3 Register Definitions

3.1 Inverter Equipment Register

Table 3-1 Inverter Equipment Register definitions

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
1	Model	RO	STR	N/A	1	30000	15	For details, see 1.1 .
2	SN	RO	STR	N/A	1	30015	10	N/A
3	PN	RO	STR	N/A	1	30025	10	N/A
4	Model ID	RO	U16	N/A	1	30070	1	For details, see 1.1 .
5	Number of PV strings	RO	U16	N/A	1	30071	1	N/A
6	Number of MPP trackers	RO	U16	N/A	1	30072	1	N/A
7	Rated power (P_n)	RO	U32	kW	1000	30073	2	N/A
8	Maximum active power (P_{max})	RO	U32	kW	1000	30075	2	N/A
9	Maximum apparent power (S_{max})	RO	U32	kVA	1000	30077	2	N/A

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
10	Maximum reactive power (Q_{max}, fed to the power grid)	RO	I32	kVar	1000	30079	2	N/A
11	Maximum reactive power (Q_{max}, absorbed from the power grid)	RO	I32	kVar	1000	30081	2	N/A
12	State 1	RO	Bitfield16	N/A	1	32000	1	Bit 0: standby Bit 1: grid-connected Bit 2: grid-connected normally Bit 3: grid connection with derating due to power rationing Bit 4: grid connection with derating due to internal causes of the solar inverter Bit 5: normal stop Bit 6: stop due to faults Bit 7: stop due to power rationing Bit 8: shutdown Bit 9: spot check

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
13	State 2	RO	Bitfield16	N/A	1	32002	1	Bit 0: locking status (0: locked; 1: unlocked) Bit 1: PV connection status (0: disconnected; 1: connected) Bit 2: DSP data collection (0: no; 1: yes)
14	State 3	RO	Bitfield32	N/A	1	32003	2	Bit 0: off-grid (0: on-grid; 1: off-grid) Bit 1: off-grid switch (0: disable; 1: enable)
15	Alarm 1	RO	Bitfield16	N/A	1	32008	1	For details, see **5.1** .
16	Alarm 2	RO	Bitfield16	N/A	1	32009	1	For details, see **5.1** .
17	Alarm 3	RO	Bitfield16	N/A	1	32010	1	For details, see **5.1** .
18	PV1 voltage	RO	I16	V	10	32016	1	A maximum of 24 PV strings are supported. The number of PV strings read by the host is defined by the **Number of PV strings** signal. The voltage and current register addresses for each PV string are as follows: PV*n* voltage: 32014 + 2*n* PV*n* current: 32015 + 2*n*
19	PV1 current	RO	I16	A	100	32017	1	
20	PV2 voltage	RO	I16	V	10	32018	1	
21	PV2 current	RO	I16	A	100	32019	1	
22	PV3 voltage	RO	I16	V	10	32020	1	
23	PV3 current	RO	I16	A	100	32021	1	
24	PV4 voltage	RO	I16	V	10	32022	1	

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
25	PV4 current	RO	I16	A	100	32023	1	*n* indicates the PV string number, which ranges from 1 to 24.
26	Input power	RO	I32	kW	1000	32064	2	N/A
27	Power grid voltage/Line voltage between phases A and B	RO	U16	V	10	32066	1	When the output mode is L/N, L1/L2/N, or L1/L2, **Power grid voltage** is used.
28	Line voltage between phases B and C	RO	U16	V	10	32067	1	When the output mode is L/N, L1/L2/N, or L1/L2, the information is invalid.
29	Line voltage between phases C and A	RO	U16	V	10	32068	1	When the output mode is L/N, L1/L2/N, or L1/L2, the information is invalid.
30	Phase A voltage	RO	U16	V	10	32069	1	When the output mode is L/N, L1/L2/N, or L1/L2, the information is invalid.
31	Phase B voltage	RO	U16	V	10	32070	1	When the output mode is L/N, L1/L2/N, or L1/L2, the information is invalid.
32	Phase C voltage	RO	U16	V	10	32071	1	When the output mode is L/N, L1/L2/N, or L1/L2, the information is invalid.

