2025-04-30

Photovoltaic (PV) Rapid Shutdown Equipment

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

User Manual

GOODWE

Copyright Statement

Trademarks

NOTICE

The information in this document is subject to change due to product updates or other reasons. This document cannot replace the product labels or the safety precautions unless otherwise specified. All descriptions in the document are for guidance only.

Table of Contents

1 Overview

This manual describes the product information, system wiring, installation, electrical connection, and troubleshooting about the Photovoltaic (PV) Rapid Shutdown Equipment (Transmitter for short).

2 Safety Disclaimer

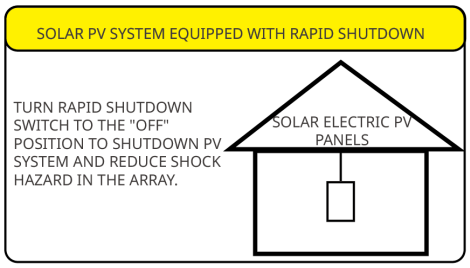
2.1 SAVE THESE INSTRUCTIONS

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 Disclaimer

- The information in this guide is subject to change due to product updates or other reasons. This guide cannot replace the safety instructions or labels on the device

unless otherwise specified. All descriptions here are for guidance only.

- Before installations, read through the documents of the device, inverter, and PV module to learn about the product and the precautions.
- All operations should be performed by trained and knowledgeable technicians who are familiar with local standards and safety regulations.
- Use insulating tools and wear personal protective equipment when installing or operating the device to ensure personal safety.
- Check the deliverables for correct model, complete contents, and intact appearance. Contact after-sales service if any damage is found or any component is missing.
- Strictly follow the installation, operation, and configuration instructions in this manual. The manufacturer shall not be liable for device damage or personal injury if you do not follow the instructions. For more warranty information, please visit https://www.goodwe.com/support-service/warranty-related.

2.3 Safety Disclaimer

- Make sure the voltage and the current of the PV module match the device specifications.
- Disconnect all the power supply in the rapid shutdown system before installations.
- Place the initiator of the rapid shutdown system outdoors for easier access.
- Do not touch any live components when the rapid shutdown system is working. Otherwise, the device damage or personal injury may occur.
  To avoid interfering the rapid shutdown function, do not install transmitters from other manufacturers to the PV cable during the use of the device.
- It is recommended to use the corresponding GoodWe rapid shutdown device.
- Power on the the rapid shutdown receiver before the transmitter.
- Place the rapid shutdown system label no more than 1m from the transmitter or initiator.

2.4 Safety Symbols and Certification Marks

No.	Symbol	Meaning
1		Potential risks exist. Wear proper PPE before any operations.
2		HIGH VOLTAGE HAZARD. Power off the equipment before any operations.
3		Read through the document before any operations.
4		Do not dispose of the equipment as household waste. Discard the product in compliance with local laws and regulations, or send it back to the 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		PE Connection Point.
8		CSA Marking.
9		FCC Marking.

2.5 EU Declaration of Conformity

GoodWe Technologies Co., Ltd. hereby declares that the inverter without wireless communication modules sold in the European market meets 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

