

Modbus_RTU/TCP Protocol





Version information

Version	Date	Remarks	Author
V 1.0	2017.09.09		Vincent
V 1.1	2017.10.08		Vincent
V 1.2	2018.03.28	Modify number of register to 2bytes when Master to read data	Vincent
V 1.3	2019.11.21	Modify content of register	Witt
V 1.4	2019.12.23	Add Modbus TCP	Witt
V 1.5	2019.12.24	Modify battery content of register	Stephen
V 1.6	2020.1.3	Add DI/DO register	Witt
V 1.7	2020.1.13	Add Battery Power、Remaining time	Witt
V 1.8	2020.2.20	Add state pattern alarm failure analysis	Ben
V1.9	2020.3.23	Modify Sery battery Fault	Witt
V1.10	2020.3.26	Add Register	Witt
V1.12	2020.4.16	Add Meter set	Witt
V1.13	2020.6.5	Add Bat mos control	Witt
V1.14	2020.6.8	Add Safety Test Tab	Ben
V1.15	2020.6.15	Add bat register	Witt
V1.16	2020.6.30	Add ATE TEST	Chalice
V1.17	2020.8.11	Add Industry Battery	Chen
V1.18	2020.9.29	Add CT sampling the calibration Add ATE Test	Ben
V1.19	2020.10.20	change CT sampling the calibration Address	Ben
V1.20	2020.10.25	change MeterTab 、ATE TEST , Add System Info 、System Config 、Time control、Dispatch、AUX、System Running Data	Ben
V1.21	2020.10.28	change ATE TEST	Ben
V1.22	2020.10.30	change Household Battery 、 Household Inverter 、 Dispatch 、 System Running Data、 ATE TEST	Ben
V1.23	2021.02.09	change Time period control, Add Inverter info	Ben
V1.24	2021.03.18	Change System info System config ATE Test, AUX. Add Industry info.	Stephen
V1.25	2021.05.18	Add reactive power control	Stephen
V1.26	2021.05.28	Add daily energy through ac port	Stephen
V1.27	2021.08.19	Add registers of pv inverter	Stephen
V1.28	2021.09.06	Change System info、ATE Test、Note5、Note6、Note8	Ben







1.ModBus RTU

1.1Communication flow chart:



1.2 Communication description:

RS485/MODBUS-RTU Communication Communication interface: RS485

Communication connection mode: two-wire(RS85+,RS485-), shielded twisted pair conductors

Communication working mode: half-duplex

Communication speed: 9600bps

Communication response time: less-than 300ms

Communication instruction interval: greater than 300ms

Communication timeout: greater than 10S

1.3 Transmission mode:

The information transmit in asynchronous mode in bytes , The Communication information transmitting between the host computer and the slave computer is the 10 bits format, including one initial bit ,8 data bit(Firstly Transmitting the least effective bit). Without parity check bit . 1 stop bit .

Data frame format

Master:

Address code	Function	Data	CRC check code
1 byte	1 byte	N byte	2 byte
Slave			_
Address code	Function	Data	CRC check code

Address codeFunctionDataCRC check code1 byte1 byteN byte2 byte

Address code: address code is 4ocated at beginning of frame ,decimal system is 1~247 in the inverter. The default address is 0x55. Data area's illustration at part 3.



Function code: function code tell the target terminal to execute what function, Below table list: function code used in this inverter, and their meaning and function.

Data area: data area includes the data needed by terminal for executing specific function, or the collected data when terminal is responding enquiry.

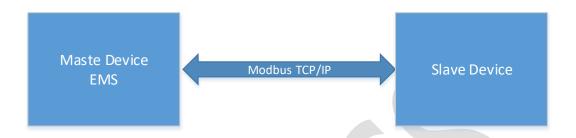
CRC check code: Error check(CRC) domain occupies 2 byte, including one 16 bit binary system value. CRC value is calculated by transmission device. and then attached to the data frame, the receiving device. while receiving, it calculates the CRC value again, then comparing it with the receiving CRC domain value, if these two values are not equal, it an error occurs.

```
Base on C language for CRC check code:
u16 CRC16_Check(const u8 *P ,u16 ubCRCNum)
                                                          //CRC check code
{
    u8 temp;
    u8 i;
    u16 c;
    u8 TT;
    u16 crc = 0xffff;
    for(c=0;c<ubCRCNum;c++)
    {
         temp = P[c];
         crc =crc^temp;
         for(i=0;i<8;i++)
              TT = crc \& 1;
              crc = crc > 1;
              crc = crc & 0x7fff;
              if(TT == 1)
                   crc = crc^0xa001;
              crc = crc&0xffff;
         }
    }
    return crc;
}
```



2.ModBus TCP (In the developing)

2.1 Communication flow chart:



2.2 Communication description:

MODBUS-TCP Communication Communication interface: TCP/IP

EMS device is server, open a local port 0x502. Communication response time: less-than 100ms

Communication instruction interval: greater than 100ms

Communication timeout: greater than 10S

2.3 Transmission mode:

The information transmit in asynchronous mode in bytes, The Communication information transmitting between the host computer and the slave computer. The default address is 0x55.

Data area's illustration at part 3.

Data frame format

Master:

Transaction	Identifier	Protocol Id	dentifier	length	Unit Identifier	Funtion Code	Data
0x00	0x01	0x00	0x00	2 byte	1 byte	1byte	N byte

Slave

Transaction	Identifier	Protocol Id	dentifier	length	Unit Identifier	Funtion Code	Data
0x00	0x01	0x00	0x00	2 byte	1 byte	1byte	N byte



3.Data area

Function code: function code tell the target terminal to execute what function, Below table list: function code used in this inverter, and their meaning and function.

Read hold register(0x03):

Frame Format From Master:

Data	Explain
0x03H (Hexadecimal)	Read data register
High Byte of Start Register Addr.	
Low Byte of Start Register Addr.	
High Byte of Register No.	
Low Byte of Register No.	

Frame Format From Slave(data reading successfully)

Data	Explain	
03H (Hexadecimal)	Read data register	
No. of Bytes(2*N)	Length of retruned data.	
No.1 High Byte of Data	Data1 high byte.	
No.1 Low Byte of Data	Data1 low byte.	
No.N High Byte of Data	DataN high byte.	
No.N High Byte of Data	DataN low byte.	

Write register(0x10):

Frame Format From Master:

Data	Explain
0x10H (Hexadecimal)	Write data register
High Byte of Start Register Addr.	
Low Byte of Start Register Addr.	
High Byte of Register No.	
Low Byte of Register No.	
No. of Bytes	
No.1 High Byte of Data	Data1 high byte.
No.1 Low Byte of Data	Data1 low byte.
No.N High Byte of Data	DataN high byte.
No.N High Byte of Data	DataN low byte.

Frame Format From Slave(data writing successfully):

		•
Data	[Explain



0x10H (Hexadecimal)	Write data register
High Byte of Start Register Addr.	
Low Byte of Start Register Addr.	
High Byte of Register No.	
Low Byte of Register No.	

Write single register(0x06):

Frame Format From Master:

Data	Explain
0x06H (Hexadecimal)	Write data register
High Byte of Start Register Addr.	
Low Byte of Start Register Addr.	
High Byte of Data	high byte.
Low Byte of Data	low byte.

Frame Format From Slave(data writing successfully):

Data	Explain
0x06H (Hexadecimal)	Write data register
High Byte of Start Register Addr.	
Low Byte of Start Register Addr.	
High Byte of Data	high byte.
Low Byte of Data	low byte.

Error operation salve return:

	Explain	
Unit Identifier	Device address	
Function Code + 0x80	Error frame function code	
Error Code	Error Code	



4. Parameter address table

Address	variable	Belong	Data	Data	Remarks
Register		to R/W	format	Model	
	Hou	sehold Me	ter		
	Grid	Meter Con	fig		
0000H	Grid Meter CT Enable	R/W	Occupy	unsigned	1/bit
			2byte	short	17.510
0001H	Grid Meter CT Rate	R/W	Occupy	unsigned	1/bit
			2byte	short	1, 2.1
		eter Running	1		
0010H	Total energy feed to grid(Grid)	RO	Occupy	unsigned	0.01kWh/bit
0011H			4 byte	int	
0012H	Total energy consume from	RO	Occupy	unsigned	0.01kWh/bit
0013H	grid(Grid)		4 byte	int	
0014H	Voltage of A phase(Grid)	RO	Occupy	unsigned	1V
			2byte	short	
0015H	Voltage of B phase(Grid)	RO	Occupy	unsigned	1V
			2byte	short	
0016H	Voltage of C phase(Grid)	RO	Occupy	unsigned	1V
			2byte	short	
0017H	Current of A phase(Grid)	RO	Occupy	short	0.1A
			2byte		
0018H	Current of B phase(Grid)	RO	Occupy	short	0.1A
			2byte		
0019H	Current of C phase(Grid)	RO	Occupy	short	0.1A
221111			2byte		
001AH	Frequent(Grid)	RO	Occupy	unsigned	0.01Hz
004511	11 (6:1)	20	2byte	short	
001BH	Active power of A phase(Grid)	RO	Occupy	int	1W/bit
001CH	Asting a support of Purkage (Crist)	DO.	4 byte		
001DH	Active power of B phase(Grid)	RO	Occupy	int	1W/bit
001EH	Astis a second of C. I. (C. I.)	BO	4 byte		
001FH	Active power of C phase(Grid)	RO	Occupy	int	1W/bit
0020H	Tatal Astina	DO.	4 byte		
0021H	Total Active power(Grid Meter)	RO	Occupy	int	1W/bit
0022H	Positive news of Authors (Crist)	DO.	4byte	1,-4	
0023H	Reactive power of A phase(Grid)	RO	Occupy	int	1var
0024H	Posstive power of Pakess (Crist)	DO.	4 byte	:+	
0025H	Reactive power of B phase(Grid)	RO	Occupy	int	1var
0026H			4 byte		



0027H 0028H	Reactive power of C phase(Grid)	RO	Occupy 4 byte	int	1var
0029H	Total reactive power(Grid)	RO	Occupy	int	1var
002AH	A	DO.	4 byte	·	
002BH 002CH	Apparent power of A phase(Grid)	RO	Occupy	int	1VA
002CH 002DH	Apparent power of B phase(Grid)	RO	4 byte	int	
002DH 002EH	Apparent power of a phase(Gna)	RO	Occupy 4 byte	int	1VA
002EH	Apparent power of C phase(Grid)	RO	Occupy	int	
002FIT	Apparent power of c phase(Ghu)	KO	4 byte	IIIC	1VA
003011 0031H	Total apparent power(Grid)	RO	Occupy	int	
003111 0032H	lotal apparent power (difu)	INO	4 byte	IIIC	1VA
003211 0033H	Power factor of A phase(Grid)	RO	Occupy	short	
005511	Tower factor of A phase(dria)	INO	2byte	311011	0.01
0034H	Power factor of B phase(Grid)	RO	Occupy	short	
005411	Tower factor of b phase(drid)	INO	2byte	311011	0.01
0035H	Power factor of C phase(Grid)	RO	Occupy	short	<u> </u>
003311	Power factor of c phase(drid)	NO	2byte	SHOLL	0.01
0036H	Total Power factor(Grid)	RO	Occupy	short	
003011	Total Tower factor (Grid)	INO	2byte	311011	0.01
	PV	Meter confi			
0080H	PV Meter CT Enable	R/W	Occupy	unsigned	
000011	I V Meter et Endore		2byte	short	1/bit
0081H	PV Meter CT Rate	R/W	Occupy	unsigned	
		.,,,,	2byte	short	1/bit
	PV Me	ter Running	_		
0090H	Total energy feed to Grid(PV)	RO	Occupy	unsigned	
0091H	33		4 byte	int	0.01kWh/bit
0092H	Total energy consume from	RO	Occupy	unsigned	
0093H	Grid(PV)		4 byte	int	0.01kWh/bit
0094H	Voltage of A phase(PV)	RO	Occupy	unsigned	
			2byte	short	1V
0095H	Voltage of B phase(PV)	RO	Occupy	unsigned	
			2byte	short	1V
0096H	Voltage of C phase(PV)	RO	Occupy	unsigned	417
			2byte	short	1V
0097H	Current of A phase(PV)	RO	Occupy	short	0.1.4
			2byte		0.1A
0098H	Current of B phase(PV)	RO	Occupy	short	0.14
			2byte		0.1A
0099H	Current of C phase(PV)	RO	Occupy	short	0.14
			2byte		0.1A
	·	·	·	•	•



	T				
009AH	Frequent(PV)	RO	Occupy 2byte	unsigned short	0.01HZ
009ВН 009СН	Active power of A phase(PV)	RO	Occupy 4 byte	int	1W/bit
009DH 009EH	Active power of B phase(PV)	RO	Occupy 4 byte	int	1W/bit
009FH 00A0H	Active power of C phase(PV)	RO	Occupy 4 byte	int	1W/bit
00A1H 00A2H	Total Active power(PV Meter)	RO	Occupy 4byte	int	1W/bit
00A3H 00A4H	Reactive power of A phase(PV)	RO	Occupy 4 byte	int	1var
00A5H 00A6H	Reactive power of B phase(PV)	RO	Occupy 4 byte	int	1var
00A7H 00A8H	Reactive power of C phase(PV)	RO	Occupy 4 byte	int	1var
00A9H 00AAH	Total reactive power(PV)	RO	Occupy 4 byte	int	1var
00ABH 00ACH	Apparent power of A phase(PV)	RO	Occupy 4 byte	int	1VA
00ADH 00AEH	Apparent power of B phase(PV)	RO	Occupy 4 byte	int	1VA
00AFH 00B0H	Apparent power of C phase(PV)	RO	Occupy 4 byte	int	1VA
00B1H 00B2H	Total apparent power(PV)	RO	Occupy 4 byte	int	1VA
00B3H	Power factor of A phase(PV)	RO	Occupy 2byte	short	0.01
00B4H	Power factor of B phase(PV)	RO	Occupy 2byte	short	0.01
00B5H	Power factor of C phase(PV)	RO	Occupy 2byte	short	0.01
00B6H	Total Power factor(PV)	RO	Occupy 2byte	short	0.01
		usehold Bat	tery	ı	
0100H	Battery voltage	RO	Occupy 2 byte	unsigned short	0.1V/bit
0101H	Battery current	RO	Occupy 2 byte	short	0.1A/bit
0102H	Battery SOC	RO	Occupy 2 byte	unsigned short	0.1/bit



0103H	Battery status	RO	Occupy	unsigned	
0.0011	Sutterly status		2 byte	short	Note1
0104H	Battery relay status	RO	Occupy 2 byte	unsigned short	Note2
0105H	Pack ID of min cell voltage	RO	Occupy 2 byte	unsigned short	0.001V/bit
0106H	Cell ID of min cell voltage	RO	Occupy 2 byte	unsigned short	0.001V/bit
0107H	Min cell voltage	RO	Occupy 2 byte	unsigned short	0.001V/bit
0108H	Pack ID of max cell voltage	RO	Occupy 2 byte	unsigned short	0.001V/bit
0109H	Cell ID of max cell voltage	RO	Occupy 2 byte	unsigned short	0.001V/bit
010AH	Max cell voltage	RO	Occupy 2 byte	unsigned short	0.001V/bit
010BH	Pack ID of min cell temperature	RO	Occupy 2 byte	unsigned short	0.1℃/bit
010CH	Cell ID of min cell temperature	RO	Occupy 2 byte	unsigned short	0.1℃/bit
010DH	Min cell temperature	RO	Occupy 2 byte	short	0.1°C/bit
010EH	Pack ID of max cell temperature	RO	Occupy 2 byte	unsigned short	0.1°C/bit
010FH	Cell ID of max cell temperature	RO	Occupy 2 byte	unsigned short	0.1°C/bit
0110H	Max cell temperature	RO	Occupy 2 byte	short	0.1°C/bit
0111H	Battery max charge current	RO	Occupy 2 byte	unsigned short	0.1A/bit
0112H	Battery max discharge current	RO	Occupy 2 byte	unsigned short	0.1A/bit
0113H	Battery charge cut-off voltage	RO	Occupy 2 byte	unsigned short	0.1V/bit
0114H	Battery discharge cut-off voltage	RO	Occupy 2 byte	unsigned short	0.1V/bit
0115H	BMU software version	RO	Occupy 2 byte	unsigned short	
0116H	LMU software version	RO	Occupy 2 byte	unsigned short	
0117H	ISO software version	RO	Occupy 2 byte	unsigned short	



0118H	Battery num	RO	Occupy	unsigned	Battery module
	Jacob, Hall		2 byte	short	number
0119H	Battery capacity	RO	Occupy	unsigned	
			2 byte	short	0.1kWh/bit
011AH	Battery type	RO	Occupy	unsigned	
	3 31		2 byte	short	Note3
011BH	Battery SOH	RO	Occupy	unsigned	
			2 byte	short	0.1/bit
011CH	Battery warning	RO	Occupy	unsigned	_
011DH			4 byte	int	Reserve
011EH	Battery fault	RO	Occupy	unsigned	
011FH			4 byte	int	Note4
0120H	Battery charge energy	RO	Occupy	unsigned	0.41344 413
0121H			4 byte	int	0.1kWh/bit
0122H	Battery discharge energy	RO	Occupy	unsigned	241141 413
0123H			4 byte	int	0.1kWh/bit
0124H	Battery energy charge from grid	RO	Occupy	unsigned	0.41344 413
0125H			4 byte	int	0.1kWh/bit
0126H	Battery Power	RO	Occupy	short	1W/bit (
			2 byte		-: Charge、
					+: Discharge)
0127H	Battery remaining time	RO	Occupy	unsigned	durate data
			2 byte	short	1min/bit
0128H	Battery Implementation Charge	RO	Occupy	unsigned	0.1/bit(Rate_SOC-
	SOC		2 byte	short	UPS_SOC)
0129H	Battery Implementation Discharge	RO	Occupy	unsigned	0.1/bit(Rate_SOC-
	SOC		2 byte	short	UPS_SOC)
012AH	Battery Remaining Charge SOC	RO	Occupy	unsigned	0.1/bit(Rate_SOC-
			2 byte	short	Remain_SOC)
012BH	Battery Remaining Discharge SOC	RO	Occupy	unsigned	0.1/bit(Remain_SOC
			2 byte	short	- UPS_SOC)
012CH	Battery Max charge power	RO	Occupy	unsigned	1W/bit
			2 byte	short	TVV/DIL
012DH	Battery Max Discharge power	RO	Occupy	unsigned	1W/bit
			2 byte	short	TW/DIL
012EH	Battery MOS Control	R/W	Occupy	unsigned	0:Open, 1:Close
			2 byte	short	o.open, r.ciose
012FH	Battery SOC Calibration	RO	Occupy	unsigned	0:Disable, 1: Enable
			2 byte	short	U.DISADIE, I. EHADIE
0130H	Battery Single cut error code	RO	Occupy	unsigned	
			2 byte	short	
0131H	Battery fault1	RO	Occupy	unsigned	
0132H			4 byte	int	



