※ Thank you for choosing the IT-NC G3, IT-NC G3 BLE and ET-NC G3 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.

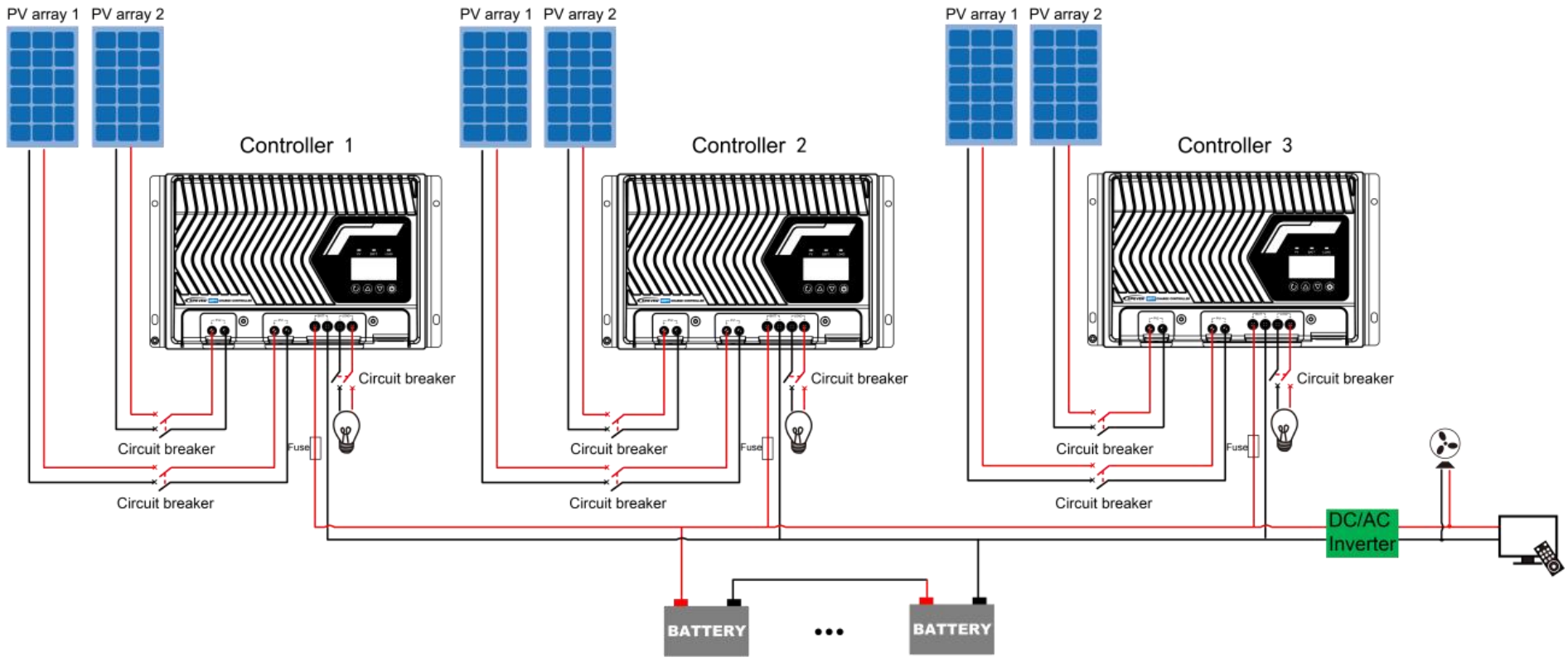
IT(ET)-NC G3 BLE Parallel Connection

1. Applicable Scenarios

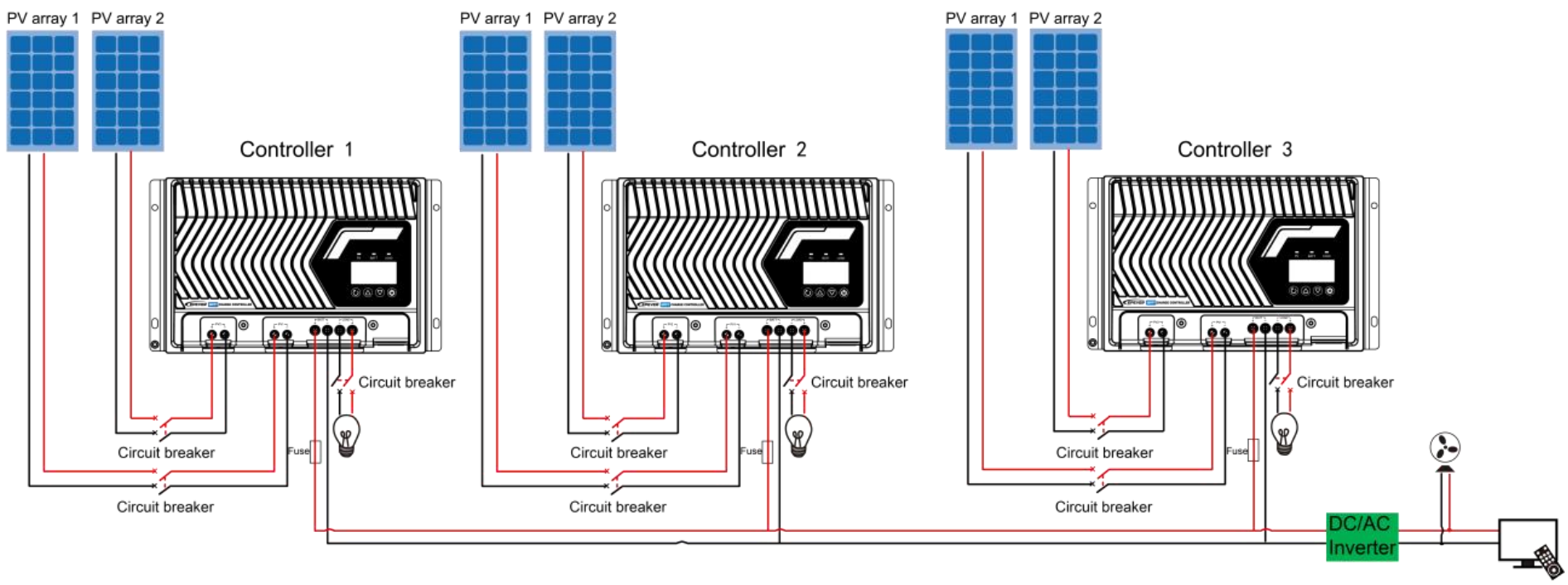
When the single controller of IT-NC G3, IT-NC G3 BLE, ET-NC G3 series cannot meet the user's requirements of battery charging power and load power in the battery mode, or cannot meet the user's requirements of load power in the no battery mode, the system power can be increased by connecting multiple controllers of the same model in parallel to meet the application requirements.

The parallel connection below is illustrated with 3 IT10420 NC G3 controllers, the parallel connection method for other quantity of