

Rectify the Potential Induced Degradation (PID) in Three Phase Inverters with Synergy Technology

PN:SExxK-xxxxlxxxx - Application Note

Revision History

- Version 1.1, November 2023: Added remote PID section
- Version 1.0, July 2021: Initial release

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Overview

This document describes how to rectify the Potential Induced Degradation (PID) in PV strings with P-type modules connected to Three Phase Inverters with Synergy Technology PN:SExxK-xxxxlxxxx (excluding PNs: SExxK-xxxPlxxxx).

PID of photovoltaic panels is an effect that degrades the maximum power of PV modules over time. PID is a phenomenon that results in substantial solar module output and performance degradation.

The PID effect increases with time and has a greater extent when the PV modules operate at a higher negative potential to the ground.

SolarEdge Three Phase inverter with Synergy Technology mitigates the PID effect accumulated on the PV modules during production, by implementing the "PID Rectifier" solution.

SolarEdge Three Phase inverters with Synergy Technology use a built-in PID rectifier circuit. At night, when the inverter is not producing power, the PID rectifier applies 400 to 600 VDC to the PV modules to reverse the PID effect.

The PID rectifier is an option that requires activation via the SolarEdge SetApp application.

Enable and Disable the PID rectifier operation

To enable the PID rectifier operation

1. Turn ON the AC circuit breaker on the main distribution panel.
2. If applicable, move the DC Disconnect Switch of the Synergy Manager to the ON position.
3. Run SolarEdge SetApp on your mobile device and follow the on-screen instructions until the Commissioning screen is displayed.
4. To enable the PID rectifier operation: from the **Commissioning** screen click **Maintenance** → **PID Mitigation** → **Rectifier** → **Done**.

**NOTE**

When the PID rectifier operation is enabled, the PID rectifier operates when the inverter turns to night mode. The PID rectifier stops operating in the morning when the inverter wakes up. This cycle of operation continues daily if the PID rectifier operation is enabled.

To disable the PID rectifier operation:

To disable the PID rectifier operation: from the **Commissioning** screen click **Maintenance** → **PID Mitigation** → **Disable** → **Done**.

