2026-04-15

Photovoltaic (PV) Rapid Shutdown Equipment

- GR-F2L-20
- GR-F2M-20

User Manual

GOODWE

Copyright Statement

NOTICE

Due to product version upgrades or other reasons, the document content is updated periodically. Unless otherwise agreed, the document content cannot replace the safety precautions on the product label. All descriptions in the document are for guidance only.

Table of Contents

1 Overview

This document primarily introduces the product information, system networking, installation wiring, and troubleshooting of the rapid shutdown device (hereinafter referred to as the transmitter).

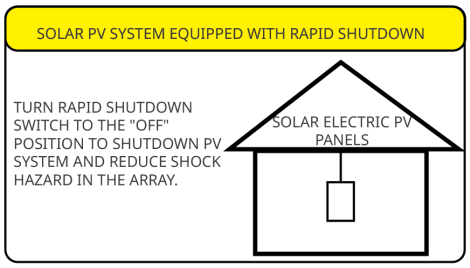
2 Safety Precautions

2.1 SAVE THESE INSTRUCTIONS

This manual contains important instructions for Models (model as indicated in front of Report)
that shall be followed during installation and maintenance of the RSD.
Please strictly follow these safety instructions in the guide during the operation.

NOTICE

- 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.
- The equipments are designed and tested strictly complies with related safety rules. Read and follow all the safety instructions and cautions before any operations. Improper operation might cause personal injury or property damage as the equipment are electrical equipment.
- When initiator in series in the transmitter power supply circuit, and in the outside of inverter or Box, the transmitter power supply should be safety extra-low voltage circuit (SELV).
- This equipment shall be installed and operated in an environment within the ratings and limitations of the equipment as published in these installation instructions.
- Test your rapid shutdown system by switching off the AC power to the Transmitter or inverter. The PV module will reduce their output to 30V in 30seconds when the transmitter is powered off.
- Place rapid shutdown system label no more than 1m (3ft) from initiator in accordance with Section 690.56(C) of the NEC (NFPA 70).



2.2 General Statement

- Due to product version upgrades or other reasons, the document content will be updated periodically. Unless otherwise agreed, the document content cannot

replace the safety precautions on the product label. All descriptions in the document are for guidance only.

- Before installation, please read this document carefully, as well as the relevant documentation for the inverter and photovoltaic array.
- All operations on the equipment must be performed by professional, qualified electrical technicians who are familiar with the relevant standards and safety regulations at the project location.
- During installation or operation, please use insulated tools and wear personal protective equipment to ensure personal safety.
- Before installing the equipment, please check whether the delivered items match the order, whether the quantity is complete, and whether there is any external damage. If any abnormalities are found, please contact the after-sales service center.
- Damage to the equipment or personal injury caused by failure to install, use, or configure the equipment in accordance with the requirements of this document is beyond the manufacturer's liability. For more product warranty information, please obtain it through the official website: https://en.goodwe.com/support-service/warranty-related.

2.3 Safety Statement

- Ensure the voltage and current of the photovoltaic components match the equipment specifications.
- During installation, ensure all power sources in the rapid shutdown system are disconnected.
- Install the trigger device of the rapid shutdown system outdoors, ensuring the location is easily accessible.
- Do not touch any live parts in the rapid shutdown system during its operation. Otherwise, it may cause equipment damage or personal injury.
  To avoid interfering with the rapid shutdown function, do not connect transmitters from other manufacturers on the same PV DC cable while using this device.
- It is recommended to use the corresponding GoodWe rapid shutdown receiver.
- Ensure the rapid shutdown receiver is installed before powering on the transmitter.
- It is recommended to affix the rapid shutdown safety label within 1 meter of the transmitter or trigger device.