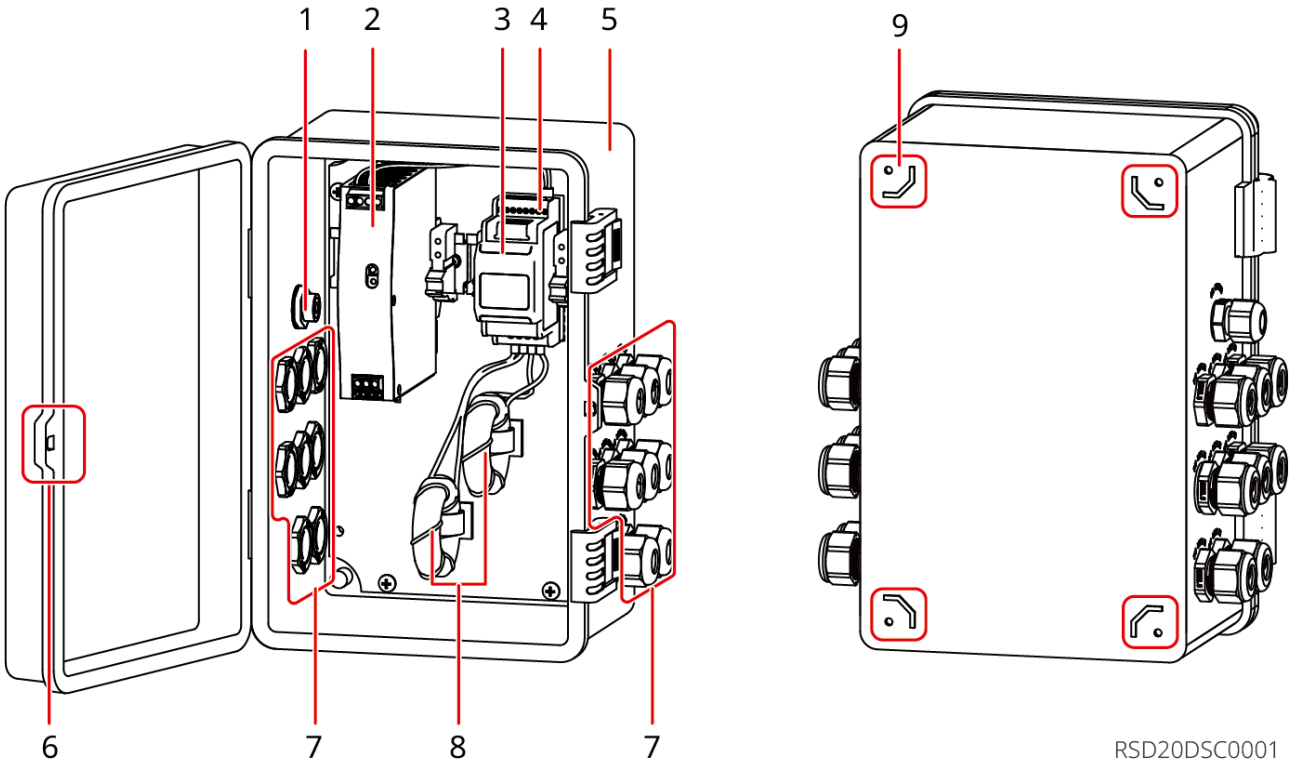
You can download the EU Declaration of Conformity on www.goodwe.com.

3 Product Introduction

3.1 Function Description

The receiver and transmitter can work together to shutdown the PV system rapidly. The transmitter keeps sending signal to the receiver, with which the receiver controls the output of the PV module. In case of an emergency, power off the transmitter to shut down PV system.

