

# Modbus register address of integrated inverter controller V1.3

Address	Length	Name (English)	Write-read	Magnification	Unit	Display format	With symbol or not	Min value	Max value	Default value	Remarks
<b>P00 Product info area: 0x000A ~ 0x0020 (22W)</b>											
A	1	Maximum voltage and rated charge current supported by the system	R	1	-	%d	No				System voltage 0CH(Decimal12) 14H(Decimal20) 30H(Decimal48) 3CH(Decimal60) Rated charge current 0AH(Decimal10) 24H(Decimal36) 2DH(Decimal45) FFH(Decimal255) 18H(Decimal24) 1EH(Decimal30) 60H(Decimal96) Auto Identification Applicable to controller.
B	1	Product type	R	1	-	%d	No				Product Type 00 (Controller, Home) 01 (Controller, Street lights) 03 (Inverter) 04 (Integrated inverter controller) 05 (Mains frequency off-grid)
C	8	Product model	R	1	-	%s	No				
14	2	Software version	R	1	-	%d	No				0x0014:CPU1 version, such as 100, indicating V1.00 0x0015:CPU2 version, such as 100, indicating V1.00, reserved
16	2	Hardware version	R	1	-	%d	No				0x0016:Control board version, such as 100, indicating V1.00 0x0017:Power board version, such as 100, indicating V1.00, reserved
18	2	Product SN	R	1	-	%x	No				Applicable to controller.
1A	1	Controller, device address	R	1	-	%d	No				Rs485 address
1B	1	Model code	R	1	-	%d	No				
1C	2	RS485 protocol version	R	1	-	%x	No				0x001C: Protocol version, such as 100, indicating V1.00 0x001D:Reserved
1E	2	Date of manufacture	R	1	-	%x	No				0x001E: high 8 bits: year, low 8 bits: month 0x001F: high 8 bits: day, low 8 bits: hour
20	1	Production site code	R	1	-	%x	No				0: Shenzhen 1: Dongguan
21	20	Software compilation time	R	1	-	%s	No				String format, low 8 bits per register valid, high 8 bits invalid.
35	20	Product SN string	R	1	-	%s	No				String format, low 8 bits per register valid, high 8 bits invalid.
49	1	Reserved	R	1	-	%x	No				
<b>P01 Controller data area: 0x0100 to 0x0121 (33W)</b>											
100	1	Battery level SOC	R	1	-	%d	No				Percentage of remaining battery power
101	1	Battery voltage	R	0.1	V	%.1fV	No				Battery voltage, such as 485, indicating 48.5V
102	1	Charge current	R	0.1	A	%.1fA	No				Charge current, current flowing into the battery, such as 500, indicating 50.0A
103	1	Device temperature (controller)/battery temperature	R	1	°C	%d	No				(High 8 bits) controller temperature (Low 8 bits) battery temperature
104	1	Load (DC) voltage	R	0.1	V	%.1fV	No				
105	1	Load (DC) current	R	0.01	A	%.2fA	No				
106	1	Load (DC) power	R	1	W	%d	No				
107	1	PV panel voltage	R	0.1	V	%.1fV	No				PV panel voltage
108	1	PV panel current	R	0.1	A	%.1fA	No				buck controller output inductive current
109	1	PV charge power	R	1	W	%d	No				PV side charge power
10A	1	DC load on/off command	W	1	-	%d	No				1 for on, 0 for off, controller applicable
10B	1	Load status and charge status	R	1	-	%d	No				Low 8 bits: (charge status) 00H: Charging not turned on 01H: Start charge mode 02H:mppt charge mode 03H: Equalizing charge mode 04H: Boost charge mode 05H: Floating charge mode 06H:Current limit (over power) High 8 bits: (only controller valid) b7: Load status (0 means load is off, 1 means load is on) b0~b6: brightness value
10C	2	Controller failure, alarm message	R	1	-	%d	No				Only the controller is valid, see 200-20B for inverter controller fault information B31 Reserved B30: circuit, charge MOS short circuit B29: Anti-reverse MOS short B28: PV panel reversed polarity B27: PV panel operating point over-voltage B26: PV panel counter-current B25:PV input end over-voltage B24:PV input end short circuit B23:PV input power is too high B22:External ambient temperature is too high B21:Controller temperature is too high B20:Load power is too high or load over-current B19:Load short circuit B18:Under-voltage warning B17:Battery over-voltage B16:Battery over-discharge B0~B15 Reserved
10E	1	Charge power	R	1	W	%dW	No				Reserved
10F	1	Reserved	R	1	-	%d	No				Reserved

