store:
<https://play.google.com/store/apps/details?id=us.belka.dpd&hl>

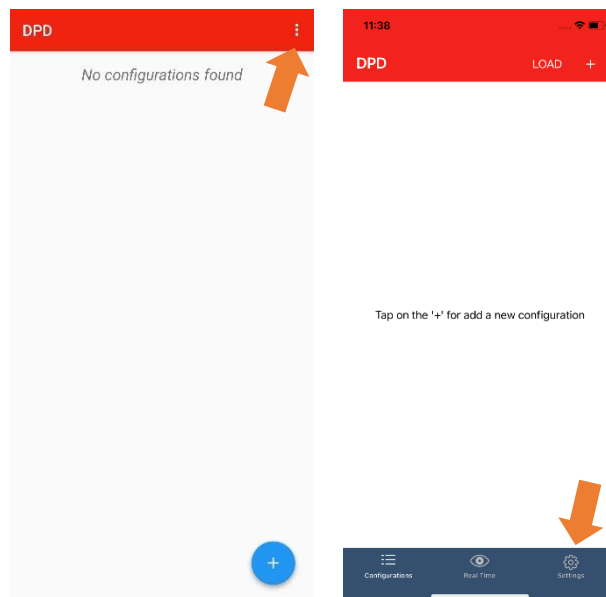


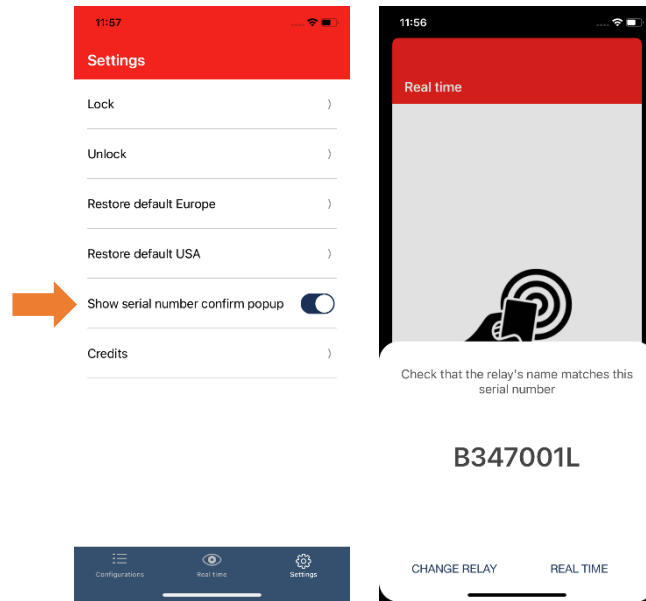
- Direct link or QR code to the App Store:
<https://apps.apple.com/it/app/dpd-manager/id1550610272>





Enable the NFC functionality on the mobile device from the Android or iOS settings menu. Then launch the app by tapping the DPD App icon.





Before proceeding, choose if to enable or disable the serial number confirmation popup.

This feature is useful when more than one device is sitting side by side to confirm which device is going to be used. This applies in the following cases:

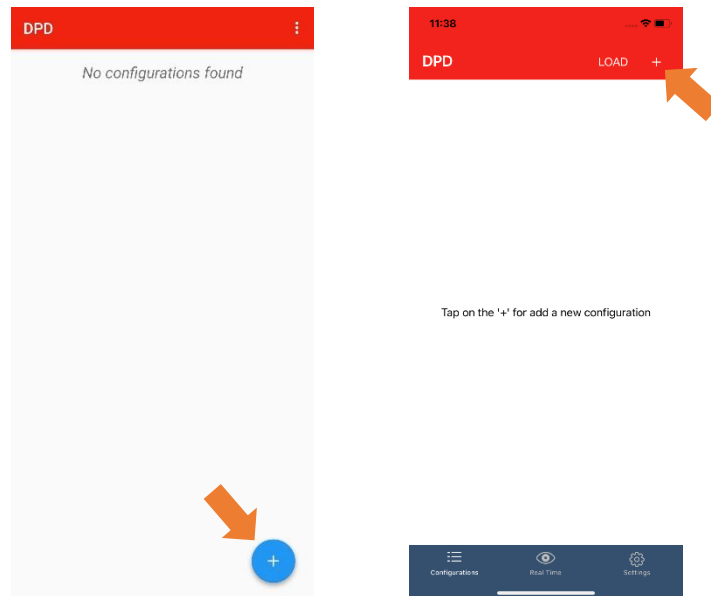
- apply a configuration to the target DPD,
- see alarms or outputs status and variable values in real time,
- load a configuration from another DPD,
- restore default settings,
- lock or unlock the DPD.

If the feature is enabled, the serial number that appears on the popup must be compared with that of the target DPD and then confirmed to proceed with the action or change the target DPD.

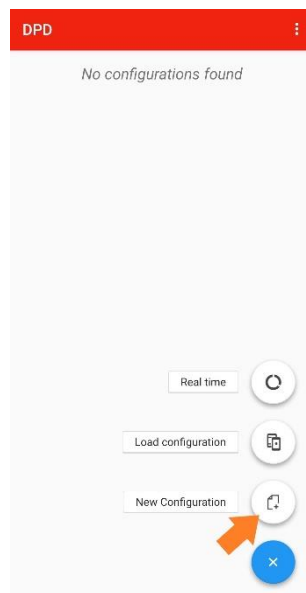
Otherwise, the chosen action will be immediately performed.



