AS/NZS 4777.2:2020 Technical Information

STP 125-70

Version 1.0 | 04/06/2025

Contents

1 Disclaimer

Every attempt has been made to make this document complete, accurate and up-to-date. However, readers are cautioned that changes to local regulations or product improvements may cause SMA Australia to make changes to this document without advance notice. SMA Australia shall not be responsible for any damages, including indirect, incidental, or consequential damages, caused by reliance on the material presented, including, but not limited to, omissions, typographical errors, arithmetical errors or listing errors in the content material.

It is therefore recommended that you always check for the latest version prior to following the instructions in this document.

2 Scope

This document is intended to cover the following SMA models:

Inverter model
STP 125-70

Table 1: *In Scope Inverters*

As of December 18th, 2021, all inverters installed in Australia must comply with one of the pre-set region setting sets described in AS/NZS 4777.2:2020.

1. Australia A
2. Australia B
3. Australia C

All three region sets contain the default Power Quality, Volt-Watt, Volt-Var, Frequency/Voltage Response and grid protection settings. Should you require advice or changes to protection settings, please reach out to SMA technical support for assistance.

The following inverters have not been tested to AS/NZS 4777.2:2020 for multiple phase combinations:
STP 125-70

3 Firmware Update

NOTE: Connect the DC supply only when commissioning the inverter until the inverter has the minimum firmware required.

Please refer to **Table 2** for applicable devices and minimum firmware versions. We recommend using the latest firmware from the SMA Australia website if it is newer than the one listed below.

Inverter model	Minimum firmware
STP 125-70	4.00.xx.R

Table 2: *Minimum Firmware Requirements*

3.1 Procedure

3.1.1 Required Equipment

a. Laptop with Ethernet port and a Web Browser (eg. Chrome, Firefox, Edge).
    i. Internet access onsite is not required if Firmware is downloaded prior to site visit.

3.1.1.1 Connecting via Ethernet

a. Connect your laptop to the inverter's Ethernet port.

b. Open a Web Browser and enter in the IP address **169.254.12.3**.

c. Refer to **3.1.1.2** to complete the update.

3.1.1.2 Updating Firmware

a. Select **Installer** as the user group and enter your password.
   i. If this is the first-time logging into the inverter you will need to setup a User and Installer password.
   ii. Please set the **User** password to **Sma12345!**

b. Once logged in as the installer navigate to the **Device Configuration** via the top menu.
   i. Once on the page, click on the setting wheel next to the Device.
   ii. Select **Update firmware.**

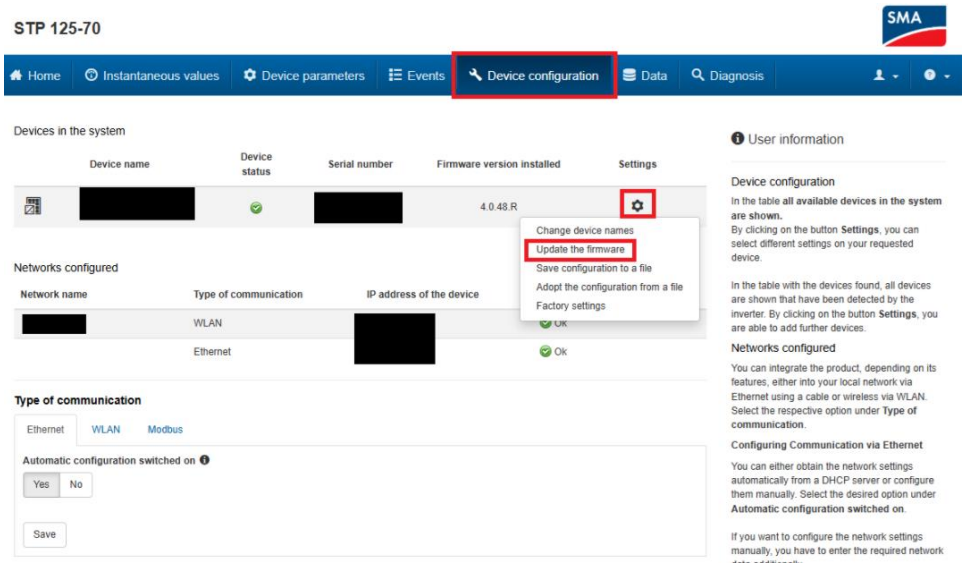


Image 1: *Update Firmware*

c. Click on **Browse...** locate the appropriate firmware update on your smart device and click **Update firmware**.

