Adressregister und Anwendungsdetails

Address Register	variable	Belong to R/W	Data format	Data Model	Remarks
Household Meter					
Grid Meter Config					
0000H	Grid Meter CT Enable	R/W	Occupy 2byte	unsigned short	1/bit
0001H	Grid Meter CT Rate	R/W	Occupy 2byte	unsigned short	1/bit
Grid Meter Running Data					
0010H 0011H	Total energy feed to grid(Grid)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
0012H 0013H	Total energy consume from grid(Grid)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
0014H	Voltage of A phase(Grid)	RO	Occupy 2byte	unsigned short	1V
0015H	Voltage of B phase(Grid)	RO	Occupy 2byte	unsigned short	1V
0016H	Voltage of C phase(Grid)	RO	Occupy 2byte	unsigned short	1V
0017H	Current of A phase(Grid)	RO	Occupy 2byte	short	0.1A
0018H	Current of B phase(Grid)	RO	Occupy 2byte	short	0.1A
0019H	Current of C phase(Grid)	RO	Occupy 2byte	short	0.1A
001AH	Frequent(Grid)	RO	Occupy 2byte	unsigned short	0.01Hz
001BH 001CH	Active power of A phase(Grid)	RO	Occupy 4 byte	int	1W/bit
001DH 001EH	Active power of B phase(Grid)	RO	Occupy 4 byte	int	1W/bit
001FH 0020H	Active power of C phase(Grid)	RO	Occupy 4 byte	int	1W/bit
0021H 0022H	Total Active power(Grid Meter)	RO	Occupy 4byte	int	1W/bit
0023H 0024H	Reactive power of A phase(Grid)	RO	Occupy 4 byte	int	1var

0025H 0026H	Reactive power of B phase(Grid)	RO	Occupy 4 byte	int	1var
0027H 0028H	Reactive power of C phase(Grid)	RO	Occupy 4 byte	int	1var
0029H 002AH	Total reactive power(Grid)	RO	Occupy 4 byte	int	1var
002BH 002CH	Apparent power of A phase(Grid)	RO	Occupy 4 byte	int	1VA
002DH 002EH	Apparent power of B phase(Grid)	RO	Occupy 4 byte	int	1VA
002FH 0030H	Apparent power of C phase(Grid)	RO	Occupy 4 byte	int	1VA
0031H 0032H	Total apparent power(Grid)	RO	Occupy 4 byte	int	1VA
0033H	Power factor of A phase(Grid)	RO	Occupy 2byte	short	0.01
0034H	Power factor of B phase(Grid)	RO	Occupy 2byte	short	0.01
0035H	Power factor of C phase(Grid)	RO	Occupy 2byte	short	0.01
0036H	Total Power factor(Grid)	RO	Occupy 2byte	short	0.01
PV Meter config					
0080H	PV Meter CT Enable	R/W	Occupy 2byte	unsigned short	1/bit
0081H	PV Meter CT Rate	R/W	Occupy 2byte	unsigned short	1/bit
PV Meter Running Data					
0090H 0091H	Total energy feed to Grid(PV)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
0092H 0093H	Total energy consume from Grid(PV)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
0094H	Voltage of A phase(PV)	RO	Occupy 2byte	unsigned short	1V
0095H	Voltage of B phase(PV)	RO	Occupy 2byte	unsigned short	1V
0096H	Voltage of C phase(PV)	RO	Occupy 2byte	unsigned short	1V
0097H	Current of A phase(PV)	RO	Occupy 2byte	short	0.1A
0098H	Current of B phase(PV)	RO	Occupy 2byte	short	0.1A

0099H	Current of C phase(PV)	RO	Occupy 2byte	short	0.1A
009AH	Frequent(PV)	RO	Occupy 2byte	unsigned short	0.01HZ
009BH 009CH	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
Household Battery					
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 2 byte	unsigned 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℃/bit
010EH	Pack ID of max cell temperature	RO	Occupy 2 byte	unsigned short	0.1℃/bit
010FH	Cell ID of max cell temperature	RO	Occupy 2 byte	unsigned short	0.1℃/bit
0110H	Max cell temperature	RO	Occupy 2 byte	short	0.1℃/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	unsigned	

			2 byte	short	
0118H	Battery num	RO	Occupy 2 byte	unsigned short	Battery module number
0119H	Battery capacity	RO	Occupy 2 byte	unsigned short	0.1kWh/bit
011AH	Battery type	RO	Occupy 2 byte	unsigned short	Note3
011BH	Battery SOH	RO	Occupy 2 byte	unsigned short	0.1/bit
011CH 011DH	Battery warning	RO	Occupy 4 byte	unsigned int	Note28
011EH 011FH	Battery fault	RO	Occupy 4 byte	unsigned int	Note4
0120H 0121H	Battery charge energy	RO	Occupy 4 byte	unsigned int	0.1kWh/bit
0122H 0123H	Battery discharge energy	RO	Occupy 4 byte	unsigned int	0.1kWh/bit
0124H 0125H	Battery energy charge from grid	RO	Occupy 4 byte	unsigned int	0.1kWh/bit
0126H	Battery Power	RO	Occupy 2 byte	short	1W/bit（ -：Charge、 +：Discharge）
0127H	Battery remaining time	RO	Occupy 2 byte	unsigned short	1min/bit
0128H	Battery Implementation Charge SOC	RO	Occupy 2 byte	unsigned short	0.1/bit(Rate_SOC-UPS_SOC)
0129H	Battery Implementation Discharge SOC	RO	Occupy 2 byte	unsigned short	0.1/bit(Rate_SOC-UPS_SOC)
012AH	Battery Remaining Charge SOC	RO	Occupy 2 byte	unsigned short	0.1/bit(Rate_SOC-Remain_SOC)
012BH	Battery Remaining Discharge SOC	RO	Occupy 2 byte	unsigned short	0.1/bit(Remain_SOC - UPS_SOC)
012CH	Battery Max charge power	RO	Occupy 2 byte	unsigned short	1W/bit
012DH	Battery Max Discharge power	RO	Occupy 2 byte	unsigned short	1W/bit
012EH	Battery MOS Control	R/W	Occupy 2 byte	unsigned short	0:Open, 1:Close
012FH	Battery SOC Calibration	RO	Occupy 2 byte	unsigned short	0:Disable, 1: Enable
0130H	Battery Single cut error code	RO	Occupy 2 byte	unsigned short	
0131H 0132H	Battery fault1	RO	Occupy 4 byte	unsigned int	

0133H 0134H	Battery fault2	RO	Occupy 4 byte	unsigned int	
0135H 0136H	Battery fault3	RO	Occupy 4 byte	unsigned int	
0137H 0138H	Battery fault4	RO	Occupy 4 byte	unsigned int	
0139H 013AH	Battery fault5	RO	Occupy 4 byte	unsigned int	
013BH 013CH	Battery fault6	RO	Occupy 4 byte	unsigned int	
013DH 013EH	Battery warning1	RO	Occupy 4 byte	unsigned int	
013FH 0140H	Battery warning2	RO	Occupy 4 byte	unsigned int	
0141H 0142H	Battery warning3	RO	Occupy 4 byte	unsigned int	
0143H 0144H	Battery warning4	RO	Occupy 4 byte	unsigned int	
0145H 0146H	Battery warning5	RO	Occupy 4 byte	unsigned int	
0147H 0148H	Battery warning6	RO	Occupy 4 byte	unsigned int	
Household Inverter					
0400H	Inverter_Voltage_L1	RO	Occupy 2 byte	unsigned short	0.1V/bit
0401H	Inverter _Voltage_L2	RO	Occupy 2 byte	unsigned short	0.1V/bit
0402H	Inverter_Voltage_L3	RO	Occupy 2 byte	unsigned short	0.1V/bit
0403H	Inverter_Current_L1	RO	Occupy 2 byte	short	0.1A/bit
0404H	Inverter_Current_L2	RO	Occupy 2 byte	short	0.1A/bit
0405H	Inverter_Current_L3	RO	Occupy 2 byte	short	0.1A/bit
0406H 0407H	Inverter_Power_L1	RO	Occupy 4 byte	int	1W/bit
0408H 0409H	Inverter_Power_L2	RO	Occupy 4 byte	int	1W/bit
040AH 040BH	Inverter_Power_L3	RO	Occupy 4 byte	int	1W/bit

040CH 040DH	Inverter_Power_Total	RO	Occupy 4 byte	int	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 2 byte	unsigned short	0.1V/bit
042AH	PV4 Current	RO	Occupy 2 byte	unsigned short	0.1A/bit
042BH 042CH	PV4 power	RO	Occupy 4 byte	unsigned int	1w/bit
042DH	PV5 Voltage	RO	Occupy 2 byte	unsigned short	0.1V/bit
042EH	PV5 Current	RO	Occupy 2 byte	unsigned short	0.1A/bit
042FH 0430H	PV5 power	RO	Occupy 4 byte	unsigned int	1w/bit
0431H	PV6 Voltage	RO	Occupy 2 byte	unsigned short	0.1V/bit
0432H	PV6 Current	RO	Occupy 2 byte	unsigned short	0.1A/bit
0433H 0434H	PV6 power	RO	Occupy 4 byte	unsigned int	1w/bit
0435H	INV Temperature	RO	Occupy 2 byte	unsigned short	0.1℃/bit
0436H 0437H	Inverter warning1	RO	Occupy 4 byte	unsigned int	Reserve
0438H 0439H	Inverter warning2	RO	Occupy 4 byte	unsigned int	Reserve
043AH 043BH	Inverter fault1	RO	Occupy 4 byte	unsigned int	Note26
043CH 043DH	Inverter fault2	RO	Occupy 4 byte	unsigned int	
043EH 043FH	Inverter Totol PV Energy	RO	Occupy 4 byte	unsigned int	0.1kWh/bit
0440H	Inverter work mode	RO	Occupy 2 byte	unsigned short	Note5
0441H	Inverter Bat voltage	RO	Occupy 2byte	unsigned short	1V/bit
0442H	Inverter Bat Current	RO	Occupy 2 byte	unsigned short	0.1A/bit
0443H	Inverter Bat Power	RO	Occupy 2 byte	int	1W/bit
0444H 0445H	Inverter Total React power	RO	Occupy 4 byte	int	1W/bit
0446H 0447H	Inverter Total Apparent power	RO	Occupy 4 byte	int	1W/bit

0448H	Inverter Frequency	RO	Occupy 2 byte	unsigned short	0.01Hz/bit
04549H	Inverter Backup Frequency	RO	Occupy 2 byte	unsigned short	0.01Hz/bit
044AH	Inverter Power factor	RO	Occupy 2 byte	short	0.01/bit
044BH 044CH	Inverter fault extend1	RO	Occupy 4 byte	unsigned int	Note27
044DH 044EH	Inverter fault extend2	RO	Occupy 4 byte	unsigned int	
044FH 0450H	Inverter fault extend3	RO	Occupy 4 byte	unsigned int	Reserve
0451H 0452H	Inverter fault extend4	RO	Occupy 4 byte	unsigned int	Reserve
Household Inverter Extend Running Data					
0500H~ 063FH	Reserve	RO			
Inverter info					
0640H~ 0644H	Inverter master software version	RO	Occupy 10byte	unsigned char	
0645H~ 0649H	Inverter slave software version	RO	Occupy 10byte	unsigned char	
064AH~ 0653H	Inverter SN	RO	Occupy 20byte	unsigned char	
System(Only applicable to 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) second:0x09(09);
0706H	EMS SN byte1-2	RO	Occupy 2 byte	unsigned short	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.
0710H	EMS DI0	RO	Occupy 2 byte	unsigned short	EPO，Battery MOS cut off.
0711H	EMS DI1	RO	Occupy 2 byte	unsigned short	Reserved
0712H	UPS Reserve Soc	R/W	Occupy 2 byte	unsigned short	0.1%/bit
0713H	Time discharge start time1	R/W	Occupy 2 byte	unsigned short	1h/bit
0714H	Time discharge stop time1	R/W	Occupy 2 byte	unsigned short	1h/bit
0715H	Time discharge start time2	R/W	Occupy 2 byte	unsigned short	1h/bit
0716H	Time discharge stop time2	R/W	Occupy 2 byte	unsigned short	1h/bit
0717H	Charge Cut Soc	R/W	Occupy 2 byte	unsigned short	0.1%/bit

0718H	Time charge start time1	R/W	Occupy 2 byte	unsigned short	1h/bit
0719H	Time charge stop time1	R/W	Occupy 2 byte	unsigned short	1h/bit
071AH	Time charge start time2	R/W	Occupy 2 byte	unsigned short	1h/bit
071BH	Time charge stop time2	R/W	Occupy 2 byte	unsigned short	1h/bit
071CH	System mode	R/W	Occupy 2 byte	unsigned short	1/bit
071DH	System laguage	R/W	Occupy 2 byte	unsigned short	1/bit
071EH 071FH	PV Capacity of pv inverter	R/W	Occupy 4 byte	unsigned int	1W/bit
0720H 0721H	PV Inverter Totol PV Energy	R/W	Occupy 4 byte	unsigned int	0.1kWh/bit
0722H	Dispatch Start	R/W	Occupy 2 byte	unsigned short	1:start；0：stop
0723H 0724H	Dispatch Active power	R/W	Occupy 4 byte	int	1W/bit Offset:32000 charge:<32000 discharge:>32000
0725H 0726H	Dispatch Reactive power	R/W	Occupy 4 byte	int	1var/bit Offset:32000 charge:<32000 discharge:>32000
0727H	Dispatch Mode	R/W	Occupy 2 byte	unsigned short	Note7
0728H	Dispatch SOC	R/W	Occupy 2 byte	unsigned short	0.4%/bit example：Send SOC=95,corresponding to the SOC of 38%.
0729H	EMS Version High	RO	Occupy 2 byte	unsigned short	
072AH	EMS Version Middle	RO	Occupy 2 byte	unsigned short	
072BH	EMS Version Low	RO	Occupy 2 byte	unsigned short	
Echonet Config（Japan）					
072CH	User Mode	R/W	Occupy 2 byte	unsigned short	0：Green mode 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 2 byte	short	1W/bit Charge mode or Dis charge mode Set Battery Power
072FH	Set Inverter output Power	R/W	Occupy 2 byte	unsigned short	Set Photovoltaic (pv) power
0730H	Echonet Enable	R/W	Occupy 2 byte	unsigned short	0:Disable 1:Enable
System Info					
0740H	System_time：(year)-(month)	R/W	Occupy 2 byte	unsigned short	Data format hex; 0xYYMM, example：Send 0x1109; year:0x11(2017) month:0x09(09);
0741H	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);
0742H	System_time：(minute)-(second)	R/W	Occupy 2 byte	unsigned short	Data format hex; 0xmmss, example：Send 0x1109; min:0x11(17) second:0x09(09);
0743H	EMS SN byte1-2	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x414C==’ AL’
0744H	EMS SN byte3-4	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’ 12’
0745H	EMS SN byte5-6	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’ 12’
0746H	EMS SN byte7-8	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’ 12’
0747H	EMS SN byte9-10	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’ 12’
0748H	EMS SN byte11-12	RO	Occupy 2 byte	unsigned short	EMS SN :ASCII 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 2 byte	unsigned short	EMS SN :ASCII 0x3132==’12’
074BH	EMS Version High	R	Occupy 2 byte	unsigned short	
074CH	EMS Version Middle	R	Occupy 2 byte	unsigned short	
074DH	EMS Version Low	R	Occupy 2 byte	unsigned short	
074EH	Protocol Version	RO	Occupy 2 byte	unsigned short	
System Config					
0800H	MAX Feed into grid percent	R/W	Occupy 2 byte	unsigned short	1%/bit
0801H 0802H	PV Capacity Storage	R/W	Occupy 4 byte	unsigned int	1W/bit
0803H 0804H	PV Capacity of Grid Inverter	R/W	Occupy 4 byte	unsigned int	1W/bit
0805H	System mode	R/W	Occupy 2 byte	unsigned short	1：AC Mode 2：DC Mode 3：Hybird Mode
0806H	Meter CT Select	R/W	Occupy 2 byte	unsigned short	电表安装选项: 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 2 byte	unsigned short	0：OFF 1：ON
0808H	IP Method	R/W	Occupy 2 byte	unsigned short	0：DHCP 1：STATIC
0809H 080AH	Local IP	R/W	Occupy 4 byte	unsigned short	0xC0，0xA8，0x01，0x01 192.168.1.1
080BH 080CH	Subnet Mask	R/W	Occupy 4 byte	unsigned short	0xFF，0xFF，0xFF，0x01 255.255.255.1
080DH 080EH	Gateway	R/W	Occupy 4 byte	unsigned short	0xC0，0xA8，0x01，0x01 192.168.1.1
080FH	Modbus Address	R/W	Occupy	unsigned	**default 0x55**

