Energy Storage Inverter Modbus RTU Communication protocols

V3.14

History list：

Date	Name	detail	Version	other
2020-6-16	GaoRui	1.Delete RF related data; 2.Modify work mode related data; 3.The communication format is changed from the original Modbus TCP to Modbus RTU.	V3.01	Completed according to the ModBus TCP X1&X3 G3 V3.19 Protacal
2020-8-14	GaoRui	1.Modify the corresponding meaning of language .(0:English1:German2:French3:Polish4:Spanish 5: Portuguese) 2.Modify the Feedin power description (0x0046 register). 3.Write single register and Read holding register add EnableMPPT. 4.Modify read holding register 0x00BA, Inverter power type description,delete the 7kW type.	V3.02	
2020-8-28	GaoRui	1.Add safety type description.(0x03Read Holding Register, 0x001D Safety.)	V3.03	
2020-10-7	WangJianXing	Add Vpp Control function registers	V3.04	
2020-10-9	GaoRui	1.Modify the Vpv_High_Stop, Vpv_Low_Stop parameter to Adjust_Battery_U,Adjust_Battery_I. 2.Delet the Vpv_Start parameter,Write Single Register 0x0001 variable Reserve. 3.Delet these ModbusPowerControl, ModbusActivePower, ModbusReactivePower, PowerControl_timeout parameters.Write Sigle Register 0x0051、0x0052、0x0053、0x009F, And ModbusPowerControl 、 PowerControl_timeout Read Holding Register 0x00A6 、0x010B variable reserve。	V3.05	
2020-11-11	GaoRui	1.Add SelfUse_NightCharge_Enable, Feedin_NightCharge_UpperSoC,BackUp_NightCharge_UpperSoC; .(0x03Read Holding Register, 0x0092(Hi),0x0094(Lo),0x0095(Lo).) 2.Add Safety type description: 28 RD1699_Island. 3. Add ReconnectionTime Read Holding Register 0x0017, Write Single Register 0x0001. 4.Modify 0x5F Reset_Manger_EE parameter 's decription (0x06: Write Single Register). 4.Add MateBoxEnable parameter.	V 3.06	

		(1) Write Single Register 0x000A. (2) Read Holding Register 0x001E.		
2020-12-22	GaoRui	1.Delete PowerManagerConfigData 、 PowerManagerEnable parameters. 2.Add HardwareVersionDSP parameter, which at 0x007D Holding Register. 3.Modify absorpt_voltage parameter position, which from 0x00A7 to 0x0092 at Holding Register. 4.Delete wDcvFaultVal parameter. 5. Modify the Eps description to Off-grid in the full text. 6.Add MissedCTFault description at Table 2-4 Inverter error code(X1).	V3.07	
2021-01-29	GaoRui	1.Add Registration Code(for external module) parameter, which from 0x00AA to 0x00AE at Read Holding Register. 2.Modify 0x0116 register LVRT_Function parameter's description, which at Holding Register.	V3.08	
2021-03-02	wangjianxing	1、Add Adjust_CT parameters, which from 0x0034 to 0x0037 at Write Single Register. 2、Modify some BMS warning Spelling mistake	V3.09	
2021-06-21	wangjianxing	Add "Notice"explain about use "**Write Single Registers**"and"**WriteMultiple Registers**"attentions Add Write single registers 0x0029~0x002E about CalibGainInvVolt and CalibEPSDcvAdj Add Read Input registers 0x009C~0x009E about InvVoltR、InvVoltS、InvVoltT	V3.10	
2021-08-19	wangjianxing	Add Write single registers 0x00A4 : DirectionMeterCT1 0x00A5 : DirectionMeter2 Add Read Input registers 0x010B : DirectionMeterCT1 0x010C : DirectionMeter2	V3.11	
2021-9-3	wangjianxing	Add safety types(AS 4777_2020_B 、 AS 4777_2020_C、User-Defined、EN50549_Romania、CEI016) Add Read Input Registers 0x00BA Battery_Tem_High 0x00BB Battery_Tem_Low 0x00BC Cell_Voltage_High 0x00BD Cell_Voltage_Low Add Write single register	V3.12	