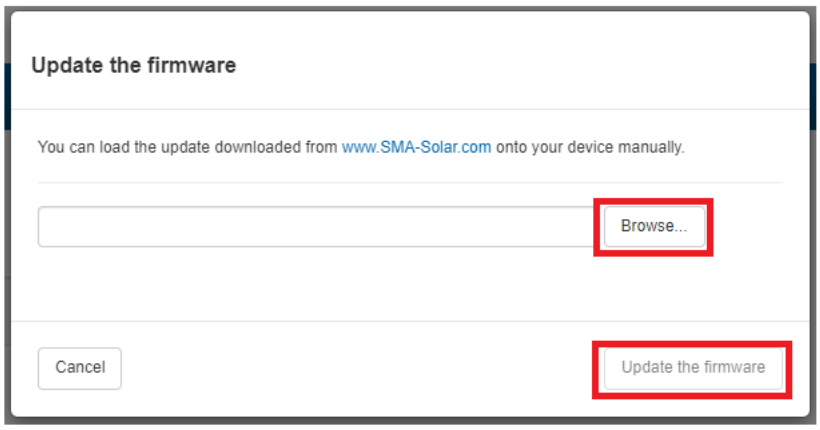


Image 2 Firmware Update selection

d. Verify FW update has been successful by clicking on "Events" and look for the two Event IDs.

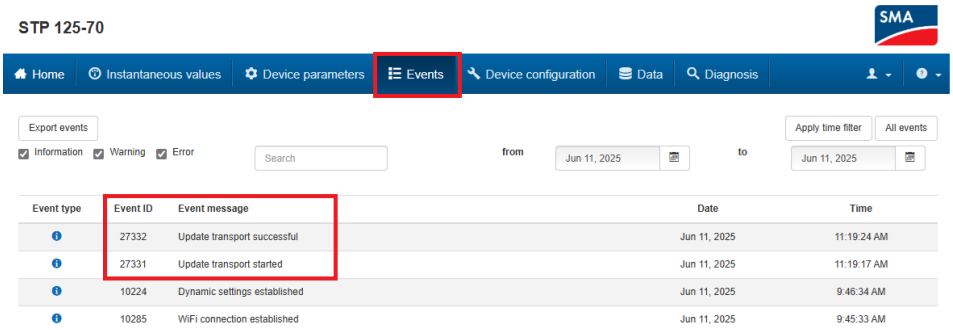


Image 3 Update completed confirmation

Note:

Depending on the firmware, the update process will take some time to complete. During this time, the file will be uploaded from your smart device to the inverter. Once this upload process reaches 100%, the inverter will install the new firmware. During which, you will lose connection between your smart device and the inverter. Wait 5 minutes after losing connection, before reconnecting to the inverter's WebUI.

When the update is complete, you will be able to verify this by navigating to **Events** and finding an entry **Update completed**.

4 Commissioning Inverter

Commissioning the inverter can be done by:

a. Web browser – for all Laptops with Ethernet port.

DNSP	Country Standard
Ausgrid Ausnet Citipower Endeavour Energy Energex Ergon Essential Energy Evoenergy Jemena SA Power Networks Ausgrid PowerCor United Energy	AS/NZS 4777.2:2020 A
Western Power	AS/NZS 4777.2:2020 B
Horizon Power TasNetworks	AS/NZS 4777.2:2020 C
New Zealand DNSPs	AS/NZS 4777.2:2020 NZS*

Table 3: *Country Standard Based on DNSP*

* Refer to connection agreement with DNSP for applicable settings.

4.1 Via Web Browser

Follow steps in **Section 3.1.1.1** on how to connect to the inverter via Ethernet.

