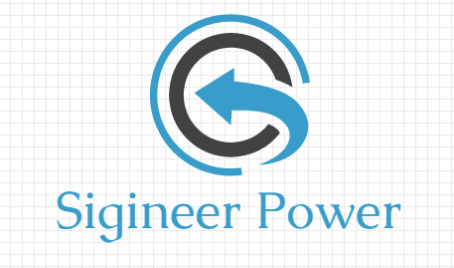
MODBUS PROTOCOL OF ON OFF GRID INVERTER

Model # : 3KHD

History Revision:

1	**Ver1.6**	**Adjust some register**	2016-06-03	



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1 GENERAL DESCRIPTION

1.1 Protocol description

MODBUS is an application layer messaging protocol for client/server communication between devices connected on different types of buses or networks. MODBUS is a request/reply protocol and offers services specified by function codes, The Internet community can access MODBUS at a reserved system port 502 on the TCP/IP stack, or asynchronous serial transmission over a variety of media(RS485 etc).

1.2 Interface

RS485	asynchronous, half-duplex
Baud Rate	1200bps, **2400bps(default)**, 4800bps, 9600bps
Length	8bit On RTU Mode
Parity	Even, Odd or No parity
Stop	1 Stop Bit

1.3 Message structure

MODBUS RTU Mode

The MODBUS RTU mode of operation is somewhat similar to the ASCII mode.In this case however, the bytes of data to be sent are not converted to printable ASCII characters. Instead, each byte is transmitted exactly with no encoding. In the RTU mode of operation the first byte of a message is defined to be the first byte received after a 3.5 character time elapse between characters. The LRC error check is replaced by a 16-bit CRC word followed by at least 3.5 character time of inactivity. Figure2 shows the general format of a RTU message exchange between a host and the Comm-Troller.

>3.5 Character time	MODBUS Address	Function Code	Data As Required	CRC	
>3.5 Character time	MODBUS Address	Function Code	Data As Required	CRC	3.5 Character time MARK

Figure2 MODBUS RTU Message

1.4 MODBUS Exception Responses

When a client device sends a request to a server device it expects a normal response. One of four possible events can occur from the master's query:

- If the server device receives the request without a communication error, and canhandle the query normally, it returns a normal response.
- If the server does not receive the request due to a communication error, no response is returned. The client program will eventually process a timeout condition for the request.
- If the server receives the request, but detects a communication error (parity, LRC, CRC, ...), no response is returned. The client program will eventually process a timeout condition for the request.
- If the server receives the request without a communication error, but cannot handle it (for example, if the request is to read a non–existent output or register), the server will return an exception response informing the client of the nature of the error.

The exception response message has two fields that differentiate it from a normal response:

Function Code Field: In a normal response, the server echoes the function code of the original request in the function code field of the response. All function codes have a most–significant bit (MSB) of 0 (their values are all below 80 hexadecimal). In an exception response, the server sets the MSB of the function code to 1. This makes the function code value in an exception response exactly 80 hexadecimal higher than the value would be for a normal response.

With the function code's MSB set, the client's application program can recognize theexception response and can examine the data field for the exception code.

Data Field: In a normal response, the server may return data or statistics in the data field(any information that was requested in the request). In an exception response, the server returns an exception code in the data field. This defines the server condition that caused the exception.

Example of a client request and server exception response:

Request		**Response**	
Field Name	*(Hex)*	Field Name	(Hex)
Function	**01**	Function	**81**
Starting Address Hi	**04**	Exception Code	**02**
Starting Address Lo	**A1**		
Quantity of Outputs Hi	**00**		
Quantity of Outputs Lo	**01**		

In this example, the client addresses a request to server device. The function code (01) is for a Read Output Status operation. It requests the status of the output at address 1185 (04A1 hex). Note that only that one output is to be read, as specified by the number of outputs field (0001).

If the output address is non–existent in the server device, the server will return the exception response with the exception code shown (02). This specifies an illegal data address for the slave.