2.4 Safety Symbols and Certification Marks

No.	Symbol	Meaning
1		Potential hazard exists during equipment operation. Take protective measures when operating the equipment.
2		High voltage hazard. High voltage is present during equipment operation. Ensure the equipment is powered off before performing any operations.
3		Please read the product manual carefully before operating the equipment.
4		This equipment must not be disposed of as household waste. Dispose of it according to local laws and regulations, or return it to the equipment manufacturer.
5		The inverter surface is at high temperature. Do not touch during operation, otherwise it may cause burns.
6		Double insulation or reinforced insulation.
7		grounding point.
8		CSA mark.
9		FCC mark.

2.5 EU Declaration of Conformity

Devices without wireless communication functionality that can be sold on the European market meet the requirements of the following directives:

- Electromagnetic compatibility Directive 2014/30/EU (EMC)
- Electrical Apparatus Low Voltage Directive 2014/35/EU (LVD)
- Restrictions of Hazardous Substances Directive 2011/65/EU and (EU) 2015/863 (RoHS)
- Waste Electrical and Electronic Equipment 2012/19/EU

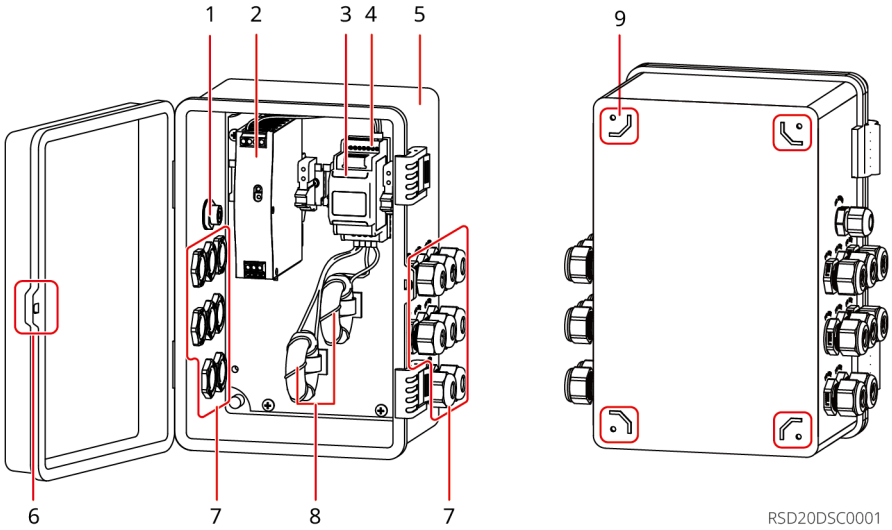
- Registration, Evaluation, Authorization and Restriction of Chemicals (EC) No 1907/2006 (REACH
  For more EU Declarations of Conformity, please visit the official website: www.goodwe.com.

3 Product Introduction

3.1 Function Description

The rapid shutdown transmitter and receiver work together to achieve rapid system shutdown. When powered on, the transmitter sends signals to the receiver, and the receiver controls the photovoltaic module output based on the received signals. In case of an emergency, shutting down the transmitter can achieve component-level shutdown of the photovoltaic system.

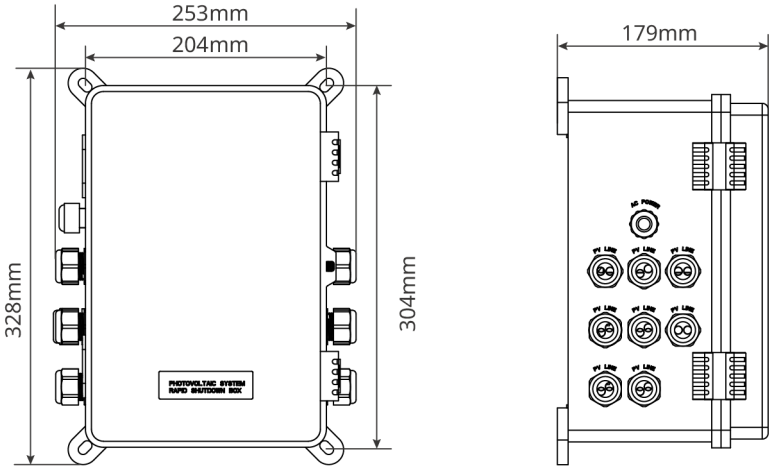
3.2 Component Introduction



1	AC power line wiring hole	2	Power supply
3	Transmitter	4	Indicator
5	Waterproof enclosure	6	Waterproof enclosure lock hole
7	PV DC line wiring hole【1】	8	Magnetic ring
9	Mounting bracket installation hole	-	-

【1】The number of wire holes varies depending on the product model.

