

1. General Information - Specifications

⚠ ATTENTION - READ THIS FIRST

1. This document is for quick guidance only. For details, please refer to the RSS Transmitter Installation and Operations Manual.
2. **WARNING: Do not energize the RSS Transmitter until all TS4's have been installed and all RSS Transmitter Cores connections and communications have been established. Failing to adhere to the Installation Manual and Quick Start Guide instructions will void the warranty and can cause irreparable damage to the device.**
3. TS4-A-F, TS4-A-2F and an RSS Transmitter are a solution to meet NEC 2017 & 2020 690.12 Rapid Shutdown requirements. TS4-A-F and TS4-A-2F units automatically enter rapid shutdown mode when the RSS Transmitter is switched off and resume energy production when power is restored to the RSS Transmitter. Wait 30 seconds after rapid shutdown activation before disconnecting DC cables, or turning off DC disconnect, or powering the RSS transmitter back ON.

1.1 Package Contents

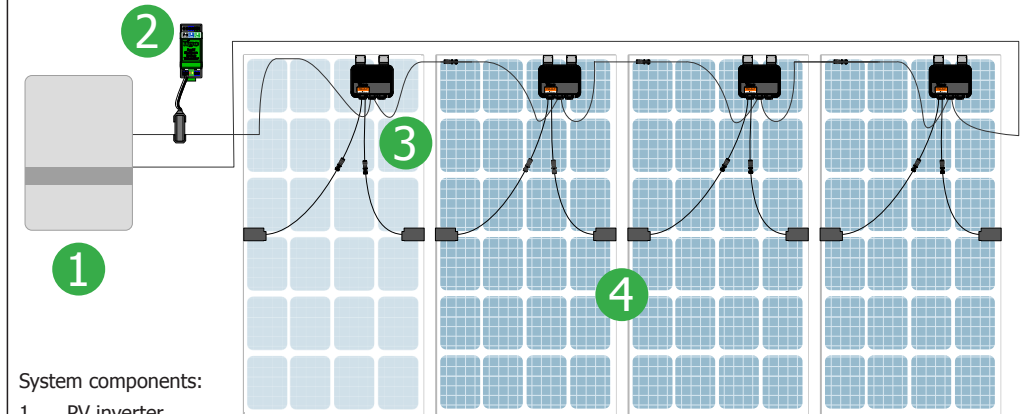
490-00100-52 RSS Transmitter		492-00000-52 RSS Transmitter Outdoor kit		493-00000-52 Commercial RSS Transmitter kit	
Item	Quantity	Item	Quantity	Item	Quantity
RSS Transmitter w/ PST	1	NEMA 4 Enclosure	1	RSS Transmitter w/ PST	1
RSS Core	2	RSS Transmitter w/ PST	1	RSS Cores	2
Quick Start Guide	1	RSS Core	2	480/277Vac Power supply	1
Rapid shutdown label	1	Din Rail Ground Terminal	1	35mm Din Rail	1
		Power conductor	3	Quick Start Guide	1
		120/240Vac Power supply	1	Rapid shutdown label	1
		Quick Start Guide	1		
		Rapid shutdown label	1		

🌿 Tigo **TS4-A-F, TS4-A-2F** are required for the proper operation of this rapid shutdown system. For more information, scan the QR code here.



1.2 System Wiring Diagram

🌿 Many leading inverters integrate the Tigo RSS Transmitter. Look for the Tigo Enhanced label or check for Tigo integration partners at <https://www.tigoenergy.com/ul-pvrss>

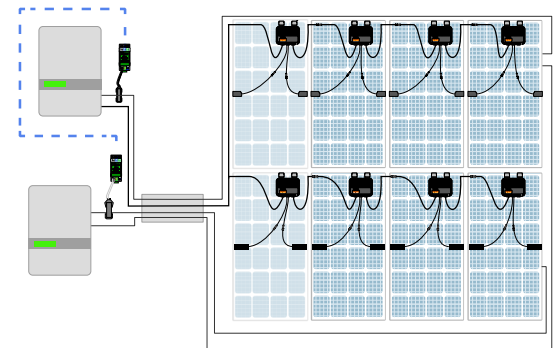


System components:

1. PV inverter
2. Tigo PV RSS Transmitter (RRSx)
3. Tigo TS4-A-Fs
4. PV modules

🌿 A single Core can accommodate up to 10 conductors. If your project exceeds the limit, refer to Installation and Operations Manual.

🌿 The RSS Transmitter with PST can link multiple RSS transmitters together. This enables Tigo's Pure Signal Technology to provide one coordinated keep-alive signal to the array.