		0x0046 AgeingMode(for ATE use)		
2021-9-28	Tangyan chong	Add Read Holding Registers 0x11C bPVConnectionMode(X1) Add Read Holding Registers 0x11C bPVConnectionMode(X1) 0x0051　PVConnectipon(X1) 0x00AE　PuFuncEnable 0x00AF　PuFunc_ResponseV1 0x00B0　PuFunc_ResponseV2 0x00B1　PuFunc_ResponseV3 0x00B2　PuFunc_ResponseV4 0x00B3　PuFunc_3Tau	V3.13	
2021-11-2	wangjia nxing	**Add Read Holding Registers** 0x00A8 wBatteryDischargeBackupVoltage **Add Read Holding Registers** 0x0026 wBatteryDischargeBackupVoltage **Add Upgrade W/R Register and Example describe**	V3.14	

Version matching information

Protocol version	ARM version(X1)	ARM version(X3)
V3.01	V1.01~V1.03	V1.01~V1.03
V3.02		
V3.03		
V3.04		
V3.05		
V3.06		
V3.07	V1.04~1.14	
V3.08		

V3.09		V1.04~V1.09
V3.10		
V3.11	1.15	V1.10
V3.12		
V3.13		
V3.14	In development	In development

Protocols general

Protocol   type: Modbus RTU
Frame format:
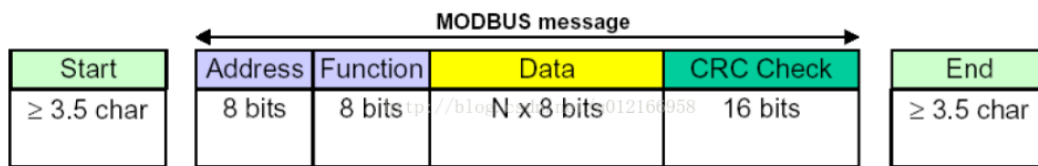
Time request:

Timing parameter	Value
The least interval time between two instructions	1 Sec
Character-gap time out(silent time between 2 package)	>100ms
Response timeout	1 Sec

Notice:When use"**Write Single Registers**"and"**Write Multiple Registers**"function,some registers will be write in EEprom if they are changed(these parameters can be saved after power failure).But the EEprom has the write times limit.Too frequent operation will lead to irreversible hardware damage.Related registers are marked with ★.If there is any doubt about the use, please

0x03:Read Holding Register

32bit data use little endian format

Function Code	Register	Variable	W/R	descripton	Unit	Data format	Length
	header: **Read Holding Register**						
0X03	0x0000 ~0x0006	InverterSN	R	14Chars, MSB=SN[14]	14Char	uint16	7
	0x0007 ~0x000D	FactoryName	R	14Chars, MSB=SN[14]	14Char	uint16	7
	0x000E ~x0014	ModuleName	R	14Chars, MSB=SN[14]	14Char	uint16	7
	0x0015	REV	R			uint16	1
	0x0016	TimeStart	R	launch wait time	1s	uint16	1
	0x0017	ReconnectionTime	R	Reconnection Time	1s	uint16	1
	0x0018	REV	R			uint16	1
	0x0019	VacMinProtect	R	allowed minimum grid voltage	0.1V	uint16	1
	0x001A	VacMaxProtect	R	allowed maximum grid voltage	0.1V	uint16	1
	0x001B	FacMinProtect	R	allowed minimum grid frequency	0.01Hz	uint16	1
	0x001C	FacMaxProtect	R	allowed maximum grid frequency	0.01Hz	uint16	1
	0x001D	SafetyCode	R	Safety type 0: VDE0126 1: VDE4105 2: AS 4777_2020_A 3: G98/1 4: C10/11 5: OVE/ONORME8001(X1) 5: TOR(X3) 6: EN50438_NL 7: EN50438_DK(X1) 7: Denmark2019_W(X3) 8: CEB 9: CEI021 10:NRS097_2_1 11: VDE0126_Gr_Is 12: UTE_C15_712	—	uint16	1

