

FIMER statement regarding AS/NZS 5033:2021

Max Short Circuit Current on FIMER String Inverters

This statement confirms that FIMER's current string inverter models in Australia are compliant with AS/NZS 5033:2021 Clause 4.5.1.1 and Clause 4.2.2. FIMER's inverters have received the international certificate IEC62109.1 and IEC62109.2, which has the built-in 1.25 Isc allowance. FIMER has designed its products, including all components, to ensure that they will operate safely in the event of a short circuit current on the connected PV panels.

The following table outlines the maximum input short circuit current for each MPPT that should be followed when designing a PV Solar System.

Series	Model	Isc / MPPT (A)
UNO-DM	UNO-DM-2.0-TL-PLUS-B-Q	12.5
	UNO-DM-3.3-TL-PLUS-SB-Q	20
	UNO-DM-4.0-TL-PLUS-SB-Q	20
	UNO-DM-4.6-TL-PLUS-SB-Q	20
	UNO-DM-5.0-TL-PLUS-SB-QU	22
	UNO-DM-6.0-TL-PLUS-SB-QU	25
PVS-10/15	PVS-10-TL-SX (2 MPPTs)	30
	PVS-12.5-TL-SX (2 MPPTs)	30
	PVS-15-TL-SX (2 MPPTs)	30
PVS-20/33	PVS-20-TL-SX (2 MPPTs)	30
	PVS-20-TL-SXD (4 MPPTs)	30
	PVS-30-TL-SX (4 MPPTs)	30
	PVS-33-TL-SX (4 MPPTs)	30

Earth Fault Alarm notification (AS/NZS 5033)

This section aims to describe all available methods for signaling Earth Fault Alarm for the inverters listed below

Series	Model
UNO-DM	UNO-DM-2.0-TL-PLUS-B-Q
	UNO-DM-3.3-TL-PLUS-SB-Q
	UNO-DM-4.0-TL-PLUS-SB-Q
	UNO-DM-4.6-TL-PLUS-SB-Q
	UNO-DM-5.0-TL-PLUS-SB-QU
	UNO-DM-6.0-TL-PLUS-SB-QU
PVS-10/15	PVS-10-TL-SX (2 MPPTs)
	PVS-12.5-TL-SX (2 MPPTs)
	PVS-15-TL-SX (2 MPPTs)
PVS-20/33	PVS-20-TL-SX (2 MPPTs)
	PVS-20-TL-SXD (4 MPPTs)
	PVS-30-TL-SX (4 MPPTs)
	PVS-33-TL-SX (4 MPPTs)

Earth fault alarms detected and reported by the inverter are classified into two distinct categories:

- Low Insulation Resistance Detection (Pre-Grid Connection)**
 When the inverter detects a low insulation resistance to ground before connecting to the grid, it issues the alarm Riso Low, error code E025.
- Earth Leakage Current Detection (During Grid Connection)**
 When the inverter is operating and detects leakage current to ground, it issues the alarm Leak Fault, error code E018.

Earth fault alarms are self-resetting, meaning that following the detection of a Riso Low or Leak Fault alarm, the inverter does not remain locked in a fault state. Instead, while remaining disconnected from the grid and in compliance with applicable safety regulations, the inverter automatically resets the alarm and restarts the grid connection sequence. If the earth fault condition persists, it will be detected and signaled again.

Alarm signaling is performed through the following methods:

- Dedicated red GFI LED
- Internal Web server (WebUI)
- Modbus SunSpec protocol
- Configurable auxiliary relay (Only for UNO-DM series)
- Aurora Vision portal and Energy Viewer app
- Logging in the event register

Dedicated Ground Fault Interface (GFI) LED

The earth fault alarms are signaled by the steady illumination of the dedicated red GFI LED, located on the right side of the inverter's front panel.

It is recommended to install the inverter in a position where the front panel is clearly visible, so that the system owner is aware of any alarm indication.

Internal Web server (WebUI)

The internal web server (WebUI) is accessible either via access point or through a local IP address when the inverter is connected to a local network. It is possible to connect to the WebUI using an internet browser from both smartphones and PCs.

Through the WebUI dashboard, all active alarms, including earth fault alarms, can be viewed. For further information on WebUI functionalities, please refer to the product manual.