controllers is similar. **CAUTION: The controller models in the same parallel system must be exactly the same. Note: For stand-alone controller configuration, please refer to the stand-alone controller configuration and connection requirements in the user manual.**

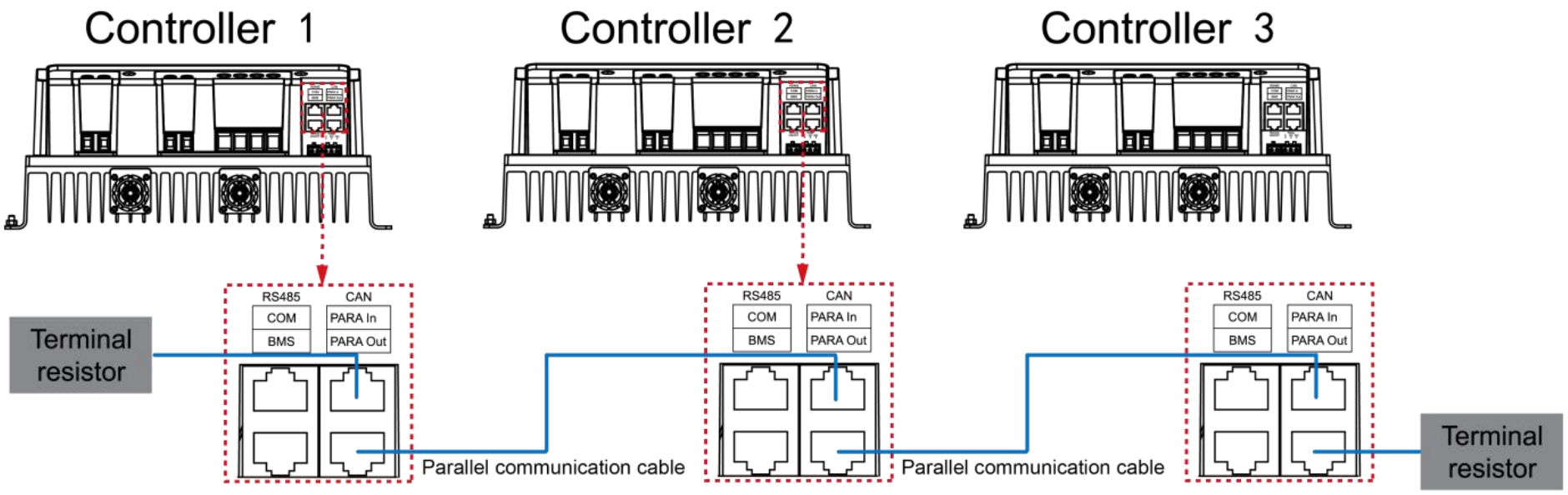
- **Connecting PV arrays, batteries and loads (parallel connection in the battery mode)**



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



- **Connecting terminal resistors and parallel communication cables**



1. Connect the parallel communication port of each controller by the optional communication cable (CC-RJ45-RJ45-120).
2. Connect the optional terminal resistor (RJ45-CAN-R120) on the parallel communication port of the first controller and the last controller.

