

# Set Volt-Ampere Reactive at Night - Application

## Note

This Application Note provides basic information about volt-ampere reactive (VAR) power and inverter configuration to provide VAR at Night in compliance with standards and demand.

### Revision history

Version 1.0, August 2024: Initial release

### Overview

#### Background

Reactive power helps maintain stability of the utility grid and is measured in VAR. SolarEdge inverters with the VAR at Night function provide reactive power into the grid overnight during periods of no active power production from the PV modules, helping to support grid stability.

#### VAR at Night function

When the VAR at Night function is enabled, VAR production begins automatically after PV production ends. It ends automatically when there is enough PV power to resume PV production.

You can enable or disable the VAR at Night function and set the VAR value using the SetApp application or Modbus protocol. You can set the value of VAR value to produce between -60% and +60% of the inverter nameplate.

### Supported inverters models

- Three Phase Commercial Inverter (Part number structure: SExxK-xxxxlxxxx)
- Three Phase Inverter with Synergy Technology (Part number structure: SExxK-xxxxlxxxx)

### Software requirements:

- CPU version 4.21.500 or higher



#### CAUTION!

DC voltage is not considered safe during VAR production at night. Proper safety measures must be taken.



#### WARNING!

When VAR at Night is enabled, and you turn OFF the DC safety switch during the day, reactive power production will begin. **For any maintenance operation, shut off the inverter** by moving the 0/1/P switch to the OFF (0) position and wait at least five minutes before opening the cover!

**WARNING!**

During VAR at Night configuration, if you enable the potential-induced degradation (PID) rectifier, VAR at Night is disabled.

**NOTE**

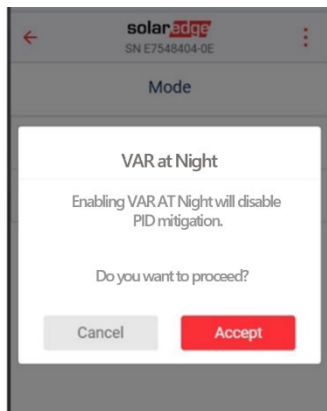
VAR at Night only works with continuous transition from PV production to reactive power production, when PV stops producing. If the inverter is reset during the night, there will be no reactive power production until the next night.

## Enable VAR at Night using SetApp

The VAR at Night banner appears only when this function is active, not just enabled.

To enable VAR at Night using SetApp:

1. From **Power Control**, go to **Grid Control** and set **Enabled**.
2. From **Power Control**, go to **VAR at Night** and set **Enabled**.  
If the PID rectifier is ON, tap **Accept** in the pop-up to disable it.



3. Go to **Constant reactive power (Q) > Edit** and enter the **Q** value between -60% and 60% of the inverter nameplate.  
For example, for a 100kW inverter, enter a value between -60,000 and 60,000




**NOTE**

Use the following Q value notations:

- Set positive Q leads to capacitive/current leading voltage/sourcing behavior
- Set negative Q leads to inductive/current lagging voltage/sinking behavior

If you change the VAR value using SetApp during the night, there will be no reactive power production until the following day.

## LED status indications

Inverter LEDS	VAR at Night is active
	Blinking
	Blinking
	ON when communication is active