1. Click "Save and next" on Network Configuration.

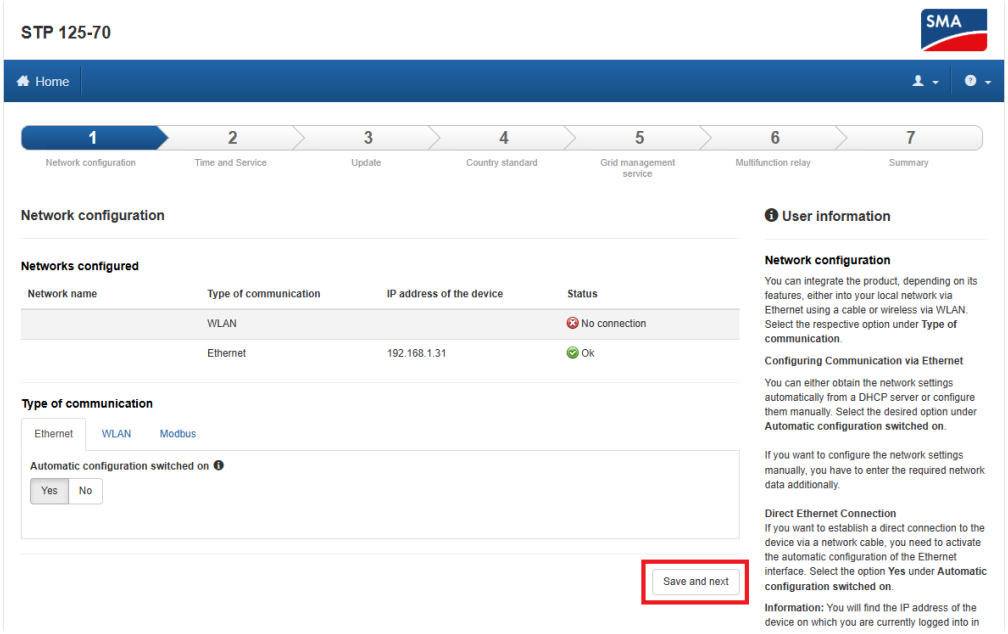


Image 4 Network Configuration

2. Select relevant time zone and click "Save and next".

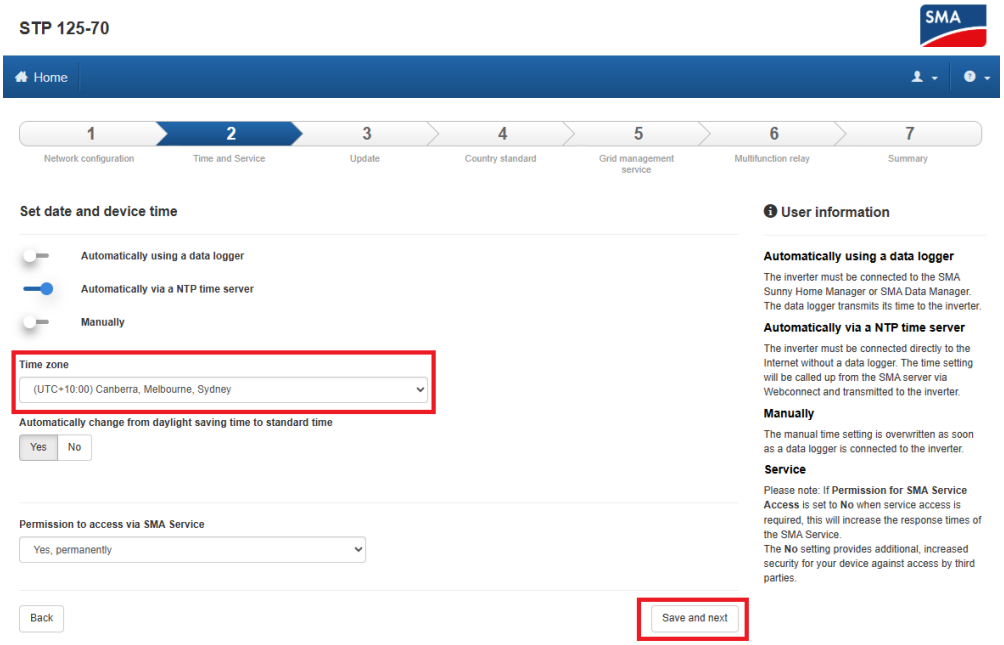


Image 5 Time Zone selection

3. Verify if the inverter has the latest firmware by checking the version number. Refer to Table 2 for latest firmware version. Perform either automatic or manual firmware update if necessary. Click on "Save and next" to proceed.