1.3 RSS Transmitter with Pure Signal Technology Overview

1. 12V_{DC} Power (+)
2. 12V_{DC} Power (-)
3. Com ground (COM)
4. Transmit Signal (Tx)
5. Com ground (COM)
6. Receive Signal (Rx)
7. Core 1 input (RSS Core1)
8. LEDS
9. Core 2 input (RSS Core2)
10. Bi-colored RSS Core



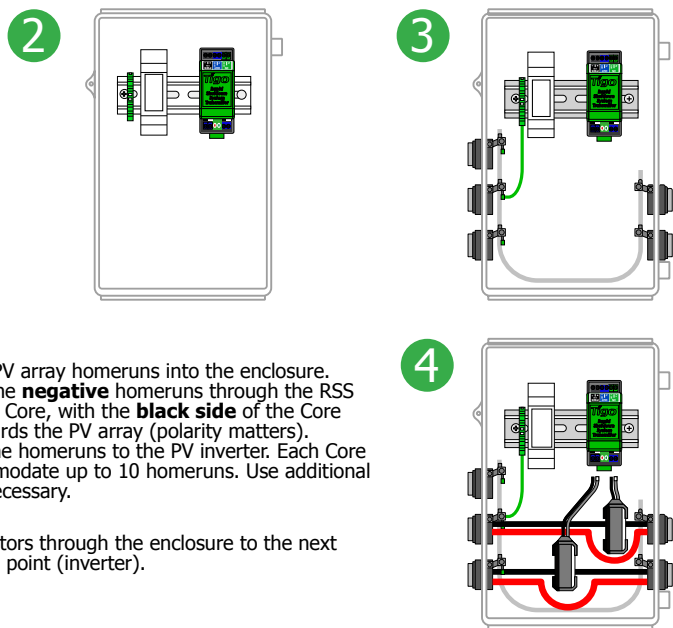
2. Installation

- Install the TS4-A-F and/or TS4-A-2F BEFORE powering on the RSS transmitter.**
- Always use appropriate PPE.**
- Always abide by prevailing codes/requirements to determine the number of PV conductors that can fit inside the 25.4mm (I.D.) core. Wire gauges and suppliers vary.**

2.1 Installing the RSS Transmitter Kit

- The RSS Transmitter Kits include a DIN Rail power supply, RSS Transmitter with PST and a grounding terminal. If not using a Tigo enclosure, confirm a 35mm DIN Rail can be installed and maintain the environmental ratings of the equipment installed.
- Prior to mounting**, drill out all applicable conduit openings.

1. Mount enclosure with appropriate mounting hardware for the surface.
2. Securely install the Ground terminal, power supply and RSS Transmitter with PST onto the 35mm Din Rail.
3. Route conduit to the enclosure. Use appropriate weather-tight fittings and bond conduit, as necessary. Connect to ground terminal.



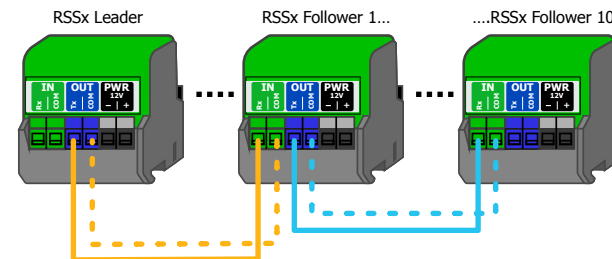
4. Route the PV array homeruns into the enclosure. Pass only the **negative** homeruns through the RSS Transmitter Core, with the **black side** of the Core facing towards the PV array (polarity matters). Continue the homeruns to the PV inverter. Each Core can accommodate up to 10 homeruns. Use additional Cores as necessary.
5. Pull conductors through the enclosure to the next termination point (Inverter).

At this time, the TS4-A-F/2F should be installed. No power is applied to the RSS Transmitter.

2.2 Wiring multiple RSS Transmitters

- POWER MUST BE DISCONNECTED THROUGHOUT THIS STEP.**
- If multiple RSS Transmitters exist in the system, the most effective way to mitigate crosstalk is to synchronize the signal between the transmitters in a Leader-Follower method.
If only one transmitter is required, skip this step.

- Connect up to 10 RSS Transmitters with PST.
- The total length of daisy-chain signal wiring must not exceed 100ft (30m).
- Use 22-14 AWG twisted pair wire (shielded recommended).
- Wire as shown
- Torque to 0.4Nm (3.5LB-in)

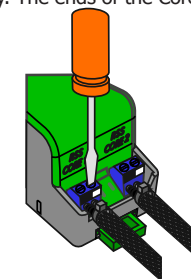


2.3 Connecting the RSS Cores

- The RSS Cores are colored black and white to indicate signal directionality. The ends of the Core wires are colored to match the RSSx and terminals.