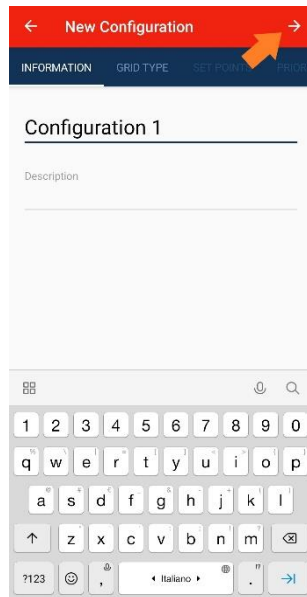
Create DPD Configurations



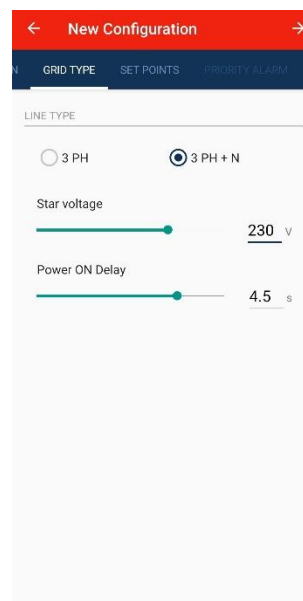
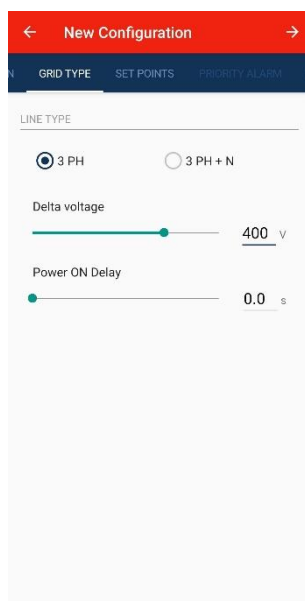
Start the app.
Tap on '+'.



Tap on "New configuration".



In the “*Information*” page, enter name and description of the configuration. Then tap on top right arrow to go to next configuration page.



In the “*Grid Type*” page, select the line type:

- three-phase with neutral (3 PH + N),
- three-phase without neutral (3 PH).

Then, select the line nominal voltage within the range:

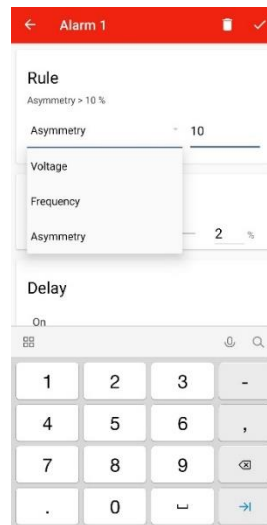
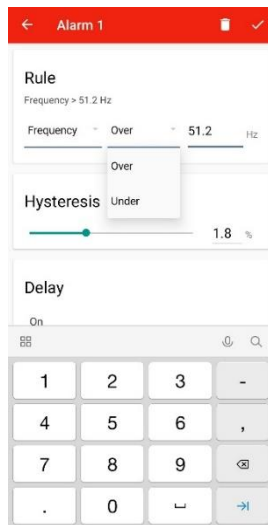
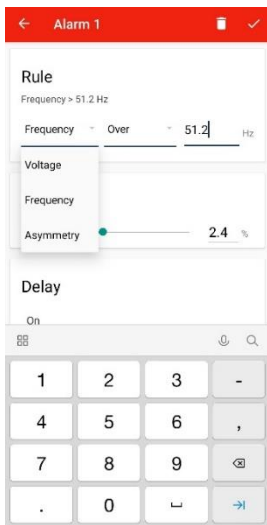
- 3 PH: 208 to 480VAC (line to line)
- 3 PH + N: 120 to 277VAC (line to neutral)

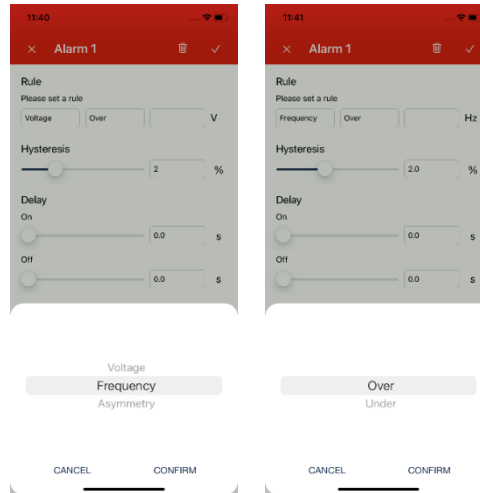
Set the inhibition time of the “*Power ON delay*” according to the mains instability time at the start-up of the load, to avoid unnecessary interventions of the DPD.

The delay can be configured from 0 to 6s.