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
33	Power grid current/ Phase A current	RO	I32	A	1000	32072	2	When the output mode is L/N, L1/L2/N, or L1/L2, **Power grid current** is used.
34	Phase B current	RO	I32	A	1000	32074	2	When the output mode is L/N, L1/L2/N, or L1/L2, the information is invalid.
35	Phase C current	RO	I32	A	1000	32076	2	When the output mode is L/N, L1/L2/N, or L1/L2, the information is invalid.
36	Peak active power of current day	RO	I32	kW	1000	32078	2	N/A
37	Active power	RO	I32	kW	1000	32080	2	N/A
38	Reactive power	RO	I32	kVar	1000	32082	2	N/A
39	Power factor	RO	I16	N/A	1000	32084	1	N/A
40	Grid frequency	RO	U16	Hz	100	32085	1	N/A
41	Efficiency	RO	U16	%	100	32086	1	N/A
42	Internal temperature	RO	I16	℃	10	32087	1	N/A
43	Insulation resistance	RO	U16	MΩ	1000	32088	1	N/A

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
44	Device status	RO	U16	N/A	1	32089	1	0x0000 Standby: initializing 0x0001 Standby: detecting insulation resistance 0x0002 Standby: detecting irradiation 0x0003 Standby: drid detecting 0x0100 Starting 0x0200 On-grid (Off-grid mode: running) 0x0201 Grid connection: power limited (Off-grid mode: running: power limited) 0x0202 Grid connection: self-derating (Off-grid mode: running: self-derating) 0x0203 Off-grid Running 0x0300 Shutdown: fault 0x0301 Shutdown: command 0x0302 Shutdown: OVGR 0x0303 Shutdown: communication disconnected

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
								0x0304 Shutdown: power limited 0x0305 Shutdown: manual startup required 0x0306 Shutdown: DC switches disconnected 0x0307 Shutdown: rapid cutoff 0x0308 Shutdown: input underpower 0x0401 Grid scheduling: cosϕ-P curve 0x0402 Grid scheduling: Q-U curve 0x0403 Grid scheduling: PF-U curve 0x0404 Grid scheduling: dry contact 0x0405 Grid scheduling: Q-P curve 0x0500 Spot-check ready 0x0501 Spot-checking 0x0600 Inspecting 0X0700 AFCI self check 0X0800 I-V scanning 0X0900 DC input detection

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
								0X0A00 Running: off-grid charging 0xA000 Standby: no irradiation
45	Fault code	RO	U16	N/A	1	32090	1	N/A
46	Startup time	RO	U32	N/A	1	32091	2	Epoch seconds, local time
47	Shutdown time	RO	U32	N/A	1	32093	2	Epoch seconds, local time
48	Accumulated energy yield	RO	U32	kWh	100	32106	2	N/A
49	Daily energy yield	RO	U32	kWh	100	32114	2	N/A
50	[Active] Adjustment mode	RO	U16	N/A	1	35300	1	0: percentage 1: fixed value **NOTICE** Addresses 35300 to 35303 need to be read at a time.
51	[Active] Adjustment value	RO	U32	N/A	*	35302	2	Percentage: 0.1% Fixed value: 0.001 kW Note: For details about the adjustment value precision, see the corresponding adjustment command precision.

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
52	[Active] Adjustment command	RO	U16	N/A	1	35303	1	40125: active power derating by percentage (0.1%) 40120: active power derating by fixed value 40126: active power derating by fixed value (W) 42178: maximum active power
53	[Reactive] Adjustment mode	RO	U16	N/A	1	35304	1	0: power factor 1: absolute value 2: Q/S 3: Q-U characteristic curve (command ID: 0) 4: cosϕ-P/P_n characteristic curve (command ID: 0) 5: PF-U characteristic curve (command ID: 0) 6: Q-P characteristic curve (command ID: 0) **NOTICE** Addresses 35304 to 35306 need to be read at a time.

