TS4-X
Quick Start Guide

Download the latest documentation with important updates.

IMPORTANT SAFETY INFORMATION
LETHAL VOLTAGE MAY BE PRESENT IN ANY PV INSTALLATION
SAVE THESE INSTRUCTIONS

WARNING – THIS PHOTOVOLTAIC RAPID SHUTDOWN EQUIPMENT (PVRSE) DOES NOT PERFORM ALL OF THE FUNCTIONS OF A COMPLETE PHOTOVOLTAIC RAPID SHUTDOWN SYSTEM (PVRSS). THIS PVRSE MUST BE INSTALLED WITH OTHER EQUIPMENT TO FORM A COMPLETE PVRSS THAT MEETS THE REQUIREMENTS OF NEC (NFPA 70) SECTION 690.12 FOR CONTROLLED CONDUCTORS OUTSIDE THE ARRAY. OTHER EQUIPMENT INSTALLED IN OR ON THIS PV SYSTEM MAY ADVERSELY AFFECT THE OPERATION OF THE PVRSS. IT IS THE RESPONSIBILITY OF THE INSTALLER TO ENSURE THAT THE COMPLETED PV SYSTEM MEETS THE RAPID SHUT DOWN FUNCTIONAL REQUIREMENTS. THIS EQUIPMENT MUST BE INSTALLED ACCORDING TO THE MANUFACTURER'S INSTALLATION INSTRUCTIONS.

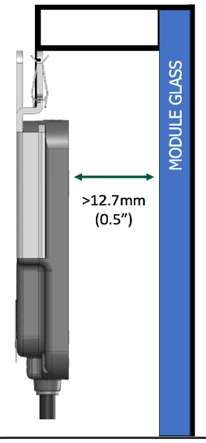
- All PVRSE components must be installed and maintained by qualified personnel in accordance with applicable ANSI/NFPA 70 (North America) and local electrical codes.
- Improper installation may cause damage not covered by the warranty.
- Do not install TS4s that are physically damaged or have damaged or substandard wiring or connectors.
- Do not connect or disconnect TS4-Xs under load.
- TS4 PV array (DC) conductors are 12 AWG.
- Operating temperature range is -40 °C – 85 °C (-40 °F – 185 °F).
- Connectors from different manufacturers cannot be mated with each other.
- TS4-Xs must not be installed in readily accessible locations.
- Remove QR sticker from TS4-Xs and place on layout sheet.
- Storage temprature range -20 – 65 ° (-4 – 149 °F).

- **All TS4 X versions ship in the ON state. Use caution when connecting the units to the modules.**
- Disconnect TS4s from the array string before disconnecting from a solar module.
- Each TS4-X has an IP68 protection rating but only after properly installed. Do not leave TS4 connectors exposed to the rain. Water intrusion may damage the TS4.

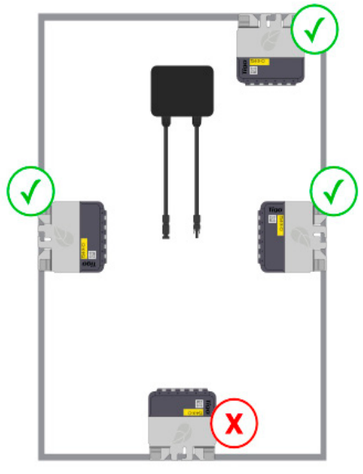
1. Determine Clearance

Ensure a minimum of **12.7 mm (0.5 in)** between the TS4 and the module backsheet or any obstructions such as ballasting materials or electrical equipment.

Restricted airflow around the TS4 could result in abnormal behavior.

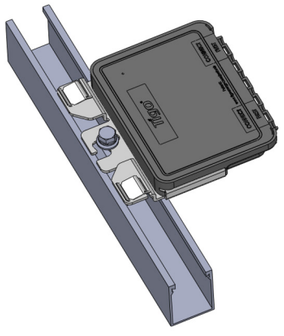


2. Mount



Frame Mounting

- Mount the TS4 to the module frame using the metal clips.
- Refer to the diagram for applicable mounting orientations.
- Ensure the TS4 serial sticker faces towards you.
- Remove serial sticker and place on site layout sheet on the last page. See Step 7.



