

Isuna U-PH Generator Control User Manual

1. Wiring Instructions

The generator wiring consists of two parts: one part is the control signal line (generator start signal, generator ready signal), and the other part is the high-voltage terminal signal line (generator L1 terminal, generator L2 terminal).

1.1 Control signal line

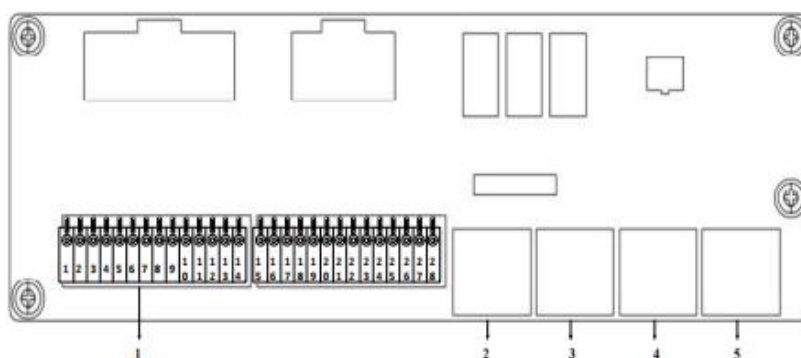


Figure 1-1 External Communication Interface Board Schematic Diagram

Table 1-1: External Communication Interface Board Function Table

number		functionality
1	(1-,2+)	CT_L1_in:Current transformer used in L1 in grid-connected mode for backcurrent detection and power distribution.
	(3-,4+)	CT_L2_in:Current transformer used in L2 in grid-connected mode for backcurrent detection and power distribution.
	(5,6)	Gen_On_Relay:Genset start signal, no polarity
	(7,8)	Gen_Start_Relay:Genset ready signal, no polarity
	(9+,10-)	Temp_Bat1_in:Battery 1 temperature sensor; for voltage correction when using lead-acid batteries
	(11+,12-)	Temp_Bat2_in:Battery 2 temperature sensor; for voltage correction when using lead-acid batteries
	(13+,14-)	RSD_input:13,14:RSD Emergency Stop Switch
	(15+,16-)	RSD_12V_out:RSD output voltage 12V, power 3W

	(17A,18B)	485_Meter:Meter signals
	(19H,20L)	Res_CAN:Reserved CAN signals, not currently used
	(21A,22B)	Res_485:Reserved 485 signals, not currently used
	(23H,24L)	CANA:not currently used
	(25H,26L)	CANA:not currently used
2	BMS1/BMS2	Communication with Li-ion battery BMS
3	LINK1/LIN2	

The generator control signal is controlled by the Gen_On_Relay (5,6) or Gen_Start_Relay (7,8) , and can be selected for use according to Table 1-2.

Table 1-2 Generator control signal status table

state	Gen_On_Relay	Gen_Start_Relay
CLOSE	PN Absorption (1)	PN Disconnect (0)
OPEN	PN Disconnect (0)	PN Absorption (1)