3.3 Dimensions



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3.4 Indicator

Indicator Status	Description
Off	Device is not powered on or has a fault.
Blinking (1s on, 1s off)	Device is operating normally.

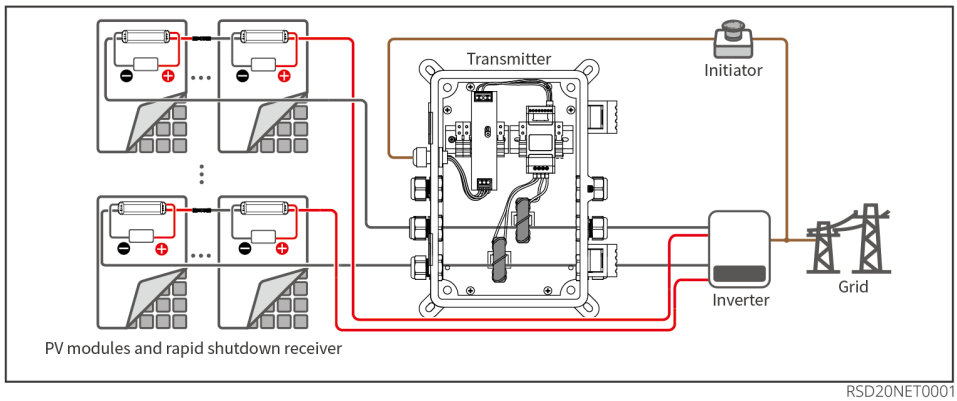
4 Installation and Wiring

4.1 Networking System

NOTICE

- It is recommended to pass the negative DC cable through the ferrite core. Never pass both the positive and negative cables through the same ferrite core simultaneously.
- Ensure the total current passing through a single ferrite core is less than 150A.
- The maximum total length for the positive and negative cables of each PV string is 500 meters.
- Ensure the PV cable routing is reasonable, with no crossing or winding, etc. Otherwise, it may cause the rapid shutdown system to malfunction.
- During routing, place the positive and negative PV cables of the same string within the same cable tray and minimize the spacing as much as possible.

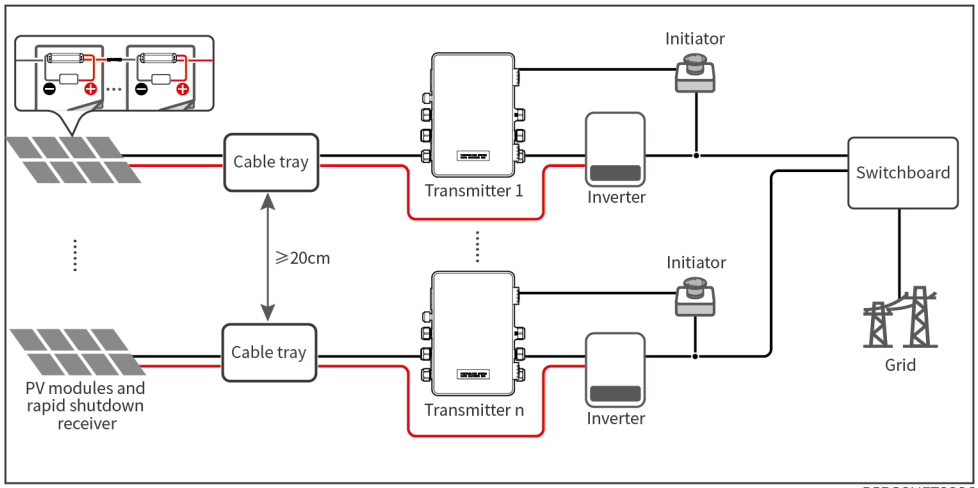
- System using a single transmitter



- System using multiple transmitters (unsynchronized)

NOTICE

To avoid signal crosstalk, please use independent cable trays for the wiring of PV cables from different transmitters, and maintain a distance of at least 20cm between cable trays.



