CASE STUDY

Tigo TS4-A-F meet rapid shutdown and design requirements for airport installation

Background

The Port of Portland, Oregon and Portland International Airport (PDX) are committed to the environment and green building practices across their operations. One of the major developments underway is the PDX NEXT expansion, "a series of transformative projects [that] will bring more Pacific Northwest-inspired architecture, local restaurants and shops, inclusive design, and carbon footprint-reducing technology." Included in the PDX NEXT expansion are renewable energy projects, including solar.

Challenges

One of the airport improvements, as part of the PDX NEXT expansion, included the installation of a 600 ft long solar awning on the facade of the airport's parking garage structure.

The design team chose SMA inverters because they had used them on a previous airport solar installation. They also needed rapid shutdown devices that are certified to work with these inverters. According to the National Electrical Code (NEC), a UL certified PV Rapid Shutdown System (PVRSS) is required on new rooftop solar installations for the safety of firefighters and first responders.

Solution

Elemental Energy, the Portland, Oregon based installer for the project utilized Tigo TS4-A-F (Fire Safety) rapid shutdown devices with SMA Tripower inverters for the project. The Tigo Rapid Shutdown devices are UL PVRSS certified with hundreds of different inverters, including SMA Tripower ones.

The 600 ft long awning was enough for 177x 400W Trina modules. Each module has a Tigo TS4-A-F rapid shutdown device connected to it. The TS4-A-F devices receive a signal from the Tigo RSS Transmitter, which is co-located with the inverters. Upon rapid shutdown initiation or loss of power, the devices lose the signal from the RSS Transmitter and enter shutdown mode to restrict voltage below 0.6V from each module. This prevents any high voltage on the conductors in case maintenance crews, firefighters, or others need to access the awning while the modules still produce power from the sun.

DESIGNER & INSTALLER

JEDunn, OEG, Elemental Energy

INSTALLATION TYPE

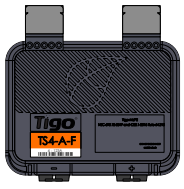
Commercial

LOCATION

Oregon, United States

FEATURES

Fire Safety (rapid shutdown)



TIGO EQUIPMENT

Tigo TS4-A-F

Tigo RSS Transmitter

Contact us
https://www.tigoenergy.com/contacts

The PDX Airport solar awning extends 600ft along the parking structure and has a rated capacity of 75.2kW DC. Tigo dedicated rapid shutdown devices are installed on each of the 177x 400W Trina modules.

Results

In the end, the airport got the solar design they wanted with the equipment that meets the latest electrical safety codes.

"Our clients wanted a solution that mirrored their legacy SMA products, while Elemental Energy needed to meet all current codes related to rapid shutdown. Tigo enabled us to meet our goals for the project: fulfill rapid shutdown requirements, install a beautiful custom awning structure, and match the SMA inverter." - Katie Martin, Construction Manager at Elemental Energy.

Summary

- Airport awning installation
- System capacity: 75.2 kW DC
- Modules: 177x Trina Solar 400W
- Inverter: SMA Core1 Tripower 62.5kW
- Rapid Shutdown Devices: Tigo TS4-A-F (Fire Safety)

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