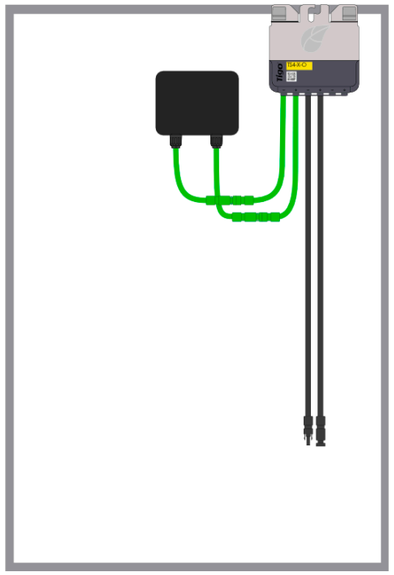
Rail Mounting

- Remove the serial sticker and place on layout sheet.
- Turn the TS4 so the label is facing towards the module backsheet.
- Bolt the TS4-X directly to the PV rail with an M8 bolt and torque to 10.2Nm.
- DO NOT CONNECT THE TS4 TOGETHER UNTIL STEP 4!

3. Connect Input Cables

CAUTION!

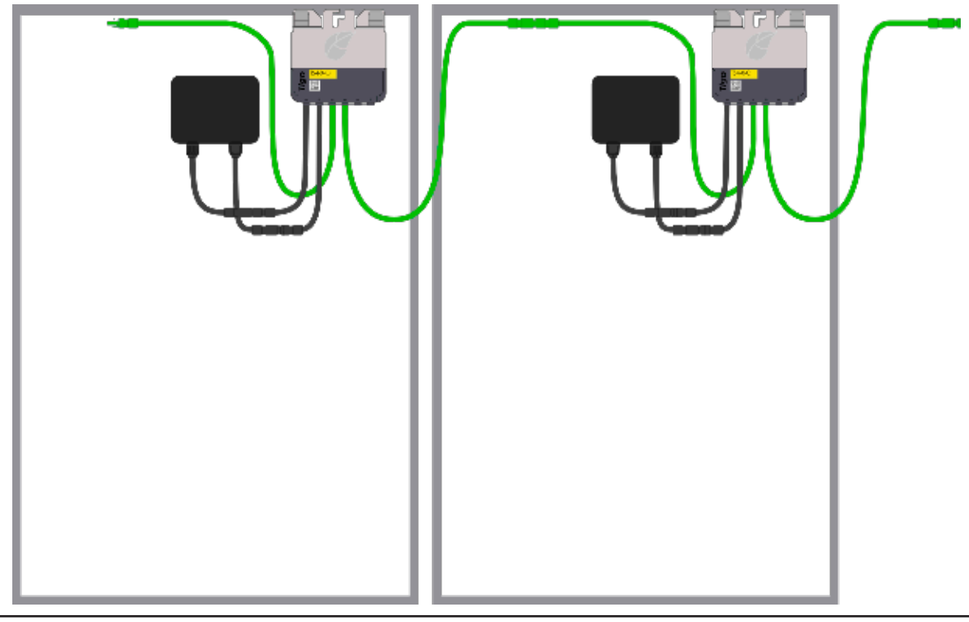
TS4-X are shipped in the ON state.
When connected to a module, full open circuit voltage will flow through by default!



Always connect short input cables before connecting long output cables otherwise damage could occur.

4. Connect Output Cables

Once the TS4s are connected to a module, connect long output leads to adjacent TS4s in the string.



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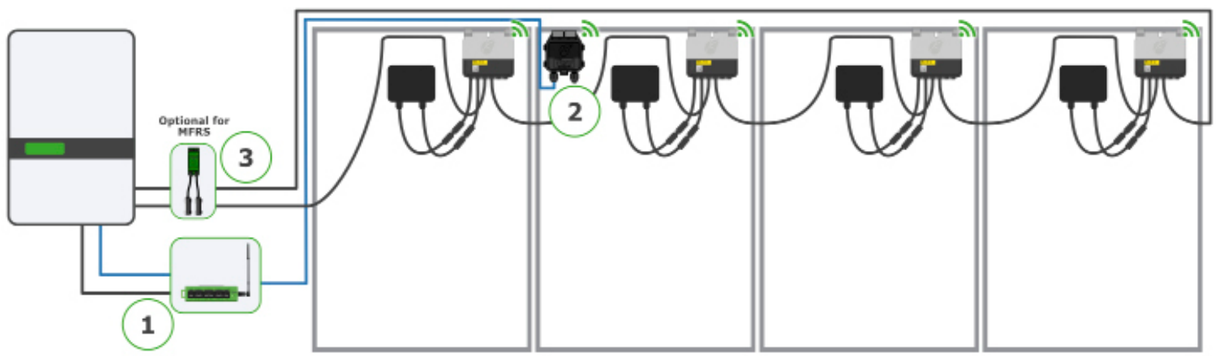
5. System Layout: TS4-X-O and TS4-X-S



Required for the TS4-X-O and TS4-X-S:
1. Cloud Connect Advanced (CCA): a data logger/gateway connects to the cloud via Ethernet or WiFi and to other devices via Modbus.
2. Tigo Access Point (TAP): communicates wirelessly with TS4-X-A-O/S MLPE via a mesh network. It connects to the CCA via an RS485 cable.
3. Refer to the CCA/TAP QSG for installation instructions.