Modbus SunSpec protocol ⁽¹⁾

Earth fault alarms are also available on the SunSpec server in registers 40110 and 41132. For the purposes of AS/NZS 5003, using a third-party Modbus SunSpec client ⁽²⁾, it is therefore possible to implement remote alarm notifications, including earth fault alarms, via email, SMS, or other communication methods, as well as through audible or visual signaling.

Note 1: For the UNO-DM series, the Modbus SunSpec protocol is only available via the optional communication boards UNO-DM-COM KIT or UNO-DM-PLUS-COM ETHERNET KIT.

Note 2: The complete Modbus register map is available at www.fimer.com.

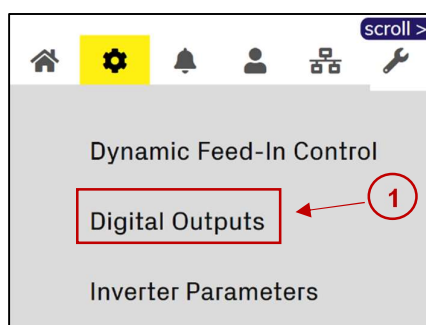
Configurable auxiliary relay (Only for UNO-DM series)

Through the *Settings > Digital Output* menu of the WebUI, it is possible to configure a relay (available either as a normally open – N.O. – or normally closed – N.C. – contact) and to define custom alarm conditions. This contact can be used, for example, to activate a siren or a visual alarm ⁽¹⁾.

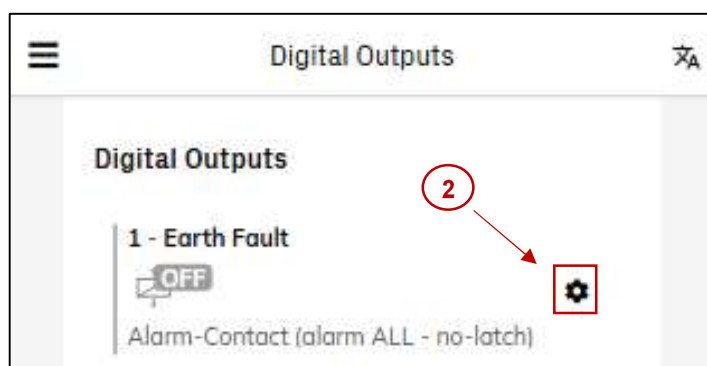
Note 1: For further information regarding the configurable relay, please refer to the product manual.

To set the configurable relay for earth fault alarm signaling, follow these steps:

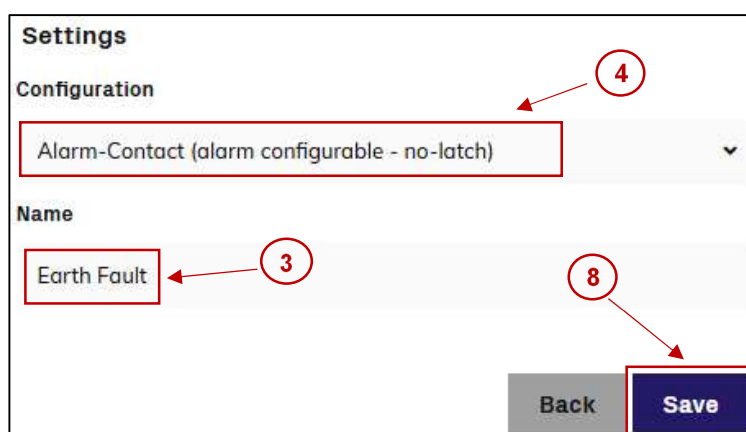
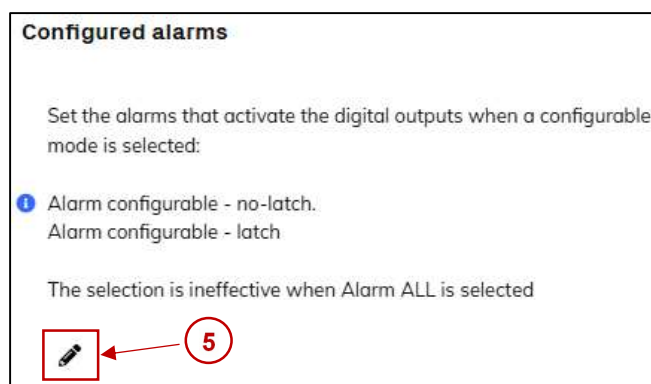
1. Access the WebUI and navigate to **Settings > Digital Output**.