			2 byte	short	
0810H	Modbus Baud rate	R/W	Occupy 2 byte	unsigned short	0：9600 1：115200（only for household) 2：256000（only for household) 3：19200(only for industry)
0811H	Three phase unbalance mode enable	R/W	Occupy 2 byte	unsigned short	0 ： Disable 1 ： Enable
Time period control					
084FH	Time period control flag	R/W	Occupy 2 byte	unsigned short	0 ： Disable Time 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 2 byte	unsigned short	0.1%/bit
0851H	Time discharge start time1 hours	R/W	Occupy 2 byte	unsigned short	1h/bit [0-23]
0852H	Time discharge stop time1 hours	R/W	Occupy 2 byte	unsigned short	1h/bit [0-23]
0853H	Time discharge start time2 hours	R/W	Occupy 2 byte	unsigned short	1h/bit [0-23]
0854H	Time discharge stop time2 hours	R/W	Occupy 2 byte	unsigned short	1h/bit [0-23]
0855H	Charge Cut Soc	R/W	Occupy 2 byte	unsigned short	0.1%/bit
0856H	Time charge start time1 hours	R/W	Occupy 2 byte	unsigned short	1h/bit [0-23]
0857H	Time charge stop time1 hours	R/W	Occupy 2 byte	unsigned short	1h/bit [0-23]
0858H	Time charge start time2 hours	R/W	Occupy 2 byte	unsigned short	1h/bit [0-23]
0859H	Time charge stop time2 hours	R/W	Occupy 2 byte	unsigned short	1h/bit [0-23]
085AH	Time discharge start time1 minutes	R/W	Occupy 2 byte	unsigned short	1min/bit [0-59]
085BH	Time discharge stop time1 minutes	R/W	Occupy	unsigned	1min/bit [0-59]

			2 byte	short	
085CH	Time discharge start time2 minutes	R/W	Occupy 2 byte	unsigned short	1min/bit [0-59]
085DH	Time discharge stop time2 minutes	R/W	Occupy 2 byte	unsigned short	1min/bit [0-59]
085EH	Time charge start time1 minutes	R/W	Occupy 2 byte	unsigned short	1min/bit [0-59]
085FH	Time charge stop time1 minutes	R/W	Occupy 2 byte	unsigned short	1min/bit [0-59]
0860H	Time charge start time2 minutes	R/W	Occupy 2 byte	unsigned short	1min/bit [0-59]
0861H	Time charge stop time2 minutes	R/W	Occupy 2 byte	unsigned short	1min/bit [0-59]
Dispatch					
0880H	Dispatch Start	R/W	Occupy 2 byte	unsigned short	1:start；0：stop
0881H 0882H	Dispatch Active power	R/W	Occupy 4byte	Int	1W/bit Offset:32000 charge:<32000 discharge:>32000
0883H 0884H	Dispatch Reactive power	R/W	Occupy 4byte	Int	1var/bit 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(only for household)
08B1H	EMS DO1	WO	Occupy 2 byte	unsigned short	System fault output. (only for household)
08B2H	EMS DO2	WO	Occupy	unsigned	YK_pcs_epo(only

			2 byte	short	for industry)
08B3H	EMS DO3	WO	Occupy 2 byte	unsigned short	YK_switch_brake_open(only for industry)
08B4H	EMS DO4	WO	Occupy 2 byte	unsigned short	YK_switch_brake_close(only for industry)
08B5H	EMS DO5	WO	Occupy 2 byte	unsigned short	YK_dg_on_off_control(only for industry)
08B6H	EMS DO6	WO	Occupy 2 byte	unsigned short	YK_bms_fault_feedback(only for industry)
08B7H	EMS DO7	WO	Occupy 2 byte	unsigned short	DO-8(only for industry)
08B8H	EMS DO8	WO	Occupy 2 byte	unsigned short	
08B9H	EMS DO9	WO	Occupy 2 byte	unsigned short	
08BAH	EMS DO10	WO	Occupy 2 byte	unsigned short	
08BBH	EMS DO11	WO	Occupy 2 byte	unsigned short	
08BCH	EMS DO12	WO	Occupy 2 byte	unsigned short	
08BDH	EMS DO13	WO	Occupy 2 byte	unsigned short	
08BEH	EMS DO14	WO	Occupy 2 byte	unsigned short	
08BFH	EMS DO15	WO	Occupy 2 byte	unsigned short	
08C0H	EMS DI0	RO	Occupy 2 byte	unsigned short	EPO，Battery MOS cut off. (only for household)
08C1H	EMS DI1	RO	Occupy 2 byte	unsigned short	Reserved(only for household)
08C2H	EMS DI2	RO	Occupy 2 byte	unsigned short	
08C3H	EMS DI3	RO	Occupy 2 byte	unsigned short	YX_fire_fault(only for industry)
08C4H	EMS DI4	RO	Occupy 2 byte	unsigned short	YX_gas_blow_out(only for industry)
08C5H	EMS DI5	RO	Occupy 2 byte	unsigned short	YX_fire_systerm_fault(only for industry)
08C6H	EMS DI6	RO	Occupy	unsigned	YX_pcs_epo(only

			2 byte	short	for industry)
08C7H	EMS DI7	RO	Occupy 2 byte	unsigned short	YX_spd_signal(only for industry)
08C8H	EMS DI8	RO	Occupy 2 byte	unsigned short	YX_water_signal(only for industry)
08C9H	EMS DI9	RO	Occupy 2 byte	unsigned short	YX_door_signal(only for industry)
08CAH	EMS DI10	RO	Occupy 2 byte	unsigned short	YX_shunt_trip_feedback(only for industry)
08CBH	EMS DI11	RO	Occupy 2 byte	unsigned short	
08CCH	EMS DI12	RO	Occupy 2 byte	unsigned short	
08CDH	EMS DI13	RO	Occupy 2 byte	unsigned short	
08CEH	EMS DI14	RO	Occupy 2 byte	unsigned short	YX_systerm_epo(only for industry)
08CFH	EMS DI15	RO	Occupy 2 byte	unsigned short	
System Running Data					
08D0H 08D1H	PV Inverter Energy	RO	Occupy 4 byte	unsigned int	0.1kWh/bit
08D2H 08D3H	The system total PV energy	RO	Occupy 4 byte	unsigned int	0.1kWh/bit
08D4H 08D5H	System fault	RO	Occupy 4 byte	unsigned int	Note6
Safety TEST					
1000H	Grid_Regulation	R/W	Occupy 2 byte	unsigned short	Note8
1001H	Safety Test Enable	R/W	Occupy 2 byte	unsigned short	Safety Test Enable 0 ： Disable 1 ： Enable
1002H 1003H	Safety Mode Enable	R/W	Occupy 4 byte	unsigned int	Note9
1004H	Starting_slope	R/W	Occupy 2 byte	unsigned short	0.01%Pn/min
1005H	Phase state	R/W	Occupy 2 byte	unsigned short	0：advance 1：phase lag
1006H	PF Value	R/W	Occupy 2 byte	short	0.01
1007H	Volt-WATT Starting	R/W	Occupy	unsigned	0.1V

			2 byte	short	
1008H	Volt-WATT Stop	R/W	Occupy 2 byte	unsigned short	0.1V
1009H	Set Battery Power	R/W	Occupy 2 byte	short	1W/bit Set Battery Power
100AH	Set Inverter power	R/W	Occupy 2 byte	unsigned short	1W/bit Set the inverter output power
100BH	Ovp	R/W	Occupy 2 byte	unsigned short	0.1V
100CH	OvpT	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 2 byte	unsigned short	EMS SN :ASCII 0x3132==’12’
1103H	EMS SN byte5-6	R/W	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’12’
1104H	EMS SN byte7-8	R/W	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’12’
1105H	EMS SN byte9-10	R/W	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’12’
1106H	EMS SN byte11-12	R/W	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’12’
1107H	EMS SN byte13-14	R/W	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’12’
1108H	EMS SN byte15-16	R/W	Occupy 2 byte	unsigned short	EMS SN :ASCII 0x3132==’12’
1109H	EMS MAC byte1-2	R/W	Occupy 2 byte	unsigned short	EMS MAC :HEX 0x70B3=0x70,0xB3
110AH	EMS MAC byte3-4	R/W	Occupy 2 byte	unsigned short	EMS MAC : HEX 0xD57A=0xD5,0x7A
110BH	EMS MAC byte5-6	R/W	Occupy 2 byte	unsigned short	EMS MAC : HEX 0x2C11=0x2C,0x11
110CH	Pointing to the server	R/W	Occupy 2 byte	unsigned short	0：Formal Server 1：RD test 2：Production test 3：Encryption 4：OEM ZOE 5：OEM ZOE test
110DH	Network type	R/W	Occupy 2 byte	unsigned short	
110EH	System laguage	R/W	Occupy 2 byte	unsigned short	0:English 1: German
110FH	Inverter model	R/W	Occupy 2 byte	unsigned short	0:INVERTER_NULL, 1:KELONG_TYPE, 2:SET_TYPE, 3:GINLONG_TYPE, 4:ALPHAESS_TYPE, 5:GOODWE_TYPE,
1110H	Single Board Test Enable	WO	Occupy	unsigned	1:Enable

			2 byte	short	
1111H	Single Board Test Result	RO	Occupy 4 byte	unsigned int	
1113H	OEM Flag	R/W	Occupy 2 byte	unsigned short	0:AlphaESS 1:ZOE
CT calibration					
11B9H	Grid voltage	RO	Occupy 2byte	unsigned short	0.1V/Bit
11BAH	Grid CT Current	RO	Occupy 2byte	short	0.1A/Bit
11BBH	PV CT Current	RO	Occupy 2byte	short	0.1A/Bit
11BCH	Grid CT Power	RO	Occupy 2byte	short	1W/Bit
11BDH	PV CT Power	RO	Occupy 2byte	short	1W/Bit
11BEH	Volt calibration point1	R/W	Occupy 2byte	unsigned short	0.01V/Bit
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	unsigned	0.1A/Bit

			2byte	short	
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 2byte	short	0.0001/Bit
11D5H	Grid power calibration offset1	R/W	Occupy 2byte	short	1W/Bit
11D6H	Grid power calibration point2	R/W	Occupy 2byte	unsigned short	1W/Bit
11D7H	Grid power calibration coef2	R/W	Occupy 2byte	short	0.0001/Bit
11D8H	Grid power calibration offset2	R/W	Occupy 2byte	short	1W/Bit
11D9H	Grid power calibration point3	R/W	Occupy 2byte	unsigned short	1W/Bit
11DAH	Grid power calibration coef3	R/W	Occupy 2byte	short	0.0001/Bit
11DBH	Grid power calibration offset3	R/W	Occupy 2byte	short	1W/Bit
11DCH	Grid power calibration point4	R/W	Occupy 2byte	unsigned short	1W/Bit
11DDH	Grid power calibration coef4	R/W	Occupy 2byte	short	0.0001/Bit
11DEH	Grid power calibration offset4	R/W	Occupy 2byte	short	1W/Bit
11DFH	Grid power calibration point5	R/W	Occupy 2byte	unsigned short	1W/Bit

11E0H	Grid power calibration coef5	R/W	Occupy 2byte	short	0.0001/Bit
11E1H	Grid power calibration offset	R/W	Occupy 2byte	short	1W/Bit
11E2H	PV current calibration point1	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11E3H	PV current calibration coef1	R/W	Occupy 2byte	short	0.0001/Bit
11E4H	PV current calibration offset1	R/W	Occupy 2byte	short	0.1A/Bit
11E5H	PV current calibration point2	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11E6H	PV current calibration coef2	R/W	Occupy 2byte	short	0.0001/Bit
11E7H	PV current calibration offset2	R/W	Occupy 2byte	short	0.1A/Bit
11E8H	PV current calibration point3	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11E9H	PV current calibration coef3	R/W	Occupy 2byte	short	0.0001/Bit
11EAH	PV current calibration offset3	R/W	Occupy 2byte	short	0.1A/Bit
11EBH	PV current calibration point4	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11ECH	PV current calibration coef4	R/W	Occupy 2byte	short	0.0001/Bit
11EDH	PV current calibration offset4	R/W	Occupy 2byte	short	0.1A/Bit
11EEH	PV current calibration point5	R/W	Occupy 2byte	unsigned short	0.1A/Bit
11EFH	PV current calibration coef5	R/W	Occupy 2byte	short	0.0001/Bit
11F0H	PV current calibration offset5	R/W	Occupy 2byte	short	0.1A/Bit
11F1H	PV power calibration point1	R/W	Occupy 2byte	unsigned short	1W/Bit
11F2H	PV power calibration coef1	R/W	Occupy 2byte	short	0.0001/Bit
11F3H	PV power calibration offset1	R/W	Occupy 2byte	short	1W/Bit
11F4H	PV power calibration point2	R/W	Occupy 2byte	unsigned short	1W/Bit
11F5H	PV power calibration coef2	R/W	Occupy 2byte	short	0.0001/Bit

