



# Guardian

## INSTALLATION INSTRUCTIONS

V.1.0 July 2023



# SET UP

Refer to the Instructions for the required Wiring configuration

**Do not connect the relay contacts until set up has been completed.**

Once the unit has been energised, parameters can be configured to specific values or left as default settings.



# MAIN SCREEN

Relay 1 status: Relay 2 status:

Event	Trigger	Value	Unit	Source

Clear

1 2 3 4 5 6 7 8 9 10 11 12

Events screen

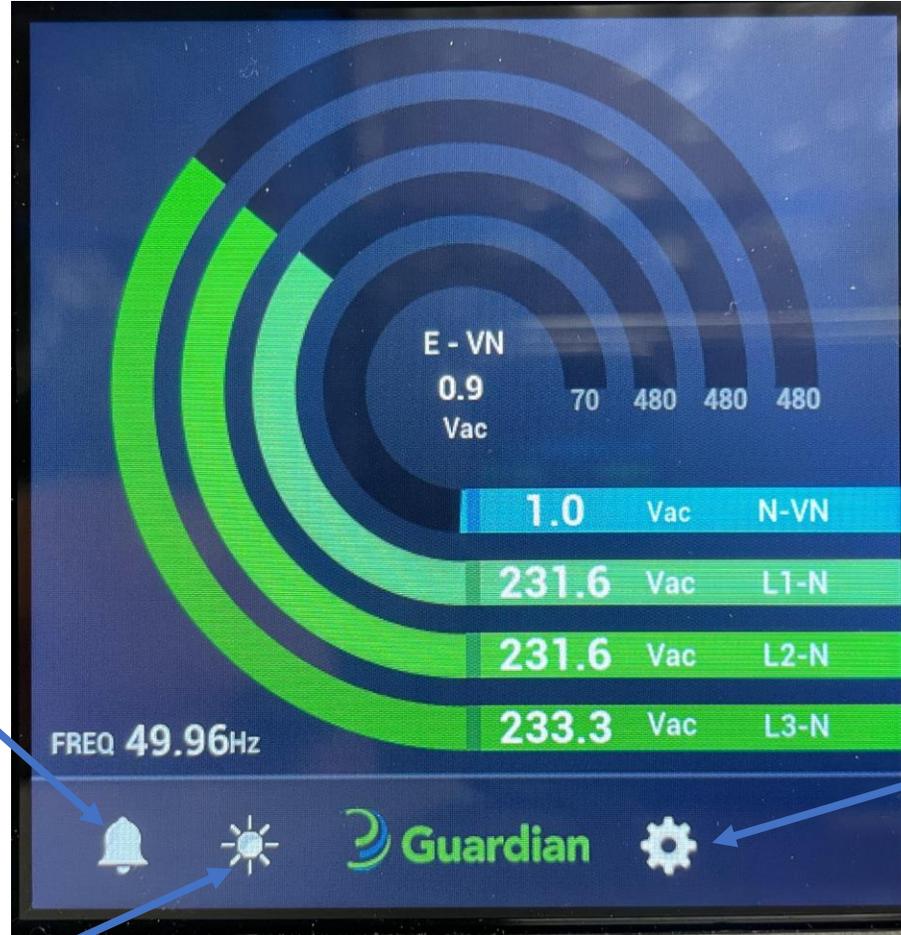
< Display settings

Backlight timeout enable/disable

Backlight timeout duration  5 min

Display brightness  100 %

Display settings



Guardian

Settings

- General
- Electrical network
- Alarm and event settings
- Network settings
- Cloud
- Modbus RTU
- Reset

Settings

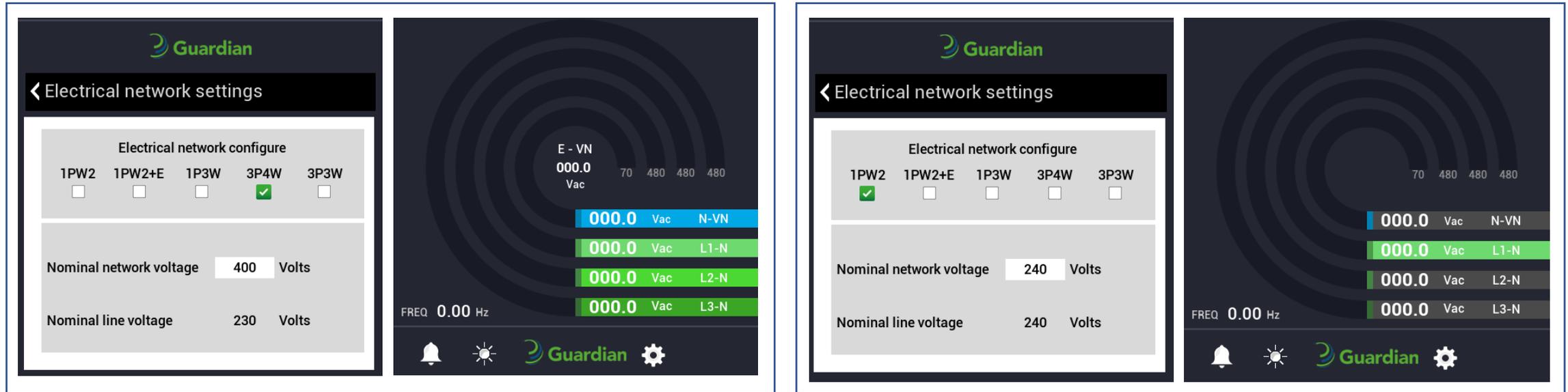
# SETTINGS SCREEN



The settings menu is titled "Settings" and features the Guardian logo at the top. It contains a list of settings categories, each with a right-pointing arrow: General, Electrical network, Alarm and event settings, Network settings, Cloud, Modbus RTU, Reset, and Contact information. A blue arrow points from the "Electrical network" option to the detailed settings screen.