2. Click the **gear icon** to open the configuration menu.



3. Enter a brief description of the alarm type (e.g., “Earth fault”) in the **Name** field.
4. To open the list of configurable alarms, select “Alarm - Contact (Alarm configurable - latch)” or “Alarm - Contact (Alarm configurable - no-latch)” from the drop-down menu.
5. Click the **pencil icon** to enable alarm configuration.
6. Enable the **earth fault alarms** (E018 and E025).
7. Press the **SAVE** button in the **Configured Alarms** section.
8. Press the final **SAVE** button to store the configuration.

Configured alarms

Set the alarms that activate the digital outputs when a configurable mode is selected:

- i Alarm configurable - no-latch.
- Alarm configurable - latch

The selection is ineffective when Alarm ALL is selected

Dismiss
Save

<input type="checkbox"/>	E018	Leakage current fail	<div style="border: 1px solid blue; padding: 2px;"> <div style="background-color: #003366; color: white; text-align: center; width: 20px; height: 10px; margin: 0 auto;">✓</div> </div>
<input type="checkbox"/>	E019	Leakage current sensor self-t...	<div style="background-color: #ccc; padding: 2px; text-align: center;">x</div>
<input type="checkbox"/>	E020	Booster relay self-test fail	<div style="background-color: #ccc; padding: 2px; text-align: center;">x</div>
<input type="checkbox"/>	E021	Inverter relay self-test fail	<div style="background-color: #ccc; padding: 2px; text-align: center;">x</div>
<input type="checkbox"/>	E022	Relay self-test timeout	<div style="background-color: #ccc; padding: 2px; text-align: center;">x</div>
<input type="checkbox"/>	E023	Dc-Injection out of range	<div style="background-color: #ccc; padding: 2px; text-align: center;">x</div>
<input type="checkbox"/>	E024	Internal Error	<div style="background-color: #ccc; padding: 2px; text-align: center;">x</div>
<input type="checkbox"/>	E025	Low isolation resistance	<div style="border: 1px solid blue; padding: 2px;"> <div style="background-color: #003366; color: white; text-align: center; width: 20px; height: 10px; margin: 0 auto;">✓</div> </div>

Aurora Vision portal and Energy Viewer app

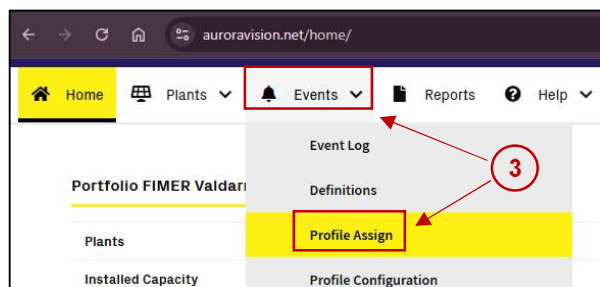
All alarms, including earth fault alarms, are reported on the Aurora Vision portal and the Energy Viewer mobile app.