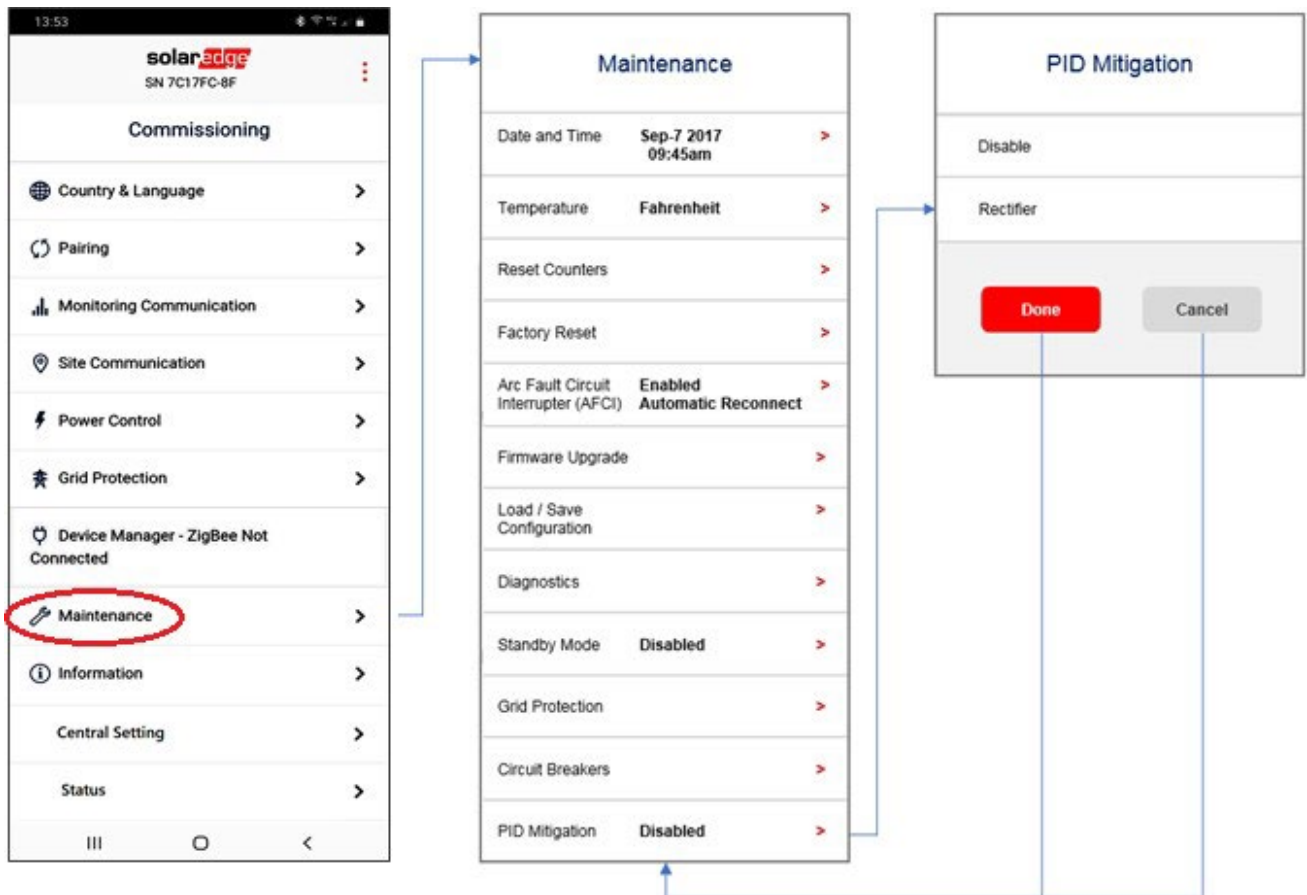


Figure 1: Setting PID Rectifier

Ensure the PID rectifier operates at night

To ensure that the PID rectifier operates at night:

1. If applicable, verify that the DC Disconnect Switch of the Synergy Manager is in the ON position.
2. Verify that the P/1/0 switches to the "1" (ON) position.
3. Verify that the Fault LED (red) and Power LED (green) indication LEDs are blinking simultaneously (see Figure 2).

**NOTE**

When the PID rectifier operates, a warning indicates that the SetApp mobile application is currently connected to the inverter.

When using the SolarEdge Monitoring platform, the **Device screen** indicates that PID rectification is ON.

**WARNING**

High DC Voltage on PV strings (400 to 600 VDC). When the PID rectifier is active, DO NOT touch any component or perform any maintenance operation on the PV strings.

**NOTE**

The power consumption of the PID rectifier ranges between 15W and 25W, depending on the installation topography.

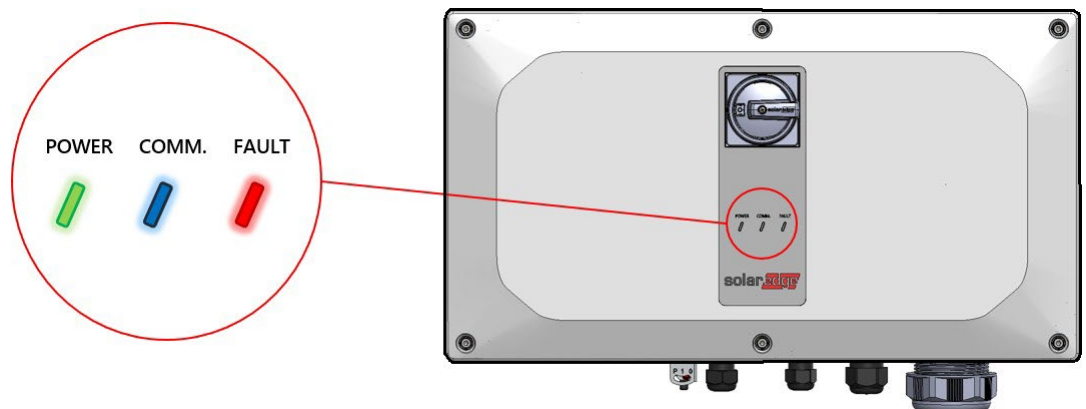


Figure 2: Indication LEDs

Power down the PID rectifier at night

To power down the PID rectifier at night:

1. Move the P/1/0 switch to the "0" (OFF) position (see Figure 3) and wait until the Red LED turns-off, and the Green LED blinks.