11F6H	PV power calibration offset2	R/W	Occupy 2byte	short	1W/Bit
11F7H	PV power calibration point3	R/W	Occupy 2byte	unsigned short	1W/Bit
11F8H	PV power calibration coef3	R/W	Occupy 2byte	short	0.0001/Bit
11F9H	PV power calibration offset3	R/W	Occupy 2byte	short	1W/Bit
11FAH	PV power calibration point4	R/W	Occupy 2byte	unsigned short	1W/Bit
11FBH	PV power calibration coef4	R/W	Occupy 2byte	short	0.0001/Bit
11FCH	PV power calibration offset4	R/W	Occupy 2byte	short	1W/Bit
11FDH	PV power calibration point5	R/W	Occupy 2byte	unsigned short	1W/Bit
11FEH	PV power calibration coef5	R/W	Occupy 2byte	short	0.0001/Bit
11FFH	PV power calibration offset5	R/W	Occupy 2byte	short	1W/Bit
EMS Debug					
1200H~ 1227H	Debug	RO			
Industry Remote Control Parameter					
4000H	Energy dispatching mode	R/W	Occupy 2 byte	unsigned short	0：AC dispatching 1：DC dispatching
4001H	AC control mode	R/W	Occupy 2 byte	unsigned short	0：Fixed active power
4002H 4003H	AC power setting	R/W	Occupy 4 byte	int	1W/Bit
4004H	DC control mode	R/W	Occupy 2 byte	unsigned short	0：Fixed current 1：Fixed power
4005H 4006H	DC current setting	R/W	Occupy 4 byte	int	0.1A/Bit
4007H 4008H	DC power setting	R/W	Occupy 4 byte	int	1W/Bit
4009H	Mode on/off	R/W	Occupy 2 byte	unsigned short	0：Mode off 1：Mode on
400AH	Grid interconnection mode	R/W	Occupy 2 byte	unsigned short	0：Grid-tied 1：Off-grid
400BH	Clear fault	R/W	Occupy	unsigned	0：False

			2 byte	short	1：True
400CH	Emergency power off	R/W	Occupy 2 byte	unsigned short	0：False 1：True
400DH	Start up mode	R/W	Occupy 2 byte	unsigned short	0：Auto 1：Manual
400EH	Reactive power control mode	R/W	Occupy 2 byte	unsigned short	0：Fixed PF 1：Fixed reactive power
400FH	PF setting	R/W	Occupy 2 byte	short	0.01/Bit
4010H~ 4011H	Reactive power setting	R/W	Occupy 4 byte	Int	1var/Bit
4012H~ 407FH	Reserved		Occupy 220 byte		
Industry Local Control Parameter					
4080H	System model	R/W	Occupy 2 byte	unsigned short	0：Storion-T30 1：Storion-T50 2：Storion-T100 3：Storion-T150 4：Storion-TB250 5：Storion-TB500
4081H	Send closing relay instruction (send end mark automatic cleanup)	R/W	Occupy 2 byte	unsigned short	0：False 1：True
4082H 4083H	Maximum power through meter	R/W	Occupy 4 byte	unsigned int	1W/Bit
4084H 4085H	Charging power during charging period	R/W	Occupy 4 byte	unsigned int	1W/Bit
4086H	Load cut soc	R/W	Occupy 2 byte	unsigned short	1%/Bit
4087H	Load tied soc	R/W	Occupy 2 byte	unsigned short	1%/Bit
4088H	AC access type	R/W	Occupy 2 byte	unsigned short	0：generator 1：grid
4089H	Generator mode enable	R/W	Occupy 2 byte	unsigned short	0：False 1：True
408AH	Startup mode(Generator)	R/W	Occupy 2 byte	unsigned short	0：SOC 1：Time period 2：Manual
408BH	Start SOC(SOC mode)	R/W	Occupy 2 byte	unsigned short	1%/Bit
408CH	Stop SOC(SOC mode)	R/W	Occupy 2 byte	unsigned short	1%/Bit
408DH	Start time(Time period mode)	R/W	Occupy	unsigned	1h/Bit

			2 byte	short	
408EH	Stop time(Time period mode)	R/W	Occupy 2 byte	unsigned short	1h/Bit
408FH	Power output mode(Generator)	R/W	Occupy 2 byte	unsigned short	1：GC charge 2：GC rated
4090H 4091H	Charge power set(Generator)	R/W	Occupy 4 byte	unsigned int	1W/Bit
4092H 4093H	Rated power(Generator)	R/W	Occupy 4 byte	unsigned int	1W/Bit
4094H	Rated output percent(Generator)	R/W	Occupy 2 byte	unsigned short	1%/Bit
4095H	Pmeter offset enable	R/W	Occupy 2 byte	unsigned short	0：False 1：True
4096H 4097H	Pmeter offset power setting	R/W	Occupy 4 byte	unsigned int	1W/Bit
4098H	Start time1(Pmeter offset)	R/W	Occupy 2 byte	unsigned short	1h/Bit
4099H	End time1(Pmeter offset)	R/W	Occupy 2 byte	unsigned short	1h/Bit
409AH	Start time2(Pmeter offset)	R/W	Occupy 2 byte	unsigned short	1h/Bit
409BH	End time2(Pmeter offset)	R/W	Occupy 2 byte	unsigned short	1h/Bit
409CH	Peak shaving and valley filling enable	R/W	Occupy 2 byte	unsigned short	0：False 1：True
409DH 409EH	Peak value setting	R/W	Occupy 4 byte	unsigned int	1W/Bit
409FH 40A0H	Valley value setting	R/W	Occupy 4 byte	unsigned int	1W/Bit
40A1H 40A2H	Delta	R/W	Occupy 4 byte	unsigned int	1W/Bit
40A3H	Peak shaving start time1	R/W	Occupy 2 byte	unsigned short	1h/Bit
40A4H	Peak shaving end time1	R/W	Occupy 2 byte	unsigned short	1h/Bit
40A5H	Peak shaving start time2	R/W	Occupy 2 byte	unsigned short	1h/Bit
40A6H	Peak shaving end time2	R/W	Occupy 2 byte	unsigned short	1h/Bit
40A7H	Valley filling start time1	R/W	Occupy 2 byte	unsigned short	1h/Bit
40A8H	Valley filling end time2	R/W	Occupy 2 byte	unsigned short	1h/Bit

40A9H	Valley filling start time2	R/W	Occupy 2 byte	unsigned short	1h/Bit
40AAH	Valley filling end time2	R/W	Occupy 2 byte	unsigned short	1h/Bit
40ABH	SOC directional calibration enable	R/W	Occupy 2 byte	unsigned short	0：False 1：True
40ACH	Calibration value	R/W	Occupy 2 byte	unsigned short	1%/Bit
40ADH	Pv inverter type	R/W	Occupy 2 byte	unsigned short	
40AEH	Pv inverter num	R/W	Occupy 2 byte	unsigned short	
40AFH	Air condition type	R/W	Occupy 2 byte	unsigned short	
40B0H	Air condition num	R/W	Occupy 2 byte	unsigned short	
40B1H	PV combiner box type	R/W	Occupy 2 byte	unsigned short	
40B2H	PV combiner box num	R/W	Occupy 2 byte	unsigned short	
40B3H	Local remote mode	R/W	Occupy 2 byte	unsigned short	0：Local 1：Remote
40B4H	EMS communication timeout	R/W	Occupy 2 byte	unsigned short	1s/bit
40B5H~ 40FFH	Reserved		Occupy 150 byte		
Industry Air Condition					
4100H	Working status(AirCon01)	RO	Occupy 2 byte	unsigned short	0：standby 1：run
4101H	Condenser temperature(AirCon01)	RO	Occupy 2 byte	short	0.1℃/Bit
4102H	Indoor temperature(AirCon01)	RO	Occupy 2 byte	short	0.1℃/Bit
4103H	Indoor humidity(AirCon01)	RO	Occupy 2 byte	unsigned short	1%/Bit
4104H	exhaust temperature(AirCon01)	RO	Occupy 2 byte	short	0.1℃/Bit
4105H	Ac input voltage(AirCon01)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
4106H	Ac input current(AirCon01)	RO	Occupy 2 byte	short	0.1A/Bit
4107H	Refrigeration stopping point	RO	Occupy	short	0.1℃/Bit

	(AirCon01)		2 byte		
4108H	Refrigeration return difference (AirCon01)	RO	Occupy 2 byte	short	0.1℃/Bit
4109H	Heating stop point(AirCon01)	RO	Occupy 2 byte	short	0.1℃/Bit
410AH	Heating return difference (AirCon01)	RO	Occupy 2 byte	short	0.1℃/Bit
410BH	High humidity warning point (AirCon01)	RO	Occupy 2 byte	unsigned short	1%/Bit
410CH	High temperature warning point (AirCon01)	RO	Occupy 2 byte	short	0.1℃/Bit
410DH	Low temperature warning point (AirCon01)	RO	Occupy 2 byte	short	0.1℃/Bit
410EH 410FH	Fault info1(AirCon01)	RO	Occupy 4 byte	unsigned int	Note16
4110H 4111H	Fault info2(AirCon01)	RO	Occupy 4 byte	unsigned int	
4112H	Electric heater state(AirCon01)	RO	Occupy 2 byte	unsigned short	0：stop 1：run
4113H	Compressor state(AirCon01)	RO	Occupy 2 byte	unsigned short	0：stop 1：run
4114H~ 413FH	Reserved(AirCon01)		Occupy 88 byte		
4140H~ 417FH	Reserved(AirCon02)		Occupy 128 byte		
4180H~ 41BFH	Reserved(AirCon03)		Occupy 128 byte		
41C0H~ 41FFH	Reserved(AirCon04)		Occupy 128 byte		
Industry Diesel Engine					
4200H 4201H	Line voltage between A to B (Diesel Engine01)	RO	Occupy 4 byte	unsigned int	0.1V/Bit
4202H 4203H	Line voltage between B to C (Diesel Engine01)	RO	Occupy 4 byte	unsigned int	0.1V/Bit
4204H 4205H	Line voltage between C to A (Diesel Engine01)	RO	Occupy 4 byte	unsigned int	0.1V/Bit
4206H	Phase A current(Diesel Engine01)	RO	Occupy 2 byte	short	0.1A/Bit
4207H	Phase B current(Diesel Engine01)	RO	Occupy 2 byte	short	0.1A/Bit
4208H	Phase C current(Diesel Engine01)	RO	Occupy 2 byte	short	0.1A/Bit
4209H	Frequency(Diesel Engine01)	RO	Occupy	unsigned	0.01Hz/Bit

			2 byte	short	
420AH 420BH	Phase A active power (Diesel Engine01)	RO	Occupy 4 byte	int	1W/Bit
420CH 420DH	Phase B active power (Diesel Engine01)	RO	Occupy 4 byte	int	1W/Bit
420EH 420FH	Phase C active power (Diesel Engine01)	RO	Occupy 4 byte	int	1W/Bit
4210H 4211H	Phase A reactive power (Diesel Engine01)	RO	Occupy 4 byte	int	1var/Bit
4212H 4213H	Phase B reactive power (Diesel Engine01)	RO	Occupy 4 byte	int	1var/Bit
4214H 4215H	Phase C reactive power (Diesel Engine01)	RO	Occupy 4 byte	int	1var/Bit
4216H 4217H	Phase A apparent power (Diesel Engine01)	RO	Occupy 4 byte	int	1VA/Bit
4218H 4219H	Phase B apparent power (Diesel Engine01)	RO	Occupy 4 byte	int	1VA/Bit
421AH 421BH	Phase C apparent power (Diesel Engine01)	RO	Occupy 4 byte	int	1VA/Bit
421CH	Phase A factor(Diesel Engine01)	RO	Occupy 2 byte	short	0.01/Bit
421DH	Phase B factor(Diesel Engine01)	RO	Occupy 2 byte	short	0.01/Bit
421EH	Phase C factor(Diesel Engine01)	RO	Occupy 2 byte	short	0.01/Bit
421FH 4220H	Total active power(Diesel Engine01)	RO	Occupy 4 byte	int	1W/Bit
4221H 4222H	Total reactive power (Diesel Engine01)	RO	Occupy 4 byte	int	1var/Bit
4223H 4224H	Total apparent power (Diesel Engine01)	RO	Occupy 4 byte	int	1VA/Bit
4225H	Total factor(Diesel Engine01)	RO	Occupy 2 byte	short	0.01/Bit
4226H	Oil pressure(Diesel Engine01)	RO	Occupy 2 byte	short	1kPa/Bit
4227H	Coolant temperature (Diesel Engine01)	RO	Occupy 2 byte	short	0.1℃/Bit
4228H	Engine temperature (Diesel Engine01)	RO	Occupy 2 byte	short	0.1℃/Bit
4229H	Fuel temperature(Diesel Engine01)	RO	Occupy 2 byte	short	0.1℃/Bit
422AH	Engine speed(Diesel Engine01)	RO	Occupy 2 byte	unsigned short	1rpm/Bit

422BH 422CH	Power generation energy (Diesel Engine01)	RO	Occupy 4 byte	unsigned int	1kVAh/Bit
422DH	Coolant level(Diesel Engine01)	RO	Occupy 2 byte	unsigned short	1%/Bit
422EH	Fuel level(Diesel Engine01)	RO	Occupy 2 byte	unsigned short	1%/Bit
422FH	Engine battery voltage (Diesel Engine01)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
4230H 4231H	Fault info1(Diesel Engine01)	RO	Occupy 4 byte	unsigned int	
4232H 4233H	Fault info2(Diesel Engine01)	RO	Occupy 4 byte	unsigned int	
4234H 4235H	Fault info3(Diesel Engine01)	RO	Occupy 4 byte	unsigned int	
4236H 4237H	Fault info4(Diesel Engine01)	RO	Occupy 4 byte	unsigned int	
4238H~ 427FH	Reserved(Diesel Engine01)		Occupy 144 byte		
4280H~ 42FFH	Reserved(Diesel Engine02)		Occupy 256 byte		
4300H~ 437FH	Reserved(Diesel Engine03)		Occupy 256 byte		
4380H~ 43FFH	Reserved(Diesel Engine04)		Occupy 256 byte		
4400H~ 447FH	Reserved(Diesel Engine05)		Occupy 256 byte		
4480H~ 44FFH	Reserved(Diesel Engine06)		Occupy 256 byte		
Industry PV Combiner Box					
4500H 4501H	Switch state of each branch (PV Combiner Box01)	RO	Occupy 4 byte	unsigned int	
4502H	Box temperature (PV Combiner Box01)	RO	Occupy 2 byte	short	0.1℃/Bit
4503H	Total bus voltage (PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
4504H 4505H	Total power generation (PV Combiner Box01)	RO	Occupy 4 byte	unsigned int	1W/Bit
4506H	PV1 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4507H	PV2 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4508H	PV3 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit

