

H3/AIO-H3 Hybrid Inverter MODBUS Protocol



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1. Protocol description

This protocol is to solve the data communication between PCS and monitoring platform, complete data transmission and data decoding, and realize the two-way communication function.

2. Communication Parameters

2.1. Basic parameters of communication

MODBUS protocol based on RS485 communication is suitable for all equipment communication with host computer or external communication.

Comm paras	Setting value
Band Rate	9600bps
Data length	8bits
parity	none
Stop bits	1bit

2.2. Protocol Format

2.2.1 Single write register

Slave Address	Function code	Reg address	data	CRC
0xF7	0x06	2 Bytes	2 Bytes	2 Bytes

Data Format Description:

- a) Slave Address: 0xF7
- b) Function code: 0x06
- c) Reg address: The address of the first register to be operated on.
- d) data: Data written to a register.

e) CRC: MODBUS CRC16 Checksum, low before high after, without data frame header

2.2.2 Chip write register

Slave Address	Function code	Reg address	Reg number	Data length	data	CRC
0xF7	0x10	2 Bytes	2 Bytes	1 Bytes	2 Bytes	2 Bytes

Data Format Description:

Slave Address: 0xF7

Function code: 0x10

Reg address: The address of the first register to be operated on.

Reg number: The number of registers operated on

Date length: The length of data written to a register.

data: Data written to a register.

CRC: MODBUS CRC16 Checksum, low before high after, without data frame header

2.2.3 read Register

Slave Address	Function coe	Reg address	Reg number	CRC
0xF7	0x03	2 Bytes	2 Bytes	2 Bytes

Data Format Description:

a) Slave Address: 0xF7

b) Function code: 0x03

c) Reg address: The address of the first register to be operated on.

d) Reg number: The number of registers operated on.

e) CRC: MODBUS CRC16 Checksum, low before high after, without data frame header

2.3. Register data description

Signal Name	Read/Write	Type	Unit	Gain	Address	Quantity	Scope
Model	RO	STR	N/A	1	30000	16	
Firmware Master	RO	U16	N/A	1	30016	1	
Firmware Slave	RO	U16	N/A	1	30017	1	
Firmware Manager	RO	U16	N/A	1	30018	1	
Firmware Battery Master	RO	U16	N/A	1	30019	1	
Firmware Battery Slave1	RO	U16	N/A	1	30020	1	
Firmware Battery Slave2	RO	U16	N/A	1	30021	1	
Firmware Battery Slave3	RO	U16	N/A	1	30022	1	
Firmware Battery Slave4	RO	U16	N/A	1	30023	1	
Firmware Battery Slave5	RO	U16	N/A	1	30024	1	
Firmware Battery Slave6	RO	U16	N/A	1	30025	1	
Firmware Battery Slave7	RO	U16	N/A	1	30026	1	
Firmware Battery Slave8	RO	U16	N/A	1	30027	1	
Modbus Procotol Version	RO	U16	N/A	1	30100	1	
PV1 voltage	RO	I16	V	10	31000	1	
PV1 current	RO	I16	A	10	31001	1	

PV1 power	RO	I16	W	1	31002	1	
PV2 voltage	RO	I16	V	10	31003	1	
PV2 current	RO	I16	A	10	31004	1	
PV2 power	RO	I16	W	1	31005	1	
Grid voltageR	RO	U16	V	10	31006	1	
Grid voltageS	RO	U16	V	10	31007	1	
Grid voltageT	RO	U16	V	10	31008	1	
Inv currentR	RO	I16	A	10	31009	1	
Inv currentS	RO	I16	A	10	31010	1	
Inv currentT	RO	I16	A	10	31011	1	
Inv powerR	RO	I16	W	1	31012	1	
Inv powerS	RO	I16	W	1	31013	1	
Inv powerT	RO	I16	W	1	31014	1	
Grid Frequency	RO	U16	Hz	100	31015	1	Only L1 phase
Eps voltageR	RO	U16	V	10	31016	1	
Eps voltageS	RO	U16	V	10	31017	1	
Eps voltageT	RO	U16	V	10	31018	1	
Eps currentR	RO	I16	A	10	31019		
Eps currentS	RO	I16	A	10	31020		
Eps currentT	RO	I16	A	10	31021	1	
Eps powerR	RO	I16	W	1	31022	1	
Eps powerS	RO	I16	W	1	31023		
Eps powerT	RO	I16	W	1	31024		
Eps Frequency	RO	U16	Hz	100	31025	1	Only L1 phase
Meter powerR	RO	I16	W	1	31026	1	
Meter powerS	RO	I16	W	1	31027	1	
Meter powerT	RO	I16	W	1	31028	1	
Load powerR	RO	I16	W	1	31029	1	
Load powerS	RO	I16	W	1	31030	1	
Load powerT	RO	I16	W	1	31031	1	
Inverter temperature	RO	I16	°C	10	31032	1	
Internal temperature	RO	I16	°C	10	31033	1	
Battery voltage	RO	I16	V	10	31034	1	
Battery current	RO	I16	A	10	31035	1	
Battery power	RO	I16	W	1	31036	1	
Battery temperature	RO	I16	°C	10	31037	1	
SoC	RO	U16	%	1	31038	1	
Maximum charge current	RO	U16	A	10	31039	1	

Maximum discharge current	RO	U16	A	10	31040	1	
Inverter state	RO	U16	N/A	1	31041	1	0: waiting 1: selfcheck 2: ongrid 3: EPS 4, 5: fault 8: idlestate
BMS connect state	RO	U16	N/A	1	31042	1	
Meter connect state	RO	U16	N/A	1	31043	1	
Fault 1	RO	Bitfield16	N/A	1	31044	1	
Fault 2	RO	Bitfield16	N/A	1	31045	1	
Fault 3	RO	Bitfield16	N/A	1	31046	1	
Fault 4	RO	Bitfield16	N/A	1	31047	1	
Fault 5	RO	Bitfield16	N/A	1	31048	1	
Fault 6	RO	Bitfield16	N/A	1	31049	1	
Fault 7	RO	Bitfield16	N/A	1	31050	1	
Fault 8	RO	Bitfield16	N/A	1	31051	1	
Total PV energy	RO	U32	KWh	10	32000	2	
Today PV energy	RO	U16	KWh	10	32002	1	
Total charge energy	RO	U32	KWh	10	32003	2	
Today charge energy	RO	U16	KWh	10	32005	1	
Total discharge energy	RO	U32	KWh	10	32006	2	
Today discharge energy	RO	U16	KWh	10	32008	1	
Total feed-in energy	RO	U32	KWh	10	32009	2	
Today	RO	U16	KWh	10	32011	1	

feed-in energy							
Total Consumption energy	RO	U32	KWh	10	32012	2	
Today Consumption energy	RO	U16	KWh	10	32014	1	
Total output energy	RO	U32	KWh	10	32015	2	
Today output energy	RO	U16	KWh	10	32017	1	
Total input energy	RO	U32	KWh	10	32018	2	
Today input energy	RO	U16	KWh	10	32020	1	
Total load energy	RO	U32	KWh	10	32021	2	
Today load energy	RO	U16	KWh	10	32023	1	
Remote power control Enable	RW	U16	N/A	1	44000	1	
Remote power control timeout	RW	U16	s	1	44001	1	
Remote control-Active power command	RW	I32	W	1	44002-- 44003	1	Negative value represents discharge and positive value represents charging
Remote control-reactive power command	RW	I32	VA	1	44004 44005	1	