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<b>P02 Inverter data area: 0x0200 ~ 0x023B (59W)</b>											
200	4	Current fault bits	R	1	-	%x	No				Fault bits, each representing one fault, for a total of 64 bits. This register is used by the internal debug tool.
204	4	Current fault code	R	1	-	%d	No				Current fault code, with 4 addresses in total, each address storing a fault code corresponding to the current fault. 4 fault codes can be displayed simultaneously. 0 indicates no fault. For example, there are currently two faults, battery under-voltage and inverter overload. Then, the following is shown: 0x204: 01 0x205: 14 0x206: 00 0x207: 00
208	4	Reserved	R	2	-	%x	No				Reserved
20C	3	Current time	RW	1	-	%zdt	No				0x020C: high 8 bits: year, low 8 bits: month 0x020D: high 8 bits: day, low 8 bits: hour 0x020E: high 8 bits: minute, low 8 bits: second
20F	1	Reserved									
210	1	Current state of the machine	R	1	-	%d	No				0: Power-up delay 1: Waiting state 2: Initialization 3: Soft start 4: Mains powered operation 5: Inverter powered operation 6: Inverter to mains 7: Mains to inverter 8: Reserved 9: Reserved 10: Shutdown 11: Fault
211	1	Password protection status mark	R	1	-	%d	No				0: No password entered by the user 1: User password has been entered 4: Manufacturer password has been entered
212	1	Bus voltage	R	0.1	V	%.1fV	No				
213	1	Grid voltage	R	0.1	V	%.1fV	No				Mains voltage
214	1	Grid current	R	0.1	A	%.1fA	No				Mains side input current, for 2nd generation machines.
215	1	Grid frequency	R	0.01	Hz	%.2fHz	No				Mains frequency
216	1	Inverter voltage	R	0.1	V	%.1fV	No				Inverter output voltage
217	1	Inverter current	R	0.1	A	%.1fA	No				Inverter inductive current
218	1	Inverter frequency	R	0.01	Hz	%.2fHz	No				
219	1	Load current	R	0.1	A	%.1fA	No				Load side current
21A	1	Load PF	R	0.01	-	%.2f	Yes				
21B	1	Load active power	R	1	W	%dW	No				
21C	1	Load apparent power	R	1	W	%dVA	No				
21D	1	Inverter DC component	R	1	mV	%dmV	Yes				
21E	1	Mains charge current	R	0.1	A	%.1fA	No				Battery side current when charging on mains
21F	1	Load ratio	R	1	%	%d%	No				Load percentage
220	1	Heat sink A temperature	R	0.1	° C	%.2f° C	Yes				DC-DC heat sink temperature
221	1	Heat sink B temperature	R	0.1	° C	%.2f° C	Yes				DC-AC heat sink temperature
222	1	Heat sink C temperature	R	0.1	° C	%.2f° C	Yes				
223	1	Ambient temperature	R	0.1	° C	%.2f° C	Yes				
224	1	PV buck current 1	R	0.1	A	%.1fA	No				Buck current
225	1	buck current 2	R	0.1	A	%.1fA	No				Applicable to 1st generation machines, not to 2nd generation machines.
<b>P03 Device control area: 0xDF00~0xDF1F(32W)</b>											
DF00	1	Power ON/OFF control	W	1	-	%x	No				0: Power off 1: Power on Other: no action
DF01	1	Reset control	W	1	-	%x	No				1: Reset Other: no action
DF02	1	Restore to default settings	W	1	-	%x	No				0xAA: Restore Other: No action Restore to default settings to clear all accumulated information and restore parameters to default state, restart to take effect
DF03	1	Clear current alarm	W	1	-	%x	No				1: Clear Other: no action
DF04	1	Clear statistics	W	1	-	%x	No				1: Clear Other: no action
DF05	1	Clear history	W	1	-	%x	No				1: Clear Other: no action
DF06	2	Firmware upgrade command	W	1	-	%x	No				Firmware upgrade command