In the "Setpoints" page, up to 10 non-priority alarms can be configured. Select one by one the alarms that are required to be set.





Each of the 10 non-priority alarms can be set as above.

The first 3 screens are related to Android App while the second 2 screens are related to iOS App.

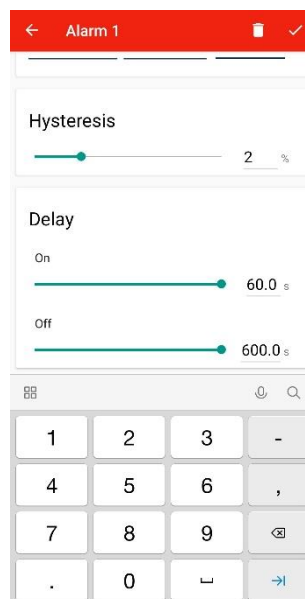
Select among "Voltage", "Frequency" or "Asymmetry".

Select if the alarm is "Over" or "Under".

In case of asymmetry alarm, it is enough to set the percentage.

Insert the setpoint values, based on the following ranges:

- 3PH voltage: 177 to 552V,
- 3PH + N voltage: 102 to 318V,
- Frequency: 45 to 440 Hz,
- Asymmetry: 0-30%.



Set the hysteresis value in the range:

- voltage and asymmetry, 1 to 5%,
- frequency, 0.1 to 5%.

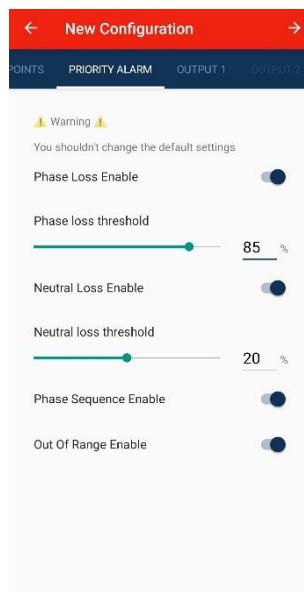
Set the delay values in the range:

- delay ON alarm, 0 to 60s,
- alarm OFF delay, 0 to 600s.

Tap the check mark on the top right when done.



The configured alarms have a dark background with the type and value of the set measurement. When all alarms are set, press the arrow on the right.



In the “*Priority alarm*” page it is possible to enable or disable the phase loss, neutral loss, phase sequence and measurements out of range priority alarms.

Considering phase loss alarm, select the “*Phase Loss Threshold*” in the range: 60 to 90% of the rated voltage set in the page “GRID TYPE”.

The percentage of the phase loss threshold is related to the detection of the regenerated voltage on the lost phase.

The regenerated voltage has a lower value than the rated voltage, in particular:

- in delta system the regenerated voltage is up to 85% of the rated voltage,
- in star system the regenerated voltage is up to 70% of the rated voltage.

The recommended pre-set value is 85% for delta voltages.

Setting the threshold below 85% can cause insensitivity to the regenerated voltage, while setting the threshold above 85% can cause excessive sensitivity to small network variations.

Considering neutral loss alarm, select the “*Neutral Loss Threshold*” in the range: 10 to 30% of the rated voltage set in the page “GRID TYPE”.

The percentage of the neutral loss threshold is related to the "distance" between the real position of the neutral within delta voltages and the position in which it should be, i.e. at the center of the delta voltages.

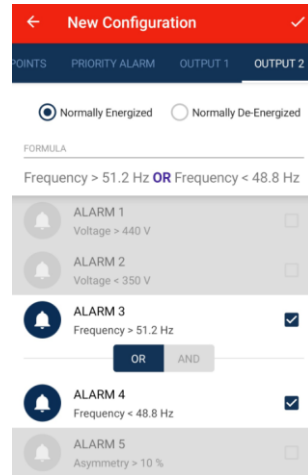
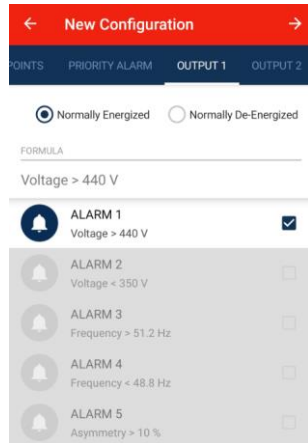
Considering measurements out of range alarm, DPD02 performs three measurements, each of which has a validity range.

1. Voltage:
 - delta voltages, 208V-40% to 480V+15% (125V to 552V)
 - star voltages, 120V-40% to 277V+15% (72V to 318V)
2. Frequency: 50Hz-10% to 400Hz+10% (45Hz to 440Hz)
3. Asymmetry: 0 to 30%

The purpose is to signal the condition in which the input signals to the device are out of the range in which the DPD is able to make a correct measurement with the required accuracy.

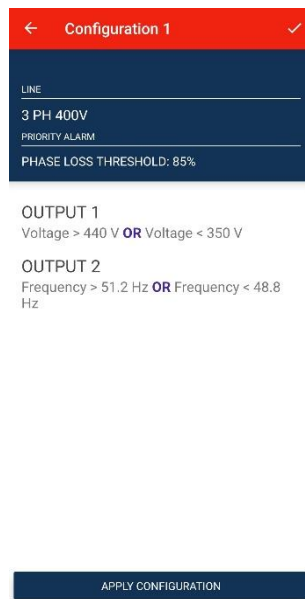
IMPORTANT NOTICE!

