

# Application Notes



## Solis RSD Letter for Jurisdictions Acceptance

To Whom It May Concern,

Over the past three (3) National Electrical Code (NEC) cycles, Fire Department jurisdictions in California, and other States have urged the PV industry to provide a fast and recognizable means to shut down rooftop PV arrays (even while in full sun) so that the Fire Department can conduct normal firefighting operations at PV system-equipped buildings and homes.

Ginlong, a leading PV string inverter manufacturer, considered these intentions and the rapid PV system shutdown requirements explained in Article 690.12 of the 2014 NEC. Ginlong developed (and certified to UL1741) the Ginlong Solis Rapid Shutdown Device (RSD) which will reduce the rooftop PV array voltage to less than 30 volts and de-energize the dc-side inverter capacitors, all in less than 3 seconds. After any PV system has been enabled with the Ginlong Solis RSD, wired in series with the PV circuit conductors and to ac control conductors, First Responders can be assured that both the ac and dc sides of the PV system are safe to work around after power has been cut to the building and/or the PV system point-of-connection (POC) has been opened.

The Ginlong Solis RSD(s) are mounted to the PV module support rack and wired in series with the dc PV circuit conductors and ac control conductors. The low profile NEMA 4X enclosure contains normally-open (NO) relays, a control circuit and a 240VAC power supply. The power supply draws less than 0.1 amp and has a green diode indicating that the relay is closed and dc power may be flowing in the conductors.

When adding the Ginlong Solis RSD to any PV system, installers will find it fast, clean and cost-effective to protect both the dc PV circuit conductors and the Ginlong Solis RSD ac control conductors in the same conduit. Following the guidance in 2014 NEC Article 300.3(C)(1), PV system installers are allowed to run both ac and dc conductors in a single raceway, after they ensure that all conductors are carrying less than 1000V and have the proper insulation ratings.

PV system installers have always followed NEC Article 690.31(B) and carefully avoided routing both the dc (PV) and ac (inverter) conductors in the same raceways or wiring enclosures. So there is some real concern by installers when asked to wire both ac and dc PV system conductors in the same conduit or wiring enclosure. However, it is Ginlong Solis USA's contention that this concern is misplaced. Bill Brooks, from Brooks Solar comments; "The correct application of the NEC allows this control circuit to be run with the PV source circuit wiring."

Today, it is Ginlong Solis USA's intention to achieve a consensus on this interpretation of the National Electrical Code and gather information on any further steps Ginlong Solis USA can make to better meet National Fire Protection Agency's concerns and better enable First Responders to do their great work.