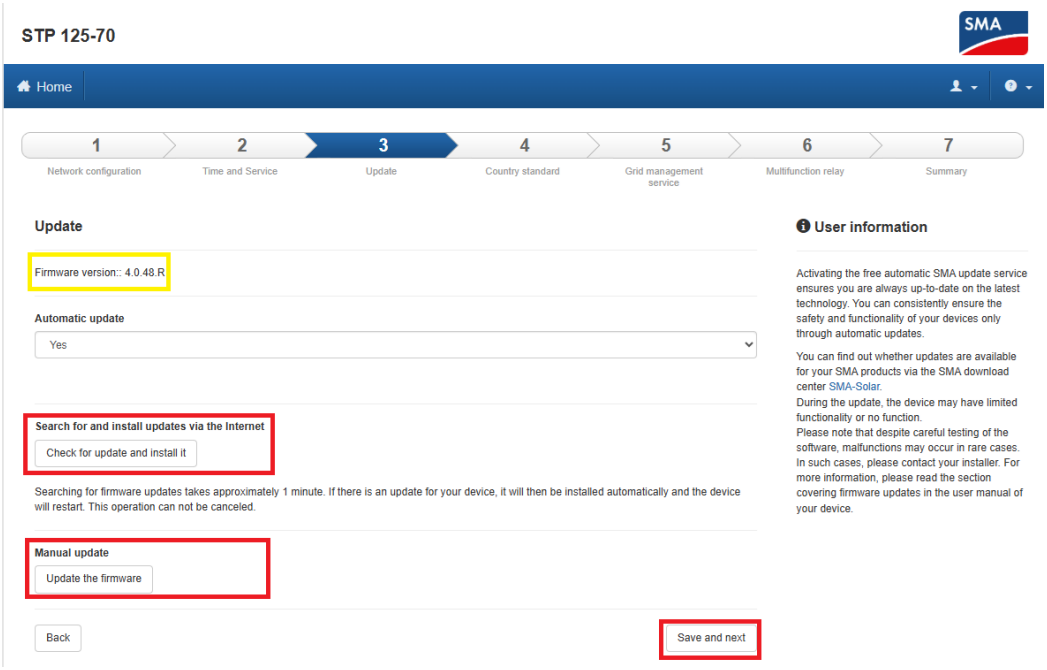


Image 6 Firmware Update

4. Select relevant Australian or New Zealand country code settings according to your local DNSP requirements. Click on "Save and next" to proceed.

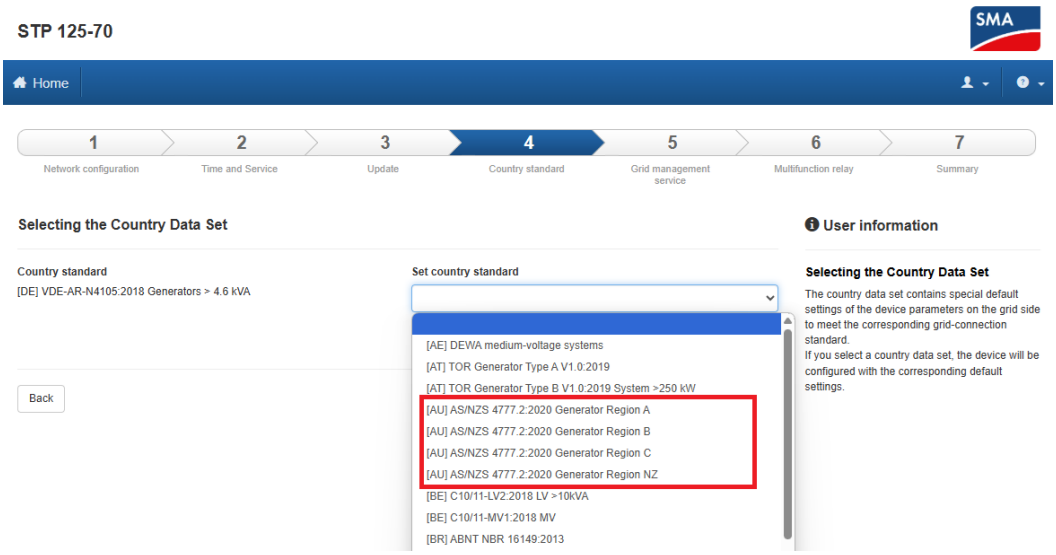


Image 7 Country Code Selection

5. The default Active Power and Reactive Power modes are configured according to AS/NZS 4777.2:2020. Both the power modes are visualised with a characteristic curve.

   Do not alter the default settings unless otherwise instructed by your local DNSP. Click on "Save and next" to proceed.