1.2 High-voltage terminal signal line

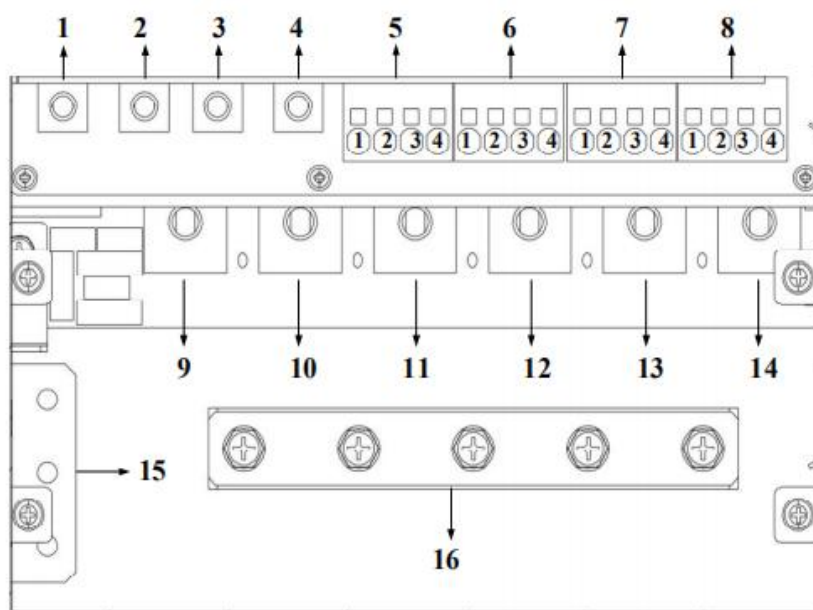


Figure 1-2 Schematic diagram of distribution bin strong terminals

Table 1-3 Distribution bin strong terminals function

number	functionality	number	functionality
1	Battery 1 positive +	9	Load L2 terminal
2	Battery 1 negative-	10	Load L1 terminal
3	Battery 2 negative-	11	Generator L2 terminal
4	Battery 2 positive +	12	Generator L1 terminal
5	PV1(1&2positive+;3&4 negative-)	13	Grid L2 terminal
6	PV2(1&2negative-;3&4positive +)	14	Grid L1 terminal
7	PV3 (1&2 positive +; 3&4 negative -)	15	N-row terminal
8	PV4 (1&2 negative -; 3&4 positive +)	16	PE terminal

The generator has an independent interface. Please connect the generator L1 terminal (serial number 12), the generator L2 terminal (serial number 11), and one of the N-series terminals (serial number 15).

2、Control instructions

2.1 control signal

Table 2-1 APP function setting

Setting name	Value	Instructions
Generator	0: Disable	Disable generator
	1: Enable	Enable generator
	2: Continuously enable	Enable generator
DO	0: Disable	Disable generator
	1: Enable	Enable generator
	2: Heat pump	Disable generator

The generator function is only effective when both of the above signals are met simultaneously.

2.2 Operating signal

Table 2-2 Operation status control instruction table of APP

Setting name	Value	Instructions
Manual Control	0: Disable	Automatic operation mode
	1: Start	Force Start
	2: Stop	Force shutdown
Generator capacity	Actual capacity	U5-U20 model, maximum limiting operating range 48kW
Battery Charging Enable	0: Disable	Prohibit the generator from charging the battery
	1: Enable	Allow the generator to charge the battery
The time of start to charge	00:00~23:59	During automatic operation, the generator is allowed to work for a period of time, with the default being 00:00-00:00, which is valid for the entire day
The time of stop to charge	00:00~23:59	
Regular time to start	00:00~23:59	During automatic operation, the time for the generator to start within the allowed working period of the generator
Regular time to stop	00:00~23:59	During automatic operation, the amount of time the generator is shut down within the allowed operating time period
Min SOC when start generator	Default 20%	During automatic operation, the threshold for the generator to start based on the battery SOC

		is set outside the scheduled start time of the generator within the allowed working time period
Max SOC when stop generator	Default 90%	During automatic operation, within the allowed working time period of the generator and outside the scheduled starting time period of the generator, the generator stops according to the threshold of the battery SOC
Maximum generator running time	Default 10min	During automatic operation, within the permitted generator operating hours, the maximum running time of the generator will not be limited if set to 0
Minimum generator running time	Default 10min	During automatic operation, within the permitted generator operating hours, the minimum running time of the generator will not be limited if set to 0
Minimum generator shutdown time	Default 10min	During automatic operation, within the permitted generator operating hours, after the generator has been shut down, the minimum shutdown time will not be limited if set to 0

Note:

1) All generator start commands must be executed within the permitted working hours. When the permitted working hours end, the generator will shut down. The priority of generator commands is as follows: manual start > permitted working hours > maximum and minimum running time > scheduled start = SOC start && scheduled stop > SOC-based start and stop.

2) The default start SOC for the engine is 20%, and the default stop SOC is 90%; if the time setting is the default 0min or the default 00:00-00:00, it is equivalent to unlimited, with no related restrictions.

3) If currently within the scheduled time period, the SOC stop will not take effect; if currently outside the scheduled time period, the SOC stop will take effect.

4) If the maximum running time is reached within a single scheduled start and stop period, the generator will not restart again due to this time period. However, it will automatically start at the next scheduled start time or when the SOC start conditions are met.

5) Once the working hours and start time are set, they will cycle daily there after.