0133H	Battery fault2	RO	Occupy	unsigned	
013311 0134H	battery faultz	KO	4 byte	int	
0135H	Battery fault3	RO	Occupy	unsigned	
0136H	buttery rudits	I NO	4 byte	int	
0137H	Battery fault4	RO	Occupy	unsigned	
013711 0138H	Battery radit+	INO	4 byte	int	
0139H	Battery fault5	RO	Occupy	unsigned	
013311 013AH	battery faults	I NO	4 byte	int	
013AH	Battery fault6	RO	Occupy	unsigned	
013CH	battery facility	INO	4 byte	int	
013DH	Battery warning1	RO	Occupy	unsigned	
013EH	battery warring i	I NO	4 byte	int	
013EH	Battery warning2	RO	Occupy	unsigned	
013FH 0140H	Battery warning2	NO	4 byte	int	
	Pottom morning?	DO:	-		
0141H	Battery warning3	RO	Occupy	unsigned	
0142H	1		4 byte	int	
0143H	Battery warning4	RO	Occupy	unsigned	
0144H			4 byte	int	
0145H	Battery warning5	RO	Occupy	unsigned	
0146H			4 byte	int	
0147H	Battery warning6	RO	Occupy	unsigned	
0148H			4 byte	int	
	Hous	ehold Inve	rter		
0400H	Inverter_Voltage_L1	RO	Occupy	unsigned	0.1V/bit
			2 byte	short	0.17/010
0401H	Inverter _Voltage_L2	RO	Occupy	unsigned	0.1V/bit
			2 byte	short	0.17/011
0402H	Inverter_Voltage_L3	RO	Occupy	unsigned	0.41///-:+
			2 byte	short	0.1V/bit
0403H	Inverter_Current_L1	RO	Occupy	short	0.4.4.4.4
			2 byte		0.1A/bit
0404H	Inverter_Current_L2	RO	Occupy	short	
			2 byte		0.1A/bit
0405H	Inverter Current L3	RO	Occupy	short	
			2 byte		0.1A/bit
0406H	Inverter Power L1	RO	Occupy	int	
0407H			4 byte		1W/bit
0408H	Inverter_Power_L2	RO	Occupy	int	
1 0 4 0011		1			1W/bit
	inverter_i ower_EE		4 byte		
0409H		RO	4 byte	int	
0409H 040AH	Inverter_Power_L3	RO	Occupy	int	1W/hit
0409H		RO	•	int	1W/bit



040CH	Inverter_Power_Total	RO	Occupy	int	4747/1-:+
040DH			4 byte		1W/bit
040EH	Inverter_Backup_Voltage_L1	RO	Occupy 2 byte	unsigned short	0.1V/bit
040FH	Inverter_Backup_Voltage_L2	RO	Occupy 2 byte	unsigned short	0.1V/bit
0410H	Inverter_Backup_Voltage_L3	RO	Occupy 2 byte	unsigned short	0.1V/bit
0411H	Inverter_Backup_Current_L 1	RO	Occupy 2 byte	unsigned short	0.1A/bit
0412H	Inverter_Backup_Current_L2	RO	Occupy 2 byte	unsigned short	0.1A/bit
0413H	Inverter_Backup_Current_L3	RO	Occupy 2 byte	unsigned short	0.1A/bit
0414H 0415H	Inverter_Backup_Power_L1	RO	Occupy 4 byte	unsigned int	1W/bit
0416H 0417H	Inverter_Backup_Power_L2	RO	Occupy 4 byte	unsigned int	1W/bit
0418H 0419H	Inverter_Backup_Power_L3	RO	Occupy 4 byte	unsigned int	1W/bit
041AH 041BH	Inverter_Backup_Power_Total	RO	Occupy 4 byte	unsigned int	1W/bit
041CH	Inverter Grid Frequency	RO	Occupy 2 byte	unsigned short	0.01Hz/bit
041DH	PV1 Voltage	RO	Occupy 2 byte	unsigned short	0.1V/bit
041EH	PV1 Current	RO	Occupy 2 byte	unsigned short	0.1A/bit
041FH 0420H	PV1 power	RO	Occupy 4 byte	unsigned int	1w/bit
0421H	PV2 Voltage	RO	Occupy 2 byte	unsigned short	0.1V/bit
0422H	PV2 Current	RO	Occupy 2 byte	unsigned short	0.1A/bit
0423H 0424H	PV2 power	RO	Occupy 4 byte	unsigned int	1w/bit
0425H	PV3 Voltage	RO	Occupy 2 byte	unsigned short	0.1V/bit
0426H	PV3 Current	RO	Occupy 2 byte	unsigned short	0.1A/bit
0427H 0428H	PV3 power	RO	Occupy 4 byte	unsigned int	1w/bit



0429H	PV4 Voltage	RO	Occupy	unsigned	
042311	1 v4 voltage	i ko	2 byte	short	0.1V/bit
042AH	PV4 Current	RO	Occupy	unsigned	0.1A/bit
			2 byte	short	,
042BH	PV4 power	RO	Occupy	unsigned	1w/bit
042CH	·		4 byte	int	
042DH	PV5 Voltage	RO	Occupy	unsigned	
			2 byte	short	0.1V/bit
042EH	PV5 Current	RO	Occupy	unsigned	0.1A/bit
			2 byte	short	
042FH	PV5 power	RO	Occupy	unsigned	1w/bit
0430H			4 byte	int	
0431H	PV6 Voltage	RO	Occupy	unsigned	0.1)//bit
			2 byte	short	0.1V/bit
0432H	PV6 Current	RO	Occupy	unsigned	0.1A/bit
			2 byte	short	
0433H	PV6 power	RO	Occupy	unsigned	1w/bit
0434H			4 byte	int	
0435H	INV Temperature	RO	Occupy	unsigned	0.1°C/bit
			2 byte	short	0.1 C/bit
0436H	Inverter warning1	RO	Occupy	unsigned	Reserve
0437H			4 byte	int	Reserve
0438H	Inverter warning2	RO	Occupy	unsigned	Reserve
0439H			4 byte	int	Reserve
043AH	Inverter fault1	RO	Occupy	unsigned	Reserve
043BH			4 byte	int	Reserve
043CH	Inverter fault2	RO	Occupy	unsigned	Reserve
043DH			4 byte	int	Reserve
043EH	Inverter Totol PV Energy	RO	Occupy	unsigned	0.1kWh/bit
043FH			4 byte	int	
0440H	Inverter work mode	RO	Occupy	unsigned	Note5
			2 byte	short	Notes
	T	nverter info			
0640H~	Inverter master software version	RO	Occupy	unsigned	
0644H			10byte	char	
0645H~	Inverter slave software version	RO	Occupy	unsigned	
0649H			10byte	char	
064AH~	Inverter SN	RO	Occupy	unsigned	
0653H			20byte	char	
	System(Only	applicable to	o HHE MEC))	



0700H	Feed into grid percent	R/W	Occupy 2 byte	unsigned short	1%/bit
0701H 0702H	System fault	RO	Occupy 4 byte	unsigned int	Note6
0703H	System_time: (year)-(month)	R/W	Occupy 2 byte	unsigned short	Data format hex; 0xYYMM, example: Send 0x1109; year:0x11(2017) month:0x09(09);
0704H	System_time: (day)-(hour)	R/W	Occupy 2 byte	unsigned short	Data format hex; 0xDDHH, example: Send 0x1109; day:0x11(The 17 day) hour:0x09(09);
0705H	System_time: (minute)-(second)	R/W	Occupy 2 byte	unsigned short	Data format hex; 0xmmss, example: Send 0x1109; min:0x11(17)
0706H	EMS SN byte1-2	RO	Occupy 2 byte	unsigned short	second:0x09(09); EMS SN :ASCII 0x414C==' AL'
0707H	EMS SN byte3-4	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==' 12'
0708H	EMS SN byte5-6	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==' 12'
0709H	EMS SN byte7-8	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==' 12'
070AH	EMS SN byte9-10	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==' 12'
070BH	EMS SN byte11-12	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==' 12'
070CH	EMS SN byte13-14	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==' 12'
070DH	EMS SN byte15-16	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==' 12'
070EH	EMS DO0	WO	Occupy 2 byte	unsigned short	Bypass Control function
070FH	EMS DO1	WO	Occupy 2 byte	unsigned short	System fault output.



				1	<u> </u>
0710H	EMS DI0	RO	Occupy	unsigned	EPO, Battery MOS
			2 byte	short	cut off.
0711H	EMS DI1	RO	Occupy	unsigned	Reserved
			2 byte	short	1 COCI VCG
0712H	UPS Reserve Soc	R/W	Occupy	unsigned	0.1%/bit
			2 byte	short	0.1707.010
0713H	Time discharge start time1	R/W	Occupy	unsigned	1h/bit
			2 byte	short	THIOIC
0714H	Time discharge stop time1	R/W	Occupy	unsigned	1h/bit
			2 byte	short	THI/DIL
0715H	Time discharge start time2	R/W	Occupy	unsigned	1 - / - :+
			2 byte	short	1h/bit
0716H	Time discharge stop time2	R/W	Occupy	unsigned	41.41.5
	-		2 byte	short	1h/bit
0717H	Charge Cut Soc	R/W	Occupy	unsigned	
			2 byte	short	0.1%/bit
0718H	Time charge start time1	R/W	Occupy	unsigned	
			2 byte	short	1h/bit
0719H	Time charge stop time1	R/W	Occupy	unsigned	
	3.3.4.4		2 byte	short	1h/bit
071AH	Time charge start time2	R/W	Occupy	unsigned	1h/bit
0.17.11	·····o situi go stai e tiiiloz	.44	2 byte	short	
071BH	Time charge stop time2	R/W	Occupy	unsigned	
01.12	e shange step ande		2 byte	short	1h/bit
071CH	System mode	R/W	Occupy	unsigned	
071011	System mode	.,	2 byte	short	1/bit
071DH	System laguage	R/W	Occupy	unsigned	
071211	system laguage	10,00	2 byte	short	1/bit
071EH	PV Capacity of pv inverter	R/W	Occupy	unsigned	
071FH	I v capacity of pv inverter	TO VV	4 byte	int	1W/bit
0720H	PV Inverter Totol PV Energy	R/W	Occupy	unsigned	
072011 0721H	PV IIIVerter Totol PV Ellergy	IX/ VV	4 byte	int	0.1kWh/bit
072111	Dispatch Start	R/W	Occupy	unsigned	
0/22П	Dispatch Start	IN/ VV	. ,		1:start; 0: stop
072211	Dispatch Active newer	D /\A/	2 byte	short	1\///bi+
0723H	Dispatch Active power	R/W	Occupy	int	1W/bit
0724H			4 byte		Offset:32000
					charge:<32000
072511	Dispetals Boothing Transport	D //4/	0	t 4	discharge:>32000
0725H	Dispatch Reactive power	R/W	Occupy	int	1var/bit
0726H			4 byte		Offset:32000
					charge:<32000
070		B			discharge:>32000
0727H	Dispatch Mode	R/W	Occupy	unsigned	Note7
			2 byte	short	



0728H	Dispatch SOC	R/W	Occupy 2 byte	unsigned short	0.4%/bit example: Send SOC=95,correspon ding to the SOC of 38%.
0700::					JÖ%.
0729H	EMS Version High	RO	Occupy	unsigned	
			2 byte	short	
072AH	EMS Version Middle	RO	Occupy	unsigned	
			2 byte	short	
072BH	EMS Version Low	RO	Occupy	unsigned	
			2 byte	short	
	Echone	t Config (Ja	ipan)		
072CH	User Mode	R/W	Occupy	unsigned	0: Green mode
			2 byte	short	1: Economic model
					2: Secure mode
072DH	Battery Mode	R/W	Occupy	unsigned	0: Auto mode
			2 byte	short	1: Charge mode
					2: Discharge mode
					3: Standby mode
072EH	Set Battery Power	R/W	Occupy	short	1W/bit
0,22	Set Buttery Ferrer	1,411	2 byte	511011	Charge mode or
			2 byte		Dis charge mode
					Set Battery Power
072FH	Set Inverter output Power	R/W	Occupy	unsigned	Set Photovoltaic
072111	Set inverter output Fower	IV/ VV	2 byte	short	(pv) power
0730H	Echonet Enable	D //A/	-		(pv) power
0/30H	Echonet Enable	R/W	Occupy	unsigned short	0:Disable 1:Enable
		Custom Info	2 byte	SHOLL	
074011		System Info	0		Data farment have
0740H	System_time: (year)-(month)	R/W	Occupy	unsigned	Data format hex;
			2 byte	short	0xYYMM,
					example: Send
					0x1109;
					year:0x11(2017)
					month:0x09(09);
0741H	System_time : (day)-(hour)	R/W	Occupy	unsigned	Data format hex;
			2 byte	short	0xDDHH,
					example: Send
					0x1109;
					day:0x11(The 17
					day)
					hour:0x09(09);
0742H	System_time : (minute)-(second)	R/W	Occupy	unsigned	Data format hex;
			2 byte	short	0xmmss,
					example: Send



					0x1109;
					min:0x11(17)
					second:0x09(09);
0743H	EMS SN byte1-2	RO	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x414C==' AL'
0744H	EMS SN byte3-4	RO	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
0745H	EMS SN byte5-6	RO	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
0746H	EMS SN byte7-8	RO	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
0747H	EMS SN byte9-10	RO	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
0748H	EMS SN byte11-12	RO	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
0749H	EMS SN byte13-14	RO	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
074AH	EMS SN byte15-16	RO	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
074BH	EMS Version High	R	Occupy	unsigned	
			2 byte	short	
074CH	EMS Version Middle	R	Occupy	unsigned	
			2 byte	short	
074DH	EMS Version Low	R	Occupy	unsigned	
			2 byte	short	
074EH	Protocol Version	RO	Occupy	unsigned	
			2 byte	short	
		System Con	1		I
0800H	MAX Feed into grid percent	R/W	Occupy	unsigned	1%/bit
			2 byte	short	110,011
0801H	PV Capacity Storage	R/W	Occupy	unsigned	1W/bit
0802H			4 byte	int	,
0803H	PV Capacity of Grid Inverter	R/W	Occupy	unsigned	1W/bit
0804H			4 byte	int	
0805H	System mode	R/W	Occupy	unsigned	1: AC Mode
			2 byte	short	2: DC Mode
				<u> </u>	3: Hybird Mode
0806H	Meter CT Select	R/W	Occupy	unsigned	电表安装选项:
			2 byte	short	0:Grid&PV use CT;
					1:Grid use CT、PV
					use Meter;
					2:Grid use Meter、
					PV use CT;



					3: Grid&PV use
					Meter;
0807H	Battery Ready	R/W	Occupy	unsigned	0: OFF
			2 byte	short	1: ON
0808H	IP Method	R/W	Occupy	unsigned	0: DHCP
			2 byte	short	1: STATIC
0809H	Local IP	R/W	Occupy	unsigned	0xC0, 0xA8,
080AH			4 byte	short	0x01, 0x01
					192.168.1.1
080BH	Subnet Mask	R/W	Occupy	unsigned	0xFF, 0xFF,
080CH			4 byte	short	0xFF, 0x01
					255.255.255.1
080DH	Gateway	R/W	Occupy	unsigned	0xC0, 0xA8,
080EH	,		4 byte	short	0x01, 0x01
			,		192.168.1.1
080FH	Modbus Address	R/W	Occupy	unsigned	7
			2 byte	short	default 0x55
0810H	Modbus Baud rate	R/W	Occupy	unsigned	0: 9600
001011	Wiodbas bada rate	1911	2 byte	short	1: 115200 (only
			Loyte	311011	for household)
					2: 256000 (only
					for household)
					3: 19200(only for
					industry)
					maustry)
	Time	e period con	trol		
004511		1		unsianad	O . Disable Time
084FH	Time period control flag	R/W	Occupy	unsigned	0 : Disable Time
			2 byte	short	period control
					1: Enable Charge
					Time period control
					2: Enable
					discharge Time
					period control
					3: Enable Time
					period control
0850H	UPS Reserve Soc	R/W	Occupy	unsigned	0.1%/bit
			2 byte	short	
0851H	Time discharge start time1	R/W	Occupy	unsigned	1h/bit
			2 byte	short	TTI/ DIC
0852H	Time discharge stop time1	R/W	Occupy	unsigned	1h/bit
			2 byte	short	iii/bit
0853H	Time discharge start time2	R/W	Occupy	unsigned	1 h /h:+
			2 byte	short	1h/bit
0854H	Time discharge stop time2	R/W	Occupy	unsigned	1h/bit
	•	•			