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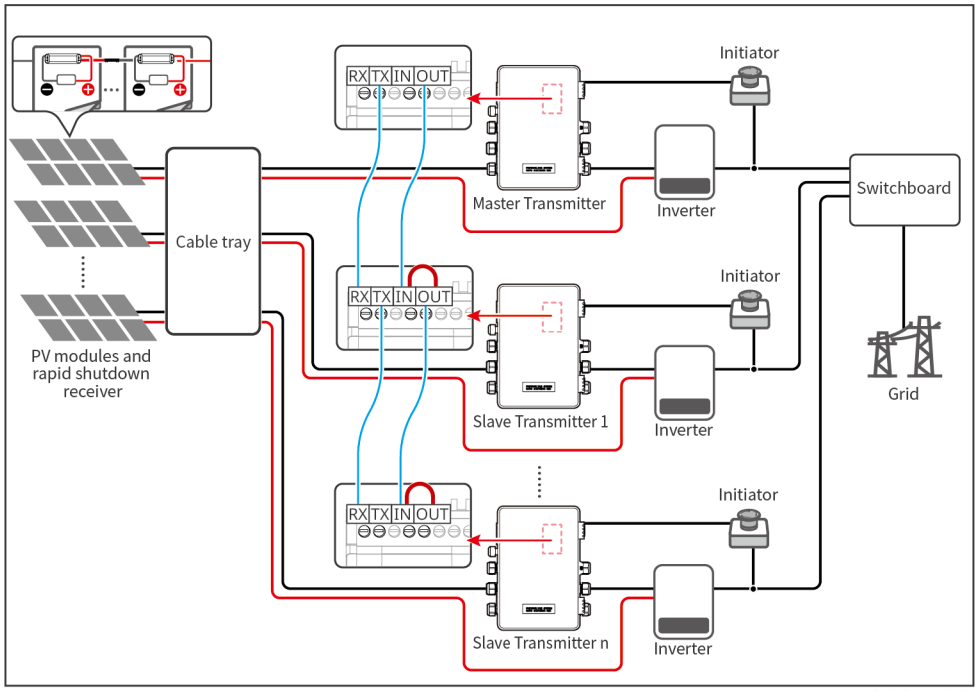
- System using multiple transmitters (synchronized)

NOTICE

- A maximum of 5 transmitters can be connected within the same sync group.
- To power off, please turn off the trigger device of the main transmitter or turn off the trigger devices of all transmitters.



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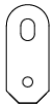
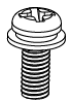
4.2 Deliverables

