

- ※ Thank you for choosing the TRC series solar charge controller, please read this manual carefully before using the product.
- ※ Do not install the controller in the humid, salt spray, corrosive, greasy, flammable, explosive, dust accumulative or other harsh environments.
- ※ Please keep this manual for future reference.

TRC Series Parallel Operation Guide

1. Applicable Scenarios

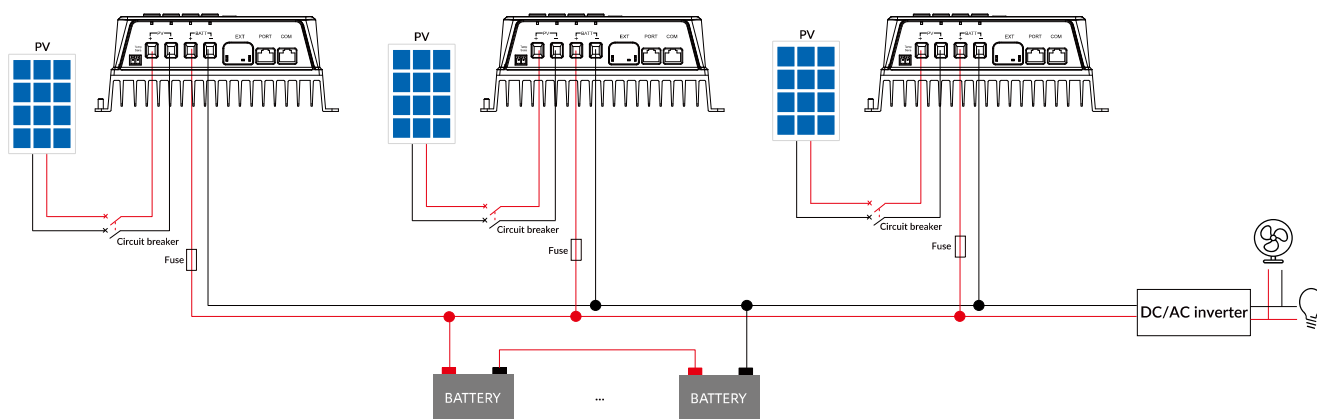
When the single controller of TRC series cannot meet the user's requirements of battery charging power and load power in the battery mode, or cannot meet the user's requirements of load power in the no battery mode, the system power can be increased by connecting multiple controllers of the same model in parallel to meet the application requirements.

Only the models with isolated CAN communication PORT support parallel connection. Other models do not support parallel operation, and parallel connection will damage the controllers.

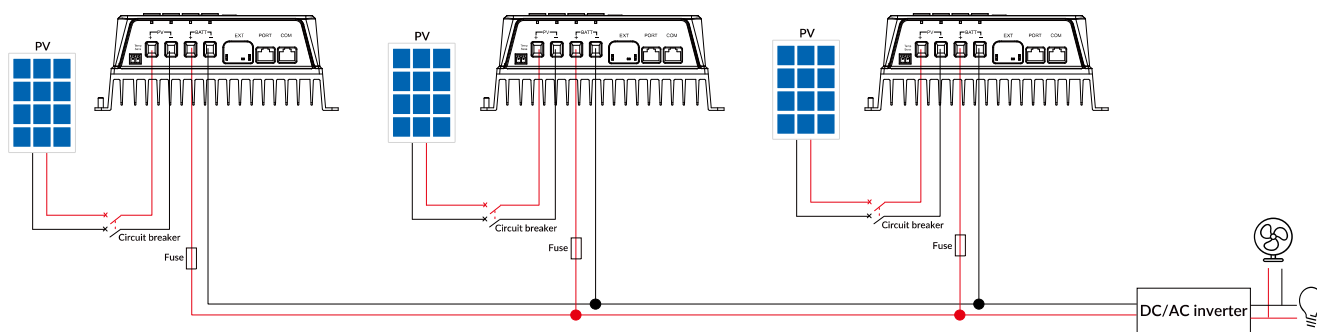
NOTICE

- The controller models in the same parallel system must be exactly the same.
- For stand-alone controller configuration, please refer to the stand-alone controller configuration and connection requirements in the user manual.