A listing of exception codes:

code	name	meaning
01	ILLEGAL FUNCTION	The function code received in the query is not an allowable action for the server (or slave).
02	ILLEGAL DATA ADDRESS	The data address received in the query is not an allowable address for the server (or slave).
03	ILLEGAL DATA VALUE	A value contained in the query data field is not an allowable value for server (or slave).
04	SLAVE DEVICE FAILURE	An unrecoverable error occurred while the server (or slave) was attempting to perform the requested action.

1.5 Function codes

Code	meaning
0x02	Read Discrete Inputs
0x04	Read Input Registers
0x06	Write Single Register
0x10	Write Multiple registers

2 MODBUS ADDRESS MAPPING

2.1 Read Input Registers(0x04)

2.1.1 Inverter parameters (0x0000-0x007C)

Address		content	Data length	note		
HEX	DEC			unit	ratio	remark
0x0000	0	Ambient temperature	2bytes	℃	0.1	/
0x0001	1	Master Version	2bytes	/	0.01	1234 equate to V12.34
0x0002	2	Year, month,	2bytes	/	/	High of 12, low of 05
0x0003	3	Date, time	2bytes	/	/	30 high for the day, too low 9
0x0004	4	Minutes, seconds	2bytes	/	/	High of 51 minutes, 39 seconds low
0x0005	5	Battery status	2bytes	/	/	0 : None 1 : SelfTest 2 : Floating 3 : Equalized Charging 4 : Discharging 5 : Charg OK 6 : Waiting for charg
0x0006	6	Battery voltage	2bytes	V	0.1	
0x0007	7	Battery current	2bytes	A	0.1	
0x0008	8	Input frequency	2bytes	Hz	0.01	
0x0009	9	Input voltage	2bytes	V	0.1	
0x000A	10	Input Appa.P A	2bytes	VA	1	
0x000B	11	Input Acti.P	2bytes	W	1	
0x000C	12	Inverter frequency	2bytes	Hz	0.01	
0x000D	13	Inverter voltage	2bytes	V	0.1	
0x000E	14	Inverter current	2bytes	A	0.1	
0x000F	15	Inverter Acti.P	2bytes	W	1	
0x00010	16	PV voltage	2bytes	V	0.1	
0x00011	17	PV current	2bytes	A	0.1	
0x00012	18	PV Power	2bytes	W	1	
0x00013	19	Bus voltage	2bytes	V	0.1	
0x00014	20	System generating capacity low	2bytes	KWH	0.01	
0x00015	21	System generating capacity high	2bytes	KWH	0.01	
0x00016	22	System total generating capacity low	2bytes	KWH	0.01	
0x00017	23	System total generating capacity high	2bytes	KWH	0.01	
0x00018	24	Load voltage	2bytes	V	0.1	