			13:IEC61727 14:G99/1 15:VDE0126_Gr_Co 16: Guyana 17:C15_712_is_50 18:C15_712_is_60 19:New Zealand 20:RD1699 21:Chile -----------(X3)----------- 22:Israel 23:Czech_PPDS_2020 24:RD1699_Island 25:EN50438_Poland 26:EN50438_Portugal 27:PEA 28:MEA 29:EN50438_Sweden 30:Philippines 31:EN50438_Slovenia 32:Denmark2019_E 33:EN50549_EU 34:AS 4777_2020_B 35:AS 4777_2020_C 36:User-Defined 37:EN50549_Romania 38:CEI016 -----------(X3)----------- -----------(X1)----------- 22:EN50438_Ireland 23:Philippines 24:Czech PPDS_2020 25:Czech_50438 26: EN50549_EU 27: Denmark2019_E 28:RD1699_Island 29: EN50549_Poland 30:MEA_Thailand 31:PEA_Thailand 32:ACEA 33:AS 4777_2020_B 34:AS 4777_2020_C 35:User Define			

			36:EN50549_Romania ----------(X1)----------			
0x001E	MateBoxEnable	R	0:Disable 1:Enable	1	uint16	1
0x001F	Grid10MinAvgProtect	R	10minutes over voltage protect	0.1V	uint16	1
0x0020	VacMinSlowProtect	R	grid undervoltage protect value	0.1V	uint16	1
0x0021	VacMaxSlowProtect	R	grid overvoltage protect value	0.1V	uint16	1
0x0022	FacMinSlowProtect	R	grid underfrequency protect value	0.01HZ	uint16	1
0x0023	FacMaxSlowProtect	R	grid overfrequency protect value	0.01HZ	uint16	1
0x0024	REV	R	-	-	uint16	1
0x0025	PowerLimitsPercent	R	output power limits precent	0~100	uint16	1
0x0026	PowerfactorMode	R	0: Off 1:Over Excited 2:Under Excited 3:Curve 4:Qu 5:Fix Q Power	1	uint16	1
0x0027	PowerfactorData	R	Power factor data	0.01	uint16	1
0x0028	PowerFactor_Curve_PF1	R	PowerFactor_Curve_PF1	0.01	uint16	1
0x0029	PowerFactor_Curve_PF2	R	PowerFactor_Curve_PF2	0.01	uint16	1
0x002A	PowerFactor_Curve_PF3	R	PowerFactor_Curve_PF3	0.01	uint16	1
0x002B	PowerFactor_Curve_PF4	R	PowerFactor_Curve_PF4	0.01	uint16	1
0x002C	PowerFactor_Curve_Power1	R	PowerFactor_Curve_Power1	1%	uint16	1
0x002D	PowerFactor_Curve_Power2	R	PowerFactor_Curve_Power2	1%	uint16	1
0x002E	PowerFactor_Curve_Power3	R	PowerFactor_Curve_Power3	1%	uint16	1
0x002F	PowerFactor_Curve_Power4	R	PowerFactor_Curve_Power4	1%	uint16	1
0x0030	PowerFactor_Curve_PfLockInPoint	R	PowerFactor_Curve_PfLockInPoint	0.01	uint16	1
0x0031	PowerFactor_Curve_PfLockOutPoint	R	PowerFactor_Curve_PfLockOutPoint	0.01	uint16	1
0x0032	PowerFactor_Curve_3Tau	R	PowerFactor_Curve_3Tau	1s	uint16	1
0x0033	PowerFactor_Qu_VoltRatio1	R	PowerFactor_Qu_VoltRatio1	1%	uint16	1
0x0034	PowerFactor_Qu_VoltRatio4	R	PowerFactor_Qu_VoltRatio4	1%	uint16	1
0x0035	PowerFactor_Qu_QuResponseV1	R	PowerFactor_Qu_QuResponseV1	0.1V	uint16	1
0x0036	PowerFactor_Qu_QuResponseV2	R	PowerFactor_Qu_QuResponseV2	0.1V	uint16	1
0x0037	PowerFactor_Qu_QuResponseV3	R	PowerFactor_Qu_QuResponseV3	0.1V	uint16	1
0x0038	PowerFactor_Qu_QuResponseV4	R	PowerFactor_Qu_QuResponseV4	0.1V	uint16	1