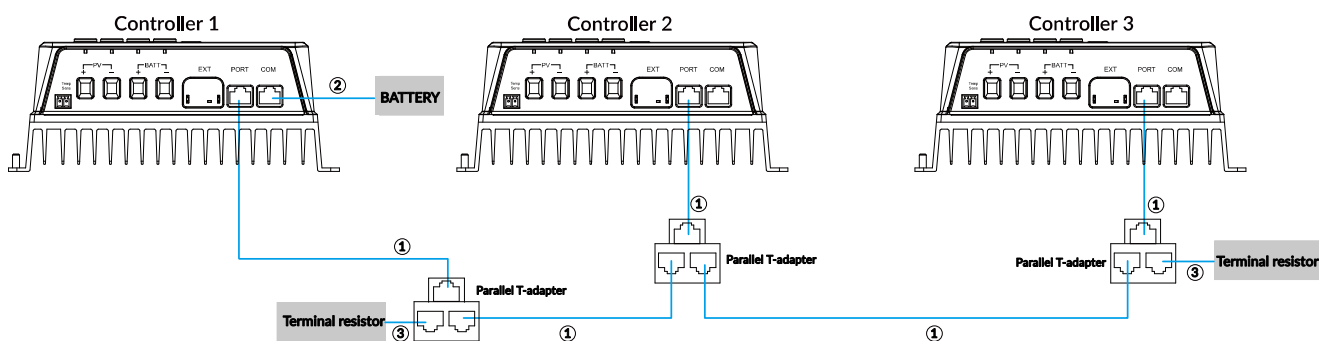
• Connecting PV arrays, batteries and loads (parallel connection in the battery mode)



• Connecting PV arrays and loads (parallel connection in the no battery mode)



• Connecting terminal resistors and parallel communication cables



1. Split controller communication port into dual outputs using optional RJ45 parallel T-adaptor, connected via the optional RS485 communication cable (Model: CC-RJ45-RJ45-120). Connect the parallel communication port of each controller by the optional communication cable (CC-RJ45-RJ45-120).
2. Use a CC-RJ45-RJ45-120 cable or standard network cable with RJ45 pin converter (RJ45 Pin Converter FF-V1.0) for BMS communication connection.
3. Connect the optional terminal resistor (RJ45(4-5)-CAN-R120) on the parallel communication port of the first controller and the last controller.

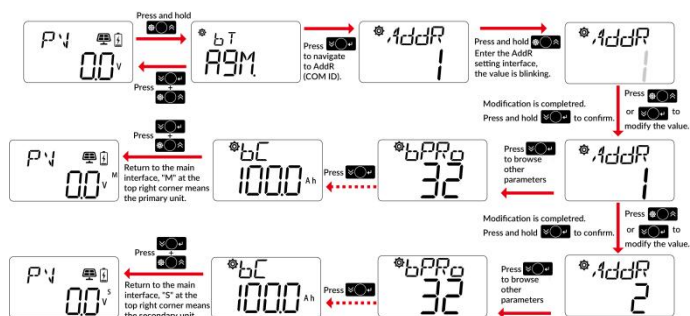
Note: For a parallel system, the required quantity of parallel communication cables is $2N-1$ ($N \leq 3$), along with 2 terminal resistors and the quantity of RJ45 parallel T-adaptors is N , N represents the number of controllers.

2. Commissioning

Step 1: Check the parallel connections again as follows before commissioning the controller.

- Ensure the equipment cables are connected correctly in accordance with wiring diagrams. Don't connect the cables reversely.
- Ensure that there is no crossing between the strong and weak wiring of the equipment connection cables to prevent interference with the parallel communication cables. That is, the parallel communication cables do not cross with the PV, battery input cables or AC output cables, otherwise the equipment parallel communication cable may be interfered.
- Ensure that all circuit breakers on the battery side, load side and PV side are disconnected.