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DF08	1	Sleep control/activation command	W	1	-	%x	No				5A5A:sleep A5A5:run
DF09	3	Manual light up switch	W	1	-	%x	No				1:Switch 1 on;0 off 2:Light-up power 0~100% 3:Light-up time 0~ 54000S
DF0C	1	Generator switch command	W	1	-	%x	No				0: No action 1: Switch to power supply by generator
DF0D	1	Immediate equalizing charge command	W	1		%d	No				0:Disable 1:Enable
<b>P05 Battery-related parameters settings area: 0xE001 to 0x023B (59W)</b>											
E000	1	Reserved	RW	1	-	%d	No	0	1	0	
E001	1	PV charge current setup	RW	1	A	%dA	No	0A	100A	80A	PV charge current limit. 1st generation machine 50A, 2nd generation machine 70A.
E002	1	Nominal battery capacity	RW	1	AH	%dAH	No	0AH	400AH	100AH	
E003	1	System voltage setup	RW	1	V	%dV	No	12V	255V	48V	12:12V 24:24V 36:36V 48:48V FF:Auto identification Other: Auto identification
E004	1	Battery type	RW	1	-	%d	No	0	10	3	
E005	1	Over voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	15.5V	Battery overcharge protection, fast protection
E006	1	Limited charge voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	14.4V	Overcharge protection voltage
E007	1	Equalizing charge voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	14.4V	
E008	1	Boost charge voltage/overcharge voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	14.4V	Boost charge for lead acid battery, overcharge voltage for lithium battery
E009	1	Floating charge voltage/overcharge return charge	RW	0.1	V	%.1fV	No	9.0V	15.5V	14.0V	The overcharge return voltage is for the lithium battery, and after charging stops due to overcharge, when the battery voltage is below the judgment point, charging starts again.
E00A	1	Boost charge return voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	13.2V	After the battery enters floating charge, the battery voltage is again below the judgment point and the battery enters the boost charge again.
E00B	1	Over discharge return voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	12.6V	After the battery enters under-voltage protection due to over discharge, return discharge state voltage
E00C	1	Under-voltage warning voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	11.0V	Low battery voltage alarm, load not cut off
E00D	1	Over discharge voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	12.2V	Low battery voltage alarm, load cut off
E00E	1	Limited discharge voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	11.2V	During the battery over-discharge delay, the battery voltage is lower than the judgment point and the load is immediately turned off.
E00F	1	Charge cut-off SOC, discharge cut-off SOC	RW	1	-	%d%	No	0%	100%		(high 8 bits) charge cutoff SOC (low 8 bits) discharge cutoff SOC
E010	1	Over discharge delay time	RW	1	S	%dS	No	0S	120S	60S	
E011	1	Equalizing charge time	RW	1	Min	%dmin	No	0min	600min	120min	Step +10
E012	1	Boost charge time	RW	1	Min	%dmin	No	10min	600min	120min	Step +10
E013	1	Equalizing charge interval	RW	1	day	%dDay	No	0Day	255Day	30Day	
E014	1	Temperature compensation coefficient	RW	1	1mV / °C (or 10uV / °C)	%d	Yes	0	10	5	Only valid for lead-acid battery
E015	1	Charge upper limit temperature	RW	1	°C	%d	Yes	-40°C	100°C	60°C	
E016	1	Charge lower limit temperature	RW	1	°C	%d	Yes	-40°C	100°C	-30°C	
E017	1	Discharge upper limit temperature	RW	1	°C	%d	Yes	-40°C	100°C	60°C	
E018	1	Discharge lower limit temperature	RW	1	°C	%d	Yes	-40°C	100°C	-30°C	
E019	1	Heating start temperature	RW	1	°C	%d	Yes	-40°C	100°C	0°C	Only valid for lead-acid battery, heating at low temperature
E01A	1	Heating stop temperature	RW	1	°C	%d	Yes	-40°C	100°C	5°C	Only valid for lead-acid battery, heating at low temperature
E01B	1	Mains switching voltage	RW	0.1	V	%.1fV	No	9.0V	15.5V	11.5V	Load is switched to mains when the battery voltage is below the judgment point
E01C	1	Stop charging current	RW	0.1	A	%.1fV	No	0.0A	40.0A	0.0A	Only valid for the lithium battery, when the current in the constant voltage charging state is lower than this value, charging is stopped