IT IS NOT RECOMMENDED TO CHANGE THE DEFAULT SETTINGS FOR EACH PRIORITY ALARM IF YOU ARE NOT AWARE OF THEIR FUNCTION



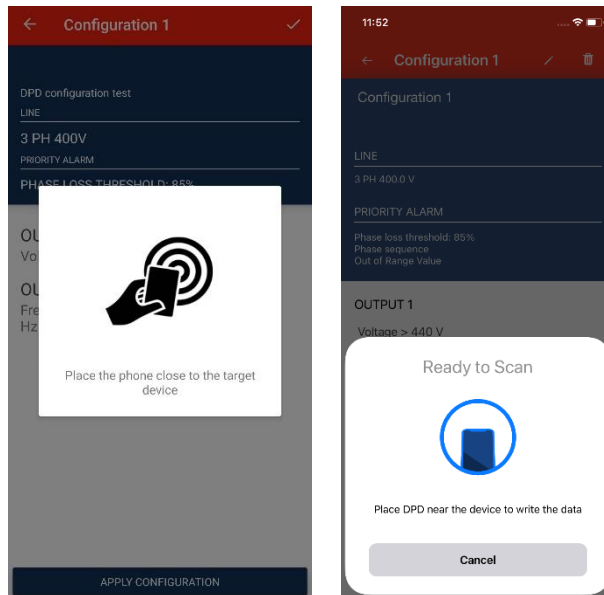
In the “*OUTPUT 1*” and “*OUTPUT 2*” pages one or more of the previously set non-priority alarms are associated with the outputs.

When multiple alarms are set, they are associated with the “*OR*” or “*AND*” logic functions. The output relays can be configured as “*Normally energized*” or “*Normally de-energized*”. When finished, tap the check mark to complete the setup.

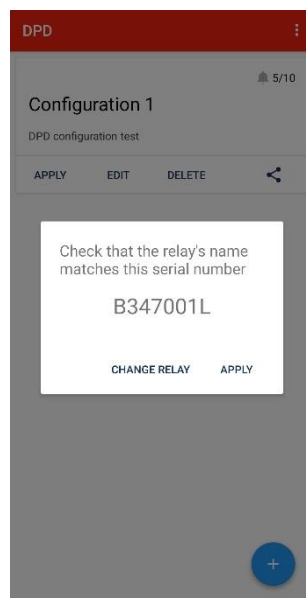


The last page summarizes the project configuration settings.

If the configuration is correct, tap “*Apply Configuration*” to upload it to the target DPD.

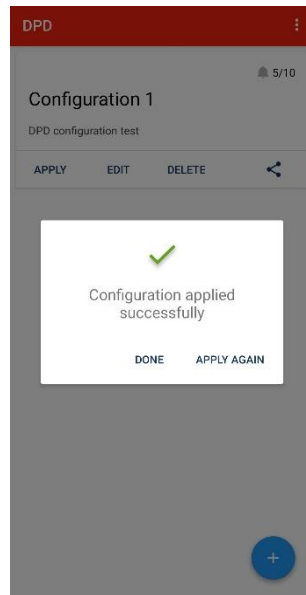


When the popup appears, place the NFC reader of the smartphone next to the DPD front face.



If serial number confirmation is enabled, the popup appears. As there may be more than one DPD next to the target one, check if it is the correct target DPD. Check it with the one marked on the front face of the DPD. If the DPD is correct, tap "Apply", otherwise tap "Change Relay" and try again.

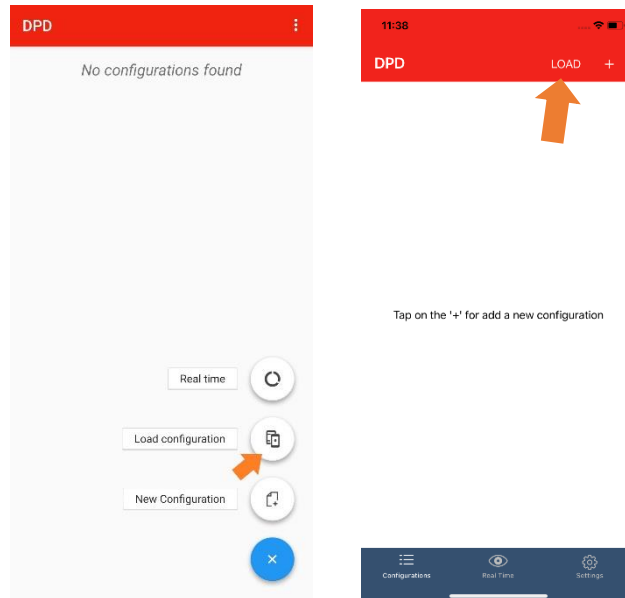
If serial number confirmation is disabled, the configuration is immediately applied.



When the popup shown above appears, the configuration has been successfully uploaded to DPD.

Tap *Done* or apply the same configuration to another DPD by tapping *Apply again*.