4509H	PV4 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
450AH	PV5 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
450BH	PV6 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
450CH	PV7 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
450DH	PV8 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
450EH	PV9 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
450FH	PV10 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4510H	PV11 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4511H	PV12 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4512H	PV13 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4513H	PV14 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4514H	PV15 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4515H	PV16 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4516H	PV17 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
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 2 byte	unsigned short	1W/Bit
451BH	PV22 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
451CH	PV23 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
451DH	PV24 power(PV Combiner Box01)	RO	Occupy 2 byte	unsigned short	1W/Bit
451EH	PV25 power(PV Combiner Box01)	RO	Occupy 2 byte	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~ 46BFH	Reserved (PV Combiner Box07)		Occupy 128 byte		
46C0H~ 46FFH	Reserved (PV Combiner Box08)		Occupy 128 byte		
4700H~ 473FH	Reserved (PV Combiner Box09)		Occupy 128 byte		
4740H~ 477FH	Reserved (PV Combiner Box10)		Occupy 128 byte		
4780H~ 47BFH	Reserved (PV Combiner Box11)		Occupy 128 byte		
47C0H~ 47FFH	Reserved (PV Combiner Box12)		Occupy 128 byte		
Industry PV Inv					
4800H	PV1 power (PV INV01)	RO	Occupy	unsigned	1W/Bit

			2 byte	short	
4801H	PV2 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4802H	PV3 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4803H	PV4 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4804H	PV5 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4805H	PV6 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4806H	PV7 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4807H	PV8 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4808H	PV9 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
4809H	PV10 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
480AH	PV11 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
480BH	PV12 power (PV INV01)	RO	Occupy 2 byte	unsigned short	1W/Bit
480CH	Phase A voltage (PV INV01)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
480DH	Phase B voltage (PV INV01)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
480EH	Phase C voltage (PV INV01)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
480FH	Phase A current (PV INV01)	RO	Occupy 2 byte	short	0.1A/Bit
4810H	Phase B current (PV INV01)	RO	Occupy 2 byte	short	0.1A/Bit
4811H	Phase C current (PV INV01)	RO	Occupy 2 byte	short	0.1A/Bit
4812H	Frequency (PV INV01)	RO	Occupy 2 byte	unsigned short	0.01HZ
4813H 4814H	Total active power (PV INV01)	RO	Occupy 4 byte	int	1W/Bit
4815H 4816H	Total reactive power (PV INV01)	RO	Occupy 4 byte	int	1var/Bit
4817H 4818H	Total apparent power (PV INV01)	RO	Occupy 4 byte	int	1VA/Bit

4819H	Total factor (PV INV01)	RO	Occupy 2 byte	short	0.01/Bit
481AH	Feed energy to grid in today (PV INV01)	RO	Occupy 2 byte	unsigned int	1kWh/Bit
481BH	Workmode (PV INV01)	RO	Occupy 2 byte	unsigned short	
481CH	Internal temperature (PV INV01)	RO	Occupy 2 byte	short	0.1℃/Bit
481DH 481EH	Total feed energy to grid (PV INV01)	RO	Occupy 4 byte	unsigned int	1kWh/Bit
481FH 4820H	Fault info1 (PV INV01)	RO	Occupy 4 byte	unsigned int	Note17
4821H 4822H	Fault info2 (PV INV01)	RO	Occupy 4 byte	unsigned int	
4823H~ 483FH	Reserved (PV INV01)		Occupy 58 byte		
4840H~ 487FH	(Same as above) (PV INV02)		Occupy 128 byte		
4880H~ 48BFH	(Same as above) (PV INV03)		Occupy 128 byte		
48C0H~ 48FFH	(Same as above) (PV INV04)		Occupy 128 byte		
4900H~ 493FH	(Same as above) (PV INV05)		Occupy 128 byte		
4940H~ 497FH	(Same as above) (PV INV06)		Occupy 128 byte		
4980H~ 49BFH	(Same as above) (PV INV07)		Occupy 128 byte		
49C0H~ 49FFH	(Same as above) (PV INV08)		Occupy 128 byte		
4A00H~ 4A3FH	(Same as above) (PV INV09)		Occupy 128 byte		
4A40H~ 4A7FH	(Same as above) (PV INV10)		Occupy 128 byte		
4A80H~ 4ABFH	(Same as above) (PV INV11)		Occupy 128 byte		
4AC0H~ 4AFFH	(Same as above) (PV INV12)		Occupy 128 byte		
4B00H~ 4B3FH	(Same as above) (PV INV13)		Occupy 128 byte		
4B40H~ 4B7FH	(Same as above) (PV INV14)		Occupy 128 byte		
4B80H~ 4BBFH	(Same as above) (PV INV15)		Occupy 128 byte		

4BC0H~ 4BFFH	(Same as above) (PV INV16)		Occupy 128 byte		
Industry Fire Control					
4C00H~ 4C0FH	Reserved		Occupy 32 byte		
Industry Reserved Device					
4C10H~ 4CFFH	Reserved		Occupy 480 byte		
Industry Meter					
4D00H	CT Enable(Grid meter)	R/W	Occupy 2byte	unsigned short	1/bit
4D01H	CT Rate(Grid meter)	R/W	Occupy 2byte	unsigned short	1/bit
4D02H	PT Enable(Grid meter)	R/W	Occupy 2byte	unsigned short	1/bit
4D03H	PT Rate(Grid meter)	R/W	Occupy 2byte	unsigned short	1/bit
4D04H 4D05H	Total energy feed to grid(Grid meter)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
4D06H 4D07H	Total energy consume from grid(Grid meter)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
4D08H	Voltage of A phase(Grid meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4D09H	Voltage of B phase(Grid meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4D0AH	Voltage of C phase(Grid meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4D0BH	Current of A phase(Grid meter)	RO	Occupy 2 byte	short	0.1A/bit
4D0CH	Current of B phase(Grid meter)	RO	Occupy 2 byte	short	0.1A/bit
4D0DH	Current of C phase(Grid meter)	RO	Occupy 2 byte	short	0.1A/bit
4D0EH	Frequent(Grid meter)	RO	Occupy 2 byte	unsigned short	0.01HZ
4D0FH 4D10H	Active power of A phase(Grid meter)	RO	Occupy 4 byte	int	1W/bit
4D11H 4D12H	Active power of B phase(Grid meter)	RO	Occupy 4 byte	int	1W/bit
4D13H 4D14H	Active power of C phase(Grid meter)	RO	Occupy 4 byte	int	1W/bit

4D15H 4D16H	Total Active power(Grid Meter)	RO	Occupy 4 byte	int	1W/bit
4D17H 4D18H	Reactive power of A phase(Grid meter)	RO	Occupy 4 byte	int	1var/bit
4D19H 4D1AH	Reactive power of B phase(Grid meter)	RO	Occupy 4 byte	int	1var/bit
4D1BH 4D1CH	Reactive power of C phase(Grid meter)	RO	Occupy 4 byte	int	1var/bit
4D1DH 4D1EH	Total reactive power(Grid meter)	RO	Occupy 4 byte	int	1var/bit
4D1FH 4D20H	Apparent power of A phase(Grid meter)	RO	Occupy 4 byte	int	1VA/bit
4D21H 4D22H	Apparent power of B phase(Grid meter)	RO	Occupy 4 byte	int	1VA/bit
4D23H 4D24H	Apparent power of C phase(Grid meter)	RO	Occupy 4 byte	int	1VA/bit
4D25H 4D26H	Total apparent power(Grid meter)	RO	Occupy 4 byte	int	1VA/bit
4D27H	Power factor of A phase(Grid meter)	RO	Occupy 2 byte	short	0.01/bit
4D28H	Power factor of B phase(Grid meter)	RO	Occupy 2 byte	short	0.01/bit
4D29H	Power factor of C phase(Grid meter)	RO	Occupy 2 byte	short	0.01/bit
4D2AH	Total Power factor(Grid meter)	RO	Occupy 2 byte	short	0.01/bit
4D2BH~ 4D7FH	Reserved(Grid meter)		Occupy 170 byte		
4D80H	CT Enable(Pv meter)	R/W	Occupy 2byte	unsigned short	1/bit
4D81H	CT Rate(Pv meter)	R/W	Occupy 2byte	unsigned short	1/bit
4D82H	PT Enable(Pv meter)	R/W	Occupy 2byte	unsigned short	1/bit
4D83H	PT Rate(Pv meter)	R/W	Occupy 2byte	unsigned short	1/bit
4D84H 4D85H	Total energy feed to grid(Pv meter)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
4D86H 4D87H	Total energy consume from grid(Pv meter)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
4D88H	Voltage of A phase(Pv meter)	RO	Occupy 2 byte	unsigned short	1V/bit

4D89H	Voltage of B phase(Pv meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4D8AH	Voltage of C phase(Pv meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4D8BH	Current of A phase(Pv meter)	RO	Occupy 2 byte	short	0.1A/bit
4D8CH	Current of B phase(Pv meter)	RO	Occupy 2 byte	short	0.1A/bit
4D8DH	Current of C phase(Pv meter)	RO	Occupy 2 byte	short	0.1A/bit
4D8EH	Frequent(Pv meter)	RO	Occupy 2 byte	unsigned short	0.01HZ
4D8FH 4D90H	Active power of A phase(Pv meter)	RO	Occupy 4 byte	int	1W/bit
4D91H 4D92H	Active power of B phase(Pv meter)	RO	Occupy 4 byte	int	1W/bit
4D93H 4D94H	Active power of C phase(Pv meter)	RO	Occupy 4 byte	int	1W/bit
4D95H 4D96H	Total Active power(Pv meter)	RO	Occupy 4byte	int	1W/bit
4D97H 4D98H	Reactive power of A phase(Pv meter)	RO	Occupy 4 byte	int	1var/bit
4D99H 4D9AH	Reactive power of B phase(Pv meter)	RO	Occupy 4 byte	int	1var/bit
4D9BH 4D9CH	Reactive power of C phase(Pv meter)	RO	Occupy 4 byte	int	1var/bit
4D9DH 4D9EH	Total reactive power(Pv meter)	RO	Occupy 4 byte	int	1var/bit
4D9FH 4DA0H	Apparent power of A phase(Pv meter)	RO	Occupy 4 byte	int	1VA/bit
4DA1H 4DA2H	Apparent power of B phase(Pv meter)	RO	Occupy 4 byte	int	1VA/bit
4DA3H 4DA4H	Apparent power of C phase(Pv meter)	RO	Occupy 4 byte	int	1VA/bit
4DA5H 4DA6H	Total apparent power(Pv meter)	RO	Occupy 4 byte	int	1VA/bit
4DA7H	Power factor of A phase(Pv meter)	RO	Occupy 2byte	short	0.01/bit
4DA8H	Power factor of B phase(Pv meter)	RO	Occupy 2 byte	short	0.01/bit
4DA9H	Power factor of C phase(Pv meter)	RO	Occupy 2 byte	short	0.01/bit
4DAAH	Total Power factor(Pv meter)	RO	Occupy	short	0.01/bit

			2 byte		
4DABH~ 4DFFH	Reserved(Pv meter)		Occupy 170 byte		
4E00H	CT Enable(hv gw meter)	R/W	Occupy 2 byte	unsigned short	1/bit
4E01H	CT Rate(hv gw meter)	R/W	Occupy 2 byte	unsigned short	1/bit
4E02H	PT Enable(hv gw meter)	R/W	Occupy 2 byte	unsigned short	1/bit
4E03H	PT Rate(hv gw meter)	R/W	Occupy 2 byte	unsigned short	1/bit
4E04H 4E05H	Total energy feed to grid(hv gw meter)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
4E06H 4E07H	Total energy consume from grid(hv gw meter)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
4E08H	Voltage of A phase(hv gw meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4E09H	Voltage of B phase(hv gw meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4E0AH	Voltage of C phase(hv gw meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4E0BH	Current of A phase(hv gw meter)	RO	Occupy 2 byte	short	0.1A/bit
4E0CH	Current of B phase(hv gw meter)	RO	Occupy 2 byte	short	0.1A/bit
4E0DH	Current of C phase(hv gw meter)	RO	Occupy 2 byte	short	0.1A/bit
4E0EH	Frequent(hv gw meter)	RO	Occupy 2 byte	unsigned short	0.01HZ
4E0FH 4E10H	Active power of A phase(hv gw meter)	RO	Occupy 4 byte	int	1W/bit
4E11H 4E12H	Active power of B phase(hv gw meter)	RO	Occupy 4 byte	int	1W/bit
4E13H 4E14H	Active power of C phase(hv gw meter)	RO	Occupy 4 byte	int	1W/bit
4E15H 4E16H	Total Active power(hv gw meter)	RO	Occupy 4 byte	int	1W/bit
4E17H 4E18H	Reactive power of A phase(hv gw meter)	RO	Occupy 4 byte	int	1var/bit
4E19H 4E1AH	Reactive power of B phase(hv gw meter)	RO	Occupy 4 byte	int	1var/bit
4E1BH 4E1CH	Reactive power of C phase(hv gw meter)	RO	Occupy 4 byte	int	1var/bit