			2 byte	short	
0855H	Charge Cut Soc	R/W	Occupy 2 byte	unsigned short	0.1%/bit
0856H	Time charge start time1	R/W	Occupy 2 byte	unsigned short	1h/bit
0857H	Time charge stop time1	R/W	Occupy 2 byte	unsigned short	1h/bit
0858H	Time charge start time2	R/W	Occupy 2 byte	unsigned short	1h/bit
0859H	Time charge stop time2	R/W	Occupy 2 byte	unsigned short	1h/bit
				511511	
		Dispatch			
0880Н	Dispatch Start	R/W	Occupy 2 byte	unsigned short	1:start; 0: stop
0881H	Dispatch Active power	R/W	Occupy	Int	1W/bit
0882H			4byte		Offset:32000 charge:<32000 discharge:>32000
0883H	Dispatch Reactive power	R/W	Occupy	Int	1var/bit
0884H			4byte		Offset:32000 charge:<32000
					discharge:>32000
0885H	Dispatch Mode	R/W	Occupy 2 byte	unsigned short	Note7
0886H	Dispatch SOC	R/W	Occupy 2 byte	unsigned short	0.4%/bit example: Send SOC=95,correspon ding to the SOC of 38%.
0887H 0888H	Dispatch Time	R/W	Occupy 4 byte	unsigned int	1s/bit
		AUX			
08B0H	EMS DO0	wo	Occupy 2 byte	unsigned short	Bypass Control function
08B1H	EMS DO1	wo	Occupy 2 byte	unsigned short	System fault output.
08B2H	EMS DO2	WO	Occupy 2 byte	unsigned short	
08B3H	EMS DO3	WO	Occupy 2 byte	unsigned short	
08B4H	EMS DO4	WO	Occupy	unsigned	
			•		i e



			2 byte	short	
08B5H	EMS DO5	WO	Occupy	unsigned	
			2 byte	short	
08B6H	EMS DO6	WO	Occupy	unsigned	
			2 byte	short	
08B7H	EMS DO7	WO	Occupy	unsigned	
			2 byte	short	
08B8H	EMS DO8	WO	Occupy	unsigned	
			2 byte	short	
08B9H	EMS DO9	WO	Occupy	unsigned	
			2 byte	short	
08BAH	EMS DO10	WO	Occupy	unsigned	
			2 byte	short	
08BBH	EMS DO11	WO	Occupy	unsigned	
			2 byte	short	
08BCH	EMS DO12	WO	Occupy	unsigned	
			2 byte	short	
08BDH	EMS DO13	WO	Occupy	unsigned	
			2 byte	short	
08BEH	EMS DO14	WO	Occupy	unsigned	
			2 byte	short	
08BFH	EMS DO15	WO	Occupy	unsigned	
			2 byte	short	
08C0H	EMS DI0	RO	Occupy	unsigned	EPO, Battery MOS
			2 byte	short	cut off.
08C1H	EMS DI1	RO	Occupy	unsigned	Reserved
			2 byte	short	Neser ved
08C2H	EMS DI2	RO	Occupy	unsigned	
			2 byte	short	
08C3H	EMS DI3	RO	Occupy	unsigned	
			2 byte	short	
08C4H	EMS DI4	RO	Occupy	unsigned	
			2 byte	short	
08C5H	EMS DI5	RO	Occupy	unsigned	
			2 byte	short	
08C6H	EMS DI6	RO	Occupy	unsigned	
			2 byte	short	
08C7H	EMS DI7	RO	Occupy	unsigned	
			2 byte	short	
08C8H	EMS DI8	RO	Occupy	unsigned	
			2 byte	short	
08C9H	EMS DI9	RO	Occupy	unsigned	
			2 byte	short	



08CAH	EMS DI10	RO	Occupy	unsigned	
			2 byte	short	
08CBH	EMS DI11	RO	Occupy	unsigned	
			2 byte	short	
08CCH	EMS DI12	RO	Occupy	unsigned	
			2 byte	short	
08CDH	EMS DI13	RO	Occupy	unsigned	
			2 byte	short	
08CEH	EMS DI14	RO	Occupy	unsigned	
			2 byte	short	
08CFH	EMS DI15	RO	Occupy	unsigned	
			2 byte	short	
	Sy	stem Running	Data		
08D0H	PV Inverter Energy	RO	Occupy	unsigned	
08D1H			4 byte	int	0.1kWh/bit
08D2H	The system total PV energy	RO	Occupy	unsigned	
08D3H			4 byte	int	0.1kWh/bit
08D4H	System fault	RO	Occupy	unsigned	
08D5H	System raun		4 byte	int	Note6
000311			1 byte		
		Safety TEST			
1000H	Grid Regulation	R/W	1	uncianod	
1000H	Grid_Regulation	R/VV	Occupy	unsigned	Note8
100111	Cofete Test Fred II	Day	2 byte	short	Cafety Task Fredsla
1001H	Safety Test Enable	R/W	Occupy	unsigned	Safety Test Enable
			2 byte	short	0 : Disable
					1 : Enable
1002H	Safety Mode Enable	R/W	Occupy	unsigned	Note9
1003H			4 byte	int	
1004H	Starting_slope	R/W	Occupy	unsigned	0.01%Pn/min
			2 byte	short	·
1005H	Phase state	R/W	Occupy	unsigned	0: advance 1:
			2 byte	short	phase lag
1006H	PF Value	R/W	Occupy	short	0.01
			2 byte		0.01
1007H	Volt-WATT Starting	R/W	Occupy	unsigned	0.11/
			2 byte	short	0.1V
1008H	Volt-WATT Stop	R/W	Occupy	unsigned	0.11/
			2 byte	short	0.1V
1009H	Set Battery Power	R/W	Occupy	short	1W/bit
	-		2 byte		Set Battery Power
100AH	Set Inverter power	R/W	Occupy	unsigned	1W/bit
	·	-	2 byte	short	Set the inverter
					output power
	_1			I.	



100BH	Ovp	R/W	Occupy 2 byte	unsigned short	0.1V
100CH	ОvрТ	R/W	Occupy 2 byte	unsigned short	1ms
100DH	Ovp10	R/W	Occupy 2 byte	unsigned short	0.1V
100EH	Ovp10T	R/W	Occupy 2 byte	unsigned short	1s
100FH	Uvp	R/W	Occupy 2 byte	unsigned short	0.1V
1010H	UvpT	R/W	Occupy 2 byte	unsigned short	1ms
1011H	Uvp2	R/W	Occupy 2 byte	unsigned short	0.1V
1012H	Uvp2T	R/W	Occupy 2 byte	unsigned short	1ms
1013H	Ofp	R/W	Occupy 2 byte	unsigned short	0.01Hz
1014H	OfpT	R/W	Occupy 2 byte	unsigned short	1ms
1015H	Ofp2	R/W	Occupy 2 byte	unsigned short	0.01Hz
1016H	Ofp2T	R/W	Occupy 2 byte	unsigned short	1ms
1017H	Ufp	R/W	Occupy 2 byte	unsigned short	0.01Hz
1018H	UfpT	R/W	Occupy 2 byte	unsigned short	1ms
1019H	Ufp2	R/W	Occupy 2 byte	unsigned short	0.01Hz
101AH	Ufp2T	R/W	Occupy 2 byte	unsigned short	1ms
101BH	Ufp2T	R/W	Occupy 2 byte	unsigned short	1ms
		ATE TEST	•		
1100H	Reset Mode	WO	Occupy 2 byte	unsigned short	0: None 1: Energy Reset 2: Meter Reset 4: Factory Reset 8: restart EMS
1101H	EMS SN byte1-2	R/W	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x414C==' AL'
1102H	EMS SN byte3-4	R/W	Occupy	unsigned	EMS SN :ASCII



			2 byte	short	0x3132==' 12'
1103H	EMS SN byte5-6	R/W	Occupy	unsigned	EMS SN :ASCII
		·	2 byte	short	0x3132==' 12'
1104H	EMS SN byte7-8	R/W	Occupy	unsigned	EMS SN :ASCII
		·	2 byte	short	0x3132==' 12'
1105H	EMS SN byte9-10	R/W	Occupy	unsigned	EMS SN :ASCII
	,		2 byte	short	0x3132==' 12'
1106H	EMS SN byte11-12	R/W	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
1107H	EMS SN byte13-14	R/W	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
1108H	EMS SN byte15-16	R/W	Occupy	unsigned	EMS SN :ASCII
			2 byte	short	0x3132==' 12'
1109H	EMS MAC byte1-2	R/W	Occupy	unsigned	EMS MAC :HEX
			2 byte	short	0x70B3=0x70,0xB3
110AH	EMS MAC byte3-4	R/W	Occupy	unsigned	EMS MAC : HEX
			2 byte	short	0xD57A=0xD5,0x7A
110BH	EMS MAC byte5-6	R/W	Occupy	unsigned	EMS MAC : HEX
			2 byte	short	0x2C11=0x2C,0x11
110CH	Pointing to the server	R/W	Occupy	unsigned	0: Formal Server
			2 byte	short	1: RD test
					2: Production test
110DH	Network type	R/W	Occupy	unsigned	
			2 byte	short	
110EH	System laguage	R/W	Occupy	unsigned	0:English
4			2 byte	short	1: German
110FH	Inverter model	R/W	Occupy	unsigned	0:INVERTER_NULL,
			2 byte	short	1:KELONG_S5,
					2:KELONG_B5,
					3:GINLONG_T10,
		CT calibration	า		
11B9H	Grid voltage	RO	Occupy	unsigned	0.1V/Bit
			2byte	short	0.1V/Bit
11BAH	Grid CT Current	RO	Occupy	short	0.1A/Bit
			2byte		U.TA/BIL
11BBH	PV CT Current	RO	Occupy	short	0.1A/Bit
			2byte		0.17y bit
11BCH	Grid CT Power	RO	Occupy	short	1W/Bit
			2byte		I VV/ DIL
11BDH	PV CT Power	RO	Occupy	short	1W/Bit
			2byte		I VV/ DIL
11BEH	Volt calibration point1	R/W	Occupy	unsigned	0.01V/Bit
			2byte	short	O.OTV/DIL



11BFH	Volt calibration coef1	R/W	Occupy 2byte	short	0.0001/Bit
11C0H	Volt calibration offset1	R/W	Occupy 2byte	short	0.01V/Bit
11C1H	Volt calibration point2	R/W	Occupy 2byte	unsigned short	0.01V/Bit
11C2H	Volt calibration coef2	R/W	Occupy 2byte	short	0.0001/Bit
11C3H	Volt calibration offset2	R/W	Occupy 2byte	short	0.01V/Bit
11C4H	Grid current calibration point1	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11C5H	Grid current calibration coef1	R/W	Occupy 2byte	short	0.0001/Bit
11C6H	Grid current calibration offset1	R/W	Occupy 2byte	short	0.1A/Bit
11C7H	Grid current calibration point2	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11C8H	Grid current calibration coef2	R/W	Occupy 2byte	short	0.0001/Bit
11C9H	Grid current calibration offset2	R/W	Occupy 2byte	short	0.1A/Bit
11CAH	Grid current calibration point3	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11CBH	Grid current calibration coef3	R/W	Occupy 2byte	short	0.0001/Bit
11CCH	Grid current calibration offset3	R/W	Occupy 2byte	short	0.1A/Bit
11CDH	Grid current calibration point4	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11CEH	Grid current calibration coef4	R/W	Occupy 2byte	short	0.0001/Bit
11CFH	Grid current calibration offset4	R/W	Occupy 2byte	short	0.1A/Bit
11D0H	Grid current calibration point5	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11D1H	Grid current calibration coef5	R/W	Occupy 2byte	short	0.0001/Bit
11D2H	Grid current calibration offset5	R/W	Occupy 2byte	short	0.1A/Bit
11D3H	Grid power calibration point1	R/W	Occupy 2byte	unsigned short	1W/Bit
11D4H	Grid power calibration coef1	R/W	Occupy	short	0.0001/Bit



			ı		
			2byte		
11D5H	Grid power calibration offset1	R/W	Occupy	short	1W/Bit
			2byte		I VV/DIL
11D6H	Grid power calibration point2	R/W	Occupy	unsigned	4344/03
			2byte	short	1W/Bit
11D7H	Grid power calibration coef2	R/W	Occupy	short	
	·		2byte		0.0001/Bit
11D8H	Grid power calibration offset2	R/W	Occupy	short	
	'		2byte		1W/Bit
11D9H	Grid power calibration point3	R/W	Occupy	unsigned	
	·		2byte	short	1W/Bit
110411	Crid recover calibration as \$2	DAM			
11DAH	Grid power calibration coef3	R/W	Occupy	short	0.0001/Bit
440011	6:1 " " " " " "	D.04/	2byte		
11DBH	Grid power calibration offset3	R/W	Occupy	short	1W/Bit
445.611	6.1	7.044	2byte		
11DCH	Grid power calibration point4	R/W	Occupy	unsigned	1W/Bit
			2byte	short	
11DDH	Grid power calibration coef4	R/W	Occupy	short	0.0001/Bit
			2byte		
11DEH	Grid power calibration offset4	R/W	Occupy	short	1W/Bit
			2byte		,
11DFH	Grid power calibration point5	R/W	Occupy	unsigned	1W/Bit
			2byte	short	1117510
11E0H	Grid power calibration coef5	R/W	Occupy	short	0.0001/Bit
			2byte		0.000 17 Bit
11E1H	Grid power calibration offset	R/W	Occupy	short	1W/Bit
			2byte		T VV/ DIC
11E2H	PV current calibration point1	R/W	Occupy	unsigned	0.1A/Bit
			2byte	short	U.TA/ DIL
11E3H	PV current calibration coef1	R/W	Occupy	short	0.0001 /B:t
			2byte		0.0001/Bit
11E4H	PV current calibration offset1	R/W	Occupy	short	0.4.4 (D)
			2byte		0.1A/Bit
11E5H	PV current calibration point2	R/W	Occupy	unsigned	
	·		2byte	short	0.1A/Bit
11E6H	PV current calibration coef2	R/W	Occupy	short	
			2byte		0.0001/Bit
11E7H	PV current calibration offset2	R/W	Occupy	short	0.1A/Bit
			2byte		
11E8H	PV current calibration point3	R/W	Occupy	unsigned	0.1A/Bit
			2byte	short	
11E9H	PV current calibration coef3	R/W	Occupy	short	0.0001/Bit
		,	2byte		
			_Dy tc		1



	rent calibration offset3	R/W	Occupy	short	0.1A/Bit
11EBH PV cur	rent calibration point4		2byte		0.1A) DIL
	rent canoration point-	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11ECH PV cur	rent calibration coef4	R/W	Occupy 2byte	short	0.0001/Bit
11EDH PV cur	rent calibration offset4	R/W	Occupy 2byte	short	0.1A/Bit
11EEH PV cur	rent calibration point5	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11EFH PV cur	rent calibration coef5	R/W	Occupy 2byte	short	0.0001/Bit
11F0H PV cur	rent calibration offset5	R/W	Occupy 2byte	short	0.1A/Bit
11F1H PV po	wer calibration point1	R/W	Occupy 2byte	unsigned short	1W/Bit
11F2H PV po	wer calibration coef1	R/W	Occupy 2byte	short	0.0001/Bit
11F3H PV po	wer calibration offset1	R/W	Occupy 2byte	short	1W/Bit
11F4H PV po	wer calibration point2	R/W	Occupy 2byte	unsigned short	1W/Bit
11F5H PV po	wer calibration coef2	R/W	Occupy 2byte	short	0.0001/Bit
11F6H PV po	wer calibration offset2	R/W	Occupy 2byte	short	1W/Bit
11F7H PV po	wer calibration point3	R/W	Occupy 2byte	unsigned short	1W/Bit
11F8H PV po	wer calibration coef3	R/W	Occupy 2byte	short	0.0001/Bit
11F9H PV po	wer calibration offset3	R/W	Occupy 2byte	short	1W/Bit
11FAH PV po	wer calibration point4	R/W	Occupy 2byte	unsigned short	1W/Bit
11FBH PV po	wer calibration coef4	R/W	Occupy 2byte	short	0.0001/Bit
11FCH PV por	wer calibration offset4	R/W	Occupy 2byte	short	1W/Bit
11FDH PV por	wer calibration point5	R/W	Occupy 2byte	unsigned short	1W/Bit
11FEH PV po	wer calibration coef5	R/W	Occupy 2byte	short	0.0001/Bit
11FFH PV por	wer calibration offset5	R/W	Occupy	short	1W/Bit



			2byte		
	Industry Rem	ote Contro	l Paramete	r	
4000H	Energy dispatching mode	R/W	Occupy	unsigned	0: AC dispatching
			2 byte	short	1: DC dispatching
4001H	AC control mode	R/W	Occupy	unsigned	0: Fixed active
			2 byte	short	power
4002H	AC power setting	R/W	Occupy	int	1W/Bit
4003H			4 byte		TWY BIC
4004H	DC control mode	R/W	Occupy	unsigned	0: Fixed current
			2 byte	short	1: Fixed power
4005H	DC current setting	R/W	Occupy	int	0.1A/Bit
4006H			4 byte		31.7 y 2.0
4007H	DC power setting	R/W	Occupy	int	1W/Bit
4008H			4 byte		
4009H	Mode on/off	R/W	Occupy	unsigned	0: Mode off
			2 byte	short	1: Mode on
400AH	Grid interconnection mode	R/W	Occupy	unsigned	0: Grid-tied
			2 byte	short	1: Off-grid
400BH	Clear fault	R/W	Occupy	unsigned	0: False
	- "		2 byte	short	1: True
400CH	Emergency power off	R/W	Occupy	unsigned	0: False
400011		5.44	2 byte	short	1: True
400DH	Start up mode	R/W	Occupy	unsigned	0: Auto
400511	2 11	D 04/	2 byte	short	1: Manual
400EH	Reactive power control mode	R/W	Occupy	unsigned	0: Fixed PF
			2 byte	short	1: Fixed reactive
400FH	DE cotting	R/W	Ossumi	short	power
400FH	PF setting	R/W	Occupy 2 byte	SHOLL	0.01/Bit
4010H~	Reactive power setting	R/W	Occupy	Int	
4010H	Reactive power setting	IN VV	4 byte	IIIC	1var/Bit
4012H~	Reserved		Occupy		
407FH	Neserveu		220 byte		
407111			ZZO Byte		
	Industry Loc	cal Control	Parameter		
4080H	System model	R/W	Occupy	unsigned	0: Storion-T30
100011		','	2 byte	short	1: Storion-T50
			- 3,00	3.13.1	2: Storion-T100
					3: Storion-T150
					4: Storion-TB250
					5: Storion-TB500
	•	i	1	1	
4081H	Send closing relay instruction (send	R/W	Occupy	unsigned	0: False