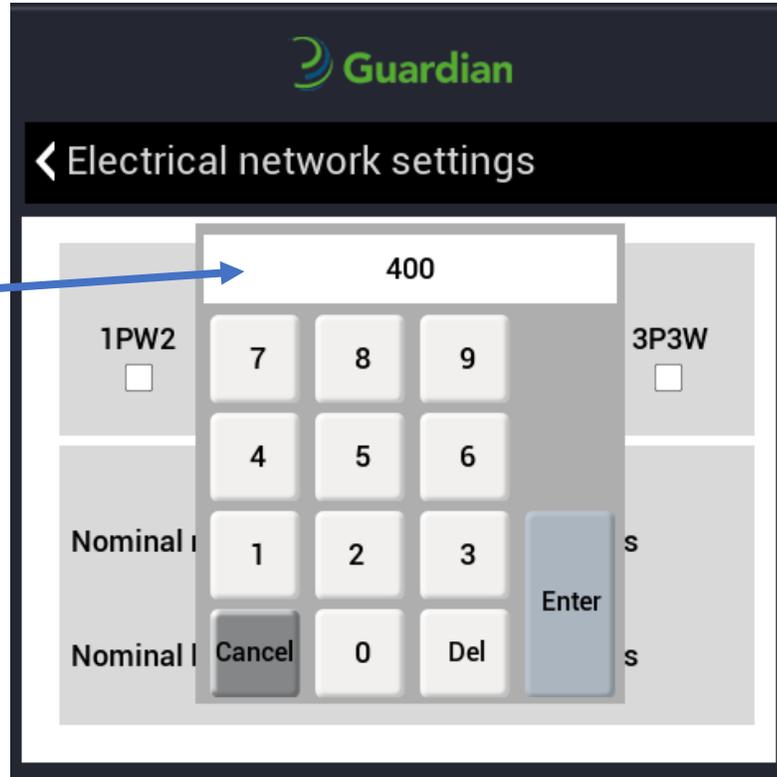
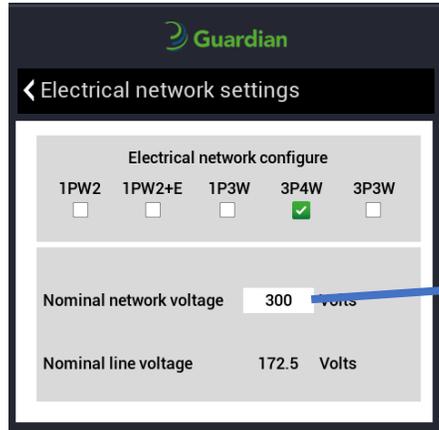
The "Electrical network settings" screen is titled "Electrical network settings" and includes the Guardian logo. It features a section titled "Electrical network configure" with five radio button options: 1PW2, 1PW2+E, 1P3W, 3P4W (which is selected with a green checkmark), and 3P3W. Below this, two voltage settings are displayed: "Nominal network voltage" set to 300 Volts and "Nominal line voltage" set to 172.5 Volts.