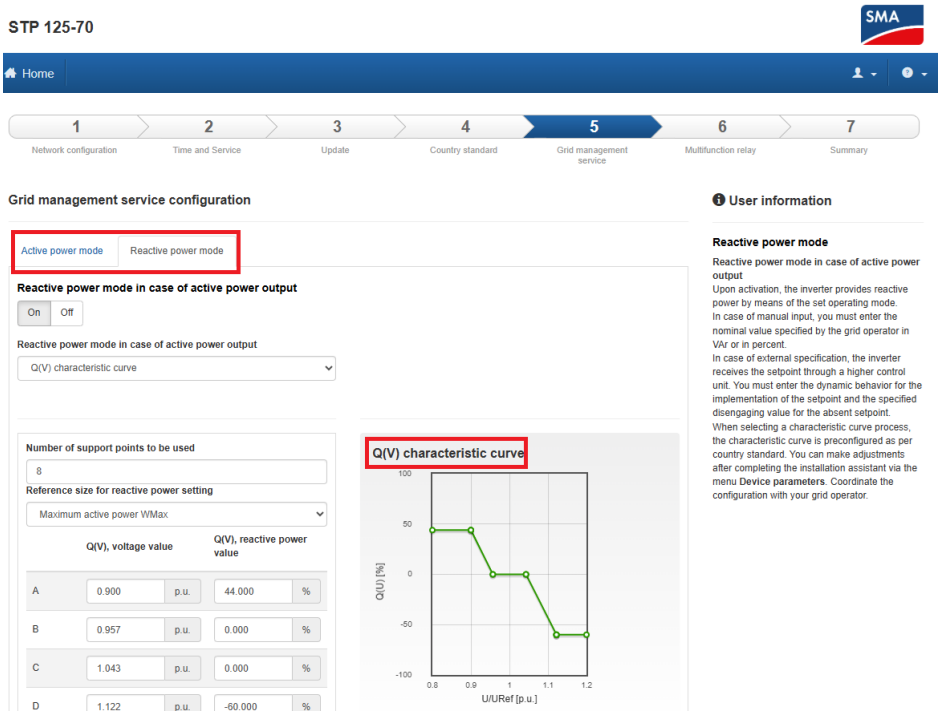


Image 8 Power Modes

6. Leave Multifunction Relay as "OFF" and click on "Save and next" to proceed.

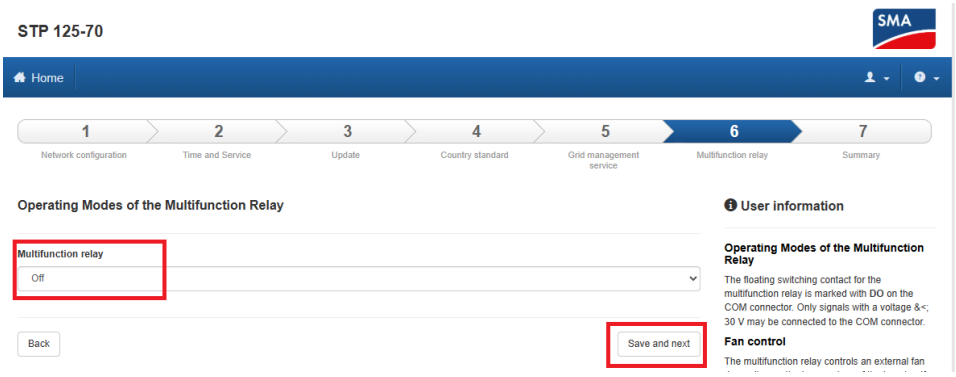


Image 9 Multifunction Relay

7. Review a summary of the selected settings and click on "Next" to complete commissioning process.

5 Checking of Parameters

The following method can be used to verify that the Country Standard and Firmware are correct.

a. WebUI of the inverter
    i. Via Web Browser

5.1 Via WebUI

Connect to the inverter's WebUI:

Follow steps in **Section 3.1.1.1** on how to connect to the inverter via ethernet.

5.1.1 Country Standard

Click on "Device Parameters", search for "Country Standard" to verify selected country standard.

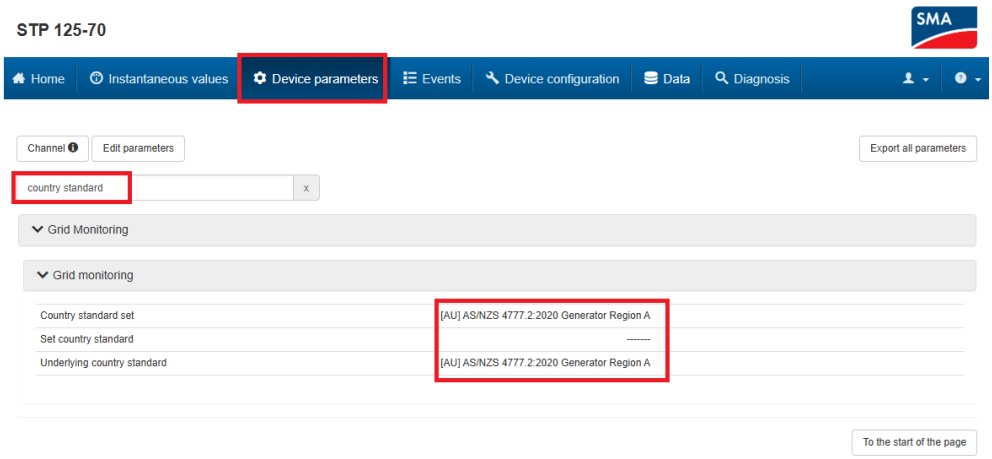


Image 10: *Checking of Country Standard*

5.1.2 Firmware version

Click on "Device Parameters", search for "Country Standard" to verify selected country standard.

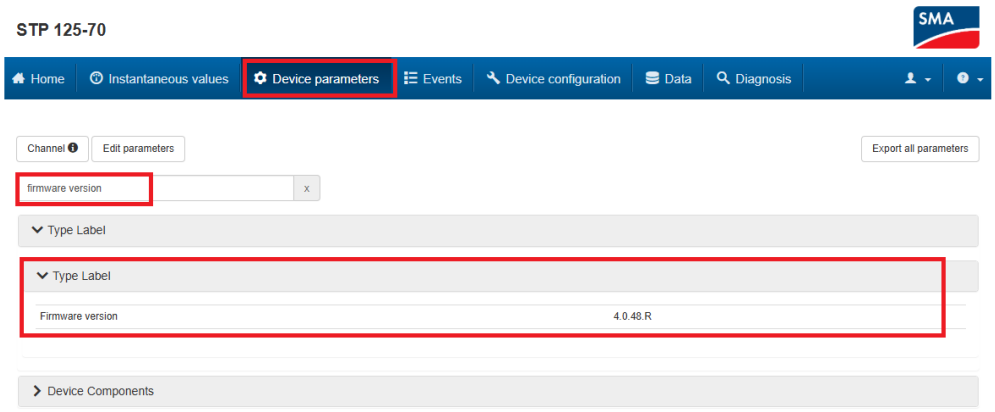


Image 11: *Checking Firmware version*

5.1.3 Grid Protection & Power Quality Settings

To verify grid protection and power quality settings, enter the keyword in the search box. All relevant parameters can be downloaded with "Export all parameters" button.