4E1DH 4E1EH	Total reactive power(hv gw meter)	RO	Occupy 4 byte	int	1var/bit
4E1FH 4E20H	Apparent power of A phase(hv gw meter)	RO	Occupy 4 byte	int	1VA/bit
4E21H 4E22H	Apparent power of B phase(hv gw meter)	RO	Occupy 4 byte	int	1VA/bit
4E23H 4E24H	Apparent power of C phase(hv gw meter)	RO	Occupy 4 byte	int	1VA/bit
4E25H 4E26H	Total apparent power(hv gw meter)	RO	Occupy 4 byte	int	1VA/bit
4E27H	Power factor of A phase(hv gw meter)	RO	Occupy 2 byte	short	0.01/bit
4E28H	Power factor of B phase(hv gw meter)	RO	Occupy 2 byte	short	0.01/bit
4E29H	Power factor of C phase(hv gw meter)	RO	Occupy 2 byte	short	0.01/bit
4E2AH	Total Power factor(hv gw meter)	RO	Occupy 2 byte	short	0.01/bit
4E2BH~ 4E7FH	Reserved(hv gw meter)				
4E80H	CT Enable(ess gw meter)	R/W	Occupy 2 byte	unsigned short	1/bit
4E81H	CT Rate(ess gw meter)	R/W	Occupy 2 byte	unsigned short	1/bit
4E82H	PT Enable(ess gw meter)	R/W	Occupy 2 byte	unsigned short	1/bit
4E83H	PT Rate(ess gw meter)	R/W	Occupy 2 byte	unsigned short	1/bit
4E84H 4E85H	Total energy feed to grid(ess gw meter)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
4E86H 4E87H	Total energy consume from grid(ess gw meter)	RO	Occupy 4 byte	unsigned int	0.01kWh/bit
4E88H	Voltage of A phase(ess gw meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4E89H	Voltage of B phase(ess gw meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4E8AH	Voltage of C phase(ess gw meter)	RO	Occupy 2 byte	unsigned short	1V/bit
4E8BH	Current of A phase(ess gw meter)	RO	Occupy 2 byte	short	0.1A/bit
4E8CH	Current of B phase(ess gw meter)	RO	Occupy 2 byte	short	0.1A/bit
4E8DH	Current of C phase(ess gw meter)	RO	Occupy 2 byte	short	0.1A/bit

4E8EH	Frequent(ess gw meter)	RO	Occupy 2 byte	unsigned short	0.01HZ
4E8FH 4E90H	Active power of A phase(ess gw meter)	RO	Occupy 4 byte	int	1W/bit
4E91H 4E92H	Active power of B phase(ess gw meter)	RO	Occupy 4 byte	int	1W/bit
4E93H 4E94H	Active power of C phase(ess gw meter)	RO	Occupy 4 byte	int	1W/bit
4E95H 4E96H	Total Active power(ess gw meter)	RO	Occupy 4 byte	int	1W/bit
4E97H 4E98H	Reactive power of A phase(ess gw meter)	RO	Occupy 4 byte	int	1var/bit
4E99H 4E9AH	Reactive power of B phase(ess gw meter)	RO	Occupy 4 byte	int	1var/bit
4E9BH 4E9CH	Reactive power of C phase(ess gw meter)	RO	Occupy 4 byte	int	1var/bit
4E9DH 4E9EH	Total reactive power(ess gw meter)	RO	Occupy 4 byte	int	1var/bit
4E9FH 4EA0H	Apparent power of A phase(ess gw meter)	RO	Occupy 4 byte	int	1VA/bit
4EA1H 4EA2H	Apparent power of B phase(ess gw meter)	RO	Occupy 4 byte	int	1VA/bit
4EA3H 4EA4H	Apparent power of C phase(ess gw meter)	RO	Occupy 4 byte	int	1VA/bit
4EA5H 4EA6H	Total apparent power(ess gw meter)	RO	Occupy 4 byte	int	1VA/bit
4EA7H	Power factor of A phase(ess gw meter)	RO	Occupy 2 byte	short	0.01/bit
4EA8H	Power factor of B phase(ess gw meter)	RO	Occupy 2 byte	short	0.01/bit
4EA9H	Power factor of C phase(ess gw meter)	RO	Occupy 2 byte	short	0.01/bit
4EAAH	Total Power factor(ess gw meter)	RO	Occupy 2 byte	short	0.01/bit
4EABH~ 4EFFH	Reserved(ess gw meter)		Occupy 170 byte		
4F00H~ 4F7FH	Reserved(Meter05)		Occupy 256 byte		
4F80H~ 4FFFH	Reserved(Meter06)		Occupy 256 byte		
5000H~ 507FH	Reserved(Meter07)		Occupy 256 byte		
5080H~ 50FFH	Reserved(Meter08)		Occupy 256 byte		

5100H~ 517FH	Reserved(Meter09)		Occupy 256 byte		
5180H~ 51FFH	Reserved(Meter10)		Occupy 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
5203H	Phase A current(Grid)	RO	Occupy 2 byte	short	1A/Bit
5204H	Phase B current(Grid)	RO	Occupy 2 byte	short	1A/Bit
5205H	Phase C current(Grid)	RO	Occupy 2 byte	short	1A/Bit
5206H	Frequency(Grid)	RO	Occupy 2 byte	unsigned short	0.01Hz/Bit
5207H 5208H	Phase A active power(Grid)	RO	Occupy 4 byte	int	1W/Bit
5209H 520AH	Phase B active power(Grid)	RO	Occupy 4 byte	int	1W/Bit
520BH 520CH	Phase C active power(Grid)	RO	Occupy 4 byte	int	1W/Bit
520DH 520EH	Phase A reactive power(Grid)	RO	Occupy 4 byte	int	1var/Bit
520FH 5210H	Phase B reactive power(Grid)	RO	Occupy 4 byte	int	1var/Bit
5211H 5212H	Phase C reactive power(Grid)	RO	Occupy 4 byte	int	1var/Bit
5213H 5214H	Phase A apparent power(Grid)	RO	Occupy 4 byte	int	1VA/Bit
5215H 5216H	Phase B apparent power(Grid)	RO	Occupy 4 byte	int	1VA/Bit
5217H 5218H	Phase C apparent power(Grid)	RO	Occupy 4 byte	int	1VA/Bit
5219H	Phase A factor(Grid)	RO	Occupy 2 byte	short	0.01/Bit
521AH	Phase B factor(Grid)	RO	Occupy 2 byte	short	0.01/Bit
521BH	Phase C factor(Grid)	RO	Occupy	short	0.01/Bit

			2 byte		
521CH 521DH	Total active power(Grid)	RO	Occupy 4 byte	int	1W/Bit
521EH 521FH	Total reactive power(Grid)	RO	Occupy 4 byte	int	1var/Bit
5220H 5221H	Total apparent power(Grid)	RO	Occupy 4 byte	int	1VA/Bit
5222H	Total PF (Grid)	RO	Occupy 2 byte	short	0.01/Bit
5223H	Line voltage between A to B(Load)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
5224H	Line voltage between B to C(Load)	RO	Occupy 2 byte	unsigned short	0.1V/Bit
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 5248H	Fault info1	RO	Occupy 4 byte	unsigned int	Note18
5249H 524AH	Fault info2	RO	Occupy 4 byte	unsigned int	Note19
524BH~ 52BFH	Reserved		Occupy 234 byte		
Industry PCS(DCAC)					
52C0H	AC line voltage A to B	RO	Occupy 2 byte	unsigned short	0.1V/Bit
52C1H	AC line voltage B to C	RO	Occupy 2 byte	unsigned short	0.1V/Bit
52C2H	AC line voltage C to A	RO	Occupy 2 byte	unsigned short	0.1V/Bit
52C3H	Phase A current	RO	Occupy 2 byte	short	1A/Bit
52C4H	Phase B current	RO	Occupy 2 byte	short	1A/Bit
52C5H	Phase C current	RO	Occupy 2 byte	short	1A/Bit
52C6H	Frequency	RO	Occupy 2 byte	unsigned short	0.01Hz/Bit
52C7H 52C8H	Phase A active power	RO	Occupy 4 byte	int	1W/Bit
52C9H 52CAH	Phase B active power	RO	Occupy 4 byte	int	1W/Bit
52CBH 52CCH	Phase C active power	RO	Occupy 4 byte	int	1W/Bit
52CDH	Phase A reactive power	RO	Occupy	int	1var/Bit

52CEH			4 byte		
52CFH 52D0H	Phase B reactive power	RO	Occupy 4 byte	int	1var/Bit
52D1H 52D2H	Phase C reactive power	RO	Occupy 4 byte	int	1var/Bit
52D3H 52D4H	Phase A apparent power	RO	Occupy 4 byte	int	1VA/Bit
52D5H 52D6H	Phase B apparent power	RO	Occupy 4 byte	int	1VA/Bit
52D7H 52D8H	Phase C apparent power	RO	Occupy 4 byte	int	1VA/Bit
52D9H	Phase A factor	RO	Occupy 2 byte	short	0.01/Bit
52DAH	Phase B factor	RO	Occupy 2 byte	short	0.01/Bit
52DBH	Phase C factor	RO	Occupy 2 byte	short	0.01/Bit
52DCH 52DDH	Total active power	RO	Occupy 4 byte	int	1W/Bit
52DEH 52DFH	Total reactive power	RO	Occupy 4 byte	int	1var/Bit
52E0H 52E1H	Total apparent power	RO	Occupy 4 byte	int	1VA/Bit
52E2H	Total factor	RO	Occupy 2 byte	short	0.01/Bit
52E3H 52E4H	Accumulative charged energy through AC port	RO	Occupy 4 byte	unsigned int	1kWh/Bit
52E5H 52E6H	Accumulative discharged energy through AC port	RO	Occupy 4 byte	unsigned int	1kWh/Bit
52E7H	Module temperature	RO	Occupy 2 byte	short	0.1℃/Bit
52E8H	Ambient temperature	RO	Occupy 2 byte	short	0.1℃/Bit
52E9H	Grid interconnection mode	RO	Occupy 2 byte	unsigned short	0：Grid-tied 1：Off-grid
52EAH	Start stop state	RO	Occupy 2 byte	unsigned short	0：Mode off 1：Mode on
52EBH	Fault state	RO	Occupy 2 byte	unsigned short	0：Normal 1：Alert 2：Fault
52ECH	Control mode	RO	Occupy 2 byte	unsigned short	1：Local manual 2：Local auto 3：Remote
52EDH	Fault info1	RO	Occupy	unsigned	Note20

52EEH			4 byte	int	
52EFH 52F0H	Fault info2	RO	Occupy 4 byte	unsigned int	Note21
52F1H 52F2H	Fault info3	RO	Occupy 4 byte	unsigned int	Note22
52F3H 52F4H	Fault info4	RO	Occupy 4 byte	unsigned int	Note23
52F5H 52F6H	Status info1	RO	Occupy 4 byte	unsigned int	
52F7H 52F8H	Status info2	RO	Occupy 4 byte	unsigned int	
52F9H 52FAH	Status info3	RO	Occupy 4 byte	unsigned int	
52FBH 52FCH	Status info4	RO	Occupy 4 byte	unsigned int	
52FDH 52FEH	Status info5	RO	Occupy 4 byte	unsigned int	
52FFH 5300H	Status info6	RO	Occupy 4 byte	unsigned int	
5301H 5302H	Status info7	RO	Occupy 4 byte	unsigned int	
5303H 5304H	Status info8	RO	Occupy 4 byte	unsigned int	
5305H 5306H	Status info9	RO	Occupy 4byte	unsigned int	
5307H 5308H	Status info10	RO	Occupy 4 byte	unsigned int	
5309H 530AH	Daily accumulative charged energy through AC port	RO	Occupy 4 byte	unsigned int	1kWh/Bit
530BH 530CH	Daily accumulative discharged energy through AC port	RO	Occupy 4 byte	unsigned int	1kWh/Bit
530DH~ 537FH	Reserved		Occupy 230 byte		
Industry PCS(DCDC)					
5380H	Start stop state	RO	Occupy 2 byte	unsigned short	0：Mode off 1：Mode on
5381H	Fault state	RO	Occupy 2 byte	unsigned short	0：Normal 1：Alert 2：Fault
5382H 5383H	Battery power	RO	Occupy 4 byte	int	1W/Bit
5384H	Battery voltage	RO	Occupy	unsigned	0.1V/Bit

			2 byte	short	
5385H	Battery current	RO	Occupy 2 byte	short	1A/Bit
5386H 5387H	Battery charged energy	RO	Occupy 4 byte	unsigned int	1kWh/Bit
5388H 5389H	Battery discharged energy	RO	Occupy 4 byte	unsigned int	1kWh/Bit
538AH 538BH	PV power	RO	Occupy 4 byte	int	1W/Bit
538CH	PV voltage	RO	Occupy 2 byte	unsigned short	0.1V/Bit
538DH	PV current	RO	Occupy 2 byte	short	1A/Bit
538EH 538FH	PV total energy	RO	Occupy 4 byte	unsigned int	1kWh/Bit
5390H 5391H	Fault info1	RO	Occupy 4 byte	unsigned int	Note24
5392H 5393H	Fault info2	RO	Occupy 4 byte	unsigned int	Note25
5394H 5395H	Fault info3	RO	Occupy 4 byte	unsigned int	
5396H 5397H	Fault info4	RO	Occupy 4 byte	unsigned int	
5398H 5399H	Status info1	RO	Occupy 4 byte	unsigned int	
539AH 539BH	Status info2	RO	Occupy 4 byte	unsigned int	
539CH 539DH	Status info3	RO	Occupy 4 byte	unsigned int	
539EH 539FH	Status info4	RO	Occupy 4 byte	unsigned int	
53A0H 53A1H	Status info5	RO	Occupy 4 byte	unsigned int	
53A2H 53A3H	Status info6	RO	Occupy 4 byte	unsigned int	
53A4H 53A5H	Status info7	RO	Occupy 4 byte	unsigned int	
53A6H 53A7H	Status info8	RO	Occupy 4 byte	unsigned int	
53A8H 53A9H	Status info9	RO	Occupy 4 byte	unsigned int	
53AAH 53ABH	Status info10	RO	Occupy 4 byte	unsigned int	

53ACH~ 53FFH	Reserved		Occupy 168 byte		
Industry Battery(Parallel cluster information)					
5400H 5401H	Topbmu SN byte1~4	RO	Occupy 4 byte	unsigned int	
5402H 5403H	Topbmu SN byte5~8	RO	Occupy 4 byte	unsigned int	
5404H 5405H	Topbmu SN byte9~12	RO	Occupy 4 byte	unsigned int	
5406H 5407H	Topbmu SN byte13~16	RO	Occupy 4 byte	unsigned int	
5408H	Topbmu soft version	RO	Occupy 2 byte	unsigned short	0.01/bit
5409H	Topbmu protocol version	RO	Occupy 2 byte	unsigned short	
540AH	Topbmu hard version	RO	Occupy 2 byte	unsigned short	0.01/bit
540BH	Topbmu max charge current	RO	Occupy 2 byte	unsigned short	0.1A /bit
540CH	Topbmu max discharge current	RO	Occupy 2 byte	unsigned short	0.1A /bit
540DH	Topbmu status flag	RO	Occupy 2 byte	unsigned short	Note10
540EH	Topbmu max pole temperature	RO	Occupy 2 byte	short	0.1℃/bit -40
540FH	Topbmu voltage	RO	Occupy 2 byte	unsigned short	0.1 V/bit
5410H	Topbmu current	RO	Occupy 2 byte	short	0.1 A/bit
5411H	Topbmu insulated resistance	RO	Occupy 2 byte	unsigned short	1 kΩ/bit
5412H	Topbmu SOC	RO	Occupy 2 byte	unsigned short	0.4 %/bit
5413H	Topbmu SOH	RO	Occupy 2 byte	unsigned short	0.4 %/bit
5414H	Topbmu min cell voltage	RO	Occupy 2 byte	unsigned short	0.001v/bit
5415H	Topbmu min cell voltage ID	RO	Occupy 2 byte	unsigned short	
5416H	Topbmu max cell voltage	RO	Occupy 2 byte	unsigned short	0.001v/bit
5417H	Topbmu max cell voltage ID	RO	Occupy	unsigned	