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E01D	1	DC load working mode	RW	1	-	%d	No	0	0	0	Only valid for controller. 00H Only light control, load on/off by light control 01H Light control to turn on load, and turn off after 1 hour delay 02H Light control to turn on load, and turn off after 2 hours delay 03H Light control to turn on load, and turn off after 3 hours delay 04H Light control to turn on load, and turn off after 4 hours delay 05H Light control to turn on load, and turn off after 5 hours delay 06H Light control to turn on load, and turn off after 6 hours delay 07H Light control to turn on load, and turn off after 7 hours delay 08H Light control to turn on load, and turn off after 8 hours delay 09H Light control to turn on load, and turn off after 9 hours delay 0AH (Decimal 10) Light control to turn on load, and turn off after 10 hours delay 0BH (Decimal 11) Light control to turn on load, and turn off after 11 hours delay 0CH (Decimal 12) Light control to turn on load, and turn off after 12 hours delay 0DH (Decimal 13) Light control to turn on load, and turn off after 13 hours delay 0EH (Decimal 14) Light control to turn on load, and turn off after 14 hours delay 0FH (Decimal 15) Manual mode 10H (Decimal 16) Test mode 11H (Decimal 17) Steady on mode
E01E	1	Light control delay time (household: minutes)	RW	1	Min	%d	No	0min	60min	0	Only valid for controller.
E01F	1	Light control voltage	RW	1	V	%d	No	1V	40V	5V	Only valid for controller.
E020	1	Number of batteries connected in series	RW	1	-	%d	No	1	200	4	Number of lithium batteries connected in series
E021	1	Special power control	RW	1	-	%d	No				Only valid for controller. B10-b15: Not used b9: Not used B8:1 is to enable the function of turning on loads every night, 0 is to disable the function of turning on loads every night b4-b7 not used b3: Battery heating function, 1 on; 0 off b2: No charging at a temperature below zero 1:enable the function of no charging at a temperature below zero, 0:disable the function of no charging at a temperature below zero b0-b1:charging mode 00:direct charging mode,01:PWM charging mode
E022	1	Inverter switching voltage	RW	0.1		%.1fV	No	9.0V	15.5V	14.0V	Switch back to inverter when the battery voltage is higher than the judgment point
E023	1	Equalizing charge timeout time	RW	1	min	%dmin	No	5min	900min	240min	Step +5
E024	1	Lithium battery activation current	RW	0.1	A	%.1fA	No	0	10A	2.5A	
E025	1	Reserved	R	1		%d	No				
<b>P07 Inverter parameters user settings area: 0xE200 ~ 0xE22F (48W)</b>											
E200	1	Inverter 485 address setup	RW	1	-	%d	No	1	254	1	Integers, range: 1~246
E201	1	Baud rate	RW	1	-	%d	No	48	384	96	485 baud rate: default 96 (9600)
E202	1	User password set value	W	1	-	%d	No	0	65535	0	The password is a 4-bit decimal number. No password when it is 0. Keyboard password can be changed via keyboard and communication
E203	1	Password input	W	1	-	%d	No	0	65535	0	
E204	1	Output priority	RW	1	-	%d	No	0	2	1	Output priority: 0: solar 1: line 2: sbu
E205	1	Mains charge current limit	RW	0.1	A	%.1fA	No	0A	100A	80A	Maximum mains charge current limit
E206	1	Equalizing charge enable	RW	1	V	%d	No	0	1	0	
E207	1	Eco threshold	RW	1	W	%dW	No	0W	1000W	25W	
E208	1	Output voltage (default to 220V)	RW	0.1	V	%.1fV	No	100.0V	264.0V	230V	
E209	1	Output frequency (default to 50Hz)	RW	0.01	Hz	%.2fHz	No	45.00Hz	65.00Hz	50.00Hz	
E20A	1	Maximum charge current	RW	0.1	A	%.1fA	No	0.0A	150.0A	100A	
E20B	1	AC input range	RW	1		%d	No	0	1	1	0:wide range 1:narrow range
E20C	1	Eco mode	RW	1		%d	No	0	1	0	0:Disable 1:Enable
E20D	1	Overload auto restart	RW	1		%d	No	0	1	1	0:Disable 1:Enable
E20E	1	Over temperature auto restart	RW	1		%d	No	0	1	1	0:Disable 1:Enable
E20F	1	Charge priority	RW	1		%d	No	0	3	2	0:PV preferred, only start mains charging when PV is not available 1:Mains preferred, only start PV charging when mains is not available 2: Hybrid mode, mains and PV charging at the same time, PV is preferred. 3: PV only, mains does not charge.
E210	1	Alarm control	RW	1		%d	No	0	1	1	0:Disable 1:Enable
E211	1	Alarm enable when input source is interrupted	RW	1		%d	No	0	1	1	0:Disable 1:Enable