0x00019	25	Load current	2bytes	A	0.1	
0x0001A	26	Load Acti.P	2bytes	W	1	
0x0001B	27	Load Appa.P	2bytes	VA	1	
0x0001C	28	Load Percentage	2bytes	%	0.1	
0x0001D	29	Reserved	2bytes	/	/	
0x0001E	30	Reserved	2bytes	/	/	
0x0001F	31	Reserved	2bytes	/	/	
0x00020	32	Reserved	2bytes	/	/	
0x00021	33	SOC	2bytes	%	1	Optional
0x00022	34	Reserved	2bytes	/	/	
0x00023	35	Reserved	2bytes	/	/	
0x00024	36	Reserved	2bytes	/	/	
0x00025	37	Reserved	2bytes	/	/	
0x00026	38	Reserved	2bytes	/	/	
0x00027	39	Reserved	2bytes	/	/	
0x00028	40	Reserved	2bytes	/	/	
0x00029	41	Reserved	2bytes	/	/	
0x0002A	42	Reserved	2bytes	/	/	
0x0002B	43	Reserved	2bytes	/	/	
0x0002C	44	Reserved	2bytes	/	/	
0x0002D	45	Reserved	2bytes	/	/	
0x0002E	46	Reserved	2bytes	/	/	
0x0002F	47	Reserved	2bytes	/	/	
0x00030	48	Reserved	2bytes	/	/	
0x00031	49	Reserved	2bytes	/	/	
0x00032	50	Reserved	2bytes	/	/	
0x00033	51	Reserved	2bytes	/	/	
0x00034	52	Reserved	2bytes	/	/	
0x00035	53	Reserved	2bytes	/	/	
0x00036	54	Reserved	2bytes	/	/	
0x00037	55	Reserved	2bytes	/	/	
0x00038	56	Reserved	2bytes	/	/	
0x00039	57	Reserved	2bytes	/	/	
0x0003A	58	Reserved	2bytes	/	/	
0x0003B	59	Reserved	2bytes	/	/	
0x0003C	60	Reserved	2bytes	/	/	
0x0003D	61	Reserved	2bytes	/	/	
0x0003E	62	Reserved	2bytes	/	/	
0x0003F	63	Reserved	2bytes	/	/	
0x00040	64	Reserved	2bytes	/	/	
0x00041	65	Reserved	2bytes	/	/	
0x00042	66	Reserved	2bytes	/	/	
0x00043	67	Reserved	2bytes	/	/	

0x00044	68	Reserved	2bytes	/	/	
0x00045	69	Reserved	2bytes	/	/	
0x00046	70	Reserved	2bytes	/	/	
0x00047	71	Reserved	2bytes	/	/	
0x00048	72	Reserved	2bytes	/	/	
0x00049	73	Reserved	2bytes	/	/	
0x0004A	74	Reserved	2bytes	/	/	
0x0004B	75	Reserved	2bytes	/	/	
0x0004C	76	Reserved	2bytes	/	/	
0x0004D	77	Reserved	2bytes	/	/	
0x0004E	78	Reserved	2bytes	/	/	
0x0004F	79	Reserved	2bytes	/	/	
0x00050	80	Reserved	2bytes	/	/	
0x00051	81	Reserved	2bytes	/	/	
0x00052	82	Reserved	2bytes	/	/	
0x00053	83	Reserved	2bytes	/	/	
0x00054	84	Reserved	2bytes	/	/	
0x00055	85	Reserved	2bytes	/	/	
0x00056	86	Reserved	2bytes	/	/	
0x00057	87	Reserved	2bytes	/	/	
0x00058	88	Reserved	2bytes	/	/	
0x00059	89	Reserved	2bytes	/	/	
0x0005A	90	Reserved	2bytes	/	/	
0x0005B	91	Reserved	2bytes	/	/	
0x0005C	92	Reserved	2bytes	/	/	
0x0005D	93	Reserved	2bytes	/	/	
0x0005E	94	Reserved	2bytes	/	/	
0x0005F	95	Reserved	2bytes	/	/	
0x00060	96	Reserved	2bytes	/	/	
0x00061	97	Reserved	2bytes	/	/	
0x00062	98	Reserved	2bytes	/	/	
0x00063	99	Reserved	2bytes	/	/	
0x00064	100	Reserved	2bytes	/	/	
0x00065	101	Reserved	2bytes	/	/	
0x00066	102	Reserved	2bytes	/	/	
0x00067	103	Reserved	2bytes	/	/	
0x00068	104	Reserved	2bytes	/	/	
0x00069	105	Reserved	2bytes	/	/	
0x0006A	106	Reserved	2bytes	/	/	
0x0006B	107	Reserved	2bytes	/	/	
0x0006C	108	Reserved	2bytes	/	/	
0x0006D	109	Reserved	2bytes	/	/	
0x0006E	110	Reserved	2bytes	/	/	