			2 byte	short	
5418H	Topbmu min cell temperature	RO	Occupy 2 byte	short	0.1℃/bit -40
5419H	Topbmu min cell temperature ID	RO	Occupy 2 byte	unsigned short	
541AH	Topbmu max cell temperature	RO	Occupy 2 byte	short	0.1℃/bit -40
541BH	Topbmu max cell temperature ID	RO	Occupy 2 byte	unsigned short	
541CH	Topbmu max pole temperature ID	RO	Occupy 2 byte	unsigned short	
541DH	Topbmu version	RO	Occupy 2 byte	unsigned short	22:TOPBMU-M48112-S/0:无 TOPBMU 42：TOPBMU-M38344-S/57：TOPBMU-M48240-S
541EH	Topbmu BMU version	RO	Occupy 2 byte	unsigned short	15：BMU-HV900112/26：BMU-HV50056/38:BMU-HV900105/50:HV900120/41：BMU-HV90086/56:HV900120-HE
541FH	Topbmu ISO version	RO	Occupy 2 byte	unsigned short	14：LMU-M48112-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 2 byte	unsigned short	14：LMU-M48112-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 2 byte	unsigned short	Note11
5422H	Topbmu restarts number	RO	Occupy 2 byte	unsigned short	
5423H	Topbmu clusters number	RO	Occupy	unsigned	

			2 byte	short	
5424H 5425H	Fault info1	RO	Occupy 4 byte	unsigned int	
5426H 5427H	Fault info2	RO	Occupy 4 byte	unsigned int	
5428H 5429H	Fault info3	RO	Occupy 4 byte	unsigned int	
542AH 542BH	Fault info4	RO	Occupy 4 byte	unsigned int	
542CH~ 547FH	Reserved		Occupy 168 byte		
Industry Battery(Parallel cluster Fault)					
5480H 5481H	Toperror charge over current cluster high	RO	Occupy 4 byte	unsigned int	
5482H 5483H	Toperror charge over current cluster low	RO	Occupy 4 byte	unsigned int	
5484H 5485H	Toperror discharge over current cluster high	RO	Occupy 4 byte	unsigned int	
5486H 5487H	Toperror discharge over current cluster low	RO	Occupy 4 byte	unsigned int	
5488H 5489H	Toperror pole over current cluster high	RO	Occupy 4 byte	unsigned int	
548AH 548BH	Toperror pole over current cluster low	RO	Occupy 4 byte e	unsigned int	
548CH 548DH	Toperror cell over temperature cluster high	RO	Occupy 4 byte	unsigned int	
548EH 548FH	Toperror cell over temperature cluster low	RO	Occupy 4 byte	unsigned int	
5490H 5491H	Toperror charge low temperature cluster high	RO	Occupy 4 byte	unsigned int	
5492H 5493H	Toperror charge low temperature cluster low	RO	Occupy 4 byte	unsigned int	
5494H 5495H	Toperror discharge low temperature cluster high	RO	Occupy 4 byte	unsigned int	
5496H 5497H	Toperror discharge low temperature cluster low	RO	Occupy 4 byte	unsigned int	
5498H 5499H	Toperror cell over voltage cluster high	RO	Occupy 4 byte	unsigned int	
549AH 549BH	Toperror cell over voltage cluster low	RO	Occupy 4 byte	unsigned int	
549CH 549DH	Toperror cell under voltage cluster high	RO	Occupy 4 byte	unsigned int	
549EH	Toperror cell under voltage cluster	RO	Occupy	unsigned	

549FH	low		4 byte	int	
54A0H 54A1H	Toperror cell temperature difference cluster high	RO	Occupy 4 byte	unsigned int	
54A2H 54A3H	Toperror cell temperature difference cluster low	RO	Occupy 4 byte	unsigned int	
54A4H 54A5H	Toperror cell voltage difference cluster high	RO	Occupy 4 byte	unsigned int	
54A6H 54A7H	Toperror cell voltage difference cluster low	RO	Occupy 4 byte	unsigned int	
54A8H 54A9H	Toperror insulation cluster high	RO	Occupy 4 byte	unsigned int	
54AAH 54ABH	Toperror insulation cluster low	RO	Occupy 4 byte	unsigned int	
54ACH 54ADH	Toperror LMU communication failure cluster high	RO	Occupy 4 byte	unsigned int	
54AEH 54AFH	Toperror LMU communication failure cluster low	RO	Occupy 4 byte	unsigned int	
54B0H 54B1H	Toperror temperature sensor failure cluster high	RO	Occupy 4 byte	unsigned int	
54B2H 54B3H	Toperror temperature sensor failure cluster low	RO	Occupy 4 byte	unsigned int	
54B4H 54B5H	Toperror Wireharness failure cluster high	RO	Occupy 4 byte	unsigned int	
54B6H 54B7H	Toperror Wireharness failure cluster low	RO	Occupy 4 byte	unsigned int	
54B8H 54B9H	Toperror high voltage box communication failure cluster high	RO	Occupy 4 byte	unsigned int	
54BAH 54BBH	Toperror high voltage box communication failure cluster low	RO	Occupy 4 byte	unsigned int	
54BCH 54BDH	Toperror total pressure detect cluster high	RO	Occupy 4 byte	unsigned int	
54BEH 54BFH	Toperror total pressure detect cluster low	RO	Occupy 4 byte	unsigned int	
54C0H 54C1H	Toperror relay failure cluster high	RO	Occupy 4 byte	unsigned int	
54C2H 54C3H	Toperror relay failure cluster low	RO	Occupy 4 byte	unsigned int	
54C4H 54C5H	Toperror cluster excision cluster high	RO	Occupy 4 byte	unsigned int	
54C6H 54C7H	Toperror cluster excision cluster low	RO	Occupy 4 byte	unsigned int	
54C8H 54C9H	Toperror ISO communication failure cluster high	RO	Occupy 4 byte	unsigned int	

54CAH 54CBH	Toperror ISO communication failure cluster low	RO	Occupy 4 byte	unsigned int	
54CCH 54CDH	Toperror LMU SN repeat cluster high	RO	Occupy 4 byte	unsigned int	
54CEH 54CFH	Toperror LMU SN repeat cluster low	RO	Occupy 4 byte	unsigned int	
54D0H 54D1H	Toperror LMU ID repeat cluster high	RO	Occupy 4 byte	unsigned int	
54D2H 54D3H	Toperror LMU ID repeat cluster low	RO	Occupy 4 byte	unsigned int	
54D4H 54D5H	Toperror LMU ID discontinuity cluster high	RO	Occupy 4 byte	unsigned int	
54D6H 54D7H	Toperror LMU ID discontinuity cluster low	RO	Occupy 4 byte	unsigned int	
54D8H 54D9H	Toperror current sensor failure cluster high	RO	Occupy 4 byte	unsigned int	
54DAH 54DBH	Toperror current sensor failure cluster low	RO	Occupy 4 byte	unsigned int	
54DCH 54DDH	Toperror no LMU failure cluster high	RO	Occupy 4 byte	unsigned int	
54DEH 54DFH	Toperror no LMU failure cluster low	RO	Occupy 4 byte	unsigned int	
54E0H 54E1H	Toperror no bottom failure cluster high	RO	Occupy 4 byte	unsigned int	
54E2H 54E3H	Toperror no bottom failure cluster low	RO	Occupy 4 byte	unsigned int	
54E4H 54E5H	Toperror force close relay failure cluster high	RO	Occupy 4 byte	unsigned int	
54E6H 54E7H	Toperror force close relay failure cluster low	RO	Occupy 4 byte	unsigned int	
54E8H 54E9H	Toperror force close relay mode cluster high	RO	Occupy 4 byte	unsigned int	
54EAH 54EBH	Toperror force close relay mode cluster low	RO	Occupy 4 byte	unsigned int	
54ECH 54EDH	Toperror factory test mode cluster high	RO	Occupy 4 byte	unsigned int	
54EEH 54EFH	Toperror factory test mode cluster low	RO	Occupy 4 byte	unsigned int	
54F0H 54F1H	Toperror bmu warn and state cluster	RO	Occupy 4 byte	unsigned short	Note12
54F2H~ 557FH	Reserved		Occupy 284 byte		
Industry Battery(Single cluster information)					

5580H 5581H	Bmu01 SN byte1~4	RO	Occupy 4 byte	unsigned int	
5582H 5583H	Bmu01 SN byte5~8	RO	Occupy 4 byte	unsigned int	
5584H 5585H	Bmu01 SN byte9~12	RO	Occupy 4 byte	unsigned int	
5586H 5587H	Bmu01 SN byte13~16	RO	Occupy 4 byte	unsigned int	
5588H	Bmu01 soft version	RO	Occupy 2 byte	unsigned short	0.01/bit
5589H	Bmu01 hard version	RO	Occupy 2 byte	unsigned short	0.01/bit
558AH	Bmu01 state	RO	Occupy 2 byte	unsigned short	Note13
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 2 byte	unsigned short	0.4 %/bit
558FH	Bmu01 SOH	RO	Occupy 2 byte	unsigned short	0.4 %/bit
5590H 5591H	Bmu01 LMU communication failure high	RO	Occupy 4 byte	unsigned int	
5592H 5593H	Bmu01 LMU communication failure low	RO	Occupy 4 byte	unsigned 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 5599H	Bmu01 wireharness failure high	RO	Occupy 4 byte	unsigned int	
559AH 559BH	Bmu01 wireharness failure low	RO	Occupy 4 byte	unsigned int	
559CH 559DH	Bmu01 equalization failure high	RO	Occupy 4 byte	unsigned int	
559EH 559FH	Bmu01 equalization failure low	RO	Occupy 4 byte	unsigned 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 4 byte	unsigned int	
55ACH 55ADH	Bmu01 BOOST equalization low	RO	Occupy 4 byte	unsigned int	
55AEH 55AFH	Bmu01 BUCK equalization high	RO	Occupy 4 byte	unsigned int	
55B0H 55B1H	Bmu01 BUCK equalization low	RO	Occupy 4 byte	unsigned int	
55B2H	Bmu01 LMU number	RO	Occupy 2 byte	unsigned short	
55B3H	Bmu01 single cut fault code	RO	Occupy 2 byte	unsigned short	Note14
55B4H	Bmu01 reset log	RO	Occupy 2 byte	unsigned short	Note15
55B5H	Bmu01 restarts number	RO	Occupy 2 byte	unsigned short	
55B6H	Bmu01 version	RO	Occupy 2 byte	unsigned short	15：BMU-HV900112/26：BMU-HV50056/38:BMU-HV900105/50:HV900120/41：BMU-HV90086
55B7H	Bmu01 min cell voltage	RO	Occupy 2 byte	unsigned short	0.001V
55B8H	Bmu01 min cell voltage ID	RO	Occupy 2 byte	unsigned short	
55B9H	Bmu01 max cell voltage	RO	Occupy 2 byte	unsigned short	0.001V
55BAH	Bmu01 max cell voltage ID	RO	Occupy 2 byte	unsigned short	
55BBH	Bmu01 min cell temperature	RO	Occupy 2 byte	short	
55BCH	Bmu01 min cell temperature ID	RO	Occupy 2 byte	unsigned short	0.1℃/bit -40
55BDH	Bmu01 max cell temperature	RO	Occupy	short	

			2 byte		
55BEH	Bmu01 max cell temperature ID	RO	Occupy 2 byte	unsigned short	0.1℃/bit -40
55BFH~ 55FFH	Reserved(Bmu01)		Occupy 130 byte		
5600H~ 567FH	Bmu02...(Same as above)		Occupy 256 byte		
5680H~ 56FFH	Bmu03...(Same as above)		Occupy 256 byte		
5700H~ 577FH	Bmu04...(Same as above)		Occupy 256 byte		
5780H~ 57FFH	Bmu05...(Same as above)		Occupy 256 byte		
5800H~ 587FH	Bmu06...(Same as above)		Occupy 256 byte		
5880H~ 58FFH	Bmu07...(Same as above)		Occupy 256 byte		
5900H~ 597FH	Bmu08...(Same as above)		Occupy 256 byte		
5980H~ 59FFH	Bmu09...(Same as above)		Occupy 256 byte		
5A00H~ 5A7FH	Bmu10...(Same as above)		Occupy 256 byte		
5A80H~ 5AFFH	Bmu11...(Same as above)		Occupy 256 byte		
5B00H~ 5B7FH	Bmu12...(Same as above)		Occupy 256 byte		
5B80H~ 5BFFH	Bmu13...(Same as above)		Occupy 256 byte		
5C00H~ 5C7FH	Bmu14...(Same as above)		Occupy 256 byte		
5C80H~ 5CFFH	Bmu15...(Same as above)		Occupy 256 byte		
5D00H~ 5D7FH	Bmu16...(Same as above)		Occupy 256 byte		
5D80H~ 5DFFH	Bmu17...(Same as above)		Occupy 256 byte		
5E00H~ 5E7FH	Bmu18...(Same as above)		Occupy 256 byte		
5E80H~ 5EFFH	Bmu19...(Same as above)		Occupy 256 byte		
5F00H~ 5F7FH	Bmu20...(Same as above)		Occupy 256 byte		

5F80H~ 5FFFH	Bmu21...(Same as above)		Occupy 256 byte		
6000H~ 607FH	Bmu22...(Same as above)		Occupy 256 byte		
6080H~ 60FFH	Bmu23...(Same as above)		Occupy 256 byte		
6100H~ 617FH	Bmu24...(Same as above)		Occupy 256 byte		
6180H~ 61FFH	Bmu25...(Same as above)		Occupy 256 byte		
6200H~ 627FH	Bmu26...(Same as above)		Occupy 256 byte		
6280H~ 62FFH	Bmu27...(Same as above)		Occupy 256 byte		
6300H~ 637FH	Bmu28...(Same as above)		Occupy 256 byte		
6380H~ 63FFH	Bmu29...(Same as above)		Occupy 256 byte		
6400H~ 647FH	Bmu30...(Same as above)		Occupy 256 byte		
6480H~ 64FFH	Bmu31...(Same as above)		Occupy 256 byte		
6500H~ 657FH	Bmu32...(Same as above)		Occupy 256 byte		
6580H~ 65FFH	Bmu33...(Same as above)		Occupy 256 byte		
6600H~ 667FH	Bmu34...(Same as above)		Occupy 256 byte		
6680H~ 66FFH	Bmu35...(Same as above)		Occupy 256 byte		
6700H~ 677FH	Bmu36...(Same as above)		Occupy 256 byte		
6780H~ 67FFH	Bmu37...(Same as above)		Occupy 256 byte		
6800H~ 687FH	Bmu38...(Same as above)		Occupy 256 byte		
6880H~ 68FFH	Bmu39...(Same as above)		Occupy 256 byte		
6900H~ 697FH	Bmu40...(Same as above)		Occupy 256 byte		
6980H~ 69FFH	Bmu41...(Same as above)		Occupy 256 byte		
6A00H~ 6A7FH	Bmu42...(Same as above)		Occupy 256 byte		