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
54	[Reactive] Adjustment value	RO	U32	N/A	*	35305	2	Power factor: 0.001 Absolute value: 0.001 kVar Q/S: 0.001 Q-U characteristic curve: 0 cosϕ-P/P_n characteristic curve: 0 PF-U characteristic curve: 0 Q-P characteristic curve: 0
55	[Reactive] Adjustment command	RO	U16	N/A	1	35307	1	40122: power factor 40123: Q/S adjustment 40129: reactive power compensation at night (kVar) 42809: reactive power at night Q/S
56	[Power meter collection] Active power*	RO	I32	W	1	37113	2	> 0: feeding power to the power grid < 0: obtaining power from the power grid
57	[Optimizer] Total number of optimizers*	RO	U16	N/A	1	37200	1	N/A
58	[Optimizer] Number of online optimizers*	RO	U16	N/A	1	37201	1	N/A

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
59	[Optimizer] Feature data*	RO	U16	N/A	1	37202	1	N/A
60	System time	RW	U32	N/A	1	40000	2	[946684800, 3155759999] Epoch seconds, local time
61	[Power grid scheduling] Q-U characteristic curve mode*	RW	U16	N/A	1	40037	1	0: non-hysteresis 1: hysteresis
62	[Power grid scheduling] Q-U dispatch trigger power (%)*	RW	U16	%	1	40038	1	[0, 100]
63	[Power grid scheduling] Fixed active power derated	RW	U16	kW	10	40120	1	Scope: [0, P_{max}]
64	[Power grid scheduling] Reactive power compensation (PF)	RW	I16	N/A	1000	40122	1	(–1, –0.8]U[0.8, 1]
65	[Power grid scheduling] Reactive power compensation (Q/S)	RW	I16	N/A	1000	40123	1	[–1, 1] The device converts the value to a fixed value of Q for reactive power control. S indicates S_{max}.
66	[Power grid scheduling] Active power percentage derating (0.1%)	RW	U16	%	10	40125	1	Scope: [0, 100] Interface for fine adjustment of active power

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
67	[Power grid scheduling] Fixed active power derated (W)	RW	U32	W	1	40126	2	Scope: [0, P_{max}]
68	[Power grid scheduling] Reactive power compensation at night (kVar)	RW	I32	kVar	1000	40129	2	[$-Q_{max}$, Q_{max}]
69	[Power grid scheduling] cosϕ-P/P_n characteristic curve	RW	MLD	N/A	1	40133	21	For details, see 5.2 .
70	[Power grid scheduling] Q-U characteristic curve	RW	MLD	N/A	1	40154	21	For details, see 5.2 .
71	[Power grid scheduling] PF-U characteristic curve	RW	MLD	N/A	1	40175	21	For details, see 5.2 .
72	[Power grid scheduling] Reactive power adjustment time	RW	U16	s	1	40196	1	[1, 120]. The default value is 10.
73	[Power grid scheduling] Q-U power percentage to exit scheduling*	RW	U16	%	1	40198	1	[0, 100]
74	Startup	WO	U16	N/A	1	40200	1	N/A
75	Shutdown	WO	U16	N/A	1	40201	1	N/A
76	Grid code	RW	U16	NA	1	42000	1	For details, see 5.3 .

No.	Signal Name	Read/ Write	Type	Unit	Gain	Address	Quantity	Scope
77	[Power grid scheduling] Reactive power change gradient	RW	U32	%/s	1000	42015	2	[0.1, 1000]
78	[Power grid scheduling] Active power change gradient	RW	U32	%/s	1000	42017	2	[0.1, 1000]
79	[Power grid scheduling] Schedule instruction valid duration	RW	U32	s	1	42019	2	[0, 86400] The value 0 indicates that the command is valid permanently.
80	Failsafe Active Power Limit [kW] [High Accuracy]	RW	I32	kW	1000	42405	2	[0.000,Pmax]
81	Time zone	RW	I16	min	1	43006	1	[–720, 840]
82	Fast power scheduling	RW	U16	N/A	N/A	45086	1	0: Disable 1: Enable

NOTICE

Signals marked with * are supported only by certain models or standard codes.