0x0006F	111	Reserved	2bytes	/	/	
0x00070	112	Reserved	2bytes	/	/	
0x00071	113	Reserved	2bytes	/	/	
0x00072	114	Reserved	2bytes	/	/	
0x00073	115	Reserved	2bytes	/	/	
0x00074	116	Reserved	2bytes	/	/	
0x00075	117	Reserved	2bytes	/	/	
0x00076	118	Reserved	2bytes	/	/	
0x00077	119	Reserved	2bytes	/	/	
0x00078	120	Reserved	2bytes	/	/	
0x00079	121	Reserved	2bytes	/	/	
0x0007A	122	Reserved	2bytes	/	/	
0x0007B	123	Reserved	2bytes	/	/	
0x0007C	124	Reserved	2bytes	/	/	

2.2 Read Discrete Inputs(0x02)

Address		ALRAM/FAULT	length
HEX	DEC		
0x0000	0	Reserved	1 bit
0x0001	1	Reserved	1 bit
0x0002	2	Reserved	1 bit
0x0003	3	Reserved	1 bit
0x0004	4	Reserved	1 bit
0x0005	5	Reserved	1 bit
0x0006	6	Reserved	1 bit
0x0007	7	Reserved	1 bit
0x0008	8	Reserved	1 bit
0x0009	9	Reserved	1 bit
0x000A	10	Reserved	1 bit
0x000B	11	Reserved	1 bit
0x000C	12	Reserved	1 bit
0x000D	13	Reserved	1 bit
0x000E	14	Reserved	1 bit
0x000F	15	Reserved	1 bit
0x00010	16	Reserved	1 bit
0x00011	17	Reserved	1 bit
0x00012	18	Reserved	1 bit
0x00013	19	Reserved	1 bit
0x00014	20	Reserved	1 bit
0x00015	21	Reserved	1 bit
0x00016	22	Reserved	1 bit
0x00017	23	Reserved	1 bit
0x00018	24	Reserved	1 bit
0x00019	25	Reserved	1 bit
0x0001A	26	Reserved	1 bit
0x0001B	27	Reserved	1 bit
0x0001C	28	Reserved	1 bit
0x0001D	29	Reserved	1 bit
0x0001E	30	Reserved	1 bit
0x0001F	31	Reserved	1 bit
0x00020	32	Reserved	1 bit
0x00021	33	Reserved	1 bit
0x00022	34	Reserved	1 bit
0x00023	35	Reserved	1 bit
0x00024	36	Reserved	1 bit

0x00025	37	Reserved	1 bit
0x00026	38	Reserved	1 bit
0x00027	39	Reserved	1 bit
0x00028	40	Reserved	1 bit
0x00029	41	Reserved	1 bit
0x0002A	42	Reserved	1 bit
0x0002B	43	Reserved	1 bit
0x0002C	44	Reserved	1 bit
0x0002D	45	Reserved	1 bit
0x0002E	46	Reserved	1 bit
0x0002F	47	Reserved	1 bit
0x00030	48	Reserved	1 bit
0x00031	49	Reserved	1 bit
0x00032	50	Reserved	1 bit
0x00033	51	Reserved	1 bit
0x00034	52	Reserved	1 bit
0x00035	53	Reserved	1 bit
0x00036	54	Reserved	1 bit
0x00037	55	Reserved	1 bit
0x00038	56	Reserved	1 bit
0x00039	57	Reserved	1 bit
0x0003A	58	Reserved	1 bit
0x0003B	59	Reserved	1 bit
0x0003C	60	Reserved	1 bit
0x0003D	61	Reserved	1 bit
0x0003E	62	Reserved	1 bit
0x0003F	63	Reserved	1 bit
0x00040	64	Reserved	1 bit
0x00041	65	Reserved	1 bit
0x00042	66	Battery None	1 bit
0x00043	67	PV None	1 bit
0x00044	68	Reserved	1 bit
0x00045	69	Bus Under Voltage	1 bit
0x00046	70	Bus Over Voltage	1 bit
0x00047	71	Reserved	1 bit
0x00048	72	Grid Over Voltage	1 bit
0x00049	73	Grid Under Voltage	1 bit
0x0004A	74	Grid Over Current	1 bit
0x0004B	75	Grid Over Frequency	1 bit
0x0004C	76	Grid Under Frequency	1 bit
0x0004D	77	INV DC Over Level	1 bit