Inverter Settings	Keyword
Volt-Watt, Volt-Var	P(V), Q(V)
Frequency Protection, Voltage Protection	Frequency monitoring, Voltage monitoring
Over/Under Frequency	P(F)
Fixed Power Factor	Manual cos φ specification
Fixed Reactive Power	Manual reactive power
Ramp Rate	Ramp Rate

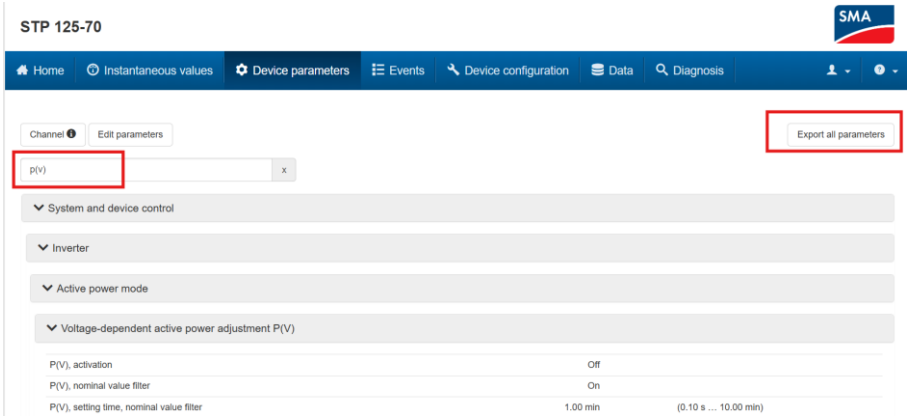


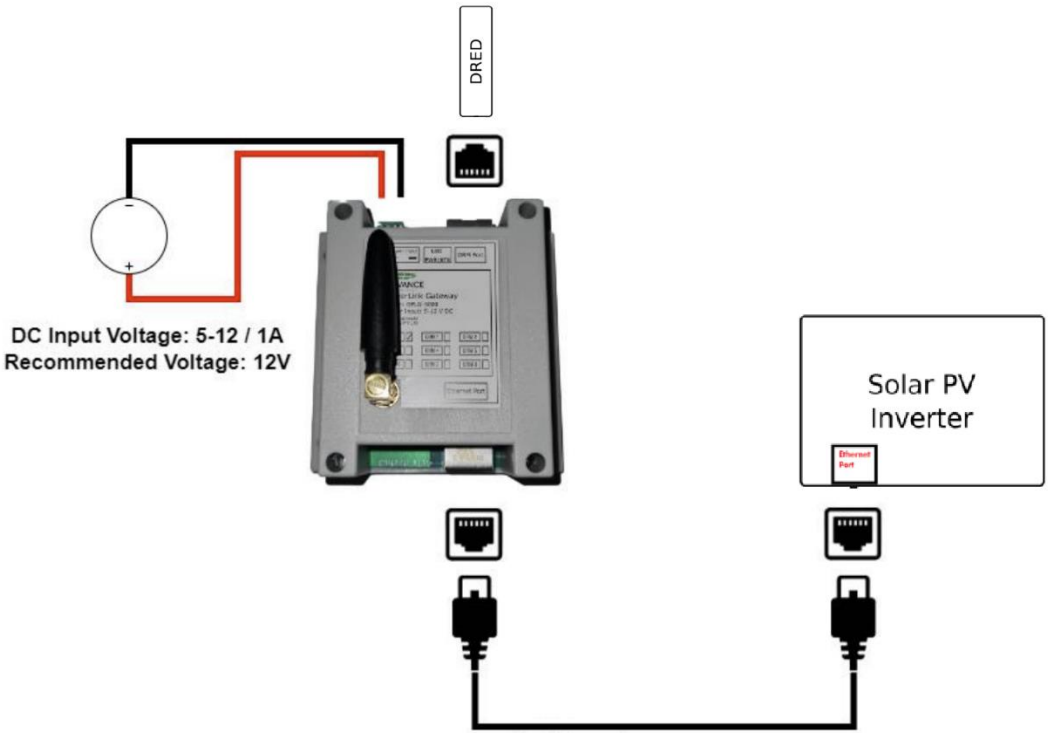
Image 12 Checking parameters

6 DRED / DRM

6.1 Connection to a DRED

Inverter connection to a demand response enable device (DRED) is possible with an approved modbus Demand Response controller (DRC) such as provided by Olivance:

Olivance Powerlink - Olivance



The modbus TCP parameter must be enabled on the inverter.