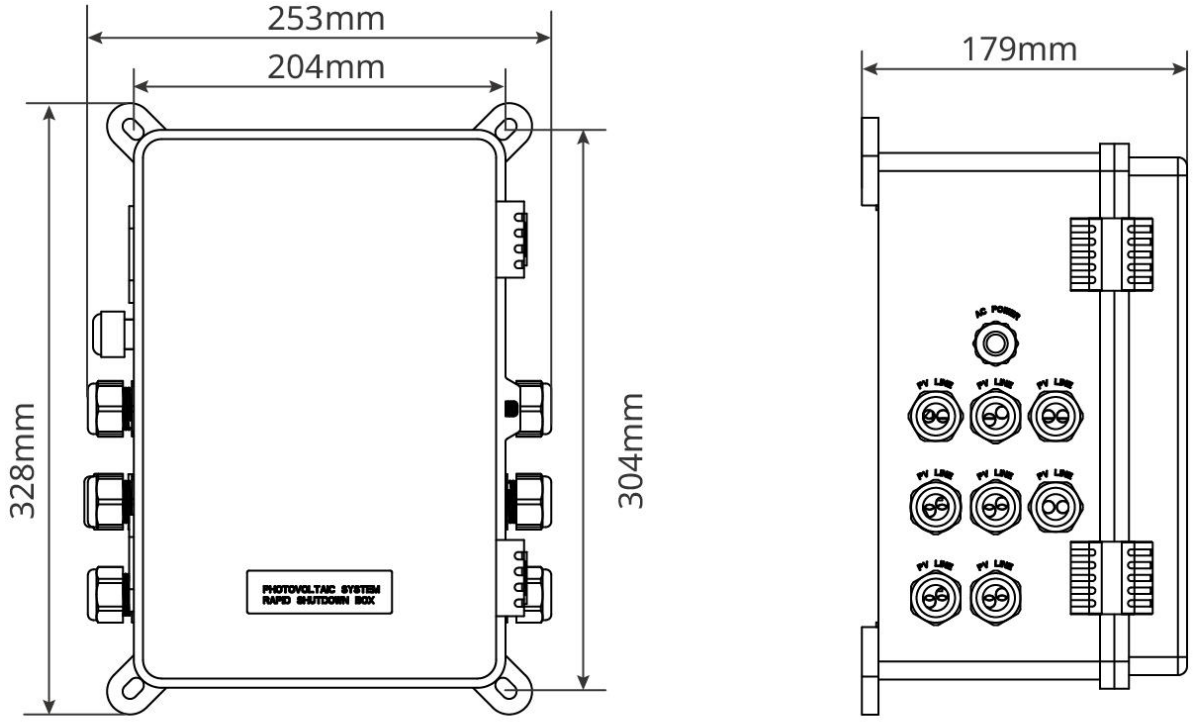
3.2 Parts



1	Power supply	2	Transmitter
3	Indicator	4	Lock of the box
5	Cable hole - AC power cable	6	Cable hole - PV cable[1]
7	Core	8	Waterproof box
9	Installation hole	-	-

[1] The number of the cable hole may differ depending on the product model.

3.3 Dimension



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3.4 Indicator

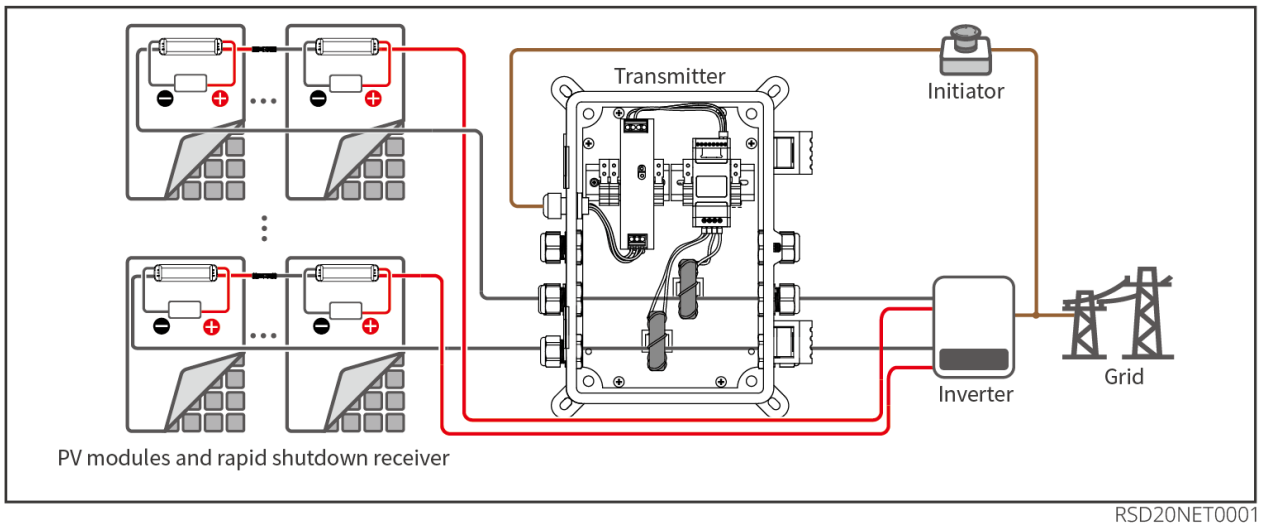
Indicator Status	Description
Off	The device is powered off or in fault status.
Blink	The device is working properly.

4 Installation and Wiring

4.1 Wiring System

NOTICE

- Pass the negative cable through the core is recommended. Do not pass the positive cable and the negative cable through the same core at the same time.
- Maximum current per core: 150A.
- Maximum length per PV string: 500m.