4082H 4083H	Maximum power through meter	R/W	Occupy 4 byte	unsigned int	1W/Bit
4084H	Charging power during charging	R/W	Occupy	unsigned	1W/Bit
4085H	period		4 byte	int	TVV/ BIC
4086H	Load cut soc	R/W	Occupy 2 byte	unsigned short	1%/Bit
400711	Lood tind on a	DAM			
4087H	Load tied soc	R/W	Occupy	unsigned short	1%/Bit
400011	AC	DAM	2 byte		0
4088H	AC access type	R/W	Occupy	unsigned	0: generator
400011		D 04/	2 byte	short	1: grid
4089H	Generator mode enable	R/W	Occupy	unsigned	0: False
			2 byte	short	1: True
408AH	Startup mode(Generator)	R/W	Occupy	unsigned	0: SOC
			2 byte	short	1: Time period
					2: Manual
408BH	Start SOC(SOC mode)	R/W	Occupy	unsigned	1%/Bit
			2 byte	short	. 70, 2.0
408CH	Stop SOC(SOC mode)	R/W	Occupy	unsigned	1%/Bit
			2 byte	short	1707 1510
408DH	Start time(Time period mode)	R/W	Occupy	unsigned	1h/Bit
			2 byte	short	THYBIC
408EH	Stop time(Time period mode)	R/W	Occupy	unsigned	1 h /D:+
			2 byte	short	1h/Bit
408FH	Power output mode(Generator)	R/W	Occupy	unsigned	1: GC charge
			2 byte	short	2: GC rated
4090H	Charge power set(Generator)	R/W	Occupy	unsigned	
4091H			4 byte	int	1W/Bit
4092H	Rated power(Generator)	R/W	Occupy	unsigned	
4093H			4 byte	int	1W/Bit
4094H	Rated output percent(Generator)	R/W	Occupy	unsigned	
		'	2 byte	short	1%/Bit
4095H	Pmeter offset enable	R/W	Occupy	unsigned	0: False
	VIII CIII CIII CIII CIII CIII CIII CIII	'', ''	2 byte	short	1: True
4096H	Pmeter offset power setting	R/W	Occupy	unsigned	1. 1140
4090H	- meter onset power setting	17, **	4 byte	int	1W/Bit
4098H	Start time1(Pmeter offset)	R/W	Occupy	unsigned	
1 03011	Start time (Fineter Offset)	17, 44	2 byte	short	1h/Bit
4099H	End time1(Pmeter offset)	R/W	-		
4033N	Life time (Fineter Offset)	I 1/7 V V	Occupy 2 byte	unsigned short	1h/Bit
400 411	Start time?(Dmotor offeet)	D /\A/			
409AH	Start time2(Pmeter offset)	R/W	Occupy 2 byte	unsigned short	1h/Bit
409BH	End time2(Pmeter offset)	R/W	Occupy	unsigned	
			2 byte	short	1h/Bit
409CH	Peak shaving and valley filling	R/W	Occupy	unsigned	0: False



	enable		2 byte	short	1: True
409DH	Peak value setting	R/W	Occupy	unsigned	
409EH	Total value seeming	'4'	4 byte	int	1W/Bit
409FH	Valley value setting	R/W	Occupy	unsigned	
40A0H		1,411	4 byte	int	1W/Bit
40A1H	Delta	R/W	Occupy	unsigned	
40A2H			4 byte	int	1W/Bit
40A3H	Peak shaving start time1	R/W	Occupy	unsigned	1h/Bit
			2 byte	short	III/BIL
40A4H	Peak shaving end time1	R/W	Occupy	unsigned	1h/Bit
			2 byte	short	THI DIC
40A5H	Peak shaving start time2	R/W	Occupy	unsigned	1h/Bit
			2 byte	short	11,7510
40A6H	Peak shaving end time2	R/W	Occupy	unsigned	1h/Bit
			2 byte	short	, ,
40A7H	Valley filling start time1	R/W	Occupy	unsigned	1h/Bit
			2 byte	short	,
40A8H	Valley filling end time2	R/W	Occupy	unsigned	1h/Bit
			2 byte	short	
40A9H	Valley filling start time2	R/W	Occupy	unsigned	1h/Bit
40.4.4.1.1	V II CIII 11: 2	2011	2 byte	short	
40AAH	Valley filling end time2	R/W	Occupy	unsigned	1h/Bit
40 A B L I	SOC directional calibration enable	R/W	2 byte	short	0: False
40ABH	SOC directional calibration enable	R/W	Occupy 2 byte	unsigned short	1: True
40ACH	Calibration value	R/W	Occupy	unsigned	1. Hue
40ACIT	Campiation value	I IV VV	2 byte	short	1%/Bit
40ADH	Pv inverter type	R/W	Occupy	unsigned	
107,1211	To miterial type	'', ''	2 byte	short	
40AEH	Pv inverter num	R/W	Occupy	unsigned	
		'4'	2 byte	short	
40AFH	Air condition type	R/W	Occupy	unsigned	
	31	,	2 byte	short	
40B0H	Air condition num	R/W	Occupy	unsigned	
	¥		2 byte	short	
40B1H	PV combiner box type	R/W	Occupy	unsigned	
			2 byte	short	
40B2H	PV combiner box num	R/W	Occupy	unsigned	
			2 byte	short	
40B3H	Local remote mode	R/W	Occupy	unsigned	0: Local
			2 byte	short	1: Remote
40B4H	EMS communication timeout	R/W	Occupy	unsigned	1s/bit
			2 byte	short	. 5/ 2.1



40B5H~	Reserved		Occupy				
40FFH			150 byte				
Industry Air Condition							
4100H	Working status(AirCon01)	RO	Occupy	unsigned	0: standby		
			2 byte	short	1: run		
4101H	Condenser temperature(AirCon01)	RO	Occupy	short	0.405 (5)		
			2 byte		0.1°C/Bit		
4102H	Indoor temperature(AirCon01)	RO	Occupy	short	0.196 /D:+		
			2 byte		0.1°C/Bit		
4103H	Indoor humidity(AirCon01)	RO	Occupy	unsigned	1%/Bit		
			2 byte	short	1 70/ DIL		
4104H	exhaust temperature(AirCon01)	RO	Occupy	short	0.1°C/Bit		
			2 byte		0.1 C/Bit		
4105H	Ac input voltage(AirCon01)	RO	Occupy	unsigned	0.1V/Bit		
	4		2 byte	short	0.1 V/ DIC		
4106H	Ac input current(AirCon01)	RO	Occupy	short	0.1A/Bit		
			2 byte		0.17y bit		
4107H	Refrigeration stopping point	RO	Occupy	short	0.1°C/Bit		
	(AirCon01)		2 byte		0.1 6/ 5/10		
4108H	Refrigeration return difference	RO	Occupy	short	0.1°C/Bit		
	(AirCon01)		2 byte		0.1 6,510		
4109H	Heating stop point(AirCon01)	RO	Occupy	short	0.1°C/Bit		
			2 byte				
410AH	Heating return difference	RO	Occupy	short	0.1°C/Bit		
<u> </u>	(AirCon01)		2 byte				
410BH	High humidity warning point	RO	Occupy	unsigned	1%/Bit		
110	(AirCon01)		2 byte	short			
410CH	High temperature warning point	RO	Occupy	short	0.1℃/Bit		
440011	(AirCon01)	20	2 byte				
410DH	Low temperature warning point	RO	Occupy	short	0.1°C/Bit		
410511	(AirCon01)	DO.	2 byte				
410EH	Fault info1(AirCon01)	RO	Occupy	unsigned			
410FH 4110H	Fault info2(AirCon01)	RO	4 byte Occupy	int			
4110H 4111H	Fault IIIIO2(AIICOIIO1)	NO	4 byte	unsigned int			
4111H 4112H~	Reserved(AirCon01)		Occupy	1111			
4112H~ 413FH	Nescrived(All Collot)		92 byte				
4140H~	Reserved(AirCon02)		Occupy				
417FH	reserved(/ ii/cono2)		128 byte				
4180H~	Reserved(AirCon03)	+	Occupy				
418FH			128 byte				
41C0H~	Reserved(AirCon04)		Occupy				
110011	1.0301 VCa(1 iii Collo-1)		Оссиру				



41FFH			128 byte		
	Industr	ry Diesel Er	ngine		
4200H	Line voltage between A to B	RO	Occupy	unsigned	0.414/5
4201H	(Diesel Engine01)		4 byte	int	0.1V/Bit
4202H	Line voltage between B to C	RO	Occupy	unsigned	0.414/5
4203H	(Diesel Engine01)		4 byte	int	0.1V/Bit
4204H	Line voltage between C to A	RO	Occupy	unsigned	0.41//5':
4205H	(Diesel Engine01)		4 byte	int	0.1V/Bit
4206H	Phase A current(Diesel Engine01)	RO	Occupy	short	0.4.4 (D)
			2 byte		0.1A/Bit
4207H	Phase B current(Diesel Engine01)	RO	Occupy	short	0.4.4 (D):
	-		2 byte		0.1A/Bit
4208H	Phase C current(Diesel Engine01)	RO	Occupy	short	0.4.4 (D)
			2 byte		0.1A/Bit
4209H	Frequency(Diesel Engine01)	RO	Occupy	unsigned	0.0411 (B)
			2 byte	short	0.01Hz/Bit
420AH	Phase A active power	RO	Occupy	int	4347/Dit
420BH	(Diesel Engine01)		4 byte		1W/Bit
420CH	Phase B active power	RO	Occupy	int	1)A//D:t
420DH	(Diesel Engine01)		4 byte		1W/Bit
420EH	Phase C active power	RO	Occupy	int	4)A//D:4
420FH	(Diesel Engine01)		4 byte		1W/Bit
4210H	Phase A reactive power	RO	Occupy	int	1 /Dit
4211H	(Diesel Engine01)		4 byte		1var/Bit
4212H	Phase B reactive power	RO	Occupy	int	1 /Dit
4213H	(Diesel Engine01)		4 byte		1var/Bit
4214H	Phase C reactive power	RO	Occupy	int	1var/Bit
4215H	(Diesel Engine01)		4 byte		IVal/DIL
4216H	Phase A apparent power	RO	Occupy	int	1\/\ /Di+
4217H	(Diesel Engine01)		4 byte		1VA/Bit
4218H	Phase B apparent power	RO	Occupy	int	1VA/Bit
4219H	(Diesel Engine01)		4 byte		IVA/DIL
421AH	Phase C apparent power	RO	Occupy	int	1VA/Bit
421BH	(Diesel Engine01)		4 byte		IVAYDIL
421CH	Phase A factor(Diesel Engine01)	RO	Occupy	short	0.01/Bit
<u></u>			2 byte		0.01/BIL
421DH	Phase B factor(Diesel Engine01)	RO	Occupy	short	0.01/Bit
			2 byte		0.0 I/ DIL
421EH	Phase C factor(Diesel Engine01)	RO	Occupy	short	0.01/Bit
			2 byte		0.0 I/ DIL
421FH	Total active power(Diesel Engine01)	RO	Occupy	int	1W/Bit
4220H			4 byte		
4221H	Total reactive power	RO	Occupy	int	1var/Bit



	Τ		1 .		
4222H	(Diesel Engine01)		4 byte		
4223H	Total apparent power	RO	Occupy	int	1VA/Bit
4224H	(Diesel Engine01)		4 byte		
4225H	Total factor(Diesel Engine01)	RO	Occupy	short	0.01/Bit
			2 byte		0.017 Bit
4226H	Oil pressure(Diesel Engine01)	RO	Occupy	short	1kPa/Bit
			2 byte		TKPd/DIL
4227H	Coolant temperature	RO	Occupy	short	0.1°C /D:+
	(Diesel Engine01)		2 byte		0.1℃/Bit
4228H	Engine temperature	RO	Occupy	short	0.49C /Dit
	(Diesel Engine01)		2 byte		0.1°C/Bit
4229H	Fuel temperature(Diesel Engine01)	RO	Occupy	short	0.400 (D):
			2 byte		0.1°C/Bit
422AH	Engine speed(Diesel Engine01)	RO	Occupy	unsigned	
			2 byte	short	1rpm/Bit
422BH	Power generation energy	RO	Occupy	unsigned	7
422CH	(Diesel Engine01)		4 byte	int	1kVAh/Bit
422DH	Coolant level(Diesel Engine01)	RO	Occupy	unsigned	
			2 byte	short	1%/Bit
422EH	Fuel level(Diesel Engine01)	RO	Occupy	unsigned	
			2 byte	short	1%/Bit
422FH	Engine battery voltage	RO	Occupy	unsigned	
722111	(Diesel Engine01)	NO .	2 byte	short	0.1V/Bit
4230H	Fault info1(Diesel Engine01)	RO	Occupy	unsigned	
4231H	Tault inio (Diesel Liighleo)	KO V	4 byte	int	
423111 4232H	Fault info2(Diesel Engine01)	RO	Occupy	unsigned	
4232H	radit iiiioz(Diesei Engineor)	KO	4 byte	int	
	Fault info3(Diesel Engine01)	DO.			
4234H	Fault Info3(Diesei Engineo1)	RO	Occupy	unsigned	
4235H	5 11: (1/2): 15 : 01)	DO.	4 byte	int	
4236H	Fault info4(Diesel Engine01)	RO	Occupy	unsigned · .	
4237H			4 byte	int	
4238H~	Reserved(Diesel Engine01)		Occupy		
427FH			144 byte		
4280H~	Reserved(Diesel Engine02)		Occupy		
42FFH			256 byte		
4300H~	Reserved(Diesel Engine03)		Occupy		
437FH			256 byte		
4380H~	Reserved(Diesel Engine04)		Occupy		
43FFH			256 byte		
4400H~	Reserved(Diesel Engine05)		Occupy		
447FH			256 byte		
4480H~	Reserved(Diesel Engine06)		Occupy		
44FFH			256 byte		



	Industry	PV Comb	oiner Box		
4500H	Switch state of each branch	RO	Occupy	unsigned	
4501H	(PV Combiner Box01)		4 byte	int	
4502H	Box temperature	RO	Occupy	short	
	(PV Combiner Box01)		2 byte		0.1°C/Bit
4503H	Total bus voltage	RO	Occupy	unsigned	
	(PV Combiner Box01)		2 byte	short	0.1V/Bit
4504H	Total power generation	RO	Occupy	unsigned	1W/Bit
4505H	(PV Combiner Box01)		4 byte	int	
4506H	PV1 power(PV Combiner Box01)	RO	Occupy	unsigned	414/75':
			2 byte	short	1W/Bit
4507H	PV2 power(PV Combiner Box01)	RO	Occupy	unsigned	41475'
			2 byte	short	1W/Bit
4508H	PV3 power(PV Combiner Box01)	RO	Occupy	unsigned	41470'
			2 byte	short	1W/Bit
4509H	PV4 power(PV Combiner Box01)	RO	Occupy	unsigned	4144/B':
			2 byte	short	1W/Bit
450AH	PV5 power(PV Combiner Box01)	RO	Occupy	unsigned	414/P':
			2 byte	short	1W/Bit
450BH	PV6 power(PV Combiner Box01)	RO	Occupy	unsigned	414/P:
			2 byte	short	1W/Bit
450CH	PV7 power(PV Combiner Box01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	
450DH	PV8 power(PV Combiner Box01)	RO	Occupy	unsigned	414/P:
			2 byte	short	1W/Bit
450EH	PV9 power(PV Combiner Box01)	RO	Occupy	unsigned	1\M//D:+
			2 byte	short	1W/Bit
450FH	PV10 power(PV Combiner Box01)	RO	Occupy	unsigned	1\A//D:+
			2 byte	short	1W/Bit
4510H	PV11 power(PV Combiner Box01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	IVV/DIL
4511H	PV12 power(PV Combiner Box01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	
4512H	PV13 power(PV Combiner Box01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	
4513H	PV14 power(PV Combiner Box01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	
4514H	PV15 power(PV Combiner Box01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	
4515H	PV16 power(PV Combiner Box01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	. * * * / Dit
4516H	PV17 power(PV Combiner Box01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	



4517H	PV18 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4518H	PV19 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4519H	PV20 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
451AH	PV21 power(PV Combiner Box01)	RO	Occupy	unsigned short	1W/Bit
451BH	PV22 power(PV Combiner Box01)	RO	2 byte Occupy	unsigned	1W/Bit
451CH	PV23 power(PV Combiner Box01)	RO	2 byte Occupy	short	1W/Bit
451DH	PV24 power(PV Combiner Box01)	RO	2 byte Occupy	short unsigned	1W/Bit
451EH	PV25 power(PV Combiner Box01)	RO	2 byte Occupy 2 byte	short unsigned short	1W/Bit
451FH	PV26 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4520H	PV27 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4521H	PV28 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4522H	PV29 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4523H	PV30 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4524H	PV31 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4525H	PV32 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4526H 4527H	Fault info1(PV Combiner Box01)	RO	Occupy 4 byte	unsigned int	
4528H~ 453FH	Reserved (PV Combiner Box01)		Occupy 48 byte		
4540H~ 457FH	Reserved (PV Combiner Box02)		Occupy 128 byte		
4580H~ 45BFH	Reserved (PV Combiner Box03)		Occupy 128 byte		
45C0H~ 45FFH	Reserved (PV Combiner Box04)		Occupy 128byte		
4600H~ 463FH	Reserved (PV Combiner Box05)		Occupy 128 byte		
4640H~ 467FH	Reserved (PV Combiner Box06)		Occupy 128 byte		