# ELECTRICAL NETWORK SETTINGS



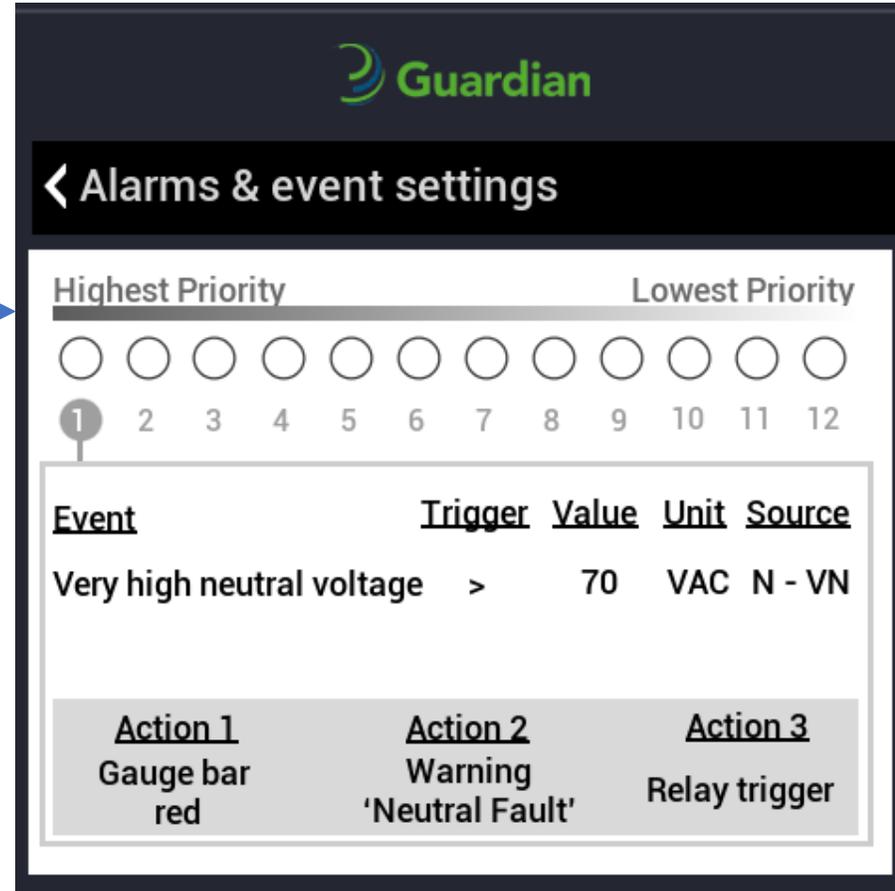
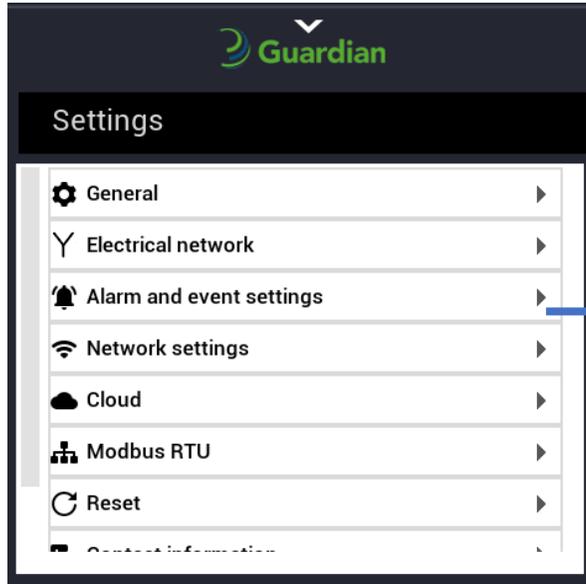
- Select system electrical network choice.
- Selecting an electrical network configuration will change the main screen display information.
- 1P2W will show L1 to Neutral only.
- 1P2W + E will show L1 to Neutral and Earth to Neutral.
- 1P3W will show L1 to N, L2 to N, N to VN and E to VN.
- 3P4W will show L1 to N, L2 to N, L3 to N N to VN and Earth to VN.
- 3P3W will show L1 to VN, L2 to VN, L3 to VN and Earth to VN.

# ELECTRICAL NETWORK SETTINGS



- Select the nominal network voltage to edit the value.
- If number > 480 VAC “Out of range” will be displayed.
- Press cancel, to not make a change.
- Press enter to confirm change.
- The nominal line voltage will then be updated.
- Events related to the nominal network voltage, will update.

# ALARMS AND EVENTS SETTINGS



- 12 event settings.
- Select the number to access the event of interest.
- The event with highest priority will trigger over lower priority.

# CONFIGURABLE EVENTS

Event 2 - High neutral voltage (20v) Range from 1-65v N-VN No Relay/Relay Trigger

Event 4 - High earth voltage (20v) Range from 1-60v N-VN No Relay/Relay Trigger

Event 8 - Very high line voltage (115%) Range from 110-115% Relay Trigger

Event 9 - Very low line voltage (85%) Range from 85-90% Relay Trigger

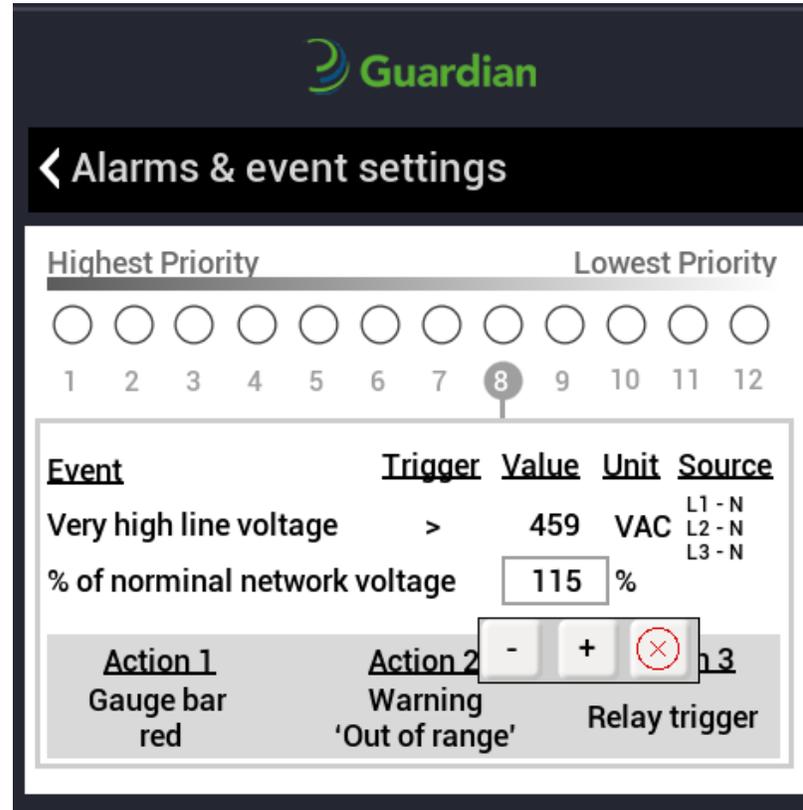
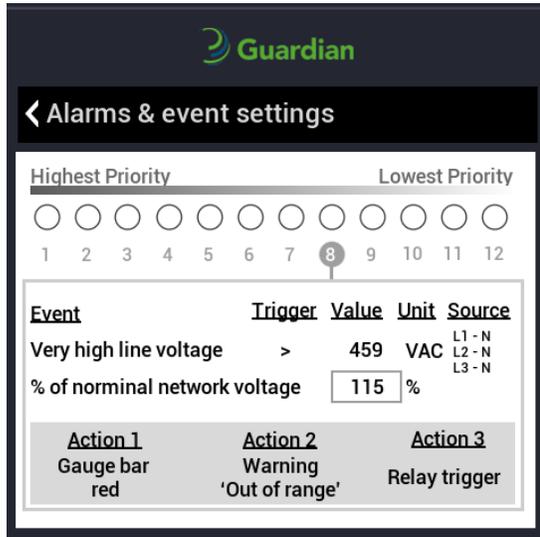
Event 10 - Very high line voltage (110%) Range from 105-110% No Relay Trigger