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E212	1	Overload bypass enable	RW	1		%d	No	0	1	1	0:Disable 1:Enable
E213	1	Record fault code	RW	1		%d	No	0	1	1	0:Disable 1:Enable
E214	1	Split-phase transformer	RW	1		%d	No	0	1	1	0:Disable 1:Enable
E215	1	Reserved	RW	1		%d	No	0	1	1	

## P08 Power statistics historical data: 0xF000 to 0xF3FF (1023W)

F000	7	Last 7 days historical data of PV power generation	R	1	AH	%d	No				Applicable to 2nd generation machines. F000: Power generation yesterday F001: Power generation the day before yesterday .	
F007	7	Last 7 days historical data of battery charge level	R	1	AH	%d	No					
F00E	7	Last 7 days historical data of battery discharge level	R	1	AH	%d	No					
F015	7	Last 7 days historical data of mains charge level	R	1	AH	%d	No					
F01C	7	Last 7 days historical data of power consumption by load	R	0.1	kwh	%.1fkWh	No					
F023	7	Last 7 days historical data of power consumption by load from mains	R	0.1	kwh	%.1fkWh	No					
F02A	3	Reserved	R	0.1	kwh	%.1fkWh	No					
F02D	1	Battery charge AH of the day	R	1	AH	%d	No					The total battery charge level (AH) of the day, applicable to the 2nd generation machines.
F02E	1	Battery discharge AH of the day	R	1	AH	%d	No					The total battery discharge level (AH) of the day, applicable to the 2nd generation machines.
F02F	1	PV power generation of the day	R	0.1	kWh	%.1fkWh	No					The total PV power generation of the day, applicable to the 2nd generation machines.
F030	1	Load power consumption of the day	R	0.1	kWh	%.1fkWh	No				The total power consumption by load of the day, applicable to the 2nd generation machines.	
F031	1	Total running days	R	1	days	%d	No					
F032	1	Total number of battery overdischarge	R	1	-	%d	No					
F033	1	Total number of battery full charge	R	1	-	%d	No					
F034	2	Accumulated battery charge AH	R	1	AH	%d	No					
F036	2	Accumulated battery discharge AH	R	1	AH	%d	No					
F038	2	Accumulated PV power generation	R	0.1	kWh	%.1fkWh	No					
F03A	2	Accumulated power consumption of load	R	0.1	kWh	%.1fkWh	No					
F03C	1	Mains charge level of the day	R	1	AH	%d	No				Mains charge level AH of the day	
F03D	1	Power consumption by load from mains of the day	R	0.1	kWh	%.1fkWh	No				Repeat with 0x114, modify to Power consumption by load from mains of the day	
F03E	1	Inverter working hours of the day	R	1	min	%dmin	No				Applicable to 2nd generation machines.	
F03F	1	Bypass working hours of the day	R	1	min	%dmin	No				Applicable to 2nd generation machines.	
F040	3	Power on time	R	1		%d	No					
F043	3	Last equalizing charge completion time	R	1		%d	No					
F046	2	Accumulated charge level by mains	R	0.1	kWh	%.1fkWh	No					
F048	2	Accumulated power consumption by load from mains	R	0.1	kWh	%.1fkWh	No				Accumulated power consumption by load from battery	
F04A	1	Accumulated working hours of inverter	R	1	h	%dh	No					
F04B	1	Accumulated working hours of bypass	R	1	h	%dh	No					
F04C	1	Reserved	R	1		%d	No					
F04D	1	Reserved	R	1		%d	No					