1. Login to the inverter's WebUI as an installer, refer to section **3.1.1.1**
2. Navigate to **Device Configuration > Modbus > "Yes" > Save**

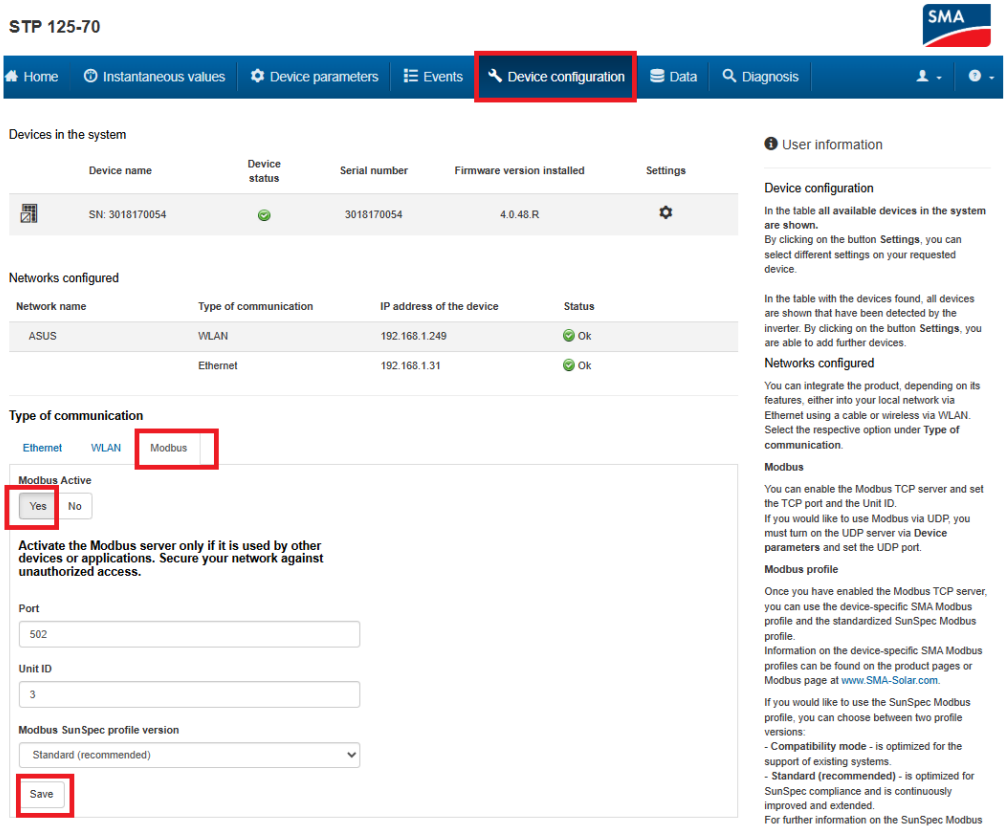


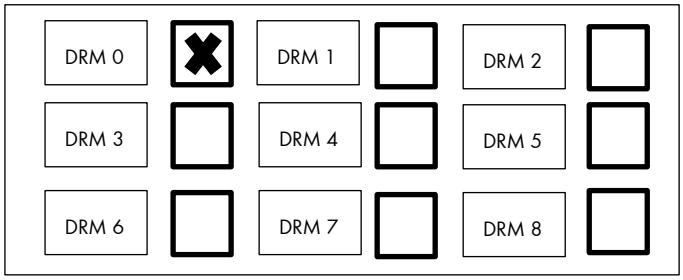
Image 13 Enabling Modbus

6.2 DRM Modes

Currently DRM0 is the only DRM mode supported.

6.3 DRM Labelling

The DRC must be labelled with the DRM mode and the RJ45 with the DRM Port.



Example DRM Model Label

Example DRM Port Label

7 Earth Fault Alarm

The inverter detects earth faults by the measurement of insulation resistance between the DC side and ground prior to operation, and residual current during operation. Earth faults (and other faults) trigger the inverter's earth fault alarm. **Table 8** is a summary of these alarms.

Inverter model	Visual LED on Inverter	Audible alarm	Remote Alarm
STP 125-70	Yes	No	Optional via Sunny Portal (requires Data Manager M)

Table 4: *Earth Fault Alarm*

7.1 Sunny Portal Remote Alarm Setup

The inverter's Earth Fault Alarm can be configured once the plant is registered in Sunny Portal. In the event of an earth fault, a report with the corresponding events will be emailed to nominated addresses. A report will then be sent every hour until the earth fault is acknowledged in Sunny Portal or cleared.