4680H~	Reserved (PV Combiner Box07)		Occupy		
46BFH			128 byte		
46C0H~	Reserved (PV Combiner Box08)		Occupy		
46FFH			128 byte		
4700H~	Reserved (PV Combiner Box09)		Occupy		
473FH			128 byte		
4740H~	Reserved (PV Combiner Box10)		Occupy		
477FH			128 byte		
4780H~	Reserved (PV Combiner Box11)		Occupy		
47BFH			128 byte		
47C0H~	Reserved (PV Combiner Box12)		Occupy		
47FFH			128 byte		
	In	dustry PV li	nv		
4800H	PV1 power (PV INV01)	RO	Occupy	unsigned	1W/Bit
			2 byte	short	I VV/ DIL
4801H	PV2 power (PV INV01)	RO	Occupy	unsigned	1)A//D:+
			2 byte	short	1W/Bit
4802H	PV3 power (PV INV01)	RO	Occupy	unsigned	4)A//D'4
			2 byte	short	1W/Bit
4803H	PV4 power (PV INV01)	RO	Occupy	unsigned	4144751
			2 byte	short	1W/Bit
4804H	PV5 power (PV INV01)	RO	Occupy	unsigned	
			2 byte	short	1W/Bit
4805H	PV6 power (PV INV01)	RO	Occupy	unsigned	
			2 byte	short	1W/Bit
4806H	PV7 power (PV INV01)	RO	Occupy	unsigned	4144751
			2 byte	short	1W/Bit
4807H	PV8 power (PV INV01)	RO	Occupy	unsigned	
			2 byte	short	1W/Bit
4808H	PV9 power (PV INV01)	RO	Occupy	unsigned	
,			2 byte	short	1W/Bit
4809H	PV10 power (PV INV01)	RO	Occupy	unsigned	
			2 byte	short	1W/Bit
480AH	PV11 power (PV INV01)	RO	Occupy	unsigned	
			2 byte	short	1W/Bit
480BH	PV12 power (PV INV01)	RO	Occupy	unsigned	
			2 byte	short	1W/Bit
480CH	Phase A voltage (PV INV01)	RO	Occupy	unsigned	
			2 byte	short	0.1V/Bit
480DH	Phase B voltage (PV INV01)	RO	Occupy	unsigned	
700011	i hase b voltage (i v iivvoi)		2 byte	short	0.1V/Bit
480EH	Phase C voltage (PV INV01)	RO	Occupy	unsigned	0.1V/Bit
HUULIT	T mase C voltage (F v mvvvi)	NO	Occupy	unsigned	U. 1 V/ DIL



			2 byte	short	
480FH	Phase A current (PV INV01)	RO	Occupy	short	
			2 byte		0.1A/Bit
4810H	Phase B current (PV INV01)	RO	Occupy	short	0.4.4 (D)
			2 byte		0.1A/Bit
4811H	Phase C current (PV INV01)	RO	Occupy	short	0.1 A /D:+
			2 byte		0.1A/Bit
4812H	Frequency (PV INV01)	RO	Occupy	unsigned	0.01HZ
			2 byte	short	0.01112
4813H	Total active power (PV INV01)	RO	Occupy	int	1W/Bit
4814H			4 byte		TVV/ BIC
4815H	Total reactive power (PV INV01)	RO	Occupy	int	1var/Bit
4816H			4 byte		
4817H	Total apparent power (PV INV01)	RO	Occupy	int	1VA/Bit
4818H			4 byte		, .
4819H	Total factor (PV INV01)	RO	Occupy	short	0.01/Bit
			2 byte		
481AH	Feed energy to grid in today (PV	RO	Occupy	unsigned	1kWh/Bit
	INV01)		2 byte	int	
481BH	Workmode (PV INV01)	RO	Occupy	unsigned	
			2 byte	short	
481CH	Internal temperature (PV INV01)	RO	Occupy	short	0.1°C/Bit
404511	T. I.C. I. C. I.C. I.C. I.C. I.C. I.C. I	200	2 byte		
481DH	Total feed energy to grid (PV INV01)	RO	Occupy	unsigned	1kWh/Bit
481EH	Fault infa1 (DV INI) (O1)	DO.	4 byte	int	
481FH 4820H	Fault info1 (PV INV01)	RO	Occupy	unsigned	
	Fault info2 (PV INV01)	DO.	4 byte	int	
4821H 4822H	Fault Inio2 (PV INVOT)	RO	Occupy 4 byte	unsigned int	
4823H~	Reserved (PV INV01)		Occupy	IIIL	
483FH	Reserved (FV IIVVOT)		58 byte		
4840H~	(Same as above) (PV INV02)		Occupy		
487FH	(Same as above) (FV mvo2)		128 byte		
4880H~	(Same as above) (PV INV03)		Occupy		
48BFH	(Same as assoc) (i v ii v vos)		128 byte		
48C0H~	(Same as above) (PV INV04)		Occupy		
48FFH			128 byte		
4900H~	(Same as above) (PV INV05)		Occupy		
493FH	,		128 byte		
4940H~	(Same as above) (PV INV06)		Occupy		
497FH			128 byte		
4980H~	(Same as above) (PV INV07)		Occupy		
49BFH			128 byte		



49C0H~	(Same as above) (PV INV08)		Occupy					
49FFH			128 byte					
4A00H~	(Same as above) (PV INV09)		Occupy					
4A3FH			128 byte					
4A40H~	(Same as above) (PV INV10)		Occupy					
4A7FH			128 byte					
4A80H~	(Same as above) (PV INV11)		Occupy					
4ABFH			128 byte					
4AC0H~	(Same as above) (PV INV12)		Occupy					
4AFFH			128 byte					
4B00H~	(Same as above) (PV INV13)		Occupy					
4B3FH			128 byte					
4B40H~	(Same as above) (PV INV14)		Occupy					
4B7FH			128 byte					
4B80H~	(Same as above) (PV INV15)		Occupy					
4BBFH			128 byte					
4BC0H~	(Same as above) (PV INV16)		Occupy					
4BFFH			128 byte					
Industry Fire Control								
4C00H~	Reserved		Occupy					
4C0FH			32 byte					
	Industry	Reserved	Device					
4C10H~	Reserved		Occupy					
4CFFH			480 byte					
	Ind	lustry Mete	er					
4D00H	CT Enable(Grid meter)	R/W	Occupy	unsigned	1 /b:+			
			2byte	short	1/bit			
4D01H	CT Rate(Grid meter)	R/W	Occupy	unsigned	1/bit			
			2byte	short	I/DIL			
4D02H	PT Enable(Grid meter)	R/W	Occupy	unsigned	4.75.11			
			2byte	short	1/bit			
4D03H	PT Rate(Grid meter)	R/W	Occupy	unsigned	1 /1-:+			
			2byte	short	1/bit			
4D04H	Total energy feed to grid(Grid	RO	Occupy	unsigned	0.04134/1-/1-1-			
4D05H	meter)		4 byte	int	0.01kWh/bit			
4D06H	Total energy consume from	RO	Occupy	unsigned	0.04134/1.415			
4D07H	grid(Grid meter)		4 byte	int	0.01kWh/bit			
4D08H	Voltage of A phase(Grid meter)	RO	Occupy	unsigned	4374134			
			2 byte	short	1V/bit			
4D09H	Voltage of B phase(Grid meter)	RO	Occupy	unsigned	4374134			
			2 byte	short	1V/bit			
L	L	L	•	i	i .			



4D0AH	Voltage of C phase(Grid meter)	RO	Occupy	unsigned	1V/bit
			2 byte	short	I V/DIL
4D0BH	Current of A phase(Grid meter)	RO	Occupy 2 byte	short	0.1A/bit
4D0CH	Current of B phase(Grid meter)	RO	Occupy	short	0.1A/bit
_		_	2 byte		
4D0DH	Current of C phase(Grid meter)	RO	Occupy	short	0.1A/bit
450511	Francis (Cid sector)	DO.	2 byte		
4D0EH	Frequent(Grid meter)	RO	Occupy	unsigned	0.01HZ
450511			2 byte	short · .	
4D0FH	Active power of A phase(Grid	RO	Occupy	int	1W/bit
4D10H	meter)		4 byte		
4D11H	Active power of B phase(Grid	RO	Occupy	int	1W/bit
4D12H	meter)		4 byte		
4D13H	Active power of C phase(Grid	RO	Occupy	int	1W/bit
4D14H	meter)		4 byte		,
4D15H	Total Active power(Grid Meter)	RO	Occupy	int	1W/bit
4D16H			4 byte		111,510
4D17H	Reactive power of A phase(Grid	RO	Occupy	int	1var/bit
4D18H	meter)		4 byte		TVal/bit
4D19H	Reactive power of B phase(Grid	RO	Occupy	int	1var/bit
4D1AH	meter)		4 byte		Ivai/Dit
4D1BH	Reactive power of C phase(Grid	RO	Occupy	int	1
4D1CH	meter)		4 byte		1var/bit
4D1DH	Total reactive power(Grid meter)	RO	Occupy	int	4
4D1EH			4 byte		1var/bit
4D1FH	Apparent power of A phase(Grid	RO	Occupy	int	1) / / / /- :+
4D20H	meter)		4 byte		1VA/bit
4D21H	Apparent power of B phase(Grid	RO	Occupy	int	1) / / / /- :+
4D22H	meter)		4 byte		1VA/bit
4D23H	Apparent power of C phase(Grid	RO	Occupy	int	4374 (1-1-
4D24H	meter)		4 byte		1VA/bit
4D25H	Total apparent power(Grid meter)	RO	Occupy	int	1) / / / /- :+
4D26H			4 byte		1VA/bit
4D27H	Power factor of A phase(Grid meter)	RO	Occupy	short	0.01 /b:+
			2 byte		0.01/bit
4D28H	Power factor of B phase(Grid meter)	RO	Occupy	short	0.01 /1-:-
			2 byte		0.01/bit
4D29H	Power factor of C phase(Grid meter)	RO	Occupy	short	0.04 (1.1)
			2 byte		0.01/bit
4D2AH	Total Power factor(Grid meter)	RO	Occupy	short	
	,		2 byte		0.01/bit
4D2BH~	Reserved(Grid meter)		Occupy		



4D7FH			170 byte		
4D7111	CT Enable(Pv meter)	R/W	Occupy	unsigned	
4D00H	CT Enable(PV meter)	IN/ VV	2byte	short	1/bit
4D81H	CT Rate(Pv meter)	R/W	Occupy	unsigned	
400111	Cr Rate(FV meter)	IN/ VV	2byte	short	1/bit
4D02H	DT Fnable(Dy mater)	R/W			
4D82H	PT Enable(Pv meter)	K/VV	Occupy	unsigned	1/bit
450311	DT D + (D + +)	D 04/	2byte	short	
4D83H	PT Rate(Pv meter)	R/W	Occupy	unsigned	1/bit
450411	7.1.		2byte	short	
4D84H	Total energy feed to grid(Pv meter)	RO	Occupy	unsigned	0.01kWh/bit
4D85H		_	4 byte	int	
4D86H	Total energy consume from grid(Pv	RO	Occupy	unsigned	0.01kWh/bit
4D87H	meter)		4 byte	int	
4D88H	Voltage of A phase(Pv meter)	RO	Occupy	unsigned	1V/bit
			2 byte	short	·
4D89H	Voltage of B phase(Pv meter)	RO	Occupy	unsigned	1V/bit
			2 byte	short	,
4D8AH	Voltage of C phase(Pv meter)	RO	Occupy	unsigned	1V/bit
			2 byte	short	117010
4D8BH	Current of A phase(Pv meter)	RO	Occupy	short	0.1A/bit
			2 byte		0.17 (510
4D8CH	Current of B phase(Pv meter)	RO	Occupy	short	0.1A/bit
			2 byte		0.1Aybit
4D8DH	Current of C phase(Pv meter)	RO	Occupy	short	0.1A/bit
			2 byte		U.TA/DIL
4D8EH	Frequent(Pv meter)	RO	Occupy	unsigned	0.01HZ
			2 byte	short	0.01HZ
4D8FH	Active power of A phase(Pv meter)	RO	Occupy	int	4347/1-14
4D90H			4 byte		1W/bit
4D91H	Active power of B phase(Pv meter)	RO	Occupy	int	4144111
4D92H			4 byte		1W/bit
4D93H	Active power of C phase(Pv meter)	RO	Occupy	int	
4D94H			4 byte		1W/bit
4D95H	Total Active power(Pv meter)	RO	Occupy	int	
4D96H	, , , ,		4byte		1W/bit
4D97H	Reactive power of A phase(Pv	RO	Occupy	int	
4D98H	meter)		4 byte		1var/bit
4D99H	Reactive power of B phase(Pv	RO	Occupy	int	
4D9AH	meter)	=	4 byte		1var/bit
4D9BH	Reactive power of C phase(Pv	RO	Occupy	int	
4D9CH	meter)		4 byte	1110	1var/bit
		PO.	-	int	
4D9DH	Total reactive power(Pv meter)	RO	Occupy	int	1var/bit
4D9EH			4 byte		