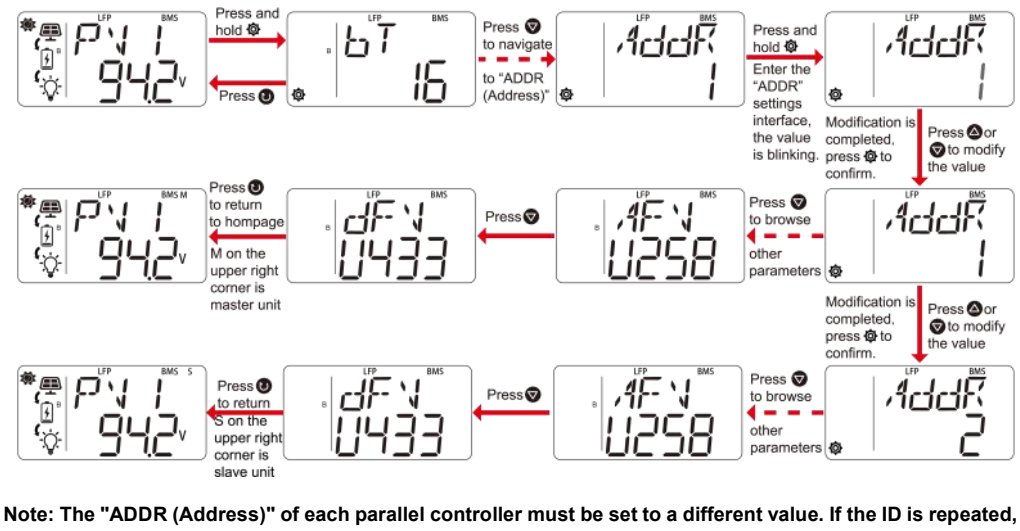
Note: The quantity of parallel communication cables required for a parallel system is N-1 (N ≤ 6), and the quantity of terminal resistors required is 2.
"N" is the quantity of parallel controllers

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 indicates the master unit (M is displayed on the upper right corner of the LCD), and the others are slave 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, small step size: 1, large step size: 10. It must be set for parallel communication and cannot be repeated for each parallel controller. **Note: The setting range is 1-15 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)	0	User define: 0 (auto-recognition), 12V, 24V, 36V, 48V
PMCC (Parallel Battery Max Charging Current)	1,200A	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: 100–1,200A, small step size: 10A, large step size: 100A

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 master and the slave units are as follows:

No.	Parameter	Full Name
1	BT	Battery Type
2	BC	Battery Capacity
3	TCC	Temp.Compensation Coefficient
4	RVL	Rated Voltage Level
5	OVD	Over Voltage Disconnect Voltage
6	CVL	Charging Limit Voltage
7	OVR	Over Voltage Reconnect Voltage
8	ECV	Equalize Charging Voltage
9	BCV	Boost Charging Voltage
10	FCV	Float Charging Voltage
11	BVR	Boost Voltage Reconnect Voltage
12	LVR	Low Voltage Reconnect Voltage
13	UVAR	Under Voltage Alarm Recovery Voltage
14	UVA	Under Voltage Alarm Voltage
15	LVD	Low Voltage Disconnect Voltage
16	DVL	Discharging Voltage Limit Voltage
17	ECT	Equalize Charging Time
18	BCT	Boost Charging Time
20	FCPS	Full Charge Protection SOC
21	FCPR	Full Charge Protection Recovery SOC
22	DPRS★	Discharging Protection Recovery SOC
23	LBAR	Low Battery Alarm Recovery SOC
24	LBAS	Low Battery Alarm SOC
25	DPS★	Discharging Protection SOC
26	LBP	Lithium Battery Protection
27	LTCL	Low Temperature Charging Limit
28	LTDL★	Low Temperature Discharging Limit
31	LCM★	Load Control Mode
32	MMDS★	Manual Mode Default Switch
33	TOND★	Turn-On Delay
34	TOFD★	Turn-Off Delay
35	TCP★	Timing Control Period
36	WDH1★	Working Duration1 (h)
37	WDM1★	Working Duration1 (m)
38	WDH2★	Working Duration2 (h)
39	WDM2★	Working Duration2 (m)
40	NTH★	Night Time (h)
41	NTM★	Night Time (m)
42	BPRO	BMS Protocol
43	UBS	Use BMS Settings
44	SBM	Simulate BMS Mode
48	TU	Temperature Unit
49	SBT	Screen Backlight Time
50	SCT	Screen Cycle Time
51	DRP	Data Record Period
56	PMCC	Parallel Maximum Charging Current

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

★Indicates the parameter is not available for ET-NC G3 series controller.

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!

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