## P09 Fault history: 0xF800~0xFFFF

F800	16	Fault record 0	RW	1		%d	No				Each fault record takes up 16 addresses, a total of 16 fault records are stored. Fault record internal data format definition: (defined by internal offset address) <b>0x00:</b> Fault code, specific definition of the fault code can be found in the instruction manual. A value of 0 for the fault code indicates that this fault record is invalid. <b>0x01-0x03:</b> The time when the fault code occurred (there is no time for the 1st generation machines). <b>0x04-0x0F:</b> Data packets captured at the moment of a fault, 12 data in total.
F810	16	Fault record 1	RW	1		%d	No				
F820	16	Fault record 2	RW	1		%d	No				
F830	16	Fault record 3	RW	1		%d	No				
F840	16	Fault record 4	RW	1		%d	No				
F850	16	Fault record 5	RW	1		%d	No				
F860	16	Fault record 6	RW	1		%d	No				
F870	16	Fault record 7	RW	1		%d	No				
F880	16	Fault record 8	RW	1		%d	No				
F890	16	Fault record 9	RW	1		%d	No				



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F8A0	16	Fault record 10	RW	1		%d	No				Each status record takes up 16 addresses, a total of 16 fault records are stored. Fault record internal data format definition: (defined by internal offset address) 0x00: flag data, a value of 0 for flag data means that the fault record is invalid. 0x01~0x03: The time when the status changes (there is no time for the 1st generation machines). 0x04~0x0F: Data packets captured at the moment of status change, 12 data in total.
F8B0	16	Fault record 11	RW	1		%d	No				
F8C0	16	Fault record 12	RW	1		%d	No				
F8D0	16	Fault record 13	RW	1		%d	No				
F8E0	16	Fault record 14	RW	1		%d	No				
F8F0	16	Fault record 15	RW	1		%d	No				
F900	16	Status record 0	RW	1		%d	No				
F910	16	Status record 1	RW	1		%d	No				
F920	16	Status record 2	RW	1		%d	No				
F930	16	Status record 3	RW	1		%d	No				
F940	16	Status record 4	RW	1		%d	No				
F950	16	Status record 5	RW	1		%d	No				
F960	16	Status record 6	RW	1		%d	No				
F970	16	Status record 7	RW	1		%d	No				
F980	16	Status record 8	RW	1		%d	No				
F990	16	Status record 9	RW	1		%d	No				
F9A0	16	Status record 10	RW	1		%d	No				
F9B0	16	Status record 11	RW	1		%d	No				
F9C0	16	Status record 12	RW	1		%d	No				
F9D0	16	Status record 13	RW	1		%d	No				
F9E0	16	Status record 14	RW	1		%d	No				
F9F0	16	Status record 15	RW	1		%d	No				
FA00	1	Reserved	R	1		%d	No				
FA01	1	Reserved	R	1		%d	No				

**P010 END**

Note: 0x0438~0x439 is the online upgrade command entry address.