

# Rapid Shutdown Solution

## Compliance between ABB solar inverters and Tigo TS4 MLPE



### 1. Scope and application

#### 1.1 Overview

The States that are adopting NEC 2017 code have a tighter energy shutdown requirement than previous years. The code states that controlled conductors within one foot of a solar array must be shutdown to <80V in 30 seconds, and shutdown to <30V in 30 seconds outside this newly defined array boundary.

ABB UNO-DM-PLUS single-phase string solar inverters are UL-Certified to work with Tigo Energy's TS4 platform to offer a complete solution to this requirement.

#### 1.2 Application

This document is to provide valuable information when designing a residential solar system using ABB's Module Level Panel Electronics (MLPE) solution. Additionally, it is to inform the certified contractor or electrician installing ABB's MLPE solution of the necessary protocols to use during commissioning and servicing this system.

Please consult the installation manual to address specific product installation processes.

This document does not serve as an installation manual.

This document is to be used as a reference aid during design and implementation of these technologies.

Please adhere to all safety warnings and notes in the respective manufacturer manual.

This procedure relates only to UNO-DM-TL-PLUS-US inverter family version and refers to all models listed in the table below.

Models	UNO-DM-3.3/3.8/4.6/5.0/6.0-TL-PLUS-US
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### 2. System integration

#### 2.1 System overview

To effectively construct the ABB MLPE Solution, select at least one of the ABB UNO-DM-PLUS inverters from the list above, that fits the power requirements of your site. Multiple units can be connected for larger projects (see product data sheet for complete product details and specifications).

Select one of the compatible Tigo Energy Optimizers: The Tigo Energy TS4-R family is a retrofit solution, compatible units for meeting NEC 2017 Rapid Shutdown include: TS4-R-O for Optimization, TS4-R-S for Safety. Once you have selected TS4-R units for the site, install them with Cloud Connect Advanced Universal Data Logger and Gateway module communication antenna, also available from Tigo. See product datasheets for complete product details and specifications on [www.tigoenergy.com](http://www.tigoenergy.com) website.

Both companies have conducted extensive tests, and have validated the effective performance of the systems together, as long as the following requirements and disclaimers will be observed:

- The system is within ABB solar inverter’s stated operating and installation conditions as specified in respective data sheets and manuals
- The operating limits (DC voltages, currents and power) of ABB solar inverters are not exceeded at any time by the operation of the Tigo technology
- ABB is not responsible for the compliance of the complete system in terms of EMC regulation
- ABB is not responsible for the total energy yield of the PV system because the MPP trackers of the inverters no longer control the operation of the PV modules
- Tigo Energy has approved the operation of its products with ABB’s UNO-DM-PLUS inverters
- ABB is not responsible for any malfunction in the Tigo Energy system configuration

ABB’s manufacturer warranty obligations for the UNO-DM-PLUS inverters will remain when using the Tigo Energy TS4-R in combination with them.

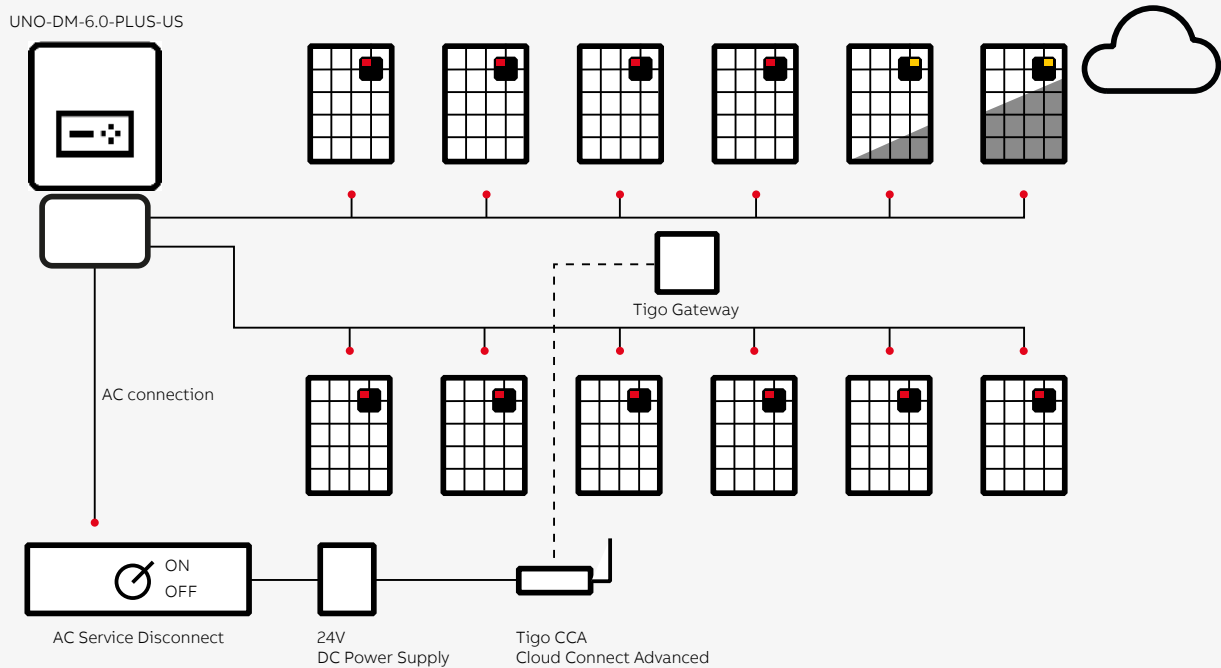
## 2.2 Installation

After the power electronics devices are purchased, be sure to follow the installation guidelines from the respective manufacturer.

Follow the instructions from the Tigo Energy installation manual making note of the following connection points:

- Using a smart phone or tablet, download the Tigo SMART App
- Using the Tigo SMART App, scan the Tigo TS4-R and Cloud Connect Advanced barcodes that can be found on the devices
- Proceed with the installation of the modules under the panel as explained in the Tigo Energy installation manual
- The Tigo Gateway needs to be installed on the roof within 50ft of the Tigo TS4-R unit(s). The Tigo Gateway must have “line-of-sight” in order to communicate with the Tigo TS4-R unit(s). Note: depending on the size of the site, multiple gateways may be needed.
- Connect the Gateway to the Cloud Connect Advanced
- Complete the commissioning by following the prompts communicated on the Tigo SMART App
- On how to install the ABB UNO-DM-PLUS-US inverter please refer to inverter product manual

For illustration please refer to principle Single Line Diagram below:



Single line diagram of ABB’s rapid shutdown compliant system using Tigo MLPE

### Note

For technical service support when installing any of the optimizer solutions, please follow the Service and Technical Support protocols communicated by Tigo Energy. Please follow the respective manufacture installation and safety recommendations noted in the respective manual.