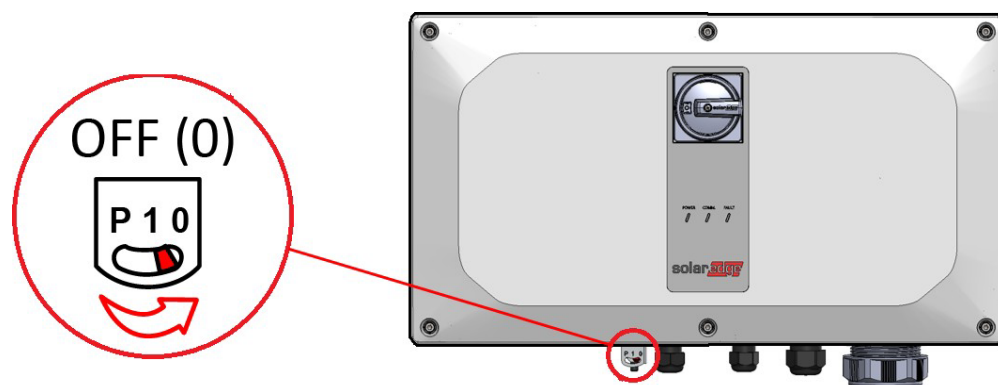


Figure 3: P/1/0 Switch

2. If applicable, switch OFF the DC disconnect switch.

Remote PID mitigation settings

You can remotely toggle on or off the PID settings.