6A80H~ 6AFFH	Bmu43...(Same as above)		Occupy 256 byte		
6B00H~ 6B7FH	Bmu44...(Same as above)		Occupy 256 byte		
6B80H~ 6BFFH	Bmu45...(Same as above)		Occupy 256 byte		
6C00H~ 6C7FH	Bmu46...(Same as above)		Occupy 256 byte		
6C80H~ 6CFFH	Bmu47...(Same as above)		Occupy 256 byte		
6D00H~ 6D7FH	Bmu48...(Same as above)		Occupy 256 byte		
6D80H~ 6DFFH	Bmu49...(Same as above)		Occupy 256 byte		
6E00H~ 6E7FH	Bmu50...(Same as above)		Occupy 256 byte		
6E80H~ 6EFFH	Bmu51...(Same as above)		Occupy 256 byte		
6F00H~ 6F7FH	Bmu52...(Same as above)		Occupy 256 byte		
6F80H~ 6FFFH	Bmu53...(Same as above)		Occupy 256 byte		
7000H~ 707FH	Bmu54...(Same as above)		Occupy 256 byte		
7080H~ 70FFH	Bmu55...(Same as above)		Occupy 256 byte		
7100H~ 717FH	Bmu56...(Same as above)		Occupy 256 byte		
7180H~ 71FFH	Bmu57...(Same as above)		Occupy 256 byte		
7200H~ 727FH	Bmu58...(Same as above)		Occupy 256 byte		
7280H~ 72FFH	Bmu59...(Same as above)		Occupy 256 byte		
7300H~ 737FH	Bmu60...(Same as above)		Occupy 256 byte		
7380H~ 73FFH	Bmu61...(Same as above)		Occupy 256 byte		
7400H~ 747FH	Bmu62...(Same as above)		Occupy 256 byte		
7480H~ 74FFH	Bmu63...(Same as above)		Occupy 256 byte		
7500H~ 757FH	Bmu64...(Same as above)		Occupy 256 byte		

Industry device communication state					
A000H~ A001H	EMS lost		Occupy 4 byte	unsigned int	
A002H~ A003H	BMS lost	RO	Occupy 4 byte	unsigned int	
A004H~ A005H	PV INV Lost	RO	Occupy 4 byte	unsigned int	
A006H~ A007H	Pv_jb_lost	RO	Occupy 4 byte	unsigned int	
A008H~ A009H	EVChargerLost	RO	Occupy 4 byte	unsigned int	
A00AH~ A00BH	Dccp_lost	RO	Occupy 4 byte	unsigned int	
A00CH~ A00DH	Grid meter lost	RO	Occupy 4 byte	unsigned int	
A00EH~ A00FH	PV meter lost	RO	Occupy 4 byte	unsigned int	
A010H~ A011H	CP meter lost	RO	Occupy 4 byte	unsigned int	
A012H~ A013H	Ess_gw_meter_lost	RO	Occupy 4 byte	unsigned int	
A014H~ A015H	Wn_gw_meter_lost	RO	Occupy 4 byte	unsigned int	
A016H~ A017H	Load_gw_meter_lost	RO	Occupy 4 byte	unsigned int	
A018H~ A019H	Ess_in_gw_meter lost	RO	Occupy 4 byte	unsigned int	
A01AH~ A01BH	Hv_gw_meter lost	RO	Occupy 4 byte	unsigned int	
A01CH~ A01DH	Pcs lost	RO	Occupy 4 byte	unsigned int	
A01EH~ A01FH	Pds_lost	RO	Occupy 4 byte	unsigned int	
A020H~ A021H	Sts_lost	RO	Occupy 4 byte	unsigned int	
A022H~ A023H	Air_condition_lost	RO	Occupy 4 byte	unsigned int	
A024H~ A025H	Dg_lost	RO	Occupy 4 byte	unsigned int	
A026H~ A07FH	Reserved		Occupy 180 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		
	Platform	EMS2.5	EMS3.5/EMS3.6
Bit 0			Temperature sensor error
Bit 1			Mos error
Bit 2		Cell Temp Differ	Circuit breaker open

Bit 3	Balancer Fault	Dial switching mode inconsistence
Bit 4	Charge Over Current	Slave battery communication lost
Bit 5	Balancer Mos Fault	Sn missing
Bit 6	Dischage Over Current	Master battery communication lost
Bit 7	Pole Over Temp	Firmware versions inconsistence
Bit 8	Cell Over Volt	Multi master error
Bit 9	Cell Volt Differ	Mos high temperature
Bit 10	Discharge Low Temp	Insulation fault
Bit 11		Total pressure abnormal
Bit 12	Cell Low Volt	Mos feedback failure
Bit 13	ISO Comm Fault	Prefi lled failure
Bit 14	LMU SN Repeat	17823 communication failure
Bit 15		17841 communication failure
Bit 16	IR Fault	Mos temperature sensor error
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

Alarm code	Description		
	Platform	EM2.5/EMS3.5/EMS3.6	AE
Bit 0		Network_Card_Fault	
Bit 1		Rtc_Fault	
Bit 2		EEprom_Fault	
Bit 3		INV_Comms_Error	
Bit 4		Grid_Meter_Lost	
Bit 5		PV_Meter_Lost	Meter Not Set
Bit 6		BMS_Lost	
Bit 7		UPS_Battery_Volt_Low	SD not inserted or SD write error
Bit 8		Backup_Overload	
Bit 9		INV_Slave_Lost	
Bit 10		INV_Master_Lost	
Bit 11		Parallel_Comm_Error	
Bit 12		Parallel_Mode_Differ	
Bit 13		Flash_Fault	
Bit 14		SDRAM error	
Bit 15		Extension CAN error	
Bit 16		inv type not specified	
Bit 17			
Bit 18			DG_PV_Conflict
Bit 19			PV_INV_Fault:n
Bit 20			AirConFault
Bit 21			
Bit 22			
Bit 23			GC_Fault
Bit 24			
Bit 25			OverCurr
Bit 26			PcsModeFault
Bit 27			BatEnergyLow
Bit 28			
Bit 29			
Bit 30			
Bit 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

Safety code	Grid_Regulation	
	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 charge
Bit1				
Bit2	Discharge flag	0:forbid	1:allow	
Bit3	SOC calibration mode	0:exit	1: entry	
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

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 flag	0:disable	1:enable
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

Bit NO	Name	Description		
Bit0~1	Resection state	00:normal	10:single cut	11:three cut
Bit3~8	single cut fault code	0:normal		12:topbmu communicate fail
		1: Pole over temperature		13:temp sensor fail
		2: cell over temperature		14:relay fail
		3: charge low temperature		15:pcs communicate fail
		4: discharge low temperature		16: Under voltage shutdown failure
		5: Temperature difference		17: total pressure anomaly detection
		6: cell over voltage		18：ISO communicate lose
		7: cell low voltage		19:LMU SN repeat
		8: charge over current		20:LMU ID repeat

		9: discharge over current	21:LMU ID discontinuity
		10: Insulation fail	22:current sensor fail
		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

Note16： Industry air condition alarm

envicool MC30-50:

Bit NO	Name	Description
Bit0	High temperature alarm	0:normal 1:fault
Bit1	Low temperature alarm	0:normal 1:fault
Bit2	High humidity alarm	0:normal 1:fault
Bit3	Low humidity alarm	0:normal 1:fault
Bit4	Coil freeze failure	0:normal 1:fault
Bit5	Exhaust high temperature	0:normal 1:fault
Bit6	Coil temperature sensor failure	0:normal 1:fault
Bit7	Outdoor temperature sensor failure	0:normal 1:fault
Bit8	Condensation temperature sensor failure	0:normal 1:fault
Bit9	Internal temperature sensor failure	0:normal 1:fault
Bit10	Exhaust gas temperature sensor failure	0:normal 1:fault
Bit11	Humidity sensor failure	0:normal 1:fault
Bit12	Internal fan failure	0:normal 1:fault
Bit13	External fan failure	0:normal 1:fault
Bit14	Compressor failure	0:normal 1:fault
Bit15	Electric heating failure	0:normal 1:fault
Bit16	Emergency fan failure	0:normal 1:fault
Bit17	High voltage alarm	0:normal 1:fault
Bit18	Low voltage alarm	0:normal 1:fault
Bit19	Flooding alarm	0:normal 1:fault
Bit20	Smoke alarm	0:normal 1:fault
Bit21	Access control alarm	0:normal 1:fault
Bit22	High voltage lock	0:normal 1:fault

Bit23	Low pressure lock	0:normal 1:fault
Bit24	Exhaust lock	0:normal 1:fault
Bit25	AC overvoltage	0:normal 1:fault
Bit26	AC undervoltage	0:normal 1:fault
Bit27	AC power-down	0:normal 1:fault
Bit28	Lack of phase	0:normal 1:fault
Bit29	Abnormal frequency	0:normal 1:fault
Bit30	Reverse phase	0:normal 1:fault
Bit31	DC overvoltage	0:normal 1:fault

envicool MC125HCNC1A:

Bit NO	Name	Description
Bit0	High Temp alarm	0:normal 1:fault
Bit1	Internal fan failure alarm	0:normal 1:fault
Bit2	External fan failure alarm	0:normal 1:fault
Bit3	Compressor failure alarm	0:normal 1:fault
Bit4	InsideTemp. sensor failure	0:normal 1:fault
Bit5	High pressure	0:normal 1:fault
Bit6	Low Temp alarm	0:normal 1:fault
Bit7	Dc overvoltage alarm	0:normal 1:fault
Bit8	Dc undervoltage alarm	0:normal 1:fault
Bit9	Ac overvoltage alarm	0:normal 1:fault
Bit10	Ac undervoltage alarm	0:normal 1:fault
Bit11	AC power supply	0:normal 1:fault
Bit12	Evaporator Temp sensor failure	0:normal 1:fault
Bit13	Condenser Temp sensor failure	0:normal 1:fault
Bit14	Outside Temp sensor failure	0:normal 1:fault
Bit15	Evaporator Frost Protection	0:normal 1:fault
Bit16	High Pressure Locked	0:normal 1:fault
Bit17~31	reserve	

Note17： Industry pv inv fault (goodwe)

Bit NO	Name	Description
Bit0	GFCI Device Check Failure	0:normal 1:fault
Bit1	AC HCT Check Failure	0:normal 1:fault
Bit2	reserve	
Bit3	DCI Consistency Failure	0:normal 1:fault
Bit4	GFCI Consistency Failure	0:normal 1:fault
Bit5	NA	
Bit6	GFCI Device Failure	0:normal 1:fault
Bit7	Relay Device Failure	0:normal 1:fault
Bit8	AC HCT Failure	0:normal 1:fault
Bit9	Utility Loss	0:normal 1:fault

Bit10	Gournd I Failure	0:normal 1:fault
Bit11	DC Bus High	0:normal 1:fault
Bit12	Internal Fan Failure	0:normal 1:fault
Bit13	Over Temperature	0:normal 1:fault
Bit14	Auto Test Failure	0:normal 1:fault
Bit15	PV Over Voltage	0:normal 1:fault
Bit16	External Fan Failure	0:normal 1:fault
Bit17	Vac Failure	0:normal 1:fault
Bit18	Isolation Failure	0:normal 1:fault
Bit19	DC Injection High	0:normal 1:fault
Bit20	reserve	
Bit21	reserve	
Bit22	Fac Consistency Failure	0:normal 1:fault
Bit23	Vac Consistency Failure	0:normal 1:fault
Bit24	reserve	
Bit25	Relay Check Failure	0:normal 1:fault
Bit26	reserve	
Bit27	reserve	
Bit28	reserve	
Bit29	Fac Failure	0:normal 1:fault
Bit30	EEPROM R/W Failure	0:normal 1:fault
Bit31	Internal Communication Failure	0:normal 1:fault

Note18： Industry sts fault info1

Bit NO	Name	Description
Bit0	grid voltage reversed	0:normal 1:fault
Bit1	grid AC voltage phase lost	0:normal 1:fault
Bit2	off-grid AC voltage reversed	0:normal 1:fault
Bit3	off-grid AC voltage phase lost	0:normal 1:fault
Bit4	Calibration parameter abnormal	0:normal 1:fault
Bit5	Sampling zero abnormal	0:normal 1:fault
Bit6	Overload alarm	0:normal 1:fault
Bit7	Ambient over temperature	0:normal 1:fault
Bit8	PLL fault	0:normal 1:fault
Bit9	Grid voltage asymmetric	0:normal 1:fault
Bit10	Grid under voltage	0:normal 1:fault
Bit11	Grid over voltage	0:normal 1:fault
Bit12	Grid under frequency	0:normal 1:fault
Bit13	Grid over frequency	0:normal 1:fault
Bit14	Frequently switching fault	0:normal 1:fault
Bit15	Grid power down	0:normal 1:fault
Bit16	emergency stopped(EPO)	0:normal 1:fault

Bit17	15V auxiliary power fault	0:normal 1:fault
Bit18	24V auxiliary power fault	0:normal 1:fault
Bit19	CAN A comm fault	0:normal 1:fault
Bit20	CAN B comm fault	0:normal 1:fault
Bit21	RS-485 comm fault	0:normal 1:fault
Bit22	DSP initializing fault	0:normal 1:fault
Bit23	grid interconnection switch open circuit	0:normal 1:fault
Bit24	grid interconnection switch short fault	0:normal 1:fault
Bit25	Overload timeout fault	0:normal 1:fault
Bit26	Synchronous signal 1 fault	0:normal 1:fault
Bit27	Ambient temp. sensor fault	0:normal 1:fault
Bit28	Cabinet temp. sensor fault	0:normal 1:fault
Bit29	Cabinet over temperature	0:normal 1:fault
Bit30	Module over temperature	0:normal 1:fault
Bit31	Fan fault	0:normal 1:fault