0x0004E	78	Over Load 110%	1 bit
0x0004F	79	Over Load 125%	1 bit
0x00050	80	Reserved	1 bit
0x00051	81	Reserved	1 bit
0x00052	82	Reserved	1 bit
0x00053	83	Reserved	1 bit
0x00054	84	Reserved	1 bit
0x00055	85	Reserved	1 bit
0x00056	86	Over Load 150%	1 bit
0x00057	87	Over Load 170%	1 bit
0x00058	88	Reserved	1 bit
0x00059	89	Reserved	1 bit
0x0005A	90	Reserved	1 bit
0x0005B	91	Reserved	1 bit
0x0005C	92	Reserved	1 bit
0x0005D	93	Reserved	1 bit
0x0005E	94	PV Reverse	1 bit
0x0005F	95	Battery Over Current	1 bit
0x00060	96	Grid None	1 bit
0x00061	97	Islanding	1 bit
0x00062	98	Bus Fault Hard	1 bit
0x00063	99	Battery Over Voltage	1 bit
0x00064	100	Battery Under Voltage	1 bit
0x00065	101	Reserved	1 bit
0x00066	102	Reserved	1 bit
0x00067	103	Reserved	1 bit
0x00068	104	Reserved	1 bit
0x00069	105	Reserved	1 bit
0x0006A	106	Reserved	1 bit
0x0006B	107	Reserved	1 bit
0x0006C	108	Reserved	1 bit
0x0006D	109	ISO Fault	1 bit
0x0006E	110	Reserved	1 bit
0x0006F	111	Reserved	1 bit
0x00070	112	Reserved	1 bit
0x00071	113	Reserved	1 bit
0x00072	114	Reserved	1 bit
0x00073	115	INV Over Voltage	1 bit
0x00074	116	INV Under Voltage	1 bit
0x00075	117	Reserved	1 bit
0x00076	118	Reserved	1 bit

0x00077	119	Reserved	1 bit
0x00078	120	Reserved	1 bit
0x00079	121	Reserved	1 bit
0x0007A	122	Reserved	1 bit
0x0007B	123	Reserved	1 bit
0x0007C	124	Reserved	1 bit
0x0007D	125	Reserved	1 bit
0x0007E	126	Reserved	1 bit
0x0007F	127	Reserved	1 bit
0x00080	128	Reserved	1 bit
0x00081	129	Reserved	1 bit
0x00082	130	Reserved	1 bit
0x00083	131	Reserved	1 bit
0x00084	132	Reserved	1 bit
0x00085	133	Reserved	1 bit
0x00086	134	Reserved	1 bit
0x00087	135	Reserved	1 bit
0x00088	136	Boost-1 Over Current Soft	1 bit
0x00089	137	Reserved	1 bit
0x0008A	138	Reserved	1 bit
0x0008B	139	Reserved	1 bit
0x0008C	140	PV Over Voltage	1 bit
0x0008D	141	Reserved	1 bit
0x0008E	142	Bus Soft Start Fail	1 bit
0x0008F	143	Bus Over Voltage Hard	1 bit
0x00090	144	Reserved	1 bit
0x00091	145	Reserved	1 bit
0x00092	146	Reserved	1 bit
0x00093	147	Reserved	1 bit
0x00094	148	Heatsink Over Temperature	1 bit
0x00095	149	Ambient Over Temperature	1 bit
0x00096	150	Reserved	1 bit
0x00097	151	Reserved	1 bit
0x00098	152	Reserved	1 bit
0x00099	153	Reserved	1 bit
0x0009A	154	Reserved	1 bit
0x0009B	155	Reserved	1 bit
0x0009C	156	Reserved	1 bit
0x0009D	157	INV Over Current Soft	1 bit
0x0009E	158	Reserved	1 bit
0x0009F	159	Reserved	1 bit