⚠WARNING

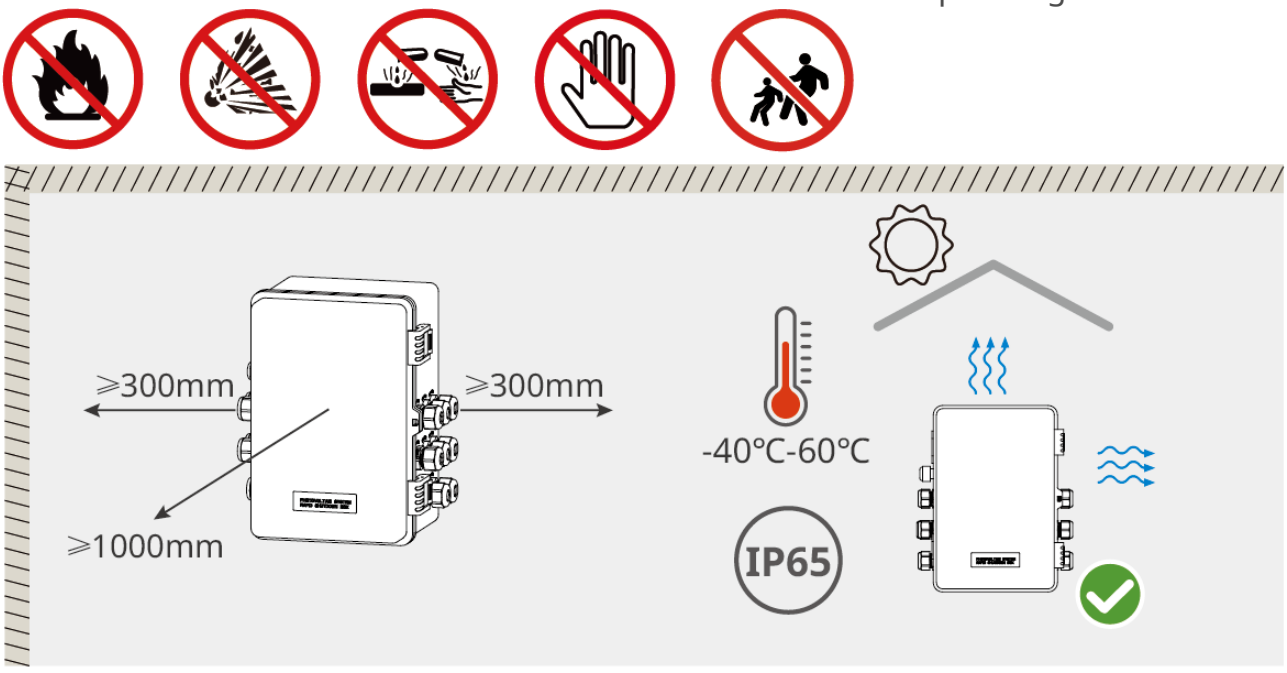
- Check if the type and quantity of the delivered items are correct, and if there is any damage to the appearance. If damaged, please contact your dealer.
- After removing the delivered items from the packaging, do not place them on rough, uneven, or sharp surfaces to avoid paint chipping.

Part	Description	Part	Description
	Rapid Shutdown Transmitter x1		Mounting Bracket x4
	Fastening Screw x4		expansion bolt x4
	fireproofing mud x1		

4.3 Installation

Installation Environment Requirements

1. The device must not be installed in flammable, explosive, corrosive, or similar environments.
2. The temperature and humidity of the installation environment must be within a suitable range.
3. The installation location must be out of reach of children.
4. The device must be installed away from direct sunlight, rain, snow accumulation, and similar conditions. It is recommended to install it in a sheltered location; a sunshade can be constructed if necessary.
5. The installation space must meet the device's ventilation, heat dissipation, and operational space requirements.
6. The device's protection rating meets outdoor installation requirements and can be installed in outdoor environments that satisfy the requirements.
7. The installation height of the device should facilitate operation and maintenance, ensuring that indicator lights, all labels are easily visible, and wiring terminals are easy to operate.
8. The installation altitude must be lower than the maximum operating altitude.