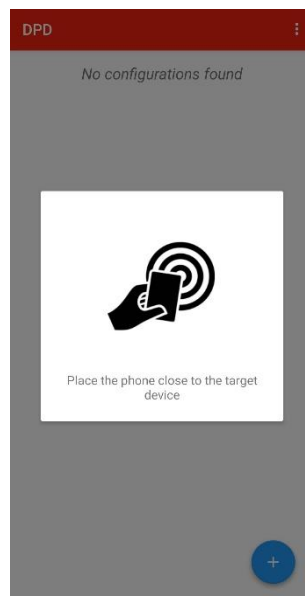
Load Configuration from another DPD



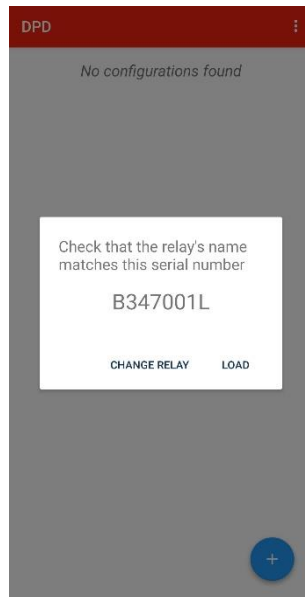
The configuration can be downloaded from an already configured DPD to replicate it to another DPD or modify it before using it.

To apply this operation select:

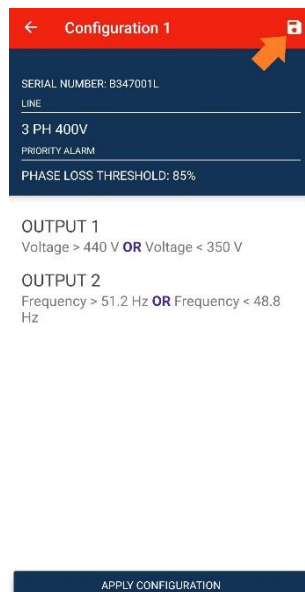
- "*Load configuration*" for Android mobile devices,
- "*Load*" for iOS mobile devices.



When the pop-up appears, place the mobile device near the front of the DPD.

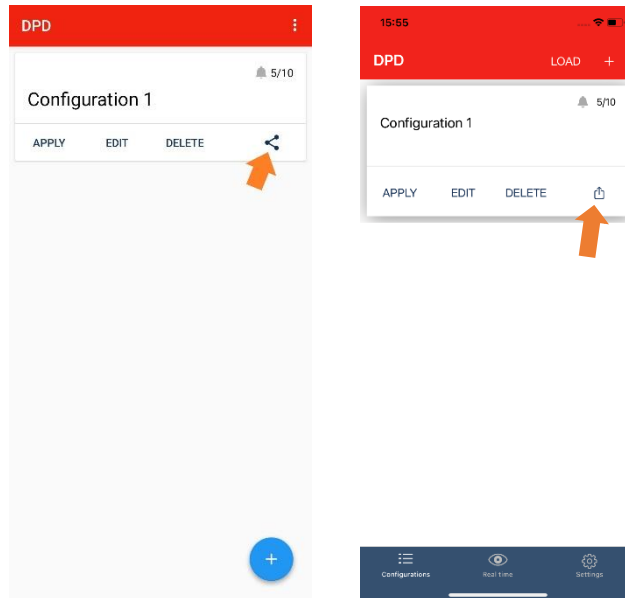


If serial number confirmation is enabled, the popup shown above appears.
Check the serial number of the source DPD.
If serial number confirmation is disabled, the configuration is immediately loaded.

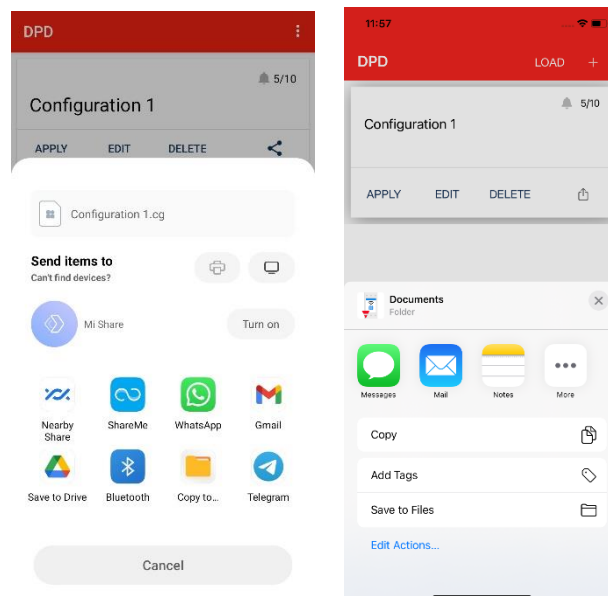


When the summary page is displayed, the download is completed and the configuration can be saved by pressing the icon at the top right.
Later, the configuration can be edited or loaded to another DPD.

Actions on the Configuration File



Configuration files can be exported.
Tap the share icon as shown above.