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4.2 Packing List

Warning

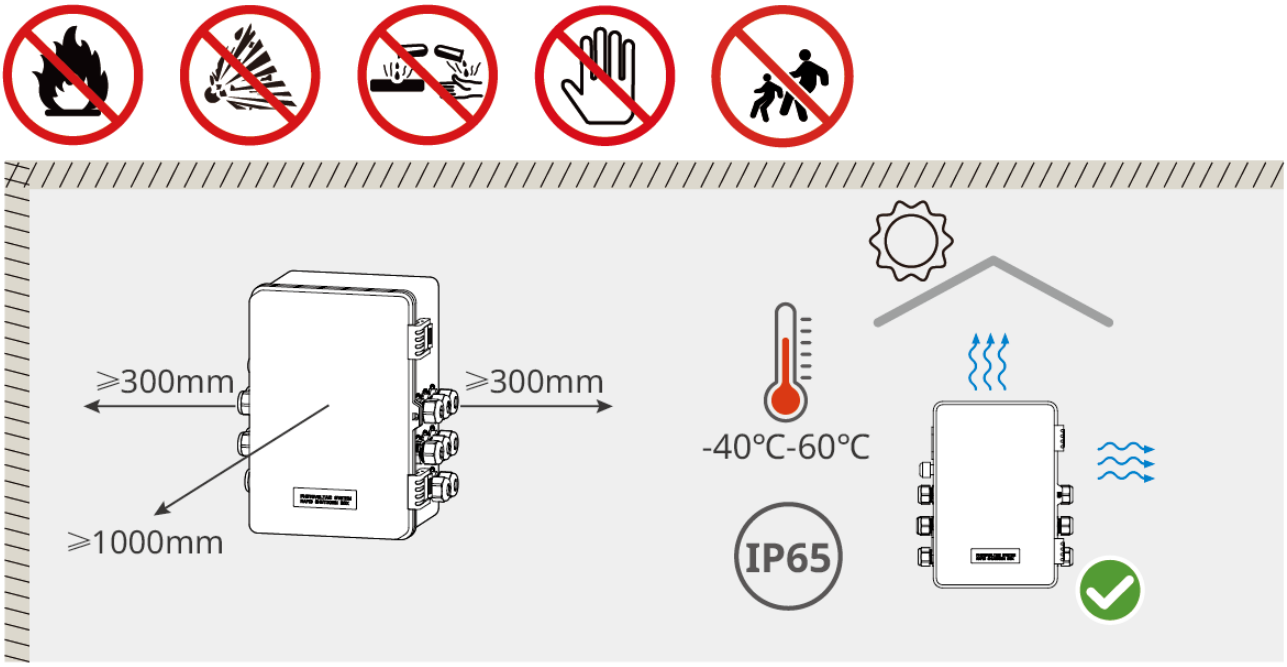
- Check the deliverables for correct model and quantity, and intact appearance. Contact the supplier as soon as possible if any damage is found.
- After being taken out of the package, it is forbidden to put deliverables in rough, uneven or sharp places to prevent peeling paint.

Parts	Description	Parts	Description
	Parts		Mounting parts x4
	Fixing bolt x4		Expansion bolt x4
	Fireproofing mud x1		

4.3 Installation

Installation Requirements

1.Do not install the equipment in a place near flammable, explosive, or corrosive materials.
2.The temperature and humidity at the installation site should be within the appropriate range.
3.Do not install the equipment in a place that is easy to touch, especially within children’s reach.
4.It is recommended to install the equipment in a sheltered place. Build a sunshade if it is needed.
5.The place to install the equipment shall be well-ventilated for heat radiation and large enough for operations.
6.The equipment with a high ingress protection rating can be installed outdoors.
7.Install the equipment at a height that is convenient for operation and maintenance, electrical connections, checking indicators and labels, and operating terminals.
8.Equipment installation altitude needs to be lower than the maximum working altitude.