Event 11 - Very low line voltage (90%) Range from 85-90% No Relay Trigger

Event 12 - Frequency out of range (0.5hz) Range from 0-19.9hz No Relay/Relay Trigger

Please note, some events may not appear depending on your supply electrical network.

# ALARMS AND EVENTS SETTINGS



- Select the boxed value to edit the threshold.
- The threshold has been limited to 5% change.
- Press the “X” button to close the keypad.
- Events 8, 9, 10 and 11 are effected by the electrical network nominal voltage.

When all the configurable values have been checked or amended from default, connect the relays.

# EVENTS EXPLANATION

- Event 1 - Very high neutral voltage (Relay Trigger)
- Event 2 - High neutral voltage (Range from 1-65v N-VN No Relay/Relay Trigger)
- Event 3 - Very high earth voltage (No Relay/ Relay Trigger)
- Event 4 - High earth voltage (Range from 1-60v N-VN Relay Trigger)
- Event 5 - Voltage overline range (Relay Trigger)
- Event 6 - Loss of Phase (Relay Trigger)
- Event 7 - Frequency out of range (Relay Trigger)
- Event 8 - Very high line voltage (Range from 110-115% Relay Trigger)
- Event 9 - Very low line voltage (Range from 85-90% Relay Trigger)
- Event 10 - Very high line voltage (Range from 105-110% No Relay Trigger)
- Event 11 - Very low line voltage (Range from 85-90% No Relay Trigger)
- Event 12 - Frequency out of range (Range from 0-19.9hz No Relay/Relay Trigger)

Please note, some events may not appear depending on your supply electrical network.

# EVENTS SCREEN EXAMPLE

Relay 1 status:  Relay 2 status: 

Event	Trigger Value	Unit	Source
1 Very high neutral voltage	>	70 VAC	N-VN
3 Very high earth voltage	>	65 VAC	E-VN
8 Very high line voltage	>	265 VAC	L1 - N
9 Very low line voltage	<	196 VAC	L3 - N
10 Frequency out of range	<>	66 Hz	F1

1  2  3  4  5  6  7  8  9  10  11  12

Events that have been triggered

Relay 1 status:  Relay 2 status: 

Event	Trigger Value	Unit	Source
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1  2  3  4  5  6  7  8  9  10  11  12

Events can be cleared here

# FAULT CONDITIONS

Relay 1 status:  Relay 2 status: 

<u>Event</u>	<u>Trigger</u>	<u>Value</u>	<u>Unit</u>	<u>Source</u>
1 Very high neutral voltage	>	70	VAC	N-VN
3 Very high earth voltage	>	65	VAC	E-VN
8 Very high line voltage	>	265	VAC	L1 - N
9 Very low line voltage	<	196	VAC	L3 - N
10 Frequency out of range	< >	66	Hz	F1