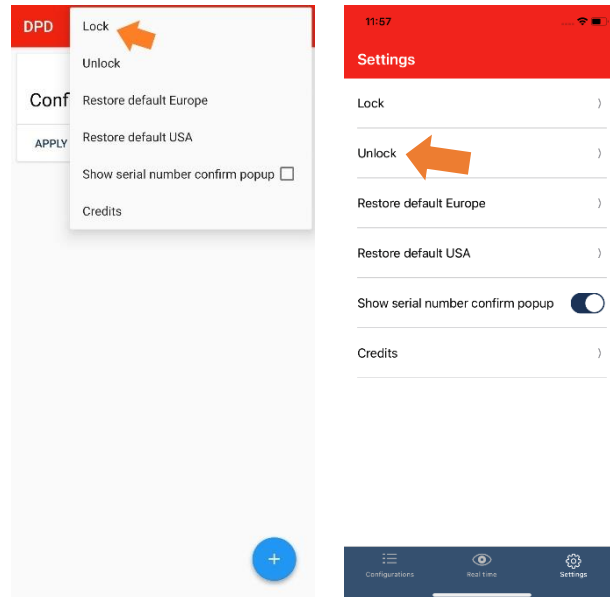


The file can be saved to the cloud or sent by mail, Skype etc.
Recipient has to download the file and open it with the app.

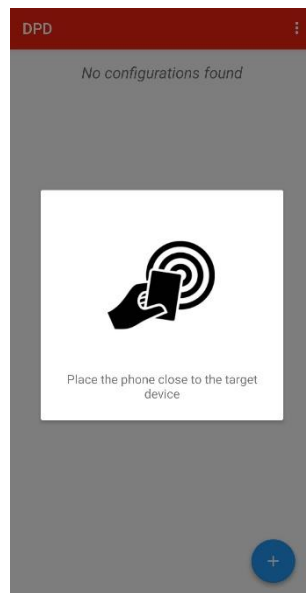
The configuration can be applied by pressing "Apply".
The configuration can be modified by pressing "Edit".
The configuration can be deleted by pressing "Delete".

DPD locking/unlocking

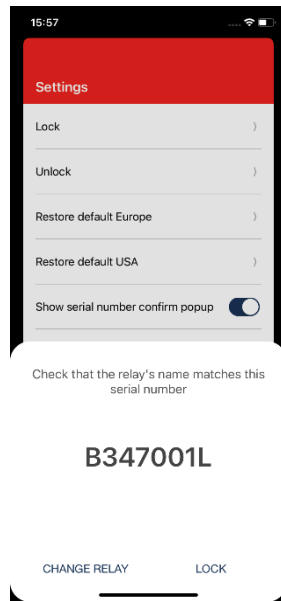
When commissioned, the DPDs can be locked to prevent tampering with the configuration.



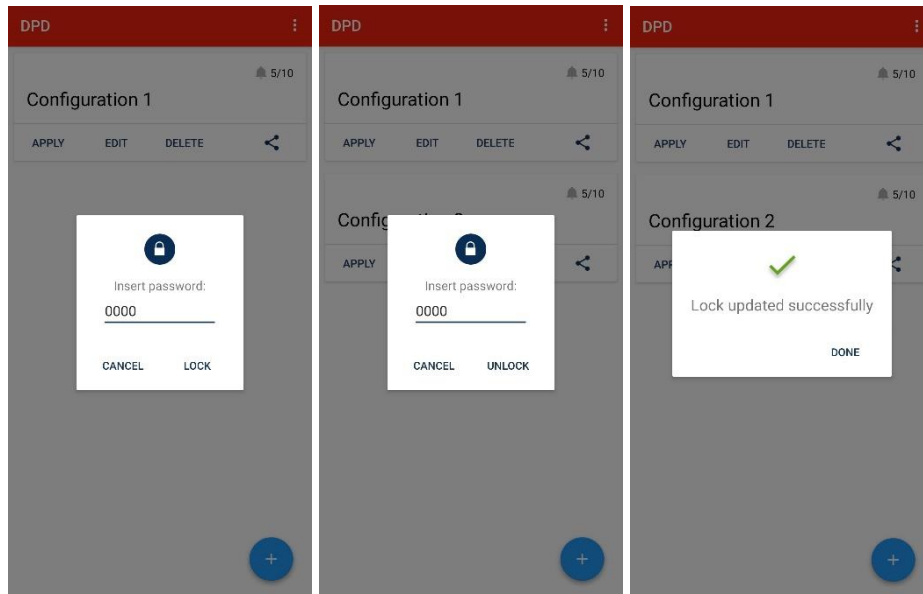
From the settings menu, select “*Lock*” or “*Unlock*”, as shown above.



Place the mobile device next to DPD front face.



If serial number confirmation is enabled, the popup shown above appears. Check the serial number of the source DPD. If serial number confirmation is disabled, the app immediately proceeds to the next step.



Enter a 4-digit numeric password, then press "Lock" or "Unlock".

IMPORTANT NOTICE!

**AFTER THE DPD HAS BEEN LOCKED IT IS NOT POSSIBLE TO UNLOCK IT
WITHOUT POWER SUPPLY**

In case the password has been lost, contact Carlo Gavazzi customer support and follow the steps below:

1) provide the serial number printed on the front face of the DPD to be unlocked.