Step 2: Connect the circuit breakers on the battery side to turn on each controller in turn, and modify the "ADDR (Address)" of each controller to a different value through the LCD according to the flowchart below, the controller with the smallest ID is automatically designated as the primary unit (M is displayed on the upper right corner of the LCD), and the others are secondary units (S is displayed on the upper right corner of the LCD).



Note: The "ADDR (Address)" of each parallel controller must be set to a different value. If the ID is repeated, the fault "PIDR (Parallel ID Repetition)" will occur.

Step 3: Select "bT (Battery Type, mandatory), RVL (Rated Voltage Level, mandatory), PMCC (Parallel Battery Max Charging Current, optional)" in any of the parallel controllers, and the other controllers will automatically synchronize the newly set parameter values.

Step 4: Shut down and restart the controller when all parameter settings are complete.

Parameters	Default	User Define
AddR (Address)	1	User define: 1-200, step size: 1 It must be set for parallel communication and cannot be repeated for each parallel controller. Note: The setting range is 1-3 for parallel connection.
bT (Battery Type)	AgM	48V system: AgM, GEL, FLD, LFP15S, LFP16S, LNCM13S, LNCM14S, USER 24V system: AgM, GEL, FLD, LFP8S, LNCM6S, LNCM7S, USER 12V system: AgM, GEL, FLD, LFP4S, LNCM3S, USER
RVL (Rated Voltage Level)	Auto	User define: Auto (auto-recognition), 12V, 24V, 48V Note: After modifying the RVL, restart the controller for the modification to take effect.
PMCC (Parallel Battery Max Charging Current)	200A	Limit the total current for parallel charging. If the setting value of this parameter exceeds the maximum charging current of an individual controller times the quantity of parallel controllers, the parameter is invalid and the system will limit the charging according to the maximum charging current of the individual controller. User define: 100-200A, step size: 10A

3. Parameters Automatic Synchronization

After the controllers are connected in parallel successfully, set the following parameters on any controller, and the other controllers will automatically synchronize the set value of the parameter to avoid repeated settings and improve work efficiency. The parameters that are automatically synchronized by the primary and the secondary units are as follows:

No.	Parameter Name
1	Battery Type
2	Parallel Maximum Charging Current
3	Screen Cycle Time
4	Screen Backlight Time
5	Temperature Unit
6	Use BMS Settings
7	BMS Protocol
8	Low Temperature Charging Limit
9	Lithium Battery Protection
10	Low Battery Alarm SOC
11	Low Battery Alarm Recovery SOC
12	Full Charge Protection Recovery SOC
13	Full Charge Protection SOC
14	Charge and Discharge mode
15	Boost Charging Time
16	Equalize Charging Time
17	Discharging Voltage Limit Voltage
18	Low Voltage Disconnect Voltage
19	Under Voltage Alarm Voltage
20	Under Voltage Alarm Recovery Voltage
21	Low Voltage Reconnect Voltage
22	Boost Voltage Reconnect Voltage
23	Float Charging Voltage
24	Boost Charging Voltage
25	Equalize Charging Voltage
26	Over Voltage Reconnect Voltage
27	Charging Limit Voltage
28	Over Voltage Disconnect Voltage
29	Rated Voltage Level
30	Temp.Compensation Coefficient
31	Battery Capacity

Note: For specific default values and setting range of each parameter, please refer to the controller user manual.

4. Troubleshooting

Error Code	Possible Reasons	Troubleshooting
PIDR	Parallel ID Repetition	Check whether the communication IDs of each parallel equipment is repeated. If the IDs are not repeated and the fault still persists, please contact our technical support.

Note: For other fault codes, possible reasons and troubleshooting, please refer to the controller user manual.

5. Disclaimers

The warranty does not apply to the following conditions:

- Damage caused by improper use or inappropriate environments.
- The actual current/voltage/power of PV module or load exceeds the limit value of the controller.
- Damage caused by operating temperature exceeding the rated temperature range.
- Unauthorized disassembly and maintenance of the controller.
- Damage caused by force majeure.
- Damage occurred during transportation or loading/unloading the controller.

Any changes without prior notice! Version number: V1.1