4D9FH Apparent power of A phase(Pv ADADH Meter) ADATH Apparent power of B phase(Pv ADADH Meter) ADATH Apparent power of B phase(Pv ADADH Meter) ADAJH Apparent power of C phase(Pv ADADH Meter) ADAJH Apparent power of C phase(Pv RO Occupy A byte MDAJH Meter) ADAJH ADAJH Apparent power(Pv meter) ADAJH ADAJH ADAJH ADAJH Power factor of A phase(Pv meter) ADAJH ADAJH Power factor of A phase(Pv meter) ADAJH Power factor of B phase(Pv meter) ADAJH Power factor of B phase(Pv meter) ADAJH Power factor of B phase(Pv meter) ADAJH Power factor of C phase(Pv meter) ADAJH Total Power factor of C phase(Pv mete						
4DA1H Apparent power of B phase(Pv ADA1H Apparent power of B phase(Pv ADA1H Apparent power of C phase(Pv ADA1H Meter) 4DA3H Apparent power of C phase(Pv ADA1H Meter) 4DA3H Apparent power of C phase(Pv ADA1H Meter) 4DA5H Total apparent power(Pv meter) 4DA5H ADA6H Power factor of A phase(Pv meter) 4DA6H Power factor of B phase(Pv meter) 4DA8H Power factor of B phase(Pv meter) 4DA9H Power factor of C phase(Pv meter) 4DA3H Total Power factor (Pv meter)		Apparent power of A phase(Pv	RO		int	1VA/bit
ADA2H meter)	4DA0H	meter)		4 byte		,
4DA2H Meter) 4DA3H Apparent power of C phase(Pv RO Occupy 1	4DA1H	Apparent power of B phase(Pv	RO	Occupy	int	 1VA/bit
## ADA4H meter) ## A byte 1VA/bit ADA5H Total apparent power(Pv meter) RO Occupy A byte ADA6H ADA6H ADA6H Power factor of A phase(Pv meter) RO Occupy Short O.01/bit ADA7H Power factor of B phase(Pv meter) RO Occupy Short O.01/bit ADA9H Power factor of C phase(Pv meter) RO Occupy Short O.01/bit ADA9H Power factor (Pv meter) RO Occupy Short O.01/bit ADA9H Total Power factor(Pv meter) RO Occupy Short O.01/bit ADA8H Total Power factor(Pv meter) RO Occupy Short O.01/bit ADA8H ADA6H Reserved(Pv meter) Occupy Short O.01/bit ADA6H Total Power factor(Pv meter) Occupy Short O.01/bit ADA6H ADA6H Total Power factor(Pv meter) Occupy Short O.01/bit ADA6H ADA6H Total Power factor(Pv meter) Occupy Short O.01/bit ADA6H ADA6		meter)		•		,
4DA5H 4DA5H 4DA6H	4DA3H	Apparent power of C phase(Pv	RO	Occupy	int	 1VA/hit
4 byte 1VA/bit 4 byte	4DA4H	meter)		4 byte		1 47 4 510
4DA6H Power factor of A phase(Pv meter) RO Occupy 2 byte 2	4DA5H	Total apparent power(Pv meter)	RO	Occupy	int	 1VA/hit
4DA8H Power factor of B phase(Pv meter) RO Occupy 2 byte 2 byte 3 hort 2 byte 4DA9H Power factor of C phase(Pv meter) RO Occupy 2 byte 4DAAH Total Power factor(Pv meter) RO Occupy 2 byte 4DAAH Total Power factor(Pv meter) RO Occupy 4DFFH Reserved(Pv meter) 770 byte 4E60H~ Reserved(Meter03) Cocupy 256 byte 4E7FH Reserved(Meter04) 256 byte 4F7FH Reserved(Meter05) Cocupy 256 byte 4F7FH Reserved(Meter05) Cocupy 256 byte 4F7FH Reserved(Meter06) Cocupy 256 byte 4F7FH Reserved(Meter07) Cocupy 256 byte 4F7FH Reserved(Meter07) Cocupy 256 byte 4F7FH Reserved(Meter07) Cocupy 256 byte 5000H~ Reserved(Meter08) Cocupy 256 byte 5000H~ Reserved(Meter08) Cocupy 256 byte 5000H~ Reserved(Meter09) Cocupy 256 byte 5100H~ Reserved(Meter09) Cocupy 256 byte 517FH Reserved(Meter09) Cocupy 256 byte 5180H~ Reserved(Meter09) Cocupy	4DA6H			4 byte		1 77 7 210
ADA8H Power factor of B phase(Pv meter) RO 2 byte	4DA7H	Power factor of A phase(Pv meter)	RO	Occupy	short	0.01/bit
4DA9H Power factor of C phase(Pv meter) RO Occupy 2 byte				2byte		0.017510
ADA9H Power factor of C phase(Pv meter) RO Occupy 2 byte	4DA8H	Power factor of B phase(Pv meter)	RO	Occupy	short	0.01/bit
4DAAH Total Power factor(Pv meter) RO Occupy 2 byte Short 2 byte O.01/bit 4DABH~ Reserved(Pv meter) Occupy 170 byte AEOH- AEO				2 byte		0.01/010
ADAAH Total Power factor(Pv meter) RO Occupy Short 2 byte	4DA9H	Power factor of C phase(Pv meter)	RO	Occupy	short	0.01/bit
2 byte 0.01/bit				2 byte		0.01/610
ADABH	4DAAH	Total Power factor(Pv meter)	RO	Occupy	short	0.01 /bit
4DFFH 170 byte 4E00H~ Reserved(Meter03) Occupy 4E7FH 256 byte 4E80H~ Reserved(Meter04) Occupy 4EFFH 256 byte 4F00H~ Reserved(Meter05) Occupy 4F7FH 256 byte 4F80H~ Reserved(Meter06) Occupy 4FFFH 256 byte 5000H~ Reserved(Meter07) Occupy 507FH 256 byte 5080H~ Reserved(Meter08) Occupy 256 byte Occupy 517FH 256 byte 5180H~ Reserved(Meter09) Occupy 517FH 256 byte 5180H~ Reserved(Meter10) Occupy 51FFH Doccupy 256 byte 5200H Line voltage between A to B(Grid) RO Occupy 0.1V/Bit 5201H Line voltage between B to C(Grid) RO Occupy 0.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy 0.1V/Bit				2 byte		0.01/bit
4E00H~ 4E7FH Reserved(Meter03) Occupy 256 byte — 4E80H~ 4EFFH Reserved(Meter04) Occupy 256 byte — 4F00H~ 4F7FH Reserved(Meter05) Occupy 256 byte — 4F80H~ 4F80H~ 4FFFH Reserved(Meter06) Occupy 256 byte — 5000H~ 507FH Reserved(Meter07) Occupy 256 byte — 5080H~ 50FFH Reserved(Meter08) Occupy 256 byte — 5100H~ 51FFH Reserved(Meter09) Occupy 256 byte — 5200H Line voltage between A to B(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit	4DABH~	Reserved(Pv meter)		Occupy		
4E7FH 256 byte 4E80H~ Reserved(Meter04) 4E7FH Occupy 4F70H~ Reserved(Meter05) 4F70H~ Reserved(Meter05) 4F7FH Occupy 4F80H~ Reserved(Meter06) 4F7FH Occupy 256 byte 56 byte 5000H~ Reserved(Meter07) 507FH Occupy 256 byte Cocupy 256 byte Cocupy 256 byte South 5100H~ Reserved(Meter09) Occupy 256 byte Cocupy 250H Line voltage between A to B(Grid) RO Occupy 250H Line v	4DFFH			170 byte		
4E80H~ 4EFFH Reserved(Meter04) Occupy 256 byte 4F00H~ 4F7FH Reserved(Meter05) Occupy 256 byte 4F80H~ 4F80H~ 4FFFH Reserved(Meter06) Occupy 256 byte 5000H~ 5000H~ 507FH Reserved(Meter07) Occupy 256 byte 5080H~ 5080H~ 50FFH Reserved(Meter08) Occupy 256 byte 5100H~ 517FH Reserved(Meter09) Occupy 256 byte 5180H~ 5180H~ 5180H~ 5180H~ 6180H Reserved(Meter10) Occupy 256 byte 5200H Line voltage between A to B(Grid) RO Occupy 2 byte Unsigned short O.1V/Bit 5201H Line voltage between B to C(Grid) RO Occupy 2 byte unsigned short O.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy 2 byte unsigned short O.1V/Bit	4E00H~	Reserved(Meter03)		Occupy		
4EFFH 256 byte 4F00H~ 4F7FH Reserved(Meter05) Occupy 256 byte 4F80H~ 4F80H~ 4F8HH Reserved(Meter06) Occupy 256 byte 5000H~ 5000H~ 507FH Reserved(Meter07) Occupy 256 byte 5080H~ 508HH Reserved(Meter08) Occupy 256 byte 5100H~ 517FH Reserved(Meter09) Occupy 256 byte 5180H~ 5180H~ 5180H~ 6180H Reserved(Meter10) Occupy 256 byte 5180H~ 5200H Line voltage between A to B(Grid) RO Occupy 2 byte Unsigned short O.1V/Bit 5201H Line voltage between B to C(Grid) RO Occupy 2 byte Unsigned short O.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy 2 byte Unsigned short O.1V/Bit	4E7FH			256 byte		
4F00H~ 4F7FH Reserved(Meter05) Occupy 256 byte 4F80H~ 4F80H~ 4FFFH Reserved(Meter06) Occupy 256 byte 5000H~ 507FH Reserved(Meter07) Occupy 256 byte 5080H~ 5080H~ 5080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~ 6080H~	4E80H~	Reserved(Meter04)		Occupy		
4F7FH 256 byte 4F80H~ Reserved(Meter06) 4FFFH Occupy 5000H~ Reserved(Meter07) 507FH Occupy 5080H~ Reserved(Meter08) 50FFH Occupy 5100H~ Reserved(Meter09) 517FH Occupy 517FH Occupy 5180H~ Reserved(Meter10) 5180H~ Coccupy 51FFH Doccupy 256 byte Occupy 257 Occupy 2 byte Short 5202H Line voltage between B to C(Grid) RO Coccupy Unsigned 2 byte Short 0.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy Unsigned 2 byte Short 0.1V/Bit	4EFFH			256 byte		
4F80H~ Reserved(Meter06) Occupy 256 byte 5000H~ Reserved(Meter07) Occupy 256 byte 507FH Occupy 256 byte 5080H~ 50FFH Reserved(Meter08) Occupy 256 byte 5100H~ 517FH Reserved(Meter09) Occupy 256 byte 5180H~ 5180H~ 51FFH Reserved(Meter10) Occupy 256 byte 5200H Line voltage between A to B(Grid) RO Occupy 2 byte unsigned short 5201H Line voltage between B to C(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit	4F00H~	Reserved(Meter05)		Occupy		
### AFFFH 256 byte 5000H~ Reserved(Meter07) 256 byte 5080H~ 5080H~ Reserved(Meter08) 256 byte 5080H~ 5080H~ Reserved(Meter08) 256 byte 5100H~ Reserved(Meter09) 256 byte 517FH 256 byte 5180H~ Reserved(Meter10) 256 byte 5180H~ Seerved(Meter10) Seerved(Meter09) Seerve	4F7FH			256 byte		
South	4F80H~	Reserved(Meter06)		Occupy		
507FH Reserved(Meter08) Occupy 5080H~ Reserved(Meter08) 256 byte 5100H~ Reserved(Meter09) Occupy 517FH 256 byte 5180H~ Reserved(Meter10) Occupy 51FFH 256 byte Description of the property of	4FFFH			256 byte		
Sobstance Sobs	5000H~	Reserved(Meter07)		Occupy		
50FFH 5100H~ Seserved(Meter09) 517FH Coccupy 5180H~ Seserved(Meter10) Coccupy 51FFH Coccupy 5256 byte Selection of the provided short Selection of the provided sho	507FH			256 byte		
5100H~ Seserved (Meter 09)	5080H~	Reserved(Meter08)		Occupy		
517FH Reserved(Meter10) Occupy 51FFH 256 byte Tindustry STS 5200H Line voltage between A to B(Grid) RO Occupy 2 byte Short 5201H Line voltage between B to C(Grid) RO Occupy 2 byte Short 5202H Line voltage between C to A(Grid) RO Occupy 2 byte Short 5202H Line voltage between C to A(Grid) RO Occupy 2 byte Short 5202H Line voltage between C to A(Grid) RO Occupy 2 byte Short 6.1V/Bit 6.1V/Bit	50FFH			256 byte		
5180H~ Reserved(Meter10) Occupy 256 byte 5180H~ S1FFH Cocupy 256 byte Industry STS 5200H Line voltage between A to B(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit 5201H Line voltage between B to C(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy 2 byte unsigned short 0.1V/Bit	5100H~	Reserved(Meter09)		Occupy		
51FFH 256 byte 2500H Line voltage between A to B(Grid) RO Occupy 2 byte 3 bort 3 b	517FH			256 byte		
Second Continue to the con	5180H~	Reserved(Meter10)		Occupy		
5200HLine voltage between A to B(Grid)ROOccupy 2 byteunsigned short0.1V/Bit5201HLine voltage between B to C(Grid)ROOccupy 2 byteunsigned short0.1V/Bit5202HLine voltage between C to A(Grid)ROOccupy 2 byteunsigned short0.1V/Bit	51FFH			256 byte		
5200HLine voltage between A to B(Grid)ROOccupy 2 byteunsigned short0.1V/Bit5201HLine voltage between B to C(Grid)ROOccupy 2 byteunsigned short0.1V/Bit5202HLine voltage between C to A(Grid)ROOccupy 2 byteunsigned short0.1V/Bit						
5201H Line voltage between B to C(Grid) RO Occupy unsigned 2 byte short 5202H Line voltage between C to A(Grid) RO Occupy unsigned 2 byte short 5202H Line voltage between C to A(Grid) RO Occupy 2 byte short 5202H Short 0.1V/Bit 0.1V/Bit 0.1V/Bit		In	dustry STS			
5201H Line voltage between B to C(Grid) RO Occupy unsigned 2 byte short 5202H Line voltage between C to A(Grid) RO Occupy unsigned 2 byte short 5202H Line voltage between C to A(Grid) RO Occupy unsigned 2 byte short	5200H	Line voltage between A to B(Grid)	RO	Occupy	unsigned	0.41//D:+
2 byte short 0.1V/Bit 5202H Line voltage between C to A(Grid) RO Occupy unsigned 2 byte short 0.1V/Bit				2 byte	short	U. I V/DIT
5202H Line voltage between C to A(Grid) RO Occupy unsigned 2 byte short 0.1V/Bit	5201H	Line voltage between B to C(Grid)	RO	Occupy	unsigned	0.1\//D:+
2 byte short 0.1V/Bit				2 byte	short	U. I V/BIT
2 byte short	5202H	Line voltage between C to A(Grid)	RO	Occupy	unsigned	0.1\//D:+
5203H Phase A current(Grid) RO Occupy short 1A/Bit				2 byte	short	U. I V/BIT
	5203H	Phase A current(Grid)	RO	Occupy	short	1A/Bit



			2 byte		
5204H	Phase B current(Grid)	RO	Occupy	short	
320411	rnase b current(Gna)	KO	2 byte	311011	1A/Bit
5205H	Phase C current(Grid)	RO	Occupy	short	
320311	Thase c carrent(Grid)	T.O	2 byte	311011	1A/Bit
5206H	Frequency(Grid)	RO	Occupy	unsigned	
320011	l requeries (erra)		2 byte	short	0.01Hz/Bit
5207H	Phase A active power(Grid)	RO	Occupy	int	
5208H			4 byte		1W/Bit
5209H	Phase B active power(Grid)	RO	Occupy	int	
520AH			4 byte		1W/Bit
520BH	Phase C active power(Grid)	RO	Occupy	int	
520CH			4 byte		1W/Bit
520DH	Phase A reactive power(Grid)	RO	Occupy	int	
520EH			4 byte		1var/Bit
520FH	Phase B reactive power(Grid)	RO	Occupy	int	
5210H			4 byte		1var/Bit
5211H	Phase C reactive power(Grid)	RO	Occupy	int	4 (5)
5212H			4 byte		1var/Bit
5213H	Phase A apparent power(Grid)	RO	Occupy	int	4) /A /D'+
5214H			4 byte		1VA/Bit
5215H	Phase B apparent power(Grid)	RO	Occupy	int	1) /A /D:+
5216H			4 byte		1VA/Bit
5217H	Phase C apparent power(Grid)	RO	Occupy	int	1)/A /D:+
5218H			4 byte		1VA/Bit
5219H	Phase A factor(Grid)	RO	Occupy	short	0.01/Bit
			2 byte		0.01/Bit
521AH	Phase B factor(Grid)	RO	Occupy	short	0.01/Bit
			2 byte		0.01/610
521BH	Phase C factor(Grid)	RO	Occupy	short	0.01/Bit
			2 byte		0.017 Bit
521CH	Total active power(Grid)	RO	Occupy	int	1W/Bit
521DH			4 byte		TWV/ DIC
521EH	Total reactive power(Grid)	RO	Occupy	int	1var/Bit
521FH			4 byte		
5220H	Total apparent power(Grid)	RO	Occupy	int	1VA/Bit
5221H			4 byte		
5222H	Total PF (Grid)	RO	Occupy	short	0.01/Bit
			2 byte		,
5223H	Line voltage between A to B(Load)	RO	Occupy	unsigned	0.1V/Bit
			2 byte	short	, -
5224H	Line voltage between B to C(Load)	RO	Occupy	unsigned	0.1V/Bit
			2 byte	short	,



5225H	Line voltage between C to A(Load)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
5226H	Phase A current(Load)	RO	Occupy 2 byte	short	1A/Bit
5227H	Phase B current(Load)	RO	Occupy 2 byte	short	1A/Bit
5228H	Phase C current(Load)	RO	Occupy 2 byte	short	1A/Bit
5229H	Frequency(Load)	RO	Occupy 2 byte	unsigned short	0.01Hz/Bit
522AH 522BH	Phase A active power(Load)	RO	Occupy 4 byte	int	1W/Bit
522CH 522DH	Phase B active power(Load)	RO	Occupy 4 byte	int	1W/Bit
522EH 522FH	Phase C active power(Load)	RO	Occupy 4 byte	int	1W/Bit
5230H 5231H	Phase A reactive power(Load)	RO	Occupy 4 byte	int	1var/Bit
5232H 5233H	Phase B reactive power(Load)	RO	Occupy 4 byte	int	1var/Bit
5234H 5235H	Phase C reactive power(Load)	RO	Occupy 4 byte	int	1var/Bit
5236H 5237H	Phase A apparent power(Load)	RO	Occupy 4 byte	int	1VA/Bit
5238H 5239H	Phase B apparent power(Load)	RO	Occupy 4 byte	int	1VA/Bit
523AH 523BH	Phase C apparent power(Load)	RO	Occupy 4 byte	int	1VA/Bit
523CH	Phase A factor(Load)	RO	Occupy 2 byte	short	0.01/Bit
523DH	Phase B factor(Load)	RO	Occupy 2 byte	short	0.01/Bit
523EH	Phase C factor(Load)	RO	Occupy 2 byte	short	0.01/Bit
523FH 5240H	Total active power(Load)	RO	Occupy 4 byte	int	1W/Bit
5241H 5242H	Total reactive power(Load)	RO	Occupy 4 byte	int	1var/Bit
5243H 5244H	Total apparent power(Load)	RO	Occupy 4 byte	int	1VA/Bit
5245H	Total PF (Load)	RO	Occupy 2 byte	short	0.01/Bit
5246H	Communication timeout	RO	Occupy 2 byte	unsigned short	1s/Bit



5247H	Fault info1	RO	Occupy	unsigned	
5248H			4 byte	int	
5249H	Fault info2	RO	Occupy	unsigned	
524AH			4 byte	int	
524BH~	Reserved		Occupy		
52BFH			234 byte		
	Ind	ustry PCS(D	CAC)		1
52C0H	AC line voltage A to B	RO	Occupy	unsigned	0.1V/Bit
			2 byte	short	0.1 V/ BIC
52C1H	AC line voltage B to C	RO	Occupy	unsigned	0.1V/Bit
			2 byte	short	0.1 V/ DIC
52C2H	AC line voltage C to A	RO	Occupy	unsigned	0.1V/Bit
			2 byte	short	0.1 V/ DIC
52C3H	Phase A current	RO	Occupy	short	1A/Bit
			2 byte		TAYBIC
52C4H	Phase B current	RO	Occupy	short	1A/Bit
			2 byte		1A) bit
52C5H	Phase C current	RO	Occupy	short	1A/Bit
			2 byte		TAYBIC
52C6H	Frequency	RO	Occupy	unsigned	0.01Hz/Bit
			2 byte	short	0.0 11 12/ BIL
52C7H	Phase A active power	RO	Occupy	int	1W/Bit
52C8H			4 byte		T VV/ DIC
52C9H	Phase B active power	RO	Occupy	int	1W/Bit
52CAH			4 byte		TVV/ DIC
52CBH	Phase C active power	RO	Occupy	int	1W/Bit
52CCH			4 byte		T VV/ DIC
52CDH	Phase A reactive power	RO	Occupy	int	1var/Bit
52CEH			4 byte		TVal/Dit
52CFH	Phase B reactive power	RO	Occupy	int	1var/Bit
52D0H			4 byte		TVal/Dit
52D1H	Phase C reactive power	RO	Occupy	int	1var/Bit
52D2H			4 byte		I vai / Dit
52D3H	Phase A apparent power	RO	Occupy	int	1VA/Bit
52D4H			4 byte		i VA) DIL
52D5H	Phase B apparent power	RO	Occupy	int	1VA/Bit
52D6H			4 byte		i VA) DIL
52D7H	Phase C apparent power	RO	Occupy	int	1VA/Bit
52D8H			4 byte		I VA/ DIL
52D9H	Phase A factor	RO	Occupy	short	0.01 /P;+
			2 byte		0.01/Bit
52DAH	Phase B factor	RO	Occupy	short	0.01/Bit



			2 byte		
FORRU	Phone C forther	DO.	2 byte	-lt	
52DBH	Phase C factor	RO	Occupy 2 byte	short	0.01/Bit
52DCH	Total active power	RO	Occupy	int	1W/Bit
52DDH			4 byte		I VV/BIL
52DEH	Total reactive power	RO	Occupy	int	1/Dit
52DFH			4 byte		1var/Bit
52E0H	Total apparent power	RO	Occupy	int	1) /A /D:+
52E1H			4 byte		1VA/Bit
52E2H	Total factor	RO	Occupy 2 byte	short	0.01/Bit
52E3H	Accumulative charged energy	RO	Occupy	unsigned	
52E4H	through AC port	1.0	4 byte	int	1kWh/Bit
52E5H	Accumulative discharged energy	RO	Occupy	unsigned	
52E6H	through AC port	1.0	4 byte	int	1kWh/Bit
52E7H	Module temperature	RO	Occupy	short	
0	modulo componataro		2 byte		0.1℃/Bit
52E8H	Ambient temperature	RO	Occupy	short	
3220	7 undient temperature	1.0	2 byte	3,1011	0.1℃/Bit
52E9H	Grid interconnection mode	RO	Occupy	unsigned	0: Grid-tied
			2 byte	short	1: Off-grid
52EAH	Start stop state	RO	Occupy	unsigned	0: Mode off
			2 byte	short	1: Mode on
52EBH	Fault state	RO	Occupy	unsigned	0: Normal
			2 byte	short	1: Alert
					2: Fault
52ECH	Control mode	RO	Occupy	unsigned	1: Local manual
			2 byte	short	2: Local auto
					3: Remote
52EDH	Fault info1	RO	Occupy	unsigned	
52EEH			4 byte	int	
52EFH	Fault info2	RO	Occupy	unsigned	
52F0H			4 byte	int	
52F1H	Fault info3	RO	Occupy	unsigned	
52F2H	▼		4 byte	int	
52F3H	Fault info4	RO	Occupy	unsigned	
52F4H			4 byte	int	
52F5H	Status info1	RO	Occupy	unsigned	
52F6H			4 byte	int	
52F7H	Status info2	RO	Occupy	unsigned	
52F8H			4 byte	int	
52F9H	Status info3	RO	Occupy	unsigned	
52FAH			4 byte	int	
52FBH	Status info4	RO	Occupy	unsigned	