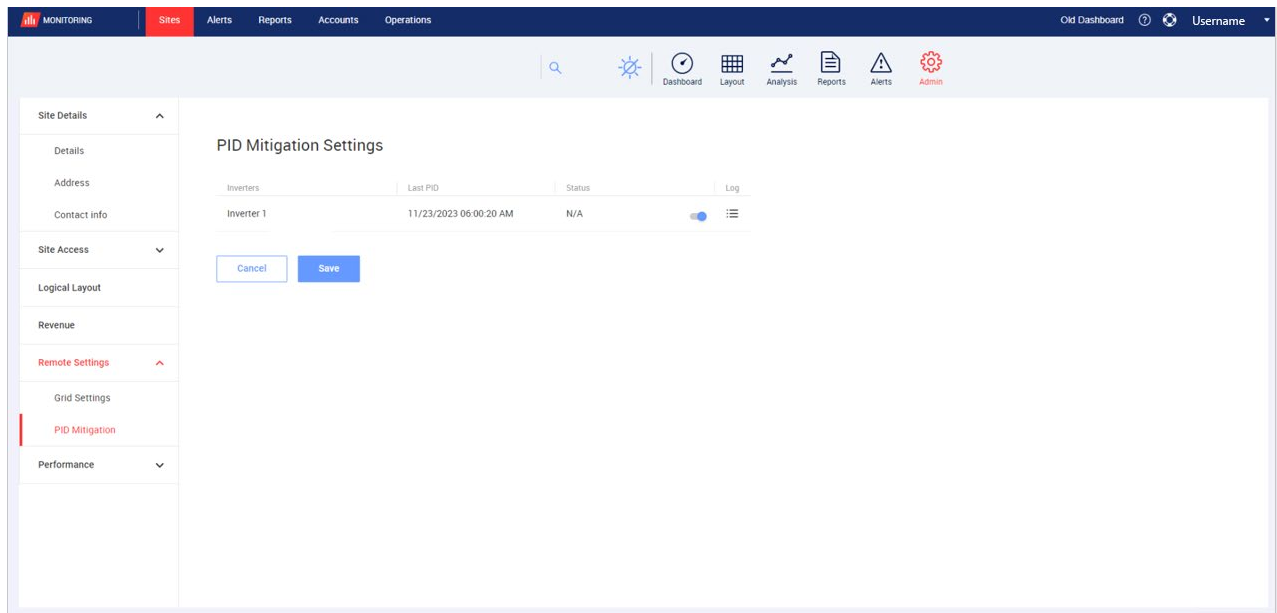


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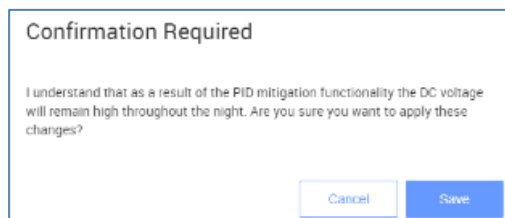
Only sites with supported inverters can select and view PID mitigation.

To remotely toggle the settings:

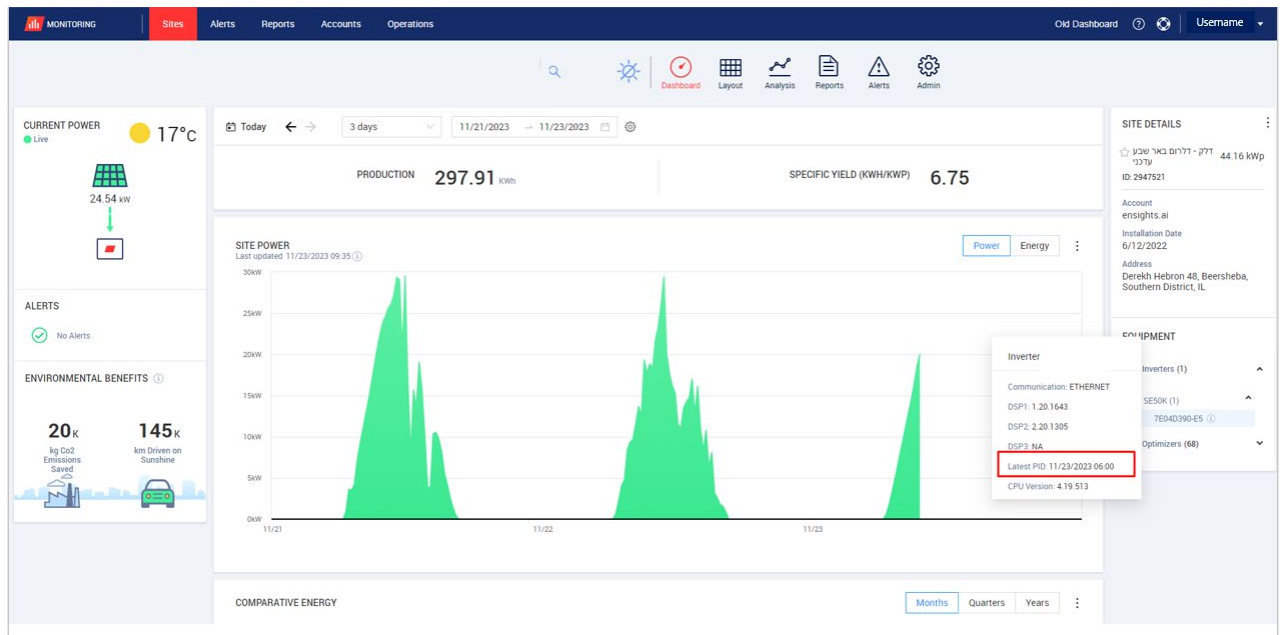
1. Log in to the [Monitoring portal](#).
The **home page** is displayed.
2. To access your site, click the **Site Name**.
The **Site** dashboard is displayed.
3. On the **Site** menu, click the **Admin** tab.
The **Admin** tab is displayed.
4. Select **Remote Settings**>**PID Mitigation**.
PID Mitigation Settings is displayed.



5. Toggle the inverter switch from **disabled** to **enabled** .
Confirmation Required is displayed.



6. Read the confirmation message and click **Save**.
PID mitigation settings are enabled and can be viewed on your dashboard, as displayed in the following image:

**NOTE**

The image above is part of the upcoming version of SolarEdge's Site Admin. It has the same functionality as the current Site Admin User Interface.