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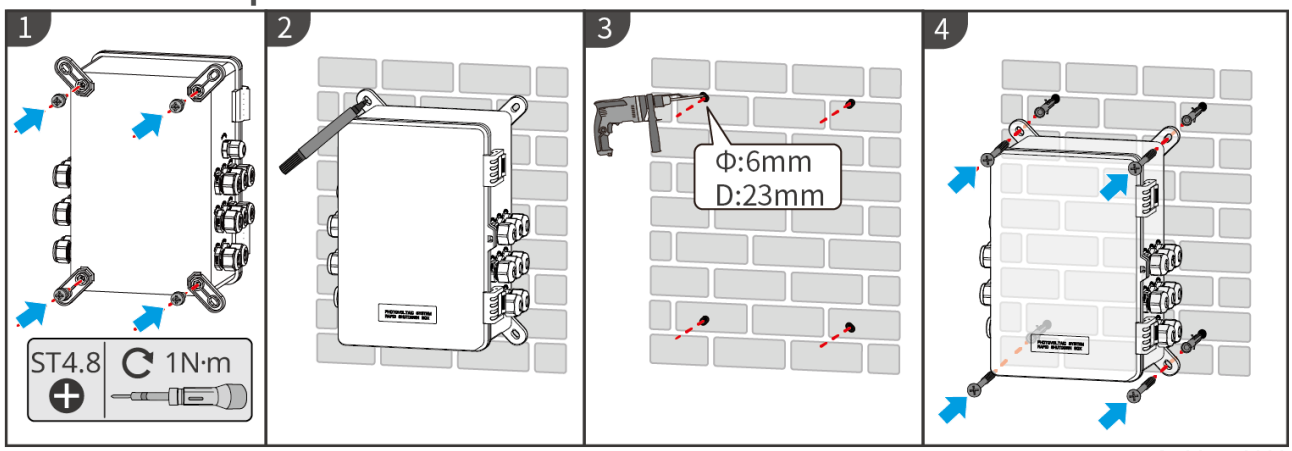
Installation Steps



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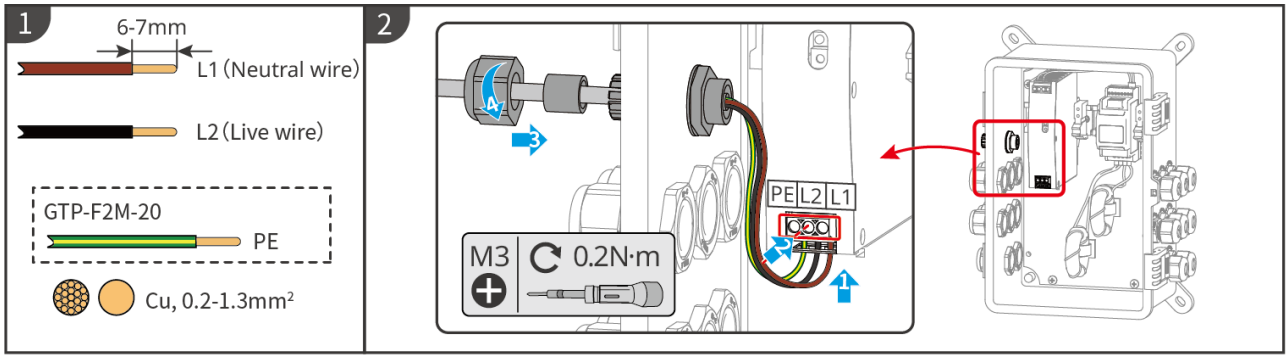
4.4 Power Cable

NOTICE
• The grounding cable is only for GTP-F2M-20. • GoodWe power adapters are recommended. The manufacturer shall not be liable for device damage if other power adapters are used.



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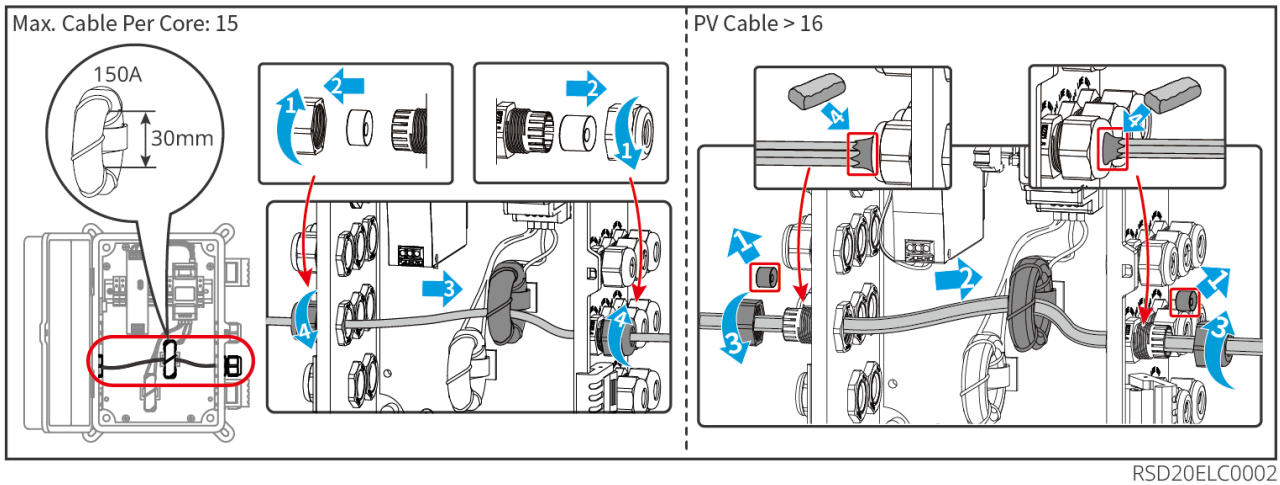
4.5 PV Cable