52FCH			4 byte	int	
52FDH	Status info5	RO	Occupy	unsigned	
52FEH	Status imos	, no	4 byte	int	
52FFH	Status info6	RO	Occupy	unsigned	
5300H	Status imoo	NO	4 byte	int	
5301H	Status info7	RO	Occupy	unsigned	
5302H	Status IIIO	NO	4 byte	int	
5303H	Status info8	RO	Occupy	unsigned	
5304H	Status imoo	NO	4 byte	int	
5305H	Status info9	RO	Occupy	unsigned	
5306H	Status inios	NO	4byte	int	
5307H	Status info10	RO	Occupy	unsigned	
5308H	Status IIII010	NO .	4 byte	int	
5309H	Daily accumulative charged energy	RO	Occupy	unsigned	
530AH	through AC port	KO	4 byte	int	1kWh/Bit
530AH	Daily accumulative discharged	RO	•		
530CH	energy through AC port	KO	Occupy 4 byte	unsigned int	1kWh/Bit
				IIIC	
530DH~	Reserved		Occupy		
537FH			230 byte		
		D.C.(D.C.	D.C.		
520011		try PCS(DC			0 14 1 55
5380H	Start stop state	RO	Occupy	unsigned	0: Mode off
500411		20	2 byte	short	1: Mode on
5381H	Fault state	RO	Occupy	unsigned	0: Normal
			2 byte	short	1: Alert
					2: Fault
5382H	Battery power	RO	Occupy	int	1W/Bit
5383H			4 byte		
5384H	Battery voltage	RO	Occupy	unsigned	0.1V/Bit
			2 byte	short	
5385H	Battery current	RO	Occupy	short	1A/Bit
	· ·		2 byte		, -
5386H	Battery charged energy	RO	Occupy	unsigned	1kWh/Bit
5387H			4 byte	int	, 2.1
5388H	Battery discharged energy	RO	Occupy	unsigned	1kWh/Bit
5389H			4 byte	int	
538AH	PV power	RO	Occupy	int	1W/Bit
538BH			4 byte		, 510
538CH	•	RO	Occupy	unsigned	
ээосп	PV voltage	RO	0 000.197	9	l Λ1\//Ri+
эзосн	PV voltage	KO	2 byte	short	0.1V/Bit
538DH	PV voltage PV current	RO		J	
			2 byte	short	0.1V/Bit 1A/Bit



FOOFIL					
538FH			4 byte	int	
5390H	Fault info1	RO	Occupy	unsigned	
5391H			4 byte	int	
5392H	Fault info2	RO	Occupy	unsigned	
5393H			4 byte	int	
5394H	Fault info3	RO	Occupy	unsigned	
5395H			4 byte	int	
5396H	Fault info4	RO	Occupy	unsigned	
5397H			4 byte	int	
5398H	Status info1	RO	Occupy	unsigned	
5399H			4 byte	int	
539AH	Status info2	RO	Occupy	unsigned	
539BH			4 byte	int	
539CH	Status info3	RO	Occupy	unsigned	
539DH			4 byte	int	
539EH	Status info4	RO	Occupy	unsigned	
539FH			4 byte	int	
53A0H	Status info5	RO	Occupy	unsigned	
53A1H			4 byte	int	
53A2H	Status info6	RO	Occupy	unsigned	
53A3H			4 byte	int	
53A4H	Status info7	RO	Occupy	unsigned	
53A5H			4 byte	int	
53A6H	Status info8	RO	Occupy	unsigned	
53A7H			4 byte	int	
53A8H	Status info9	RO	Occupy	unsigned	
53A9H			4 byte	int	
53AAH	Status info10	RO	Occupy	unsigned	
53ABH			4 byte	int	
53ACH~	Reserved		Occupy		
53FFH			168 byte		
	Industry Battery(P	arallel clus	ter informa	tion)	
5400H	Topbmu SN byte1~4	RO	Occupy	unsigned	
5401H			4 byte	int	
5402H	Topbmu SN byte5~8	RO	Occupy	unsigned	
5403H			4 byte	int	
5404H	Topbmu SN byte9~12	RO	Occupy	unsigned	
5405H			4 byte	int	
5406H	Topbmu SN byte13~16	RO	Occupy	unsigned	
5407H			4 byte	int	
5408H	Topbmu soft version	RO	Occupy	unsigned	0.01/bit
			2 byte	short	0.01/DIL



5409H	Topbmu protocol version	RO	Occupy	unsigned	
340311	Topoma protocor version	I NO	2 byte	short	
_		_			
540AH	Topbmu hard version	RO	Occupy	unsigned	0.01/bit
			2 byte	short	
540BH	Topbmu max charge current	RO	Occupy	unsigned	0.1A /bit
			2 byte	short	0.1717
540CH	Topbmu max discharge current	RO	Occupy	unsigned	0.1A /bit
			2 byte	short	0.17(75)(
540DH	Topbmu status flag	RO	Occupy	unsigned	Note10
			2 byte	short	Note10
540EH	Topbmu max pole temperature	RO	Occupy	short	0.405 # 10
			2 byte		0.1°C/bit -40
540FH	Topbmu voltage	RO	Occupy	unsigned	
			2 byte	short	0.1 V/bit
5410H	Topbmu current	RO	Occupy	short	
			2 byte		0.1 A/bit
5411H	Topbmu insulated resistance	RO	Occupy	unsigned	
311111	Topoma moduced resistance	110	2 byte	short	1 kΩ/bit
5412H	Topbmu SOC	RO	Occupy	unsigned	
341211	Порыни зос	INO	2 byte	short	0.4 %/bit
F 41211	To the trans COLL	DO			
5413H	Topbmu SOH	RO	Occupy	unsigned	0.4 %/bit
			2 byte	short	
5414H	Topbmu min cell voltage	RO	Occupy	unsigned	0.001v/bit
			2 byte	short	
5415H	Topbmu min cell voltage ID	RO	Occupy	unsigned	
			2 byte	short	
5416H	Topbmu max cell voltage	RO	Occupy	unsigned	0.001v/bit
			2 byte	short	0.00117.510
5417H	Topbmu max cell voltage ID	RO	Occupy	unsigned	
			2 byte	short	
5418H	Topbmu min cell temperature	RO	Occupy	short	0.196761-10
			2 byte		0.1°C/bit -40
5419H	Topbmu min cell temperature ID	RO	Occupy	unsigned	
			2 byte	short	
541AH	Topbmu max cell temperature	RO	Occupy	short	
			2 byte		0.1°C/bit -40
541BH	Topbmu max cell temperature ID	RO	Occupy	unsigned	
	parameter temperature is		2 byte	short	
541CH	Topbmu max pole temperature ID	RO	Occupy	unsigned	
3-1011	Topoma max pole temperature ib	1.0	2 byte	short	
E/1DII	Tanhmu varsian	P.O.			22:TOPBMU-
541DH	Topbmu version	RO	Occupy	unsigned	
			2 byte	short	M48112-S/0:无
					TOPBMU



		T	Ī	Ī	
					42: TOPBMU-
					M38344-S/57:
					TOPBMU-M48240-S
541EH	Topbmu BMU version	RO	Occupy	unsigned	15: BMU-
			2 byte	short	HV900112/26:
					BMU-
					HV50056/38:BMU-
					HV900105/50:HV90
					0120/41: BMU-
					HV90086/56:HV900
					120-HE
541FH	Topbmu ISO version	RO	Occupy	unsigned	14: LMU-M48112-
			2 byte	short	S/25: LMU-M4856-
					S/37:LMU-M38210-
					S/49:M19360-
					S/40: LMU-
					M38344-S/55:
					LMU-M48240-S
5420H	Topbmu LMU version	RO	Occupy	unsigned	14: LMU-M48112-
			2 byte	short	S/25: LMU-M4856-
					S/37:LMU-M38210-
			·		S/49:M19360-
					S/40: LMU-
					M38344-S/55:
					LMU-M48240-S
5421H	Topbmu reset log	RO	Occupy	unsigned	Note11
			2 byte	short	Noterr
5422H	Topbmu restarts number	RO	Occupy	unsigned	
			2 byte	short	
5423H	Topbmu clusters number	RO	Occupy	unsigned	
			2 byte	short	
5424H	Fault info1	RO	Occupy	unsigned	
5425H			4 byte	int	
5426H	Fault info2	RO	Occupy	unsigned	
5427H	V		4 byte	int	
5428H	Fault info3	RO	Occupy	unsigned	
5429H			4 byte	int	
542AH	Fault info4	RO	Occupy	unsigned	
542BH			4 byte	int	
542CH~	Reserved		Occupy		
547FH			168 byte		
	Industry Batte	ery(Parallel	cluster Fau	lt)	
5480H	Toperror charge over current cluster	RO	Occupy	unsigned	
5481H	high		4 byte	int	



5482H	Toporror charge over current cluster	RO	Occupy	unsigned	
5483H	Toperror charge over current cluster low	KO	Occupy 4 byte	unsigned int	
5484H	Toperror discharge over current	RO	Occupy	unsigned	
5485H	cluster high	110	4 byte	int	
5486H	Toperror discharge over current	RO	Occupy	unsigned	
5487H	cluster low	110	4 byte	int	
5488H	Toperror pole over current cluster	RO	Occupy	unsigned	
5489H	high		4 byte	int	
548AH	Toperror pole over current cluster	RO	Occupy	unsigned	
548BH	low		4 byte e	int	
548CH	Toperror cell over temperature	RO	Occupy	unsigned	
548DH	cluster high		4 byte	int	
548EH	Toperror cell over temperature	RO	Occupy	unsigned	
548FH	cluster low		4 byte	int	
5490H	Toperror charge low temperature	RO	Occupy	unsigned	
5491H	cluster high		4 byte	int	
5492H	Toperror charge low temperature	RO	Occupy	unsigned	
5493H	cluster low		4 byte	int	
5494H	Toperror discharge low	RO	Occupy	unsigned	
5495H	temperature cluster high		4 byte	int	
5496H	Toperror discharge low	RO	Occupy	unsigned	
5497H	temperature cluster low		4 byte	int	
5498H	Toperror cell over voltage cluster	RO	Occupy	unsigned	
5499H	high		4 byte	int	
549AH	Toperror cell over voltage cluster	RO	Occupy	unsigned	
549BH	low		4 byte	int	
549CH	Toperror cell under voltage cluster	RO	Occupy	unsigned	
549DH	high		4 byte	int	
549EH	Toperror cell under voltage cluster	RO	Occupy	unsigned	
549FH	low		4 byte	int	
54A0H	Toperror cell temperature	RO	Occupy	unsigned · .	
54A1H	difference cluster high		4 byte	int	
54A2H	Toperror cell temperature	RO	Occupy	unsigned	
54A3H	difference cluster low	PO.	4 byte	int	
54A4H 54A5H	Toperror cell voltage difference cluster high	RO	Occupy 4 byte	unsigned int	
54A5H 54A6H	Toperror cell voltage difference	RO	4 byte Occupy	unsigned	
54A6H	cluster low	NO	4 byte	int	
54A8H	Toperror insulation cluster high	RO	Occupy	unsigned	
54A9H			4 byte	int	
54AAH	Toperror insulation cluster low	RO	Occupy	unsigned	
54ABH		20	4 byte	int	
54ACH	Toperror LMU communication	RO	Occupy	unsigned	



54ADH	failure cluster high		4 byte	int	
54AEH	Toperror LMU communication	RO	Occupy	unsigned	
54AFH	failure cluster low	NO	4 byte	int	
54B0H	Toperror temperature sensor failure	RO	Occupy	unsigned	
54B1H	cluster high	110	4 byte	int	
54B2H	Toperror temperature sensor failure	RO	Occupy	unsigned	
54B3H	cluster low	NO	4 byte	int	
54B4H	Toperror Wireharness failure cluster	RO	Occupy	unsigned	
54B5H	high	110	4 byte	int	
54B6H	Toperror Wireharness failure cluster	RO	Occupy	unsigned	
54B7H	low	110	4 byte	int	
54B8H	Toperror high voltage box	RO	Occupy	unsigned	
54B9H	communication failure cluster high	NO	4 byte	int	
54BAH	Toperror high voltage box	RO	Occupy	unsigned	
54BBH	communication failure cluster low	KO	4 byte	int	
54BCH	Toperror total pressure detect	RO	Occupy	unsigned	
54BDH	cluster high	KO	4 byte	int	
54BEH	Toperror total pressure detect	RO	Occupy	unsigned	
54BFH	cluster low	KO	4 byte	int	
54C0H	Toperror relay failure cluster high	RO	Occupy	unsigned	
54C1H	Toperror relay failure cluster flight	KO	4 byte	int	
54C2H	Toperror relay failure cluster low	RO	Occupy	unsigned	
54C2H	Toperror relay failure cluster low	KO	4 byte	int	
54C4H	Toperror cluster excision cluster	RO	Occupy	unsigned	
54C4H	high	NO V	4 byte	int	
54C6H	Toperror cluster excision cluster low	RO	Occupy	unsigned	
54C7H	roperrol cluster excision cluster low	NO	4 byte	int	
54C8H	Toperror ISO communication failure	RO	Occupy	unsigned	
54C9H	cluster high	NO	4 byte	int	
54CAH	Toperror ISO communication failure	RO	Occupy	unsigned	
54CBH	cluster low	NO	4 byte	int	
54CCH	Toperror LMU SN repeat cluster	RO	Occupy	unsigned	
54CCH 54CDH	high	NO	4 byte	int	
54CEH	Toperror LMU SN repeat cluster low	RO	Occupy	unsigned	
54CFH	Toperior Livio 314 repeat cluster low	NO	4 byte	int	
54D0H	Toperror LMU ID repeat cluster high	RO	Occupy	unsigned	
54D0H 54D1H	Toperror Livio to repeat cluster high	NO	4 byte	int	
54D1H	Toperror LMU ID repeat cluster low	RO	Occupy	unsigned	
54D2H 54D3H	Toperior Livio in Tehear Cluster IOW	NO	4 byte	int	
54D4H	Toperror LMU ID discontinuity	RO	Occupy	unsigned	
54D4H 54D5H	cluster high	NO	4 byte	int	
54D6H	Toperror LMU ID discontinuity	RO	Occupy	unsigned	
54D6H 54D7H	cluster low	NO	4 byte	•	
34U/H	ciustei iow		4 Dyte	int	



54D8H	Toperror current sensor failure	RO	Occupy	unsigned	
54D9H	cluster high		4 byte	int	
54DAH	Toperror current sensor failure	RO	Occupy	unsigned	
54DBH	cluster low		4 byte	int	
54DCH	Toperror no LMU failure clus <i>t</i> er	RO	Occupy	unsigned	
54DDH	high		4 byte	int	
54DEH	Toperror no LMU failure cluster low	RO	Occupy	unsigned	
54DFH			4 byte	int	
54E0H	Toperror no bottom failure cluster	RO	Occupy	unsigned	
54E1H	high		4 byte	int	
54E2H	Toperror no bottom failure cluster	RO	Occupy	unsigned	
54E3H	low		4 byte	int	
54E4H	Toperror force close relay failure	RO	Occupy	unsigned	
54E5H	cluster high		4 byte	int	
54E6H	Toperror force close relay failure	RO	Occupy	unsigned	
54E7H	cluster low		4 byte	int	
54E8H	Toperror force close relay mode	RO	Occupy	unsigned	
54E9H	cluster high		4 byte	int	
54EAH	Toperror force close relay mode	RO	Occupy	unsigned	
54EBH	cluster low		4 byte	int	
54ECH	Toperror factory test mode cluster	RO	Occupy	unsigned	
54EDH	high		4 byte	int	
54EEH	Toperror factory test mode cluster	RO	Occupy	unsigned	
54EFH	low		4 byte	int	
54F0H	Toperror bmu warn and state	RO	Occupy	unsigned	NI-4-40
54F1H	cluster		4 byte	short	Note12
54F2H~	Reserved		Occupy		
557FH			284 byte		
	Industry Battery(Single clust	ter informa	tion)	
5580H	Bmu01 SN byte1~4	RO	Occupy	unsigned	
5581H			4 byte	int	
5582H	Bmu01 SN byte5~8	RO	Occupy	unsigned	
5583H			4 byte	int	
5584H	Bmu01 SN byte9~12	RO	Occupy	unsigned	
5585H	•		4 byte	int	
5586H	Bmu01 SN byte13~16	RO	Occupy	unsigned	
5587H			4 byte	int	
5588H	Bmu01 soft version	RO	Occupy	unsigned	0.04 // ''
			2 byte	short	0.01/bit
5589H	Bmu01 hard version	RO	Occupy	unsigned	0.04 // ''
			2 byte	short	0.01/bit
558AH	Bmu01 state	RO	Occupy	unsigned	N 42
			2 byte	short	Note13
L	i .	i			1