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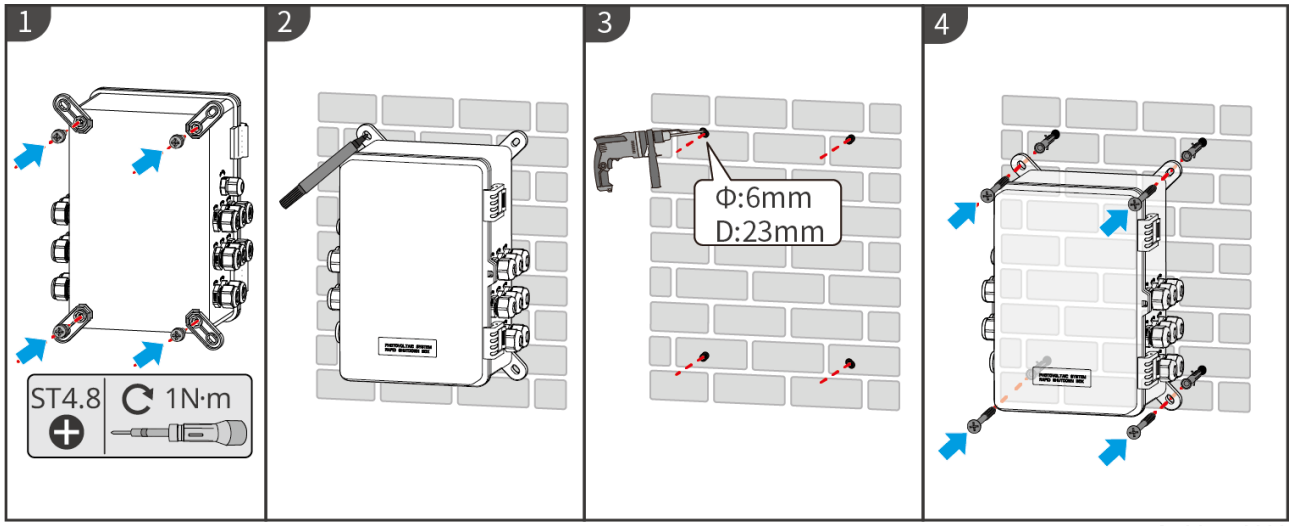
Installation Steps



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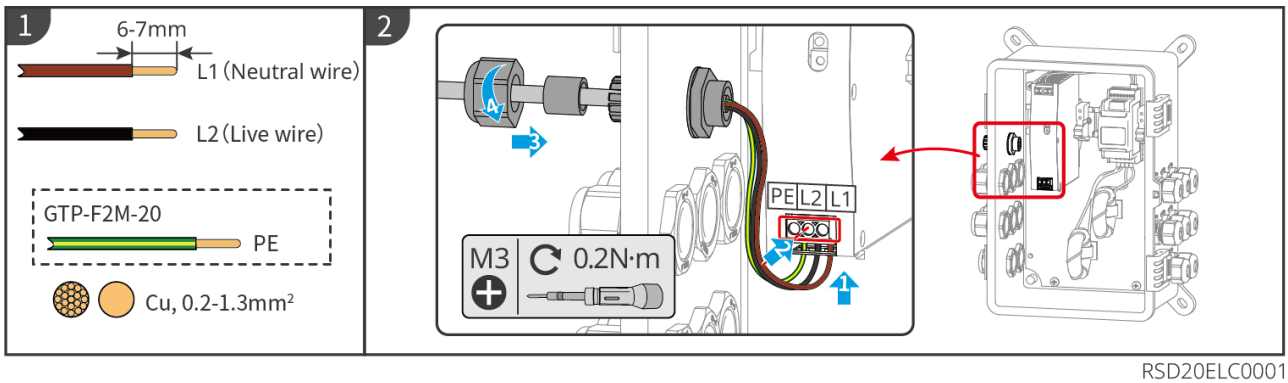
4.4 Connecting the Power Cable

NOTICE

- The grounding cable is only applicable to GTP-F2M-20.
- It is recommended to use the matching GoodWe power supply. Using other power supplies may cause device damage, and such damage is not covered by the warranty.