0x000A0	160	Reserved	1 bit
0x000A1	161	Reserved	1 bit
0x000A2	162	Reserved	1 bit
0x000A3	163	INV Leakage Over Level	1 bit
0x000A4	164	Reserved	1 bit
0x000A5	165	Reserved	1 bit
0x000A6	166	Reserved	1 bit
0x000A7	167	Reserved	1 bit
0x000A8	168	Reserved	1 bit
0x000A9	169	Reserved	1 bit
0x000AA	170	Reserved	1 bit
0x000AB	171	Reserved	1 bit
0x000AC	172	Reserved	1 bit
0x000AD	173	Grid Relay Fault	1 bit
0x000AE	174	INV Relay Fault	1 bit
0x000AF	175	Load Relay Fault	1 bit
0x000B0	176	INV Soft Start Fail	1 bit
0x000B1	177	Grid Abnormal	1 bit
0x000B2	178	Reserved	1 bit
0x000B3	179	Reserved	1 bit
0x000B4	180	EEPROM Operation Fail	1 bit
0x000B5	181	Reserved	1 bit
0x000B6	182	Reserved	1 bit
0x000B7	183	Soft Version Abnormal	1 bit
0x000B8	184	Reserved	1 bit
0x000B9	185	Boost-1 Over Current Hard	1 bit
0x000BA	186	Reserved	1 bit
0x000BB	187	INV Over Current Hard	1 bit
0x000BC	188	Reserved	1 bit
0x000BD	189	Reserved	1 bit
0x000BE	190	Reserved	1 bit
0x000BF	191	Grid Short Circuit	1 bit
0x000C0	192	Grid Load Reverse	1 bit
0x000C1	193	Battery Reverse	1 bit
0x000C2	194	Battery Charging Over Current Hard	1 bit
0x000C3	195	Battery Discharging Over Current Hard	1 bit
0x000C4	196	INV Short Circuit	1 bit
0x000C5	197	Reserved	1 bit
0x000C6	198	Reserved	1 bit
0x000C7	199	Reserved	1 bit
0x000C8	200	PV Power Low	1 bit

0x000C9	201	Fan Fault	1 bit
0x000CA	202	Master Power Fault	1 bit
0x000CB	203	Battery Short Circuit	1 bit
0x000CC	204	Battery EOD	1 bit
0x000CD	205	Reserved	1 bit
0x000CE	206	Reserved	1 bit
0x000CF	207	Reserved	1 bit
0x000D0	208	Reserved	1 bit
0x000D1	209	Reserved	1 bit
0x000D2	210	Reserved	1 bit
0x000D3	211	Reserved	1 bit
0x000D4	212	Reserved	1 bit
0x000D5	213	Reserved	1 bit
0x000D6	214	Reserved	1 bit
0x000D7	215	Reserved	1 bit
0x000D8	216	Reserved	1 bit
0x000D9	217	Reserved	1 bit
0x000DA	218	Reserved	1 bit
0x000DB	219	Reserved	1 bit
0x000DC	220	Reserved	1 bit
0x000DD	221	Reserved	1 bit
0x000DE	222	Reserved	1 bit
0x000DF	223	Reserved	1 bit
0x000E0	224	Reserved	1 bit
0x000E1	225	Reserved	1 bit
0x000E2	226	Reserved	1 bit
0x000E3	227	Reserved	1 bit
0x000E4	228	Reserved	1 bit
0x000E5	229	Reserved	1 bit
0x000E6	230	Reserved	1 bit
0x000E7	231	Reserved	1 bit
0x000E8	232	Reserved	1 bit
0x000E9	233	Reserved	1 bit
0x000EA	234	Reserved	1 bit
0x000EB	235	Reserved	1 bit
0x000EC	236	Reserved	1 bit
0x000ED	237	Reserved	1 bit
0x000EE	238	Reserved	1 bit
0x000EF	239	Reserved	1 bit
0x000B0	176	Reserved	1 bit
0x000B1	177	Reserved	1 bit