NOTICE

- A maximum of 15 PV cables are allowed for a single core.
- Remove the rubber plug inside the waterproof gland if more than 16 PV cables are used. After removing the rubber plug, at least 3 PV cables are allowed for a single gland.
- If the rubber plug inside the waterproof gland is removed, apply fireproof mud to the gland to ensure enclosure protection class.
- To avoid personal injury or device damage, please prepare a lock to lock the door after installation and cable connections.



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5 Troubleshooting

If any of the following faults occur, please deal with them as soon as possible to avoid failure of the rapid shutdown function.

No.	Problems	Solutions
1	Inverter Arc Fault	1. Check the wiring between the PV strings and inverters for proper and continuous connections without breakpoints. And check the device for intact appearance, such as deformation or broken. 2. Contact the dealer or installer if there is any deformation or broken. Contact the after-sales service if the appearance is intact and the problem persists after checking the wiring.
2	Abnormal low power generation or PV voltage	1. Check the PV panels to make sure there is no foreign matters, dust, or dirty. 2. Check the voltage and current value per input strings. If the voltage or current value is significantly low, check the wiring between the PV strings and inverters for proper and continuous connections without breakpoints, and check the device for intact appearance, such as deformation or broken. 3. Contact the dealer or installer if there is any deformation or broken. Contact the after-sales service if the appearance is intact and the problem persists after checking the wiring.

No.	Problems	Solutions
3	Failure to turn off the device properly	1.Check if there are other transmitters working in the PV system or attached to the inverter. 2.Check the device for abnormal heat or intact appearance, such as deformation or broken. 3.Contact the dealer or installer if there is any deformation or broken. Contact the after-sales service if the appearance is intact and the problem persists after checking the wiring.
4	Indicators off	1.Check the device for proper power input wiring and AC power supply. 2.Contact the after-sales service if the problem persists after checking the wiring.

6 Technical Parameters

Technical Parameters	GTP-F2L-20	GTP-F2M-20
Main Electrical Data		
Power Supply Input Voltage (Vac)	100~240	200~480
Max.Power Input Current	0.15	0.12
Rated Frequency	50/60 Hz	
Transmitter Input Voltage (Vdc)	12	
Transmitter Input Current (DC) (A)	0.8	
Communication	SunSpec PLC	
Overvoltage Category	AC Category III	
Core Data		
Number of Core	150A Core×2	150A Core×2
Max. Current (A)	150×2	150×2
Max. System Voltage (Vdc)	1500	
Core Line Length (mm/in)	150	
Internal Dimensions / Outside Dimensions (mm)	30/60	
Max Number of Strings In Core*1	30 (Max. 15 Per Core)	30 (Max. 15 Per Core)
Environmental		
Operating Temperature (°C)	-40 - +60	
Relative Humidity	0~100%	
Max.Working Altitude	3000	
Enclosure Environmental Rating	IP65	
Mechanical		
Dimension（W×H×D mm）	253×328×179	
Weight（kg）	2.4	2.8
Mounting Type	Wall Mounted	
Pollution Degree	Third	
Features & Compliance		
Safety Compliance	NEC 2017&2020 (690.12); UL1741; CSA C22.2 No. 330-17	

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