The RSS cores connect to the lower terminals of the RSS Transmitter.

1. Insert the wire with the white ferrule into the white terminal of the Core 1 input (left side). Torque to 0.5 Nm max.
2. Insert the wire with the black ferrule into the black terminal. Torque to 0.5 Nm max.
3. Repeat at Core 2 input (9) for two-core applications.



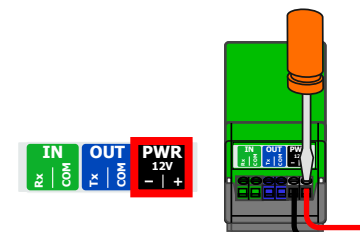
Bottom view of RSS Tx

2.4 Powering the RSS Transmitter

- The RSS Transmitter MUST be on the same AC branch circuit as the inverter to meet NEC 690.12 Rapid Shutdown requirements. You must complete Section 2.2 before powering on the RSS Transmitters.**

- Each RSS Transmitter with PST requires 12V_{dc} (+/-2%) and 1A from a DC power supply. The optional RSS Transmitter Kits include a power supply. If sourcing a third party power supply, ensure the specification meet the requirements found in the installation manual.

1. Using a red 22-14 AWG conductor, connect the 12V output of the power supply to the + (1) and torque to 0.4Nm (3.5lb-in).
2. Using an 22-14 AWG black conductor, connect the 12V_{dc} of the power supply to the - terminal of the transmitter (2) and torque to 0.4Nm (3.5lb-in).
3. Using an 22-14 AWG grounding conductor, connect the AC and DC ground wires of the Power Supply to DIN rail.



Top view of RSS Tx with Pure Signal Technology

3. Pre-Power Checklist

✓	Check Item	Acceptance Criteria
	TS4 Installation	All PV modules are connected to a TS4-A-F/TS4-A-2F.
	Core directionality	All Cores are facing the correct position (Black side towards the PV array).
	Conductor signaling	Only the negative conductors are run through the RSS cores and no more than 10 conductors per Core.
	Distance	The total round-trip distance of the PV conductors is <300m or <500m if Cores are installed in series on the same strings for long distance applications.
	Series transmitter wiring	The transmitters are wired correctly and connections are secure.
	Power supply	Power supply is wired correctly, and connections are secure.
	Conduit connections	All conduit attachments are sealed and bonded, where necessary.
	Workmanship	Cable ties are secured evenly, have no sharp edges, the enclosure and installation area are left clean and accessible.
	Voltage check	Check string voltage prior to powering up the system. Without the keep alive signal the string voltage should equal 0.6V x # of PV modules in the string.

4. Commissioning

⚠ CAUTION – For personal safety always wear and use appropriate PPE.

- Follow the normal commissioning steps of the inverter(s) installed. Note - the RSS Transmitter must be connected to the same AC branch circuit as the inverter to meet NEC 690.12 Rapid Shutdown requirements. By connecting the inverter(s) to the grid, power is supplied to the RSS transmitter, turning it on.
- The RSS Transmitter should now be powered and signaling the array to pass energy. Each string should now have full voltage to the inverter.

5. LED Status

LED Status	Description	Action
Red ON, Green Flashing	Leader (transmitter 1)	None; normal operation
Red OFF, Green flashing	Follower (transmitters 2-10)	None, normal operation
Red ON, Green OFF	Error, not transmitting signal	Remove power from all transmitters. Verify all wiring is correct. Verify torque.

6. Troubleshooting

⚠ CAUTION – For personal safety always wear and use appropriate PPE.

Issue	Check
Low string voltage	The TS4-A-F produces 0.6V per unit when the RSS Signal is not present. If the string Voc is abnormally low (<100 volts), verify each RSSx has power and that the IN and OUT connections are correct (if using multiple RSSx), and that the Cores are properly installed.
Lower voltage than expected	One or more TS4s may not be connected properly. Use the RSS Signal Detector (not included) to verify the TS4 is receiving the keep alive signal.
No output voltage at the string	Verify all TS4s are connected to the modules and that all TS4s are connected to each other.

7. Your Customer Service Contact

United States (HQ):

Tigo Energy, Inc.
655 Campbell Technology Pkwy
Campbell, CA 95008

EMEA Office:

Tigo Energy Italy
Srl Via Calamandrei 36 52025
Montevarchi Tuscany, Italy

Americas: +1 408 402 0802
International: 00800 2255 8446

<https://support.tigoenergy.com/>