1  2  3  4  5  6  7  8  9  10  11  12 

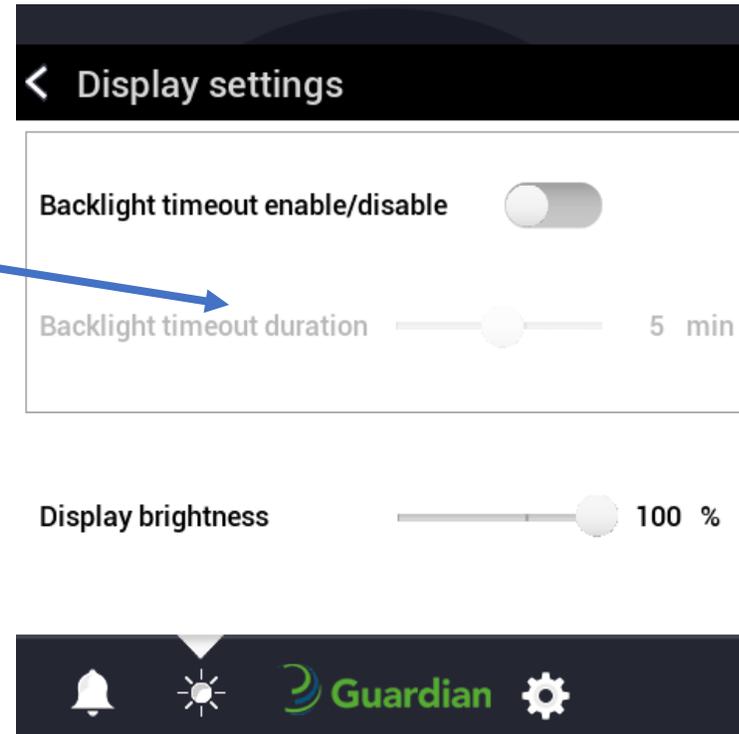
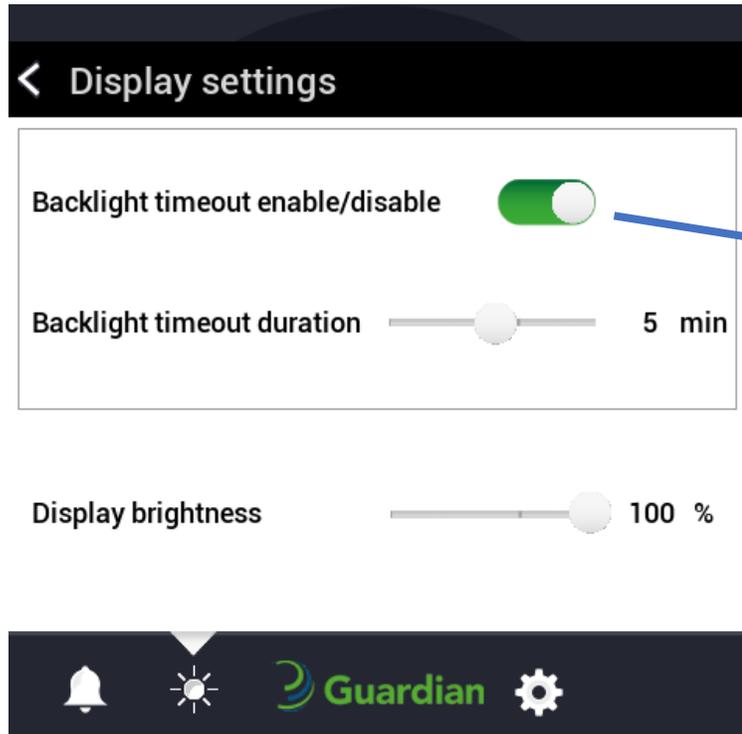
Once a detected fault has cleared, the Guardian will wait a further 3 minutes before closing both relays.

Relay 1 status:  Relay 2 status: 

<u>Event</u>	<u>Trigger</u>	<u>Value</u>	<u>Unit</u>	<u>Source</u>
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1  2  3  4  5  6  7  8  9  10  11  12 

# DISPLAY SETTINGS



- Backlight timeout switch will enable or disable access to the time duration.
- Drag the scroll bars to change the settings.

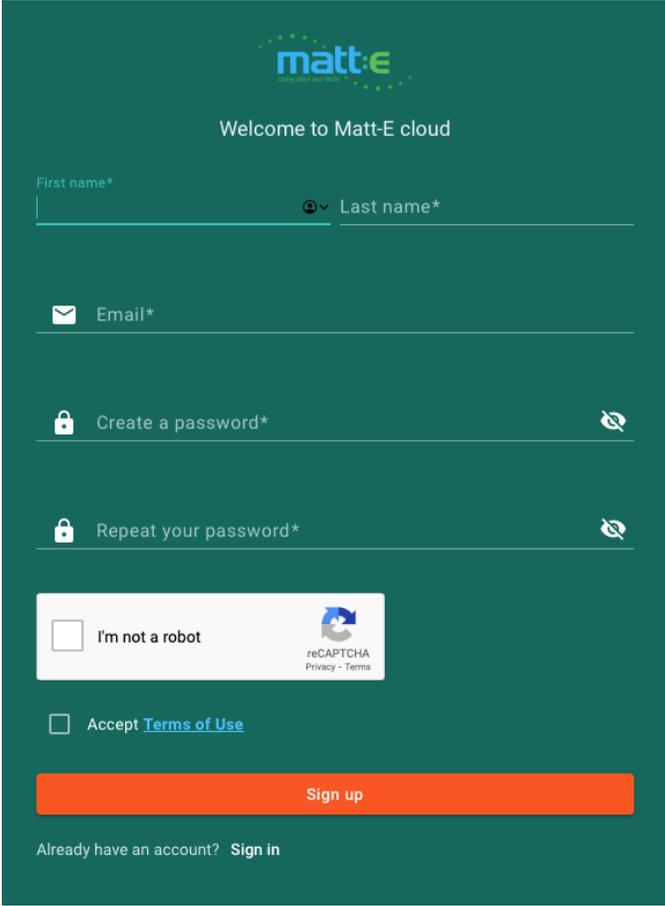
# Claiming a device

Create an account on the sign up page of the cloud.