0x000B2	178	Reserved	1 bit
0x000B3	179	Reserved	1 bit
0x000B4	180	Reserved	1 bit
0x000B5	181	Reserved	1 bit
0x000B6	182	Reserved	1 bit
0x000B7	183	Reserved	1 bit
0x000B8	184	Reserved	1 bit
0x000B9	185	Reserved	1 bit
0x000BA	186	Reserved	1 bit
0x000BB	187	Reserved	1 bit
0x000BC	188	Reserved	1 bit
0x000BD	189	Reserved	1 bit
0x000BE	190	Reserved	1 bit
0x000BF	191	Reserved	1 bit
0x000C0	192	Reserved	1 bit
0x000C1	193	Reserved	1 bit
0x000C2	194	Reserved	1 bit
0x000C3	195	Reserved	1 bit
0x000C4	196	Reserved	1 bit
0x000C5	197	Reserved	1 bit
0x000C6	198	Reserved	1 bit
0x000C7	199	Reserved	1 bit
0x000C8	200	Reserved	1 bit
0x000C9	201	Reserved	1 bit
0x000CA	202	Reserved	1 bit
0x000CB	203	Reserved	1 bit
0x000CC	204	Reserved	1 bit
0x000CD	205	Reserved	1 bit
0x000CE	206	Reserved	1 bit
0x000CF	207	Reserved	1 bit
0x000D0	208	Reserved	1 bit
0x000D1	209	Reserved	1 bit
0x000D2	210	Reserved	1 bit
0x000D3	211	Reserved	1 bit
0x000D4	212	Reserved	1 bit
0x000D5	213	Reserved	1 bit
0x000D6	214	Reserved	1 bit
0x000D7	215	Reserved	1 bit
0x000D8	216	Reserved	1 bit
0x000D9	217	Reserved	1 bit
0x000DA	218	Reserved	1 bit

0x000DB	219	Reserved	1 bit
0x000DC	220	Reserved	1 bit
0x000DD	221	Reserved	1 bit
0x000DE	222	Reserved	1 bit
0x000DF	223	Reserved	1 bit
0x000E0	224	Reserved	1 bit
0x000E1	225	Reserved	1 bit
0x000E2	226	Reserved	1 bit
0x000E3	227	Reserved	1 bit
0x000E4	228	Reserved	1 bit
0x000E5	229	Reserved	1 bit
0x000E6	230	Reserved	1 bit
0x000E7	231	Reserved	1 bit
0x000E8	232	Reserved	1 bit
0x000E9	233	Reserved	1 bit
0x000EA	234	Reserved	1 bit
0x000EB	235	Reserved	1 bit
0x000EC	236	Reserved	1 bit
0x000ED	237	Reserved	1 bit
0x000EE	238	Reserved	1 bit
0x000EF	239	Reserved	1 bit

2.3 Write Register(0x06　0x10)

Read Register(0x03)

Address		Register content	Data length	note
HEX	DEC			
0x0000	0	Reset RS485 interface protocol is set to an initial value	2bytes	Write in 0xFFFF availably
0x0001	1	Reserved	2 bytes	/
0x0002	2	Empty generated energy data	2 bytes	Write in 0xFFFF availably
0x0003	3	Empty record data	2bytes	Write in 0xFFFF availably
0x0004	4	Reserved	2 bytes	/
0x0005	5	Reserved	2 bytes	/
0x0006	6	Reserved	2 bytes	/
0x0007	7	Cancel shutdown command	2 bytes	writing 0xFFFF is valid, a) If the system is on shut down mode, the command will cancel shut down; b) System in the state of restore after shutdown, the command immediately restore the system output, but UPS must maintain prohibited state at least 10s
0x0008	8	Reserved	2 bytes	/
0x0009	9	Reserved	2 bytes	/
0x000A	10	Reserved	2 bytes	/
0x000B	11	Reserved	2 bytes	/
0x000C	12	Reserved	2 bytes	/
0x000D	13	Reserved	2 bytes	/
0x000E	14	Reserved	2 bytes	/
0x000F	15	Reserved	2 bytes	/
0x00010	16	Device Address	2 bytes	writing address 1 to 247 of is valid; initial address is 1
0x00011	17	Device baud rate	2 bytes	1 to 4 is valid when it is 1, baud rate is 1200 when it is 2, baud rate is 2400 when it is 3, baud rate is 4800 when it is 4, baud rate is 9600
0x00012	18	Parity	2 bytes	0 to 2 is valid 0-no parity; 1-odd parity; 2-even parity; Default is no parity
0x00013	19	Stop bit	2 bytes	0-1 stop bit 1-2 stop bit Default is 1 stop bit