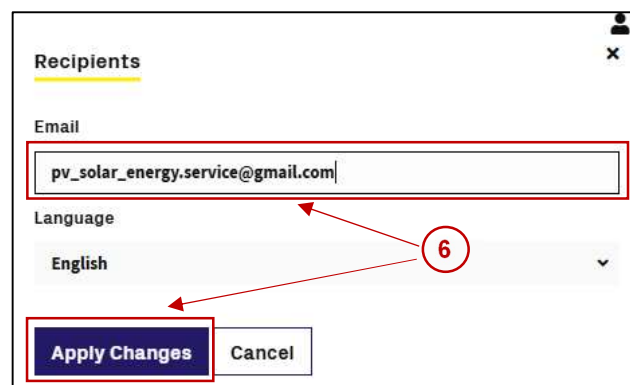
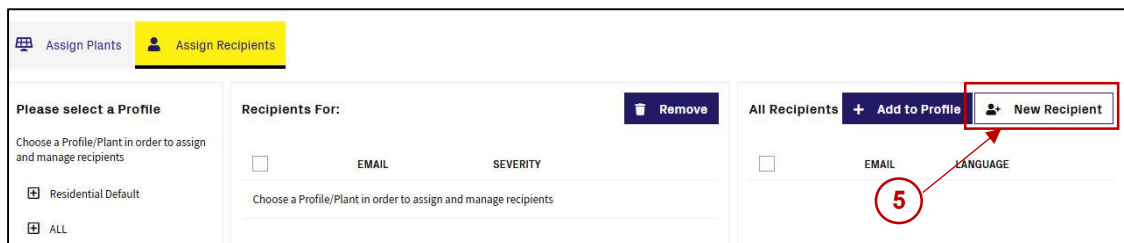
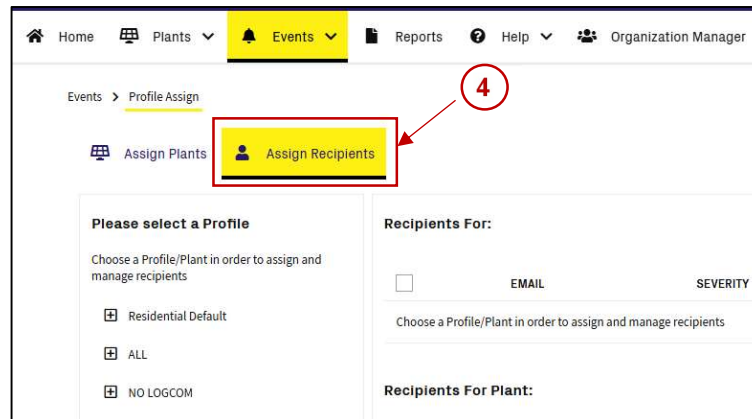
Additionally, it is possible to configure email notifications for alarms directly within Aurora Vision by following the steps below:

1. First-time installers using Aurora Vision must register with FIMER to create an **organization account** and obtain **administrator access**. If customers already have administrator access, they can proceed to the next step.
2. Log in to **Plant Portfolio Manager** via the following link:
<https://www.auroravision.net/ums/v1/loginPage>
3. Navigate to the “Events” section and click on “Profile Assign”.
4. Click on “Assign Recipients”.
5. Click on “New Recipient”.
6. Enter the desired email address and click “Apply Changes”.
7. Select the portfolio or plant for which you want to enable email notifications and Check the box next to the corresponding **email address**.
8. Click “Add to Profile”.
9. To customize the **alarm severity levels** for which notifications should be sent, click the **pencil icon** next to the recipient profile.

Note 1: An earth fault is classified as a **General Device Fault (GENFLT)** in Aurora Vision and is considered a **Medium Severity** event.

Note 2: If the category **GENFLT** is not present in your current active configurations, you can create a new Profile Configuration in “Events” > “Profile Configuration” and add the category by editing it.







Please select a Profile

Choose a Profile/Plant in order to assign and manage recipients

Residential Default

- ALL
- PVS-33 - Vincenzo
- Torre Mizar
- TORRE PERSEUS (SIL 1)
- TORRE PERSEUS (SIL 2)
- TORRE PERSEUS (SIL 3)**
- TORRE PERSEUS (SIL 4)

Recipients For: ALL

Remove

EMAIL	SEVERITY
Choose a Profile/Plant in order to assign and manage recipients	

Recipients For Plant: TORRE PERSEUS (SIL 3)

EMAIL	SEVERITY
pv_solar_energy.service@gmail.com	

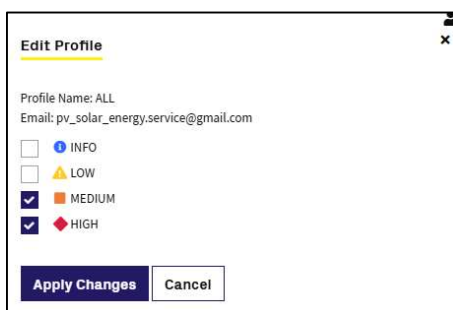
All Recipients

+ Add to Profile

New Recipient

EMAIL	LANGUAGE
pv_solar_energy.service@gmail.com	en

7, 8, 9



Edit Profile

Profile Name: ALL

Email: pv_solar_energy.service@gmail.com

☐ INFO
☐ LOW
☒ MEDIUM
☒ HIGH

Apply Changes Cancel

Logging in the event register

All alarms, including earth fault alarms, are stored in the inverter's internal event log, along with the date and time the alarm occurred.

The event log is accessible via the **WebUI**, in the dedicated section marked with the bell icon, as shown in the figure below.