[cloud.matt-e.com/login](https://cloud.matt-e.com/login) is the URL, click on the sign up button on this page.

Enter your information to create an account in the relative fields to sign up.

Verify your email address from your chosen email platform.



The image shows a sign-up form for Matt-E cloud. The form is set against a dark teal background. At the top, the Matt-E logo is displayed, followed by the text "Welcome to Matt-E cloud". The form contains several input fields: "First name\*" and "Last name\*" (with a dropdown arrow), "Email\*" (with an envelope icon), "Create a password\*" (with a lock icon and a toggle for visibility), and "Repeat your password\*" (with a lock icon and a toggle for visibility). Below these fields is a reCAPTCHA widget with the text "I'm not a robot" and a checkbox. Underneath the reCAPTCHA is another checkbox labeled "Accept Terms of Use". At the bottom of the form is a prominent orange "Sign up" button. Below the button, there is a link that says "Already have an account? Sign in".

# MATT-E CLOUD HUB



DEVICE LIST

Status	Name ↑	Last Update Time
No entities found		

Items per page: 10 1 - 0 of 0

Welcome  
to the **Guardian** cloud



Guardian v1

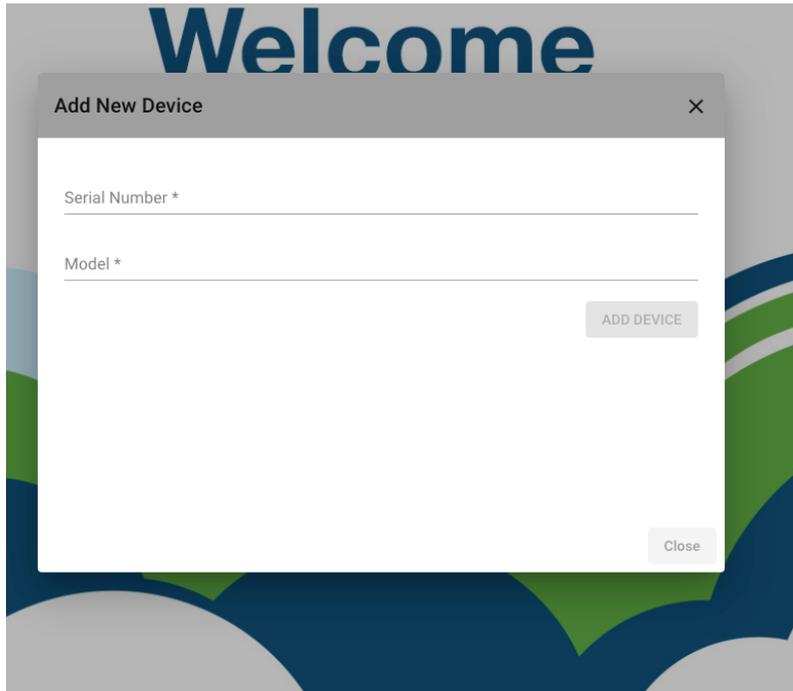


# CLAIM THE DEVICE

To claim a device, click on the + icon in the device list. You will be asked to enter a serial number and a model.

The model will always be 'Guardian' (case sensitive)

The serial numbers can be taken from the device (on the device, go to settings > general settings)