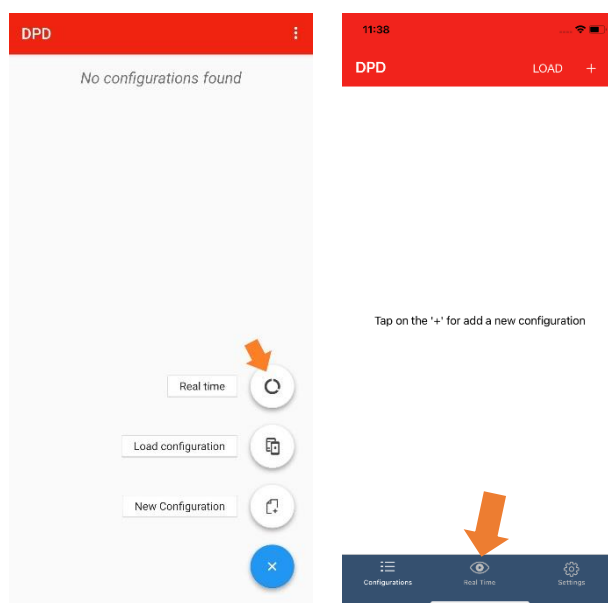
2) wait to receive from the customer support a universal password valid only for the DPD whose serial number has been provided.

NOTE: the universal password is always valid if the user loses the password set for locking again.

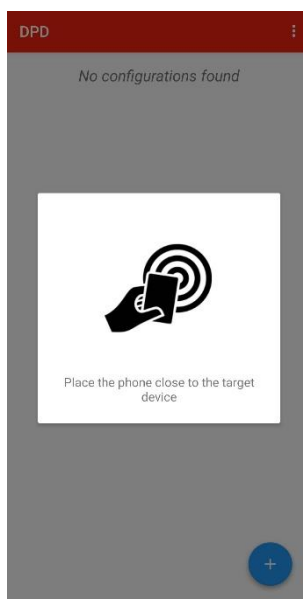
3) once the DPD is unlocked, enter a new password to lock it again.

Real Time Reading

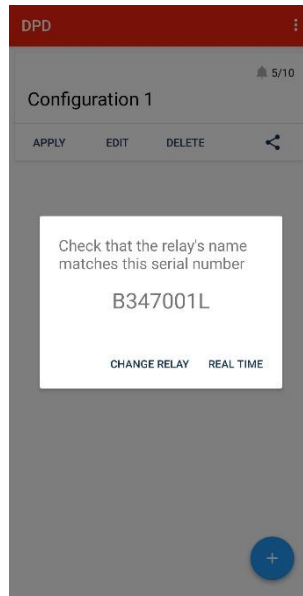
Real time reading is only possible when the DPD is operating.
The real time allows reading all the alarms status, the last alarm triggered and the measurement values: voltages L1, L2 and L3, frequency and asymmetry.



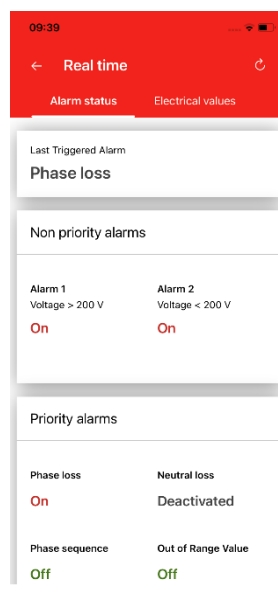
Tap “*Real Time*”.



Place the mobile device next to DPD front face.

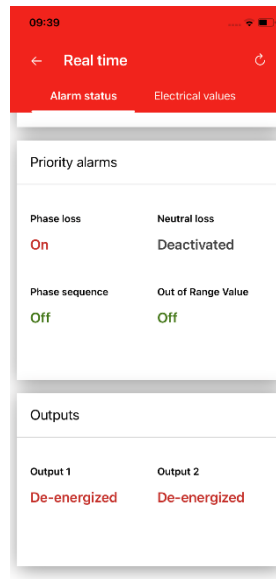


If serial number confirmation is enabled, the popup shown above appears.
 Confirm if the tracked relay is the correct one.
 If serial number confirmation is disabled, the real time pages are immediately displayed.