Note19：Industry sts fault info2

Bit NO	Name	Description
Bit0	DSP version fault	0:normal 1:fault
Bit1	CPLD version fault	0:normal 1:fault
Bit2	Bypass fault	0:normal 1:fault
Bit3	SPT fault	0:normal 1:fault
Bit4	Module temp. sensor fault	0:normal 1:fault
Bit5	Grid voltage distortion	0:normal 1:fault
Bit6	reserve	

Note20：Industry dcac fault info1

Bit NO	Name	Description
Bit0	AC-Group: AC bus over voltage	0:normal 1:fault
Bit1	AC-Group: AC bus over frequency	0:normal 1:fault
Bit2	AC-Group: AC bus under voltage	0:normal 1:fault
Bit3	AC-Group: islanding protection	0:normal 1:fault
Bit4	AC-Group: DC input over voltage	0:normal 1:fault
Bit5	AC-Group: On/Off-grid toggling error	0:normal 1:fault
Bit6	AC-Group: AC phase reversed	0:normal 1:fault
Bit7	AC-Group: DC input under voltage	0:normal 1:fault
Bit8	AC-Group: Overload alarm	0:normal 1:fault
Bit9	AC-Group: AC bus voltage Abnormal	0:normal 1:fault
Bit10	AC-Group: AC phase lost	0:normal 1:fault
Bit11	AC-Group: AC bus voltage asymmetric	0:normal 1:fault
Bit12	AC-Group: AC bus under frequency	0:normal 1:fault

Bit13	AC-Group: Battery under energy	0:normal 1:fault
Bit14	AC-Group: DC input over current	0:normal 1:fault
Bit15	AC-Group: Off-grid Volt phase reversed	0:normal 1:fault
Bit16	AC-Group: PLL fault	0:normal 1:fault
Bit17	AC-Group: Ambient over temperature	0:normal 1:fault
Bit18	AC-Group: Ambient temp. sensor fault	0:normal 1:fault
Bit19	AC-Group: Cabinet temp. sensor fault	0:normal 1:fault
Bit20	AC-Group: Cabinet over temperature	0:normal 1:fault
Bit21	AC-Group: Off-grid voltage phase lost	0:normal 1:fault
Bit22	AC-Group: AC current harmonic Abnormal	0:normal 1:fault
Bit23~31	reserve	

Note21： Industry dcac fault info2

Bit NO	Name	Description
Bit0	AC-Group: 24V auxiliary power fault	0:normal 1:fault
Bit1	AC-Group: emergency stopped(EPO)	0:normal 1:fault
Bit2	AC-Group: Grounding fault	0:normal 1:fault
Bit3	AC-Group: DC bus over voltage	0:normal 1:fault
Bit4	AC-Group: Module over temperature	0:normal 1:fault
Bit5	AC-Group: Module current asymmetric	0:normal 1:fault
Bit6	AC-Group: Fan fault	0:normal 1:fault
Bit7	AC-Group: DC relay open circuit	0:normal 1:fault
Bit8	AC-Group: Calibration parameter Abnormal	0:normal 1:fault
Bit9	AC-Group: Bus voltage unbalanced	0:normal 1:fault
Bit10	AC-Group: Fuse blown	0:normal 1:fault
Bit11	AC-Group: DSP initializing fault	0:normal 1:fault
Bit12	AC-Group: DC soft start failed	0:normal 1:fault
Bit13	AC-Group: CAN A comm fault	0:normal 1:fault
Bit14	AC-Group: DC input reversed	0:normal 1:fault
Bit15	AC-Group: AC current DC component Abnormal	0:normal 1:fault
Bit16	AC-Group: Transformer over temp.	0:normal 1:fault
Bit17	AC-Group: U2 comm. 2 Abnormal	0:normal 1:fault
Bit18	AC-Group: Tripped by BMS or DC switch	0:normal 1:fault
Bit19	AC-Group: SPD fault	0:normal 1:fault
Bit20	AC-Group: Overload timeout fault	0:normal 1:fault
Bit21	AC-Group: AC soft start failed	0:normal 1:fault
Bit22	AC-Group: Synchronous signal 1 fault	0:normal 1:fault
Bit23	AC-Group: DSP version fault	0:normal 1:fault
Bit24	AC-Group: AC relay open circuit	0:normal 1:fault
Bit25	AC-Group: Sampling zero Abnormal	0:normal 1:fault
Bit26	AC-Group: U2 comm. 1 Abnormal	0:normal 1:fault
Bit27	AC-Group: 15V auxiliary power fault	0:normal 1:fault

Bit28	AC-Group: Module ID reduplicated	0:normal 1:fault
Bit29	AC-Group: RS485 comm. fault	0:normal 1:fault
Bit30	AC-Group: CAN B comm. fault	0:normal 1:fault
Bit31	AC-Group: Restart too much	0:normal 1:fault

Note22： Industry dcac fault info3

Bit NO	Name	Description
Bit0	AC-Group: CPLD version fault	0:normal 1:fault
Bit1	AC-Group: Hardware version fault	0:normal 1:fault
Bit2	AC-Group: DC relay short circuit	0:normal 1:fault
Bit3	AC-Group: DC bus under voltage	0:normal 1:fault
Bit4	AC-Group: AC relay short circuit	0:normal 1:fault
Bit5	AC-Group: Synchronous signal 2 fault	0:normal 1:fault
Bit6	AC-Group: Parameter mismatch	0:normal 1:fault
Bit7	AC-Group: CAN C comm. fault	0:normal 1:fault
Bit8	AC-Group: Ambient humidity too high	0:normal 1:fault
Bit9	AC-Group: BMS voltage Abnormal	0:normal 1:fault
Bit10	AC-Group: BMS current Abnormal	0:normal 1:fault
Bit11	AC-Group: BMS temperature Abnormal	0:normal 1:fault
Bit12	AC-Group: BMS shutdown	0:normal 1:fault
Bit13	AC-Group: Insulation detection Abnormal	0:normal 1:fault
Bit14	AC-Group: Hardware sampling Abnormal	0:normal 1:fault
Bit15	AC-Group: Remote comm. Lost	0:normal 1:fault
Bit16~31	reserve	

Note23： Industry dcac fault info4

Bit NO	Name	Description
Bit0	PCS: Pv under voltage	0:normal 1:fault
Bit1	PCS: Pv over voltage	0:normal 1:fault
Bit2	PCS: Pv contactor short circuit	0:normal 1:fault
Bit3	PCS: Pv contactor open circuit	0:normal 1:fault
Bit4	PCS: PE-N contactor short circuit	0:normal 1:fault
Bit5	PCS: PE-N contactor open circuit	0:normal 1:fault
Bit6	PCS: Neutral contactor short circuit	0:normal 1:fault
Bit7	PCS: Neutral contactor open circuit	0:normal 1:fault
Bit8	PCS: Grid access abnormal	0:normal 1:fault
Bit9	PCS: Grid power down	0:normal 1:fault
Bit10	PCS: Grid voltage distortion	0:normal 1:fault
Bit11	PCS: input dry contact 4 failed	0:normal 1:fault
Bit12	PCS: input dry contact 5 failed	0:normal 1:fault
Bit13	reserve	

Bit14	reserve	
Bit15	reserve	
Bit16	fault status	0:normal 1:fault
Bit17	Rack Func board Alarm	0:normal 1:fault
Bit18	Rack Func board fault	0:normal 1:fault
Bit19~31	reserve	

Note24：Industry dcdc fault info1

Bit NO	Name	Description
Bit0	DC-Group: DC bus over voltage	0:normal 1:fault
Bit1	DC-Group: DC bus under voltage	0:normal 1:fault
Bit2	DC-Group: DC input over voltage	0:normal 1:fault
Bit3	DC-Group: DC input under voltage	0:normal 1:fault
Bit4	DC-Group: DC input over current	0:normal 1:fault
Bit5	DC-Group: DC input power down	0:normal 1:fault
Bit6	DC-Group: Restart too much	0:normal 1:fault
Bit7	DC-Group: Battery relay short circuit	0:normal 1:fault
Bit8	DC-Group: PV under energy	0:normal 1:fault
Bit9	DC-Group: Battery under energy	0:normal 1:fault
Bit10	DC-Group: ambient temperature overheat	0:normal 1:fault
Bit11	DC-Group: Tripped by BMS or DC switch	0:normal 1:fault
Bit12	DC-Group: U2 comm. 1 Abnormal	0:normal 1:fault
Bit13	DC-Group: cabinet temperature overheat	0:normal 1:fault
Bit14	DC-Group: cabinet temperature sensor fault	0:normal 1:fault
Bit15	DC-Group: ambient temperature sensor fault	0:normal 1:fault
Bit16	DC-Group: Module current asymmetric	0:normal 1:fault
Bit17	reserve	
Bit18	DC-Group: 24V auxiliary power fault	0:normal 1:fault
Bit19	DC-Group: emergent stopped(EPO)	0:normal 1:fault
Bit20	DC-Group: Grounding fault	0:normal 1:fault
Bit21	DC-Group: Bus voltage unbalanced	0:normal 1:fault
Bit22	DC-Group: Module over temperature	0:normal 1:fault
Bit23	DC-Group: Fan fault	0:normal 1:fault
Bit24	DC-Group: Battery relay open circuit	0:normal 1:fault
Bit25	DC-Group: Calibration parameter Abnormal	0:normal 1:fault
Bit26	DC-Group: Fuse blown	0:normal 1:fault
Bit27	DC-Group: DSP initializing fault	0:normal 1:fault
Bit28	DC-Group: Battery soft start failed	0:normal 1:fault
Bit29	DC-Group: CAN A comm. fault	0:normal 1:fault
Bit30	DC-Group: Bus relay open circuit	0:normal 1:fault
Bit31	DC-Group: Bus soft start failed	0:normal 1:fault

Note25： Industry dcdc fault info2

Bit NO	Name	Description
Bit0	DC-Group: DSP verision fault	0:normal 1:fault
Bit1	DC-Group: CPLD version fault	0:normal 1:fault
Bit2	DC-Group: Parameter mismatch	0:normal 1:fault
Bit3	DC-Group: Hardware version fault	0:normal 1:fault
Bit4	DC-Group: RS485 communication fault	0:normal 1:fault
Bit5	DC-Group: CAN B comm. fault	0:normal 1:fault
Bit6	DC-Group: Module ID reduplicated	0:normal 1:fault
Bit7	DC-Group: 15V auxiliary power fault	0:normal 1:fault
Bit8	DC-Group: Bus relay short circuit	0:normal 1:fault
Bit9	DC-Group: BMS voltage Abnormal	0:normal 1:fault
Bit10	DC-Group: BMS current Abnormal	0:normal 1:fault
Bit11	DC-Group: BMS temperature Abnormal	0:normal 1:fault
Bit12	DC-Group: BMS shutdown	0:normal 1:fault
Bit13	DC-Group: Insulation detection Abnormal	0:normal 1:fault
Bit14~31	reserve	

Note26： Household Inverter fault code(Only for EMS3.5/EMS3.6)

Code Bit	Inverter Fault1	Inverter Fault2
Bit 0	Grid_OVP	bat2_discharge_ocp
Bit 1	Grid_UVP	bat1_hw_ocp
Bit 2	Grid_OFP	bat2_hw_ocp
Bit 3	Grid_UFP	inv_otp
Bit 4	phase_locked_fault	inv_ovp
Bit 5	bus_ovp1	inv_uvp
Bit 6	bus_ovp2	output_dc_over_current
Bit 7	insulation_fault	inv_ocp
Bit 8	gfci_fault	inv_hw_ocp
Bit 9	gfci_test_fault	output_dc_over_voltage
Bit 10	grid_relay_fault	output_short
Bit 11	over_temperature	output_overload
Bit 12	pv_reverse	apu_uvp
Bit 13	bat_reverse	bat_relay_fault
Bit 14	m_s_com_fault	dc_input_disturbance
Bit 15	display_com_fault	grid_disturbance
Bit 16	chip1_upgrade_fault	gird_unbalance
Bit 17	mppt1_ovp	freq_jitter
Bit 18	mppt1_sw_ocp	grid_overcurrent
Bit 19	mppt1_hw_ocp	grid_current_track_fault
Bit 20	mppt1_otp	backup_ovp
Bit 21	mppt2_ovp	dc_bus_unbalancevolt

Bit 22	mppt2_sw_ocp	dc_bus_undervolt
Bit 23	mppt2_hw_ocp	dc_bus_unbalancevolt2
Bit 24	mppt2_otp	igbt_over_current
Bit 25	bat_ovp	grid_disturbance2
Bit 26	bat_uvp	afci_check_protect
Bit 27	battery_lose	grid_current_sampling_abnormal
Bit 28	bat_otp	dsp_selfcheck
Bit 29	bat1_charge_ocp	grid_short_time_over_current
Bit 30	bat1_discharge_ocp	bat_overvolt_hardware_fault
Bit 31	bat2_charge_ocp	zero_ground_fault

Note27：Household Inverter fault extend code(Only for EMS3.5/EMS3.6)

Code Bit	Inverter Extend Fault1	Inverter Extend Fault2
Bit 0	ac_hct_check_failure	
Bit 1	dci_consistency_failure	
Bit 2	gfci_consistency_failure	
Bit 3	relay_device_failure	
Bit 4	ac_hct_failure	
Bit 5	gournd_i_failure	
Bit 6	utility_phase_failure	
Bit 7	utility_loss	
Bit 8	internal_fan_failure	
Bit 9	fac_consistency_failure	
Bit 10	vac_consitency_failure	
Bit 11	phase_angle_failure	
Bit 12	dsp_communication_failure	
Bit 13	eeprom_rw_failure	
Bit 14	vac_failure	
Bit 15	fac_failure	
Bit 16	external_fan_failure	
Bit 17		
Bit 18		
Bit 19		
Bit 20		
Bit 21		
Bit 22		
Bit 23		
Bit 24		
Bit 25		
Bit 26		
Bit 27		
Bit 28		
Bit 29		

Bit 30		
Bit 31		

Note28：Battery warning

Warning code	Description		
	Platform	EMS2.5	EMS3.5/EMS3.6
Bit 0			Temperature imbalance
Bit 1			Over temperature
Bit 2			Discharge low temperature
Bit 3			Charge low temperature
Bit 4			Discharge over current
Bit 5			Charge over current
Bit 6			Cell over voltage
Bit 7			Cell low voltage
Bit 8			No soc calibration
Bit 9			
Bit 10			
Bit 11			
Bit 12			
Bit 13			
Bit 14			
Bit 15			
Bit 16			
Bit 17			
Bit 18			
Bit 19			
Bit 20			
Bit 21			
Bit 22			
Bit 23			
Bit 24			
Bit 25			
Bit 26			
Bit 27			
Bit 28			
Bit 29			
Bit 30			
Bit 31			