For instructions on how to register your plant in Sunny Portal, please refer to the respective Sunny Portal User Manual for your plant:

- Webconnect (no communication devices): User Manual - SUNNY PORTAL powered by ennexOS (sma.de)

Once your plant is registered in Sunny Portal, continue to set up the Earth Fault Alarm using the following instructions:

1. Login to your Sunny Portal account on ennexos.sunnyportal.com.

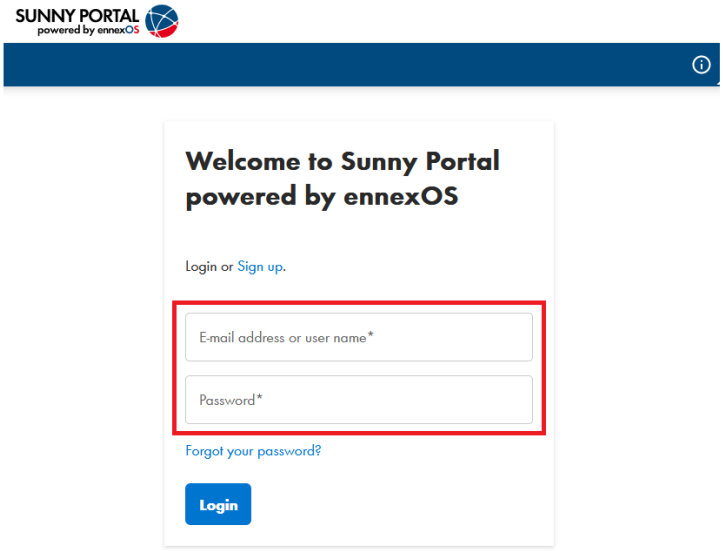


Image 14: *EnnexOS Login*

2. Expand the **Configuration** tab and select **Notifications**.

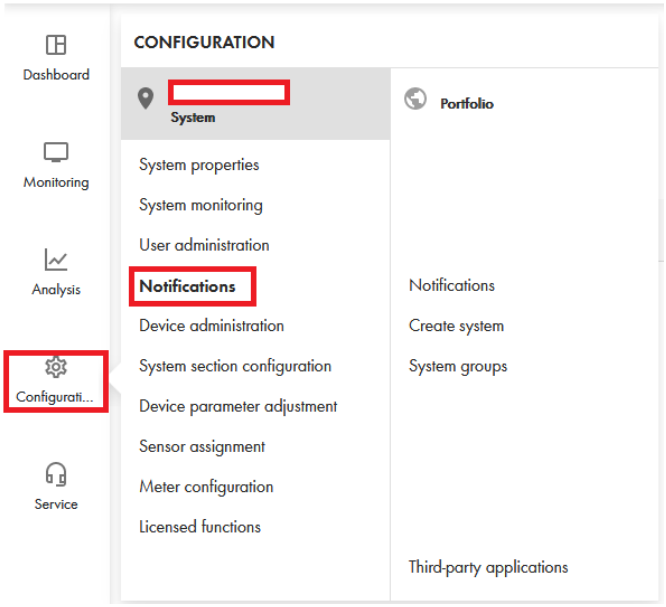


Image 15: *Notification*

3. Expand the drop-down menu at the top of the page and select the option **Event report for errors in accordance with the standard**.

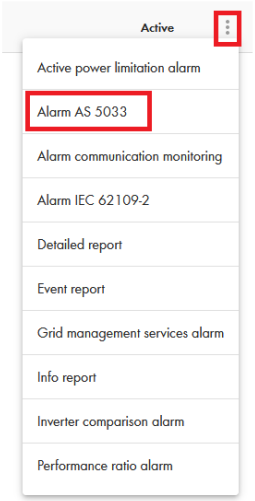


Image 16: *Event Report Selection*

4. Once selected the report is automatically created with the email used to login to Sunny Portal as the default address.

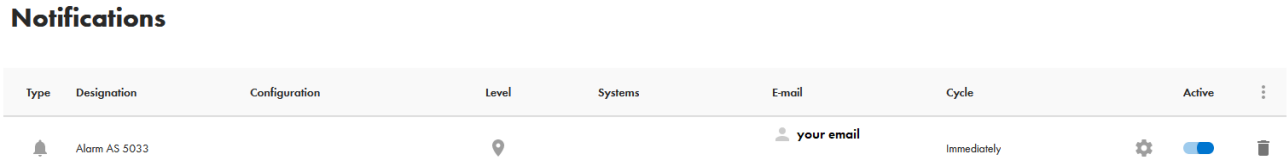


Image 17: *Earth Fault alarm*

5. You have now set up the Earth Fault Alarm for your inverter.