Welcome

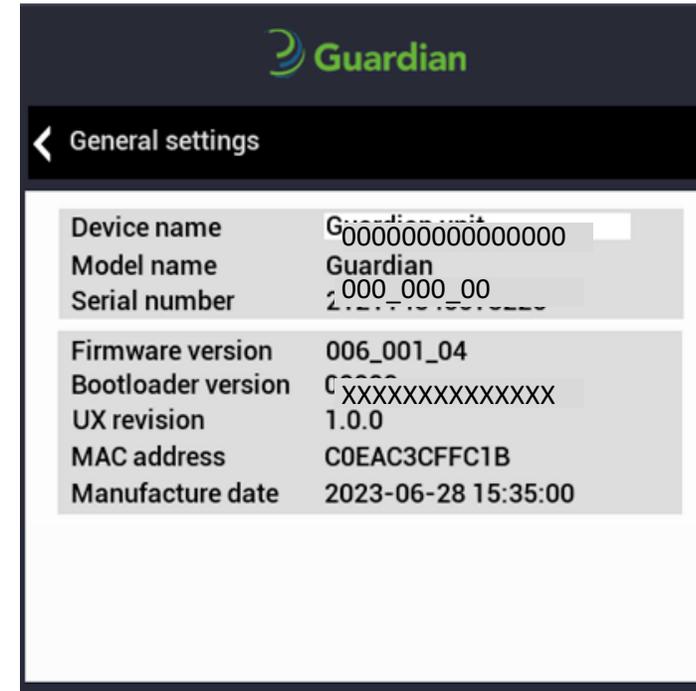
Add New Device

Serial Number \*

Model \*

ADD DEVICE

Close



Guardian

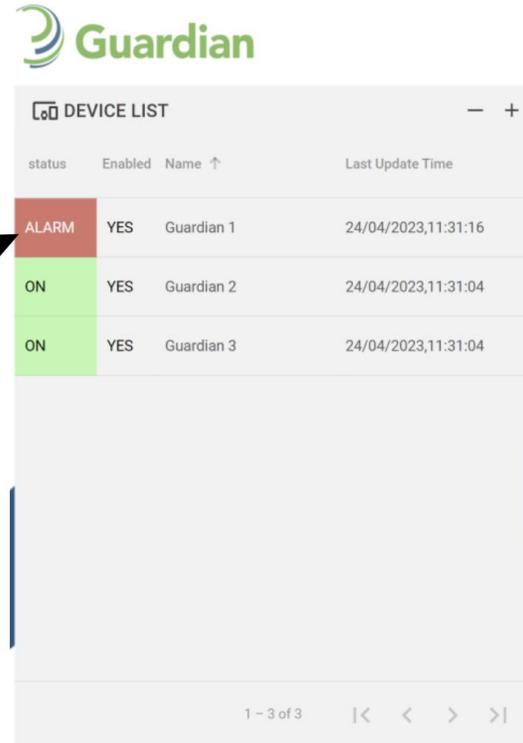
General settings

Device name	G0000000000000000
Model name	Guardian
Serial number	2_000_000_00
Firmware version	006_001_04
Bootloader version	CXXXXXXXXXXXXXXXX
UX revision	1.0.0
MAC address	C0EAC3CFFC1B
Manufacture date	2023-06-28 15:35:00

Click "Add Device"

# VIEW DEVICES

Once logged in the home page lists the connected devices on the left hand side.



The screenshot shows the Guardian web interface. At the top left is the Guardian logo. Below it is a 'DEVICE LIST' table with columns for status, Enabled, Name, and Last Update Time. The first row has a red 'ALARM' status, 'YES' for Enabled, 'Guardian 1' for Name, and '24/04/2023,11:31:16' for Last Update Time. The second and third rows have a green 'ON' status, 'YES' for Enabled, 'Guardian 2' and 'Guardian 3' for Name, and '24/04/2023,11:31:04' for Last Update Time. At the bottom of the table is a pagination control showing '1 - 3 of 3' and navigation arrows.

status	Enabled	Name ↑	Last Update Time
ALARM	YES	Guardian 1	24/04/2023,11:31:16
ON	YES	Guardian 2	24/04/2023,11:31:04
ON	YES	Guardian 3	24/04/2023,11:31:04

Welcome  
to the Guardian cloud

# DEVICE HOME SCREEN

Click on one of the connected devices to see the measured values.

The screenshot displays the Guardian v0.2 interface. On the left is a 'DEVICE LIST' table with columns for status, Enabled, Name, and Last Update Time. The main area shows 'Guardian 1' with four voltage gauges (L1-N, L2-N, L3-N, N-VN), a red 'Frequency out of Range' banner, and three bottom gauges (E-VN, Frequency, Electrical Network Type). Each gauge includes a bar chart and a 'History' or 'Realtime' graph.

status	Enabled	Name	Last Update Time
ALARM	YES	Guardian 1	24/04/2023,11:31:24
ON	YES	Guardian 2	24/04/2023,11:31:24
ON	YES	Guardian 3	24/04/2023,11:31:24

Parameter	Value
L1-N VOLTAGE	230.85 volts
L2-N VOLTAGE	230.29 volts
L3-N VOLTAGE	231.44 volts
N-VN VOLTAGE	0.78 volts
E-VN VOLTAGE	0.64 v
FREQUENCY	68.01 Hz
ELECTRICAL NETWORK TYPE	3 Phase - 4 Wire

# EVENTS LOG

The screenshot displays the Guardian monitoring interface. On the left is a 'DEVICE LIST' table with columns for status, Enabled, Name, and Last Update Time. The main dashboard shows 'Guardian 1' with four voltage readouts: L1-N VOLTAGE (230.85 volts), L2-N VOLTAGE (230.29 volts), L3-N VOLTAGE (231.44 volts), and N-VN VOLTAGE (0.78 volts). Below these are four real-time graphs. A red banner at the bottom indicates a 'Frequency out of Range' event. At the very bottom, three readouts are shown: E-VN VOLTAGE (0.64 v), FREQUENCY (68.01 Hz), and ELECTRICAL NETWORK TYPE (3 Phase - 4 Wire). In the top right corner of the dashboard, there are icons for user, share, refresh, bell, and settings. An arrow points from a callout box to the bell icon.

status	Enabled	Name	Last Update Time
ALARM	YES	Guardian 1	24/04/2023,11:31:24
ON	YES	Guardian 2	24/04/2023,11:31:24
ON	YES	Guardian 3	24/04/2023,11:31:24

**Guardian 1**

**L1-N VOLTAGE**  
230.85 volts

**L2-N VOLTAGE**  
230.29 volts

**L3-N VOLTAGE**  
231.44 volts

**N-VN VOLTAGE**  
0.78 volts

**Frequency out of Range**

**E-VN VOLTAGE**  
0.64 v

**FREQUENCY**  
68.01 Hz

**ELECTRICAL NETWORK TYPE**  
3 Phase - 4 Wire

Click on the bell icon to show the event log as below.