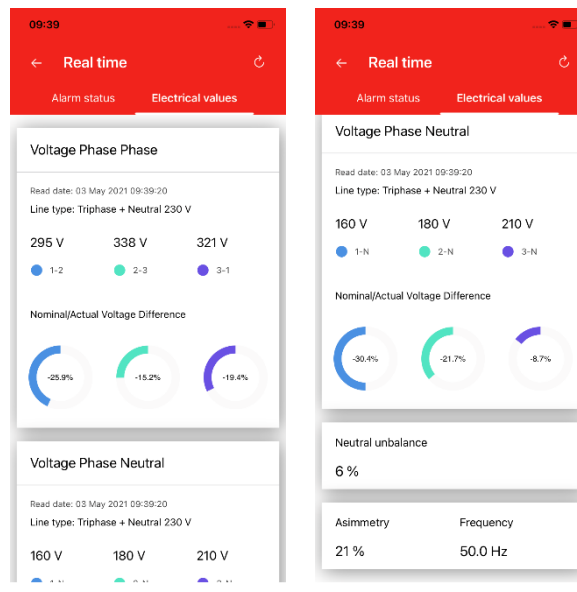


In the “Real time” page there are 2 folders: “Alarm status” and “Electrical values”.
 The “Alarm status” folder displays the status of all configured non-priority alarms and the status of all priority alarms.
 The characters are GREEN when all is correct, while anomalies are displayed in RED.
 The last triggered alarm is displayed at the top of the page.
 This will remain until replaced by a new alarm or cleared when DPD is turned off.
 The status of non-priority alarms is displayed only if configured.

The status of the priority alarms is always displayed (Off, On or deactivated).



The status of the 2 outputs is displayed at the bottom of the page.



When the line selected is 3P, tapping on the “*Electrical Values*” folder the top part of the page displays the Line to Line voltages.

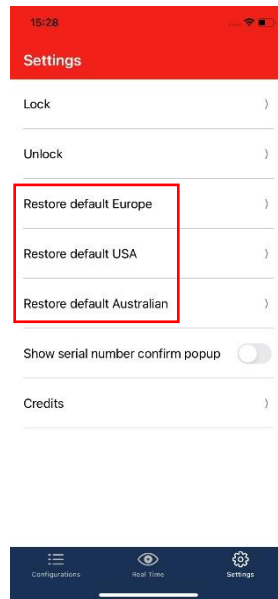
When the line selected is 3P + N, a second set of measurements is displayed with the Line to neutral voltages.

At the bottom of the page, the neutral unbalance, the line asymmetry and frequency values are displayed.

The graphs show the distance between the set nominal voltage and the measured voltage.

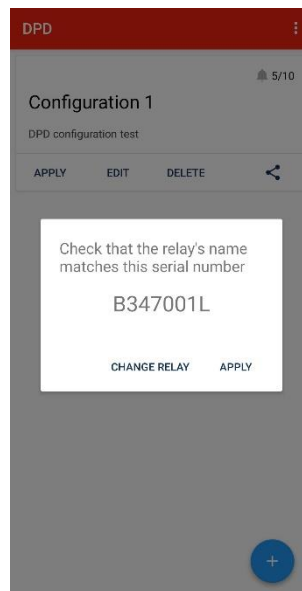
The filling of the bar graphs shows at a glance this distance.
Positive deviations are clockwise (CW), negative deviations are counterclockwise (CCW).
The graph ranges from -30% (CCW) to + 30% (CW).
Below -30% and above 30% the fill of the bar is considered out of range.

Country Default Settings



Three different defaults are available to restore the DPD to country settings:

- “*Default Europe*” are those commonly used in Europe,
- “*Default USA*” are those commonly used in USA,
- “*Default Australian*” are those commonly used in Australia.



If serial number confirmation is enabled, the popup shown above appears.

Confirm if the tracked relay is the correct one.

If serial number confirmation is disabled, the default settings are immediately applied.

DPD DEFAULT PARAMETERS

PAGE	ITEM	COUNTRY		
		EUROPE	USA	AUSTRALIA
GRID TYPE	LINE TYPE	DELTA	DELTA	DELTA
	RATED LINE VOLTAGE	400VAC	240 VAC	415VAC
	POWER ON DELAY	0s	0s	0s
SETPOINTS	ALARM 1	OVERVOLTAGE	OVERVOLTAGE	OVERVOLTAGE
	VOLTAGE VALUE	440VAC	264 VAC	456VAC
	HYSTERESIS	2%	2%	2%
	DELAY ON	0s	0s	0s
	DELAY OFF	0s	0s	0s
	ALARM 2	UNDERVOLTAGE	UNDERVOLTAGE	UNDERVOLTAGE
	VOLTAGE VALUE	360VAC	216 VAC	373VAC
	HYSTERESIS	2%	2%	2%
	DELAY ON	0s	0s	0s
PRIORITY ALARMS	PHASE LOSS ENABLE	ON	ON	ON
	PHASE LOSS THRESHOLD	85%	85%	85%
	NEUTRAL LOSS	NOT ACTIVE	NOT ACTIVE	NOT ACTIVE
	PHASE SEQUENCE ENABLE	ON	ON	ON
	OUT OF RANGE MEASUREMENT	ON	ON	ON
OUTPUT 1	ASSIGNMENT	ALARM 1	ALARM 1	ALARM 1
	LOGIC	NORMALLY ENERGIZED	NORMALLY ENERGIZED	NORMALLY ENERGIZED
	LOGIC OPERATORS	NONE	NONE	NONE
OUTPUT 2	ASSIGNMENT	ALARM 2	ALARM 2	ALARM 2
	LOGIC	NORMALLY ENERGIZED	NORMALLY ENERGIZED	NORMALLY ENERGIZED
	LOGIC OPERATORS	NONE	NONE	NONE

The factory settings of the DPD02DM44 are those commonly used in Europe.
The factory settings of the DPD02DM44B are those commonly used in USA.