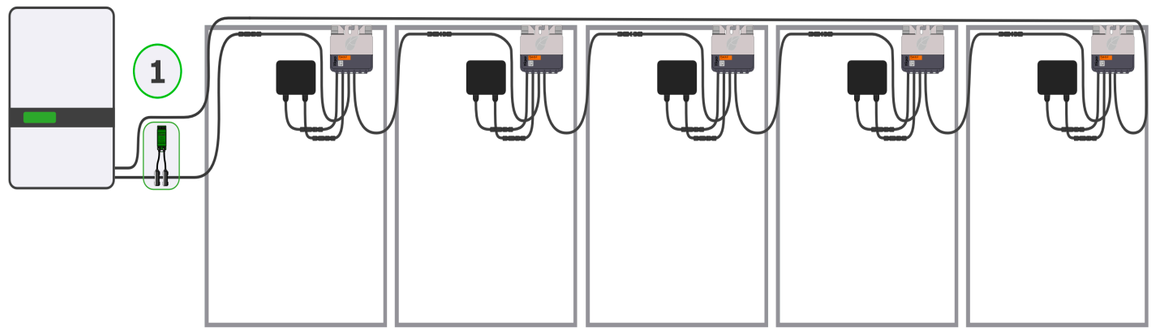
Optional: for Multi-Factor Rapid Shutdown (MFRS), add the RSS Transmitter (3) as shown. MFRS enables an additional layer of security for the rapid shutdown keep-alive signal sent to the TS4's. Only available with the TS4-X-O and TS4-X-S.

Refer to the Installation, Operation & Maintenance (IO&M) manual for more details and design requirements on installation and commissioning.

Resources

Home | Tigo TS4-X Downloads | TS4-X | Support

6. System Layout: TS4-X-F



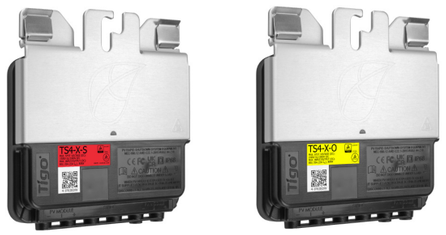
Required for the TS4-X-F:
1. The Rapid Shutdown Signal (RSS) Transmitter: provides a keep-alive signal via power-line communications (PLC) to the TS4-X-F units for rapid shutdown purposes.
2. Refer to the RSS Transmitter QSG for installation instructions.

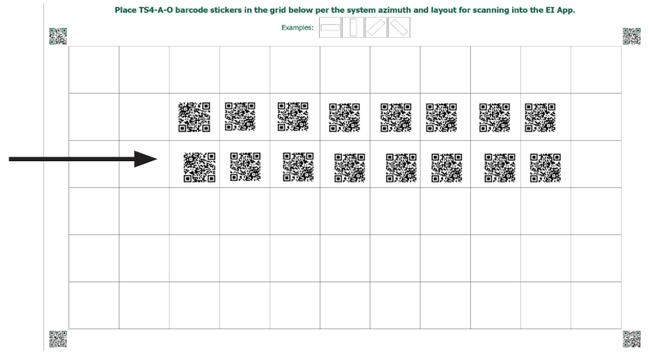
Optional: The TS4-X-F may be upgraded to TS4-X-S for a fee.

Refer to the Installation, Operation & Maintenance (IO&M) manual for more details and design requirements on installation and commissioning.

7. Place QR Sticker on the Bulk Scan Site Map (TS4-X-O and TS4-X-S)

Remove the QR sticker and affix it to the site map in the same physical array position.





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Bulk Scan Site Map

System:
Location:
Date:

Place TS4 serial stickers on the map per the system azimuth and layout for EI App scanning.
Use only 1 sticker per square.Ensure at least one Tigo QR code (located in the corners) is visible when scanning the serial stickers.

Acceptable Positions