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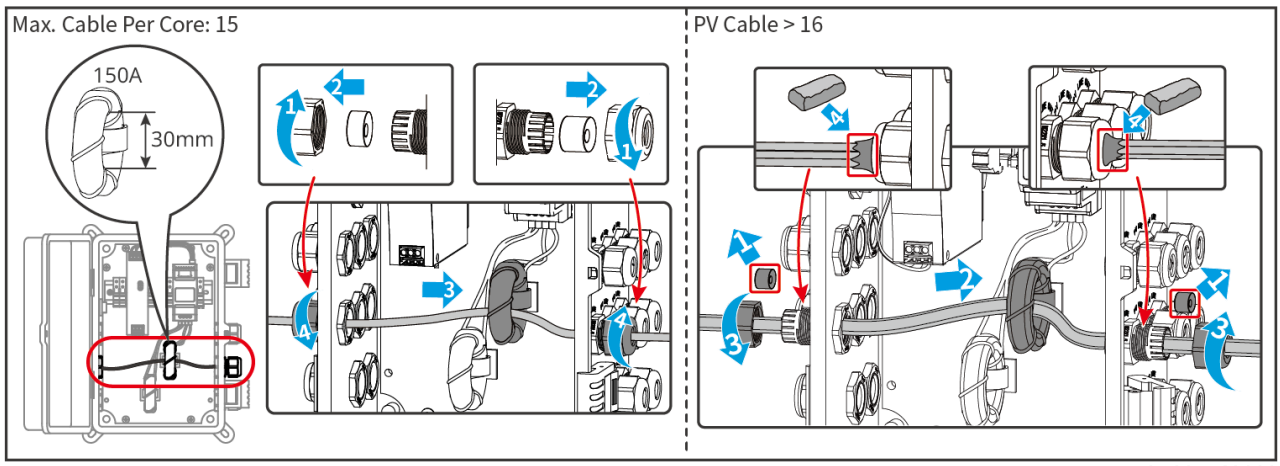
4.5 Connecting PV Cables

NOTICE

- A single magnetic ring can accommodate a maximum of 15 PV cables.
- If the total number of PV cables exceeds 16, the waterproof grommet in the cable gland can be removed during threading. After removal, a single cable gland can accommodate at least 3 cables.
- If the waterproof grommet in the cable gland is not used, please use fireproof putty to ensure sealing after tightening the gland.
- It is recommended that customers prepare their own lock. After installation and wiring are complete, lock the cabinet door to prevent accidental contact that could cause personal injury or equipment damage.



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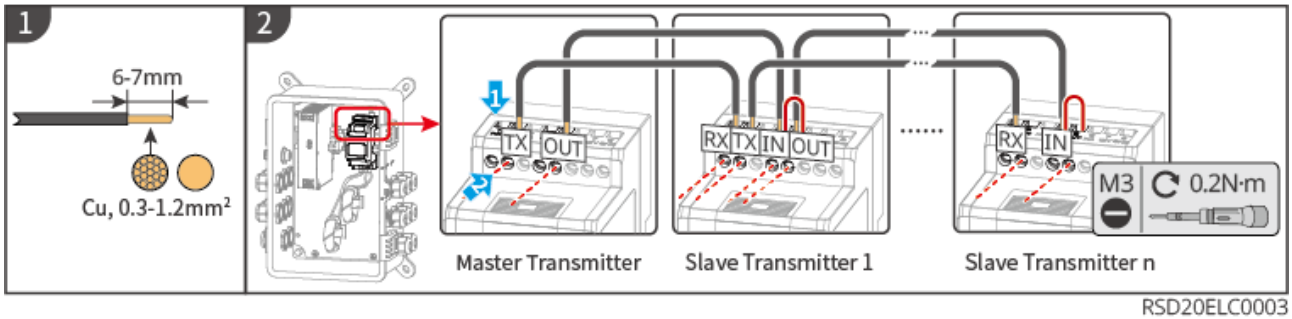
4.6 Connect Synchronization Signal Cable

NOTICE

- When multiple transmitters require synchronized settings, they must be connected via synchronization signal cables.
- The maximum length for the synchronization signal cable between transmitters is 5 meters.
- Do not route the synchronization signal cable through the AC power line feed-through hole.