					<u> </u>
558BH	Bmu01 cluster voltage	RO	Occupy 2 byte	unsigned short	0.1 V/bit
558CH	Bmu01 cluster current	RO	Occupy 2 byte	short	0.1 A/bit
558DH	Bmu01 insulated resistance	RO	Occupy 2 byte	unsigned short	1 kΩ/bit
558EH	Bmu01 SOC	RO	Occupy	unsigned	0.4 %/bit
558FH	Bmu01 SOH	RO	2 byte Occupy	short unsigned	0.4 %/bit
5590H	Bmu01 LMU communication failure	RO	2 byte Occupy	short unsigned	
5591H 5592H	high Bmu01 LMU communication failure	RO	4 byte Occupy	int unsigned	
5593H	low		4 byte	int	
5594H 5595H	Bmu01 temperature sensor failure high	RO	Occupy 4 byte	unsigned int	
5596H 5597H	Bmu01 temperature sensor failure low	RO	Occupy 4 byte	unsigned int	
5598H	Bmu01 wireharness failure high	RO	Occupy	unsigned	
5599H 559AH	Bmu01 wireharness failure low	RO	4 byte Occupy	int unsigned	
559BH 559CH	Bmu01 equalization failure high	RO	4 byte Occupy	int unsigned	
559DH 559EH	Bmu01 equalization failure low	RO	4 byte Occupy	int unsigned	
559FH			4 byte	int	
55A0H 55A1H	Bmu01 equalization mos failure high	RO	Occupy 4 byte	unsigned int	
55A2H 55A3H	Bmu01 equalization mos failure low	RO	Occupy 4 byte	unsigned int	
55A4H	Bmu01 ISO soft version	RO	Occupy 2 byte	unsigned short	0.01
55A5H	Bmu01 ISO hard version	RO	Occupy 2 byte	unsigned short	0.01
55A6H 55A7H	Bmu01 Passive equalization high	RO	Occupy 4 byte	unsigned int	
55A8H 55A9H	Bmu01 Passive equalization low	RO	Occupy 4 byte	unsigned int	
55AAH 55ABH	Bmu01 BOOST equalization high	RO	Occupy	unsigned int	
55ACH	Bmu01 BOOST equalization low	RO	4 byte Occupy	unsigned	
55ADH 55AEH 55AFH	Bmu01 BUCK equalization high	RO	4 byte Occupy 4 byte	int unsigned int	



55B0H	Bmu01 BUCK equalization low	RO	Occupy	unsigned	
55B1H	·		4 byte	int	
55B2H	Bmu01 LMU number	RO	Occupy	unsigned	
			2 byte	short	
55B3H	Bmu01 single cut fault code	RO	Occupy	unsigned	NI-4-4.4
			2 byte	short	Note14
55B4H	Bmu01 reset log	RO	Occupy	unsigned	Noted F
			2 byte	short	Note15
55B5H	Bmu01 restarts number	RO	Occupy	unsigned	
			2 byte	short	
55B6H	Bmu01 version	RO	Occupy	unsigned	15: BMU-
			2 byte	short	HV900112/26:
					BMU-
					HV50056/38:BMU-
					HV900105/50:HV90
					0120/41: BMU-
					HV90086
55B7H	Bmu01 min cell voltage	RO	Occupy	unsigned	0.001V
			2 byte	short	0.0017
55B8H	Bmu01 min cell voltage ID	RO	Occupy	unsigned	
			2 byte	short	
55B9H	Bmu01 max cell voltage	RO	Occupy	unsigned	0.001V
			2 byte	short	0.00
55BAH	Bmu01 max cell voltage ID	RO	Occupy	unsigned	
			2 byte	short	
55BBH	Bmu01 min cell temperature	RO	Occupy	short	
			2 byte		
55BCH	Bmu01 min cell temperature ID	RO	Occupy	unsigned	0.1°C/bit -40
			2 byte	short	
55BDH	Bmu01 max cell temperature	RO	Occupy	short	
			2 byte		
55BEH	Bmu01 max cell temperature ID	RO	Occupy	unsigned	0.1°C/bit -40
			2 byte	short	·
55BFH~	Reserved(Bmu01)		Occupy		
55FFH		1	130 byte		
5600H~	Bmu02(Same as above)		Occupy		
567FH			256 byte		
5680H~	Bmu03(Same as above)		Occupy		
56FFH			256 byte		
5700H~	Bmu04(Same as above)		Occupy		
577FH	D 05 (6		256 byte		
5780H~	Bmu05(Same as above)		Occupy		
57FFH			256 byte		



5800H~	Bmu06(Same as above)	Occupy	
587FH		256 byte	
5880H~	Bmu07(Same as above)	Occupy	
58FFH		256 byte	
5900H~	Bmu08(Same as above)	Occupy	
597FH		256 byte	
5980H~	Bmu09(Same as above)	Occupy	
59FFH		256 byte	
5A00H~	Bmu10(Same as above)	Occupy	
5A7FH		256 byte	
5A80H~	Bmu11(Same as above)	Occupy	
5AFFH		256 byte	
5B00H~	Bmu12(Same as above)	Occupy	
5B7FH		256 byte	
5B80H~	Bmu13(Same as above)	Occupy	
5BFFH		256 byte	
5C00H~	Bmu14(Same as above)	Occupy	
5C7FH		256 byte	
5C80H~	Bmu15(Same as above)	Occupy	
5CFFH		256 byte	
5D00H~	Bmu16(Same as above)	Occupy	
5D7FH		256 byte	
5D80H~	Bmu17(Same as above)	Occupy	
5DFFH		256 byte	
5E00H~	Bmu18(Same as above)	Occupy	
5E7FH		256 byte	
5E80H~	Bmu19(Same as above)	Occupy	
5EFFH		256 byte	
5F00H~	Bmu20(Same as above)	Occupy	
5F7FH		256 byte	
5F80H~	Bmu21(Same as above)	Occupy	
5FFFH		256 byte	
6000H~	Bmu22(Same as above)	Occupy	
607FH		256 byte	
6080H~	Bmu23(Same as above)	Occupy	
60FFH		 256 byte	
6100H~	Bmu24(Same as above)	Occupy	
617FH		 256 byte	
6180H~	Bmu25(Same as above)	Occupy	
61FFH		 256 byte	
6200H~	Bmu26(Same as above)	 Occupy	
627FH		 256 byte	
6280H~	Bmu27(Same as above)	 Occupy	
62FFH		 256 byte	



6300H~	Bmu28(Same as above)	Occupy	
637FH		256 byte	
6380H~	Bmu29(Same as above)	Occupy	
63FFH		256 byte	
6400H~	Bmu30(Same as above)	Occupy	
647FH		256 byte	
6480H~	Bmu31(Same as above)	Occupy	
64FFH		256 byte	
6500H~	Bmu32(Same as above)	Occupy	
657FH		256 byte	
6580H~	Bmu33(Same as above)	Occupy	
65FFH		256 byte	
6600H~	Bmu34(Same as above)	Occupy	
667FH		256 byte	
6680H~	Bmu35(Same as above)	Occupy	
66FFH		256 byte	
6700H~	Bmu36(Same as above)	Occupy	
677FH		256 byte	
6780H~	Bmu37(Same as above)	Occupy	
67FFH		256 byte	
6800H~	Bmu38(Same as above)	Occupy	
687FH		256 byte	
6880H~	Bmu39(Same as above)	Occupy	
68FFH		256 byte	
6900H~	Bmu40(Same as above)	Occupy	
697FH		256 byte	
6980H~	Bmu41(Same as above)	Occupy	
69FFH		256 byte	
6A00H~	Bmu42(Same as above)	Occupy	
6A7FH		256 byte	
6A80H~	Bmu43(Same as above)	Occupy	
6AFFH		256 byte	
6B00H~	Bmu44(Same as above)	Occupy	
6B7FH		256 byte	
6B80H~	Bmu45(Same as above)	Occupy	
6BFFH		256 byte	
6C00H~	Bmu46(Same as above)	Occupy	
6C7FH		256 byte	
6C80H~	Bmu47(Same as above)	Occupy	
6CFFH		256 byte	
6D00H~	Bmu48(Same as above)	Occupy	
6D7FH		256 byte	
6D80H~	Bmu49(Same as above)	Occupy	
6DFFH		256 byte	



6E00H~	Bmu50(Same as above)	Occupy	
6E7FH	,	256 byte	
6E80H~	Bmu51(Same as above)	Occupy	
6EFFH		256 byte	
6F00H~	Bmu52(Same as above)	Occupy	
6F7FH		256 byte	
6F80H~	Bmu53(Same as above)	Occupy	
6FFFH		256 byte	
7000H~	Bmu54(Same as above)	Occupy	
707FH		256 byte	
7080H~	Bmu55(Same as above)	Occupy	
70FFH		256 byte	
7100H~	Bmu56(Same as above)	Occupy	
717FH		256 byte	
7180H~	Bmu57(Same as above)	Occupy	
71FFH		256 byte	
7200H~	Bmu58(Same as above)	Occupy	
727FH		256 byte	
7280H~	Bmu59(Same as above)	Occupy	
72FFH		256 byte	
7300H~	Bmu60(Same as above)	Occupy	
737FH		256 byte	
7380H~	Bmu61(Same as above)	Occupy	
73FFH		256 byte	
7400H~	Bmu62(Same as above)	Occupy	
747FH		256 byte	
7480H~	Bmu63(Same as above)	Occupy	
74FFH		256 byte	
7500H~	Bmu64(Same as above)	Occupy	
757FH		256 byte	



5.Annex

Note1: Battery status

	Description				
Value	Charge	Discharge			
0	0	0			
1	0	1			
256	1	0			
257	1	1			
512	2	0			
513	2	1			

Note2: Battery relay status

Value	Description			
0	Charge discharge relays are disconnected			
1	Only discharge relay is closed			
2	Only charge relay is closed			
3	Charge and discharge relays are closed			

Note3: Battery type

Battery_ID	Battery product model
2	M4860
3	M48100
13	48112-P
16	Smile5-BAT
24	M4856-P
27	Smile-BAT-10.3P
30	Smile-BAT-10.1P
33	Smile-BAT-5.8P
34	Smile-BAT5-JP
35	Smile-BAT-13.7P

Note4: battery fault

Fault code	Description
Bit 0	
Bit 1	
Bit 2	Cell Temp Differ
Bit 3	Balancer Fault



Bit 4	Charge Over Current
Bit 5	Balancer Mos Fault
Bit 6	Dischage Over Current
Bit 7	Pole Over Temp
Bit 8	Cell Over Volt
Bit 9	Cell Volt Differ
Bit 10	Discharge Low Temp
Bit 11	
Bit 12	Cell Low Volt
Bit 13	ISO Comm Fault
Bit 14	LMU SN Repeat
Bit 15	
Bit 16	IR Fault
Bit 17	LMU Comm Fault
Bit 18	Cell Over Temp
Bit 19	BMU Comm Fault
Bit 20	
Bit 21	Charge Low Temp
Bit 22	
Bit 23	Volt Detect Fault
Bit 24	Wire Harness Fault
Bit 25	
Bit 26	Relay Fault
Bit 27	LMU ID Repeat
Bit 28	LMU ID Discontinuous
Bit 29	Current Sensor Fault
Bit 30	
Bit 31	Temp Sensor Fault

Note5: Inverter work mode

Value	Description
0	Wait Mode
1	Online Mode
2	UPS Mode
3	Bypass Mode
4	Fault Mode
5	DC Mode
6	SelfTest Mode
7	Check Mode
8	Update Master Mode
9	Update Slave Mode
10	Update ARM Mode



Note6: System fault

	System f				
Alarm	Description				
code	EMS SN	AL	AE		
byte1-2		A-	AL		
Bit 0		Network Card_Fault	Inverter Disconnect		
Bit 1		Rtc_Fault	Grid Meter Disconnect		
Bit 2		E2prom_Fault	Battery Disconnect		
E	3it 3	INV_Comms_Error	System Not Set		
E	3it 4	Grid_Meter_Lost	PV Meter Disconnect		
E	3it 5	PV_Meter_Lost	Meter Not Set		
E	Bit 6	BMS_Lost	Wrong direction of the pv_meter's connection		
E	Bit 7	UPS_Battery_Volt_Low	SD not inserted or SD write error		
E	Bit 8	Backup_Overload	RTC error		
E	3it 9	INV_Slave_Lost	SDRAM error		
В	it 10	INV_Master_Lost	MMC error (CH376)		
В	it 11	Parallel_Comm_Error	network card error		
В	it 12	Parallel_Mode_Differ	Extension CAN error (MCP2515)		
В	it 13	Flash_Fault	DRED error		
В	it 14	SDRAM error	Android LCD disconnect		
В	it 15	Extension CAN error	STS_Lost		
В	it 16	inv type not specified	STS_Fault		
В	it 17		PV_INV_Lost:n		
В	it 18		DG_PV_Conflict		
В	it 19		PV_INV_Fault:n		
В	it 20		AirConFault		
В	it 21		Fire_Fault		
В	it 22		FireControllerErr		
В	it 23		GC_Fault		
Bit 24			AirConLost		
Bit 25			OverCurr		
Bit 26			PcsModeFault		
Bit 27			BatEnergyLow		
Bit 28					
Bit 29					
В	it 30				
В	it 31				

Note7: Dispatch Mode

Mode value	Description
1	Battery only charges from PV;
2	State of Charge control;
3	Load Following;



4	Maximise Output:
5	Normal Mode;
6	Optimise Consumption;
7	Maximise Consumption
8	ECO Mode
9	FCAS Mode
10	PV Power Setting

Note8: Grid_Regulation

Cofee 1	Grid	Grid_Regulation		
Safety code	AL	AE		
0	VDE0126-50Hz			
1	VDE4105/11.18			
2	AS4777.2			
3	G83_2			
4	C10/C11			
5	TOR Erzeuger			
6	EN50549-NL			
7	EN50549-DK			
8	CEB			
9	CEI-021			
10	NRS097-2-1			
11	EN50549-GR			
12	UTE_C15_712			
13	IEC61727			
14	G59_3			
15	RD1699			
16	G99			
17				
18	VDE0126-60Hz			
19	AS4777.2-SA			
20	G98			
21	EN50549-CZ			
22	PEA			
23	MEA			
24	BISI			
25	JET-GR Series			
26				
27				
28	50Hz Default			
29	60Hz Default			
30	WAREHOUSE			
31	AS4777.2-NZ			



32	Korea	
33	G98/G99-IE	
34	NC Rfg	
35	UL 1741	
36	UL1741-Rule 21	
37	UL1741-Hawaiian	

Note9: Safety Mode Enable

Bit NO	Name	Description	
Bit0	Volt-WATT Mode	Volt-watt response mode	
Bit1	Volt-VAR Mode	Volt-var response mode	
Bit2	Volt-Freq Mode	Volt-Freq response mode	
Bit3	Power Factor Curve Mode	Fixed power factor mode	
Bit4	Volt-WATT when Charging Mode	Characteristic power factor curve for cos ϕ (P)	
Bit5	Reactive power mode	Reactive power control mode	
Bit6			
Bit7			
Bit8			
Bit9			
Bit10			
Bit11			
Bit12			
Bit13			
Bit14			
Bit15			

Note10: Topbmu Zstatus flag

Bit NO	Name	Description			
Bit0	Charge flag	00: forbid	01:allow		10:force
Bit1					charge
Bit2	Discharge flag	0:forbid		1:allow	1
Bit3	SOC calibration mode	0:exit		1: entr	у
Bit4~7	reserve				

Note11: Topbmu reset log

Bit NO	Name	Description
Bit0	Error code	Power on reset
Bit1		Under voltage reset
Bit2		Main reset pin reset
Bit3		Soft reset
Bit4		Configuration mismatch reset
Bit5		Watchdog timer reset
Bit6~7	type	1:reset



Bit8~15 reset log	1~20
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Note12: Toperror bmu warn and state cluster

Bit NO	Name	Description	
Bit0	Bmu SN repeat	0:normal	1:fault
Bit1	Bmu ID repeat	0:normal	1:fault
Bit2	Bmu ID discontinuity	0:normal	1:fault
Bit3	Lmu number inconsistent	0:normal	1:fault
Bit4	EMS communication lose	0:normal	1:fault
Bit5	total pressure anomaly detection	0:normal	1:fault
Bit6	Parallel failure detection	0:normal	1:fault
Bit7	No bmu warning	0:normal	1:fault
Bit8	Ems communication lose enable	0:disable	1:enable
	flag		
Bit9	LMU Version inconsistency	0: consistent	1: inconsistent
Bit10	ISO Version inconsistency	0: consistent	1: inconsistent
Bit11	BMU Version inconsistency	0: consistent	1: inconsistent
Bit12~15	reserve		

Note13: Bmu-X state

Bit NO	Name	Description	
Bit0	Main relay status	0:off	1:on
Bit1	Precharge relay status	0:off	1:on
Bit2	Status of breaker	0:off	1:on
Bit3	Negative relay status	0:off	1:on
Bit4~7	reserve		

Note14: Bmu-X single cut fault code

MOLETA:	Billa-X Siligle cut lault code					
Bit NO	Name	Description				
Bit0~1	Resection state	00:normal	10:si	single cut 11:three cut		nree cut
Bit3~8	single cut fault code	0:normal 12:topbmu				
		*		commun	icate f	fail
		1: Pole over temperature		13:temp	senso	or fail
		2: cell over temperature		14:relay	fail	
		3: charge low temperature 15:pcs communi		municate		
				fail		
		4: discharge low temperat	ure	16: Uı	nder	voltage
				shutdow	n failu	ire
		5: Temperature difference		17: to	tal	pressure
		anomaly de		detec	tion	
		6: cell over voltage		18: ISC	com	municate
				lose		
		7: cell low voltage		19:LMU	SN rep	peat



	8: charge over current	20:LMU ID repeat
	9: discharge over current	21:LMU ID
		discontinuity
	10: Insulation fail 22:current se	
	11: LMU communicate fail	23:EMS communicate
		lose

Note15: Bmu-X reset log

Bit NO	Name	Description
Bit0	Error code	Power on reset
Bit1		Under voltage reset
Bit2		Main reset pin reset
Bit3		Soft reset
Bit4		Configuration mismatch reset
Bit5		Watchdog timer reset
Bit6~7	type	1:reset