Commercial Safety Solutions

Cost-effective technology for superior PV safety

ENERGY THAT CHANGES

SMA

INDUSTRY LEADERSHIP IN SAFETY

SMA compromises nothing to ensure safety for PV professionals

SMA has always made safety a top priority, from the factory to the field. We understand that the practices and policies of our manufacturing and R&D facilities are directly reflected in the safety of the professionals installing SMA equipment. That's why we insist on adherence to the strictest of safety measures to ensure the highest quality products are delivered to our customers.

SMA's R&D team is also working tirelessly to develop progressive technologies that further the safety of solar professionals and system owners alike. Our goal is to not only meet existing safety regulations, but to advance those requirements by participating in independent trade organizations whose mission is to secure the safety of PV stakeholders. SMA has actively contributed to the development of standards from a variety of leading organizations including NEC, UL and the SunSpec Alliance, just to name a few.

Rapid Shutdown
CERTIFIED

nec®

c UL us

THE COMMERCIAL PV SAFETY LANDSCAPE

NEC 2017 690.12 rapid shutdown requirements

Section 690.12 of the National Electric Code further advances previous rapid shutdown requirements. PV equipment manufacturers have approached this code requirement with various methods, however, most current solutions remain complicated and costly. In order to reduce costs, maintain a high level of safety and continue to grow the PV industry as a whole, simplification and standardization of rapid shutdown technology is critical.

The SunSpec Alliance

The SunSpec Alliance is a well-respected trade group whose mission is to accelerate the growth of the distributed energy industry and expand the market for renewable power. More than 100 leading organizations are SunSpec Alliance participants and are investing in growing industry standardization. To date, the SunSpec Alliance has successfully introduced dozens of information and communication standards that have been adopted industry-wide.

The SunSpec Alliance recently introduced a method to achieve NEC 2017 module-level shutdown compliance through the use of power line communications (PLC). Titled the SunSpec Communication Signal for Rapid Shutdown Interoperability Specification, this open standard is designed to lower integration costs and deliver a variety of inter-operable products to PV professionals. More than 30 companies actively contributed to the development of this particular standard, including SMA.

THE SMA SOLUTION

Achieving compliance with NEC 2017 module-level rapid shutdown

The CORE1 PV inverter and the module-level shutdown devices combine to ensure PV systems comply with the latest 2017 NEC rapid shutdown requirements. The CORE1's industry leading safety features have been further enhanced with support for the new SunSpec PLC signal for module-level rapid shutdown. Based on this industry standard, the Sunny Tripower CORE1 and SunSpec certified shutdown devices provide the most reliable, cost-effective solution to achieve compliance with 2017 NEC module-level rapid shutdown requirements in commercial rooftop systems.

SMA Sunny Tripower CORE1
When connected to the AC grid, the CORE1 inverter transmits the SunSpec PLC signal over the connected PV string conductors.

Rapid Shutdown CERTIFIED

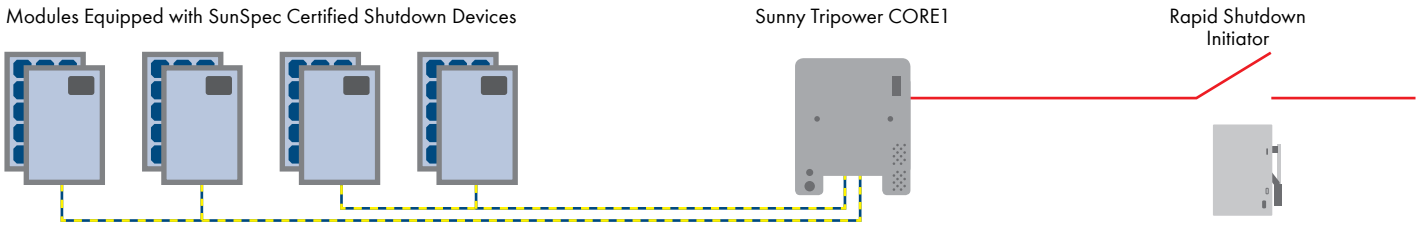
- » Sunny Tripower CORE1 33 kW
- » Sunny Tripower CORE1 50 kW
- » Sunny Tripower CORE1 62 kW

SunSpec Certified Shutdown Devices
The module-level shutdown devices listen for the SunSpec PLC signal and reduce module output voltage to a safe level when the signal is not being received.

Rapid Shutdown CERTIFIED

AC Disconnect
The main AC disconnect required for all PV systems serves as the rapid shutdown initiator. Emergency first responders need only open this disconnect to initiate rapid shutdown of the full PV system.

HOW DOES THE SMA SOLUTION WORK?



- The CORE1 inverter transmits the SunSpec PLC "stay alive" signal over the connected PV string conductors—no additional communications wiring or devices are needed
- The shutdown devices install quickly and go into operation immediately without additional commissioning effort
- Rapid shutdown is initiated when the PV system is disconnected from the AC grid by opening the main PV system disconnect—no additional initiation buttons, communication controllers or wiring are required
- Initiating rapid shutdown de-energizes all controlled DC conductors outside and inside the array within 30 seconds in accordance with 2017 NEC 690.12
- Once connection to the AC grid is restored, the PV system returns to normal operation without any additional actions required

ADVANCED AFCI TECHNOLOGY

Next-generation arc-fault protection for increased safety

Further addressing safety in commercial PV systems, SMA's new line of Sunny Tripower CORE1 inverters also include advanced AFCI compliant to new Standard UL 1699B for arc fault protection.

SMA's advanced AFCI technology offers a wealth of benefits including:

- Uninterrupted operation with reduced nuisance tripping
- Greater reliability in detection and interruption of PV array wiring faults
- Identifying potential fire hazards and putting the PV array into a safe state before faults can escalate, which avoids extensive damage to the PV system and building
- Intelligent detection algorithm that distinguishes actual arc-fault frequency patterns from other common signal noise on PV DC lines—including SunSpec PLC signal, on-site equipment, motor noise emissions and radio transmission noise

KEY BENEFITS OF SMA SAFETY SOLUTIONS

What makes the SMA the superior choice for commercial PV?

Commercial PV integrators and system owners have already recognized that SMA solutions provide the optimal return on investment, but they also provide unparalleled cost effectiveness and safety benefits including:

- Increased first responder and PV service personnel safety through simple and reliable PV system rapid shutdown
- Standardization of SunSpec shutdown technology will drive more cost-effective solutions than proprietary solutions alone, and will help the industry grow as a whole
- Using existing PV string wires for power line communications means no additional wiring or communication equipment is needed, reducing balance of system costs
- SMA solution eliminates rapid shutdown specific controller and initiator devices, further reducing equipment costs
- Integrated system components and simple installation require no additional commissioning effort, reducing labor costs
- Greater reliability of advanced AFCI with less nuisance tripping mitigates unnecessary service calls and costly truck rolls
- Sunny Tripower CORE1 provides a common solution for rooftop systems requiring rapid shutdown as well as carports and ground mounts that do not
- SunSpec communication standard provides any-to-any inter-operability between inverters and module-level devices from multiple suppliers, resulting in less business risk than relying on proprietary solutions from a single supplier

ENERGY
THAT
CHANGES

SMA

SOCIAL MEDIA

www.SMA-America.com/Newsroom

www.SMA-America.com