Silkscreen	Description	Silkscreen	Description
RX	Synchronous Signal Input	TX	Synchronous Signal Output
IN	Master/Slave Signal Input	OUT	Master/Slave Signal Output
12V	Power Input 12V	GND	Power GND
NA	Reserved	-	-



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5 Troubleshooting

To prevent the fast shutdown function from failing, please address the following faults promptly when they occur.

No.	Fault Phenomenon	Solution
1	Inverter arc fault alarm	1. Check whether the string and inverter connectors are tight, whether there are any breakpoints in the wiring, and whether the RSD has issues such as bulging or damage. 2. If bulging or damage exists, please contact the dealer or installer. If there is no obvious damage or the fault persists after checking the above factors, please contact after-sales service.
2	Abnormally low power generation / Abnormally low PV voltage	1. Check if the PV panels are blocked by foreign objects, dust, dirt, etc. 2. Check the voltage and current of each inverter circuit. If the voltage or current value is significantly low, confirm whether the corresponding circuit connector is tight, whether there are any breakpoints in the wiring, and whether the RSD has issues such as bulging or damage. 3. If bulging or damage exists, please contact the dealer or installer. If there is no obvious damage or the fault persists after checking the above factors, please contact after-sales service.

No.	Fault Phenomenon	Solution
3	Cannot shut down normally	1. Check if there are other transmitters operating near this inverter or within the PV system. 2. Check if the receiver has issues such as bulging, damage, or overheating. 3. If bulging or damage exists, please contact the dealer or installer. If there is no obvious damage or the fault persists after checking the above factors, please contact after-sales service.
4	Transmitter indicator light is off	1. Check if the transmitter's power input connection is normal and if the AC side power supply is normal. 2. If the fault persists after checking the above factors, please contact after-sales service.
5	Inverter MPPT voltage fluctuates when multiple transmitters are connected in sync	Check if the sync signal wiring is correct and the connections are tight.
6	Some inverters have no PV voltage when multiple transmitters are connected in sync	1. If a single inverter is abnormal, check if the power supply for the corresponding transmitter is normal and if the wiring is correct. 2. If multiple consecutive inverters are abnormal, check if the power supply for the transmitter corresponding to the first abnormal inverter is normal and if the wiring is correct. 3. If the power supply is normal and the wiring is correct, please contact after-sales service.

6 Technical Parameters

Technical Parameter	GTP-F2L-20	GTP-F2M-20
Main Parameters		
Power Input Voltage (Vac)	100~240	200~480
Max. Power Input Current	0.15	0.12
Nominal Frequency	50/60 Hz	
Transmitter Input Voltage (Vdc)	12	
Transmitter Input Current (DC) (A)	0.8	
Communication	SunSpec PLC	
Overvoltage Category	AC Category III	
Magnetic Ring Parameters		
Number of Magnetic Rings	150A Magnetic Ring ×2	150A Magnetic Ring ×2
Max. Current (A)	150×2	150×2
Max. System Voltage (Vdc)	1500	
Magnetic Ring Cable Length (mm)	150	
Magnetic Ring Inner Diameter / Outer Diameter (mm)	30/60	
Max. Number of Cables per Ring*1	30 (Max. 15 per ring)	30 (Max. 15 per ring)
Environmental Parameters		
Operating Temperature Range (°C)	-40 - +60	
Relative Humidity	0~100%	
Max. Operating Altitude (m)	3000	
Ingress Protection Rating	IP65	
Structural Parameters		
Dimensions (W×H×D mm)	253×328×179	
Weight (kg)	2.4	2.8
Mounting Method	Wall Mounting	
Pollution Degree	Degree 3	
Safety Characteristics		
Safety Regulation	NEC 2017&2020 (690.12); UL1741; CSA C22.2 No. 330-17	

Technical Parameter	GTP-F2L-20	GTP-F2M-20
EMC	FCC Part 15B, ICES-003, IEC/EN61000-6-1/-2/-3/-4	