0x00014	20	Shut down command	2 bytes	Write in 0~99 availably，0~99 minutes countdown to shutdown inverter
0x00015	21	Start inverter delay	2 bytes	both use register 0x0007 availably，0~99 minutes countdown to shutdown inverter，0~9999 minutes delay to switch on.
0x00016	22	Set year	2bytes	2012~2099 availably
0x00017	23	Set month	2bytes	1~12 availably
0x00018	24	Set day	2bytes	According to leap month, set the correct time, otherwise refuse
0x00019	25	Set hour	2bytes	0~23 availably
0x0001A	26	Set minute	2bytes	0~59 availably
0x0001B	27	Set second	2bytes	0~59 availably
0x0001C	28	Reserved	2 bytes	/
0x0001D	29	Reserved	2 bytes	/
0x0001E	30	Reserved	2 bytes	/
0x0001F	31	Grid set 00-07h	2 bytes	Each H occupies 2bit, 00, said support load prior, 01, said store energy prior, 02, said limiting charge. 01 default.
0x00020	32	Grid set 08-15h	2 bytes	Each H occupies 2bit, 00, said support load prior, 01, said store energy prior, 02, said limiting charge. 01 default.
0x00021	33	Grid set 16-23h	2 bytes	Each H occupies 2bit, 00, said support load prior, 01, said store energy prior, 02, said limiting charge. 01 default.
0x00022	34	Anti-reflux set 00-07h	2 bytes	Each H occupies 2bit, 00, said support load prior, 01, said store energy prior, 02, said limiting charge. 01 default.
0x00023	35	Anti-reflux set 08-15h	2 bytes	Each H occupies 2bit, 00, said support load prior, 01, said store energy prior, 02, said limiting charge. 01 default.
0x00024	36	Anti-reflux set 16-23h	2 bytes	Each H occupies 2bit, 00, said support load prior, 01, said store energy prior, 02, said limiting charge.

				01 default.
0x00025	37	Reserved	2 bytes	/
0x00026	38	Reserved	2 bytes	/
0x00027	39	Reserved	2 bytes	/
0x0028	40	Reserved	2 bytes	/
0x0029	41	Reserved	2 bytes	/
0x002A	42	Reserved	2 bytes	/
0x002B	43	Reserved	2 bytes	/
0x002C	44	Reserved	2 bytes	/
0x002D	45	Reserved	2 bytes	/
0x002E	46	Reserved	2 bytes	/
0x002F	47	Reserved	2 bytes	/
0x0030	48	Reserved	2 bytes	/
0x0031	49	Power On	2 bytes	Write in 0xFFFF availably
0x0032	50	Power Off	2 bytes	Write in 0xFFFF availably
0x0033	51	Reserved	2 bytes	/
0x0034	52	Reserved	2 bytes	/
0x0035	53	Reserved	2 bytes	/
0x0036	54	Reserved	2 bytes	/
0x0037	55	Reserved	2 bytes	/
0x0038	56	Mode Setting	2 bytes	00, said grid mode, 01, said anti-reflux mode.
0x0039	57	Priority Setting	2 bytes	00, said support load prior, 01, said store energy prior, 02, said limiting charge. 01 default.