# DOWNLOAD EVENTS

The screenshot displays the Guardian monitoring interface. On the left, a 'DEVICE LIST' table shows three devices: Guardian 1 (ALARM), Guardian 2 (ON), and Guardian 3 (ON). The main panel shows 'Guardian 1' with 'EVENT LOGS' for the last 30 minutes. The event log table includes columns for Priority, source, Status, details, Created time, and Cleared time. A callout box with a black border and rounded corners points to a download icon (represented by a document with a downward arrow) located in the top right corner of the event log header area.

status	Enabled	Name ↑	Last Update Time
ALARM	YES	Guardian 1	24/04/2023,11:31:24
ON	YES	Guardian 2	24/04/2023,11:31:24
ON	YES	Guardian 3	24/04/2023,11:31:24

Priority	source	Status ↑	details	Created time	Cleared time
11	Frequency	Triggered	Frequency out of Range	2023-04-24 11:31:24	
9	L1	Cleared	Very Low Line Voltage	2023-04-24 11:31:16	2023-04-24 11:31:24
1	N-VN	Cleared	Very High Neutral Voltage	2023-04-24 11:30:59	2023-04-24 11:31:04
3	E-VN voltage	Cleared	Very High Earth Voltage	2023-04-24 11:30:38	2023-04-24 11:30:40
9	L1	Cleared	Very Low Line Voltage	2023-04-24 11:30:26	2023-04-24 11:30:29
2	N-VN	Cleared	High Neutral Voltage	2023-04-24 11:30:11	2023-04-24 11:30:16
11	Frequency	Cleared	Frequency out of	2023-04-24 11:30:53	2023-04-24 11:30:01

This log can be downloaded here as an excel file

# SET UP USER DETAILS

The screenshot displays the Guardian web interface. On the left, a 'DEVICE LIST' table is visible:

status	Enabled	Name	Last Update Time
ALARM	YES	Guardian 1	24/04/2023,11:31:24
ON	YES	Guardian 2	24/04/2023,11:31:24
ON	YES	Guardian 3	24/04/2023,11:31:24

The main 'Account settings' modal is open, showing the 'Add new user' section with the following fields:

- New User Email:
- New User First Name:
- New User Last Name:
- Admin:

The background dashboard shows 'VOLTAGE' at 1.44 and 'N-VN VOLTAGE' at 0.78 volts. A user icon in the top right corner is highlighted with an arrow.

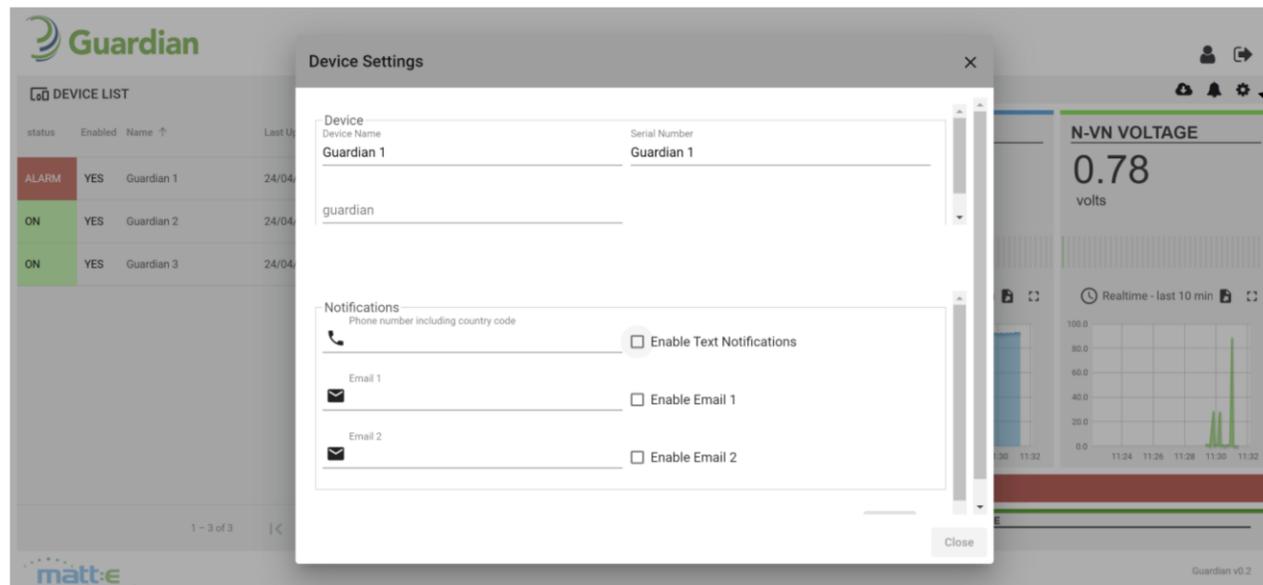
The user icon allows you to set a new user. Enter the contact name and email address. You can also select if you want them to be admin or read only email

# DEVICE NOTIFICATION SET UP

To receive notification of the events via text and/or email enter your details in the Device Settings

Ensure to select the “Enable” box to the right.

For the text alerts ensure to use the country code. +44 (UK) for example.



Click on the cog to enter the device settings page. Here you can enter the details for the contact in the event that a fault is detected.

# EVENT NOTIFICATIONS