	0x0039	PowerFactor_Qu_K	R	PowerFactor_Qu_K	0.1	int16	1
	0x003A	PowerFactor_Qu_3Tau	R	PowerFactor_Qu_3Tau	1s	uint16	1
	0x003B	PowerFactor_Qu_QuDelayTimer	R	PowerFactor_Qu_QuDelayTimer	1s	uint16	1
	0x003C	PowerFactor_Qu_QuLockEn	R	PowerFactor_Qu_QuLockEn 0:Disable 1::Enable	1	uint16	1
	0x003D	PowerFactor_Qu_QuLockIn	R	PowerFactor_Qu_QuLockIn	1%	uint16	1
	0x003E	PowerFactor_Qu_QuLockOut	R	PowerFactor_Qu_QuLockOut	1%	uint16	1
	0x003F	PowerFactor_FixQPower	R	PowerFactor_FixQPower	1Var	int16	1
	0x0040	PowerFactor_FixQPower_Max	R	PowerFactor_FixQPower_Max	1Var	int16	1
	0x0041	PowerFactor_FixQPower_Min	R	PowerFactor_FixQPower_Min	1Var	int16	1
	0x0042 ~0x007C	Reserv	R	-	-	uint16	59
	0x007D	FirmwareVersion_DSP	R	FirmwareVersion_DSP	1	uint16	1
	0x007E	HardwareVersion_DSP	R	HardwareVersion_DSP	1	uint16	1
	0x007F ~0x0081	REV	R	REV	-	uint16	3
	0x0082	FirmwareVersion_ModbusRTU	R	Current version matches FirmwareVersion_ARM	1	uint16	1
	0x0083	FirmwareVersion_ARM	R	FirmwareVersion_ARM	1	uint16	1
	0x0084	FirmwareVersion_ARM_Bootloader	R	FirmwareVersion_ARM_Bootloader	1	uint16	1
	0x0085	RTC-Seconds	R	RTC-Seconds	—	uint16	1
	0x0086	RTC-Minutes	R	RTC-Minutes	—	uint16	1
	0x0087	RTC-Hours	R	RTC-Hours	—	uint16	1
	0x0088	RTC-Days	R	RTC-Days	—	uint16	1
	0x0089	RTC-Months	R	RTC-Months	—	uint16	1
	0x008A	RTC-Years	R	RTC-Years	—	uint16	1
	0x008B	SolarChargerUseMode	R	SolarChargerUseMode: 0:Self use mode 1: Feedin Priority 2:Back up mode 3:Manual mode	1	uint16	1
	0x008C	Manual mode	R	0:Stop charge&discharge 1:Force charge 2:Force discharge	1	uint16	1
	0x008D	wBattery1_Type	R	0: Lead Acid 1: Lithium	1	uint16	1
	0x008E	Charge_floatVolt	R	Lead-acid battery charge_float voltage	0.1V	uint16	1

	0x008F	Battery_DischargeCutVoltage	R	Lead-acid battery discharge cut-off voltage	0.1V	uint16	1
	0x0090	Battery_ChargeMaxCurrent	R	Lead-acid battery charge maximum current	0.1A	uint16	1
	0x0091	Battery_DischargeMaxCurrent	R	Lead-acid battery discharge maximum Current	0.1A	uint16	1
	0x0092	absorpt_voltage	R	Lead-acid battery absorpt_voltage	0.1V	uint16	1
	0x0093	SelfUse_Discharge_MinSoC	R	10% ~100%	1%	uint8(Hi)	1
		SelfUse_NightCharge_Enable	R	Whether to allow electricity from the grid 0:Disable 1:Enable	1	uint8(Lo)	
	0x0094	SelfUse_NightCharge_UpperSoC	R	This value will be enabled if SelfUse_NightCharge_Enable is 1. 10%~100%	1%	uint16	1
	0x0095	Feedin_NightCharge_UpperSoC	R	10%~100%	1%	uint8(Hi)	1
		Feedin_Discharge_MinSoC	R	10%~100%	1%	uint8(Lo)	
	0x0096	BackUp_NightCharge_UpperSoC	R	30%~100%	1%	uint8(Hi)	1
		BackUp_Discharge_MinSoC		30%~100%	1%	uint8(Lo)	
	0x0097	ChargePeriod1_StartMinute	R	0-59	1	uint8(Hi)	1
		ChargePeriod1_StartHour	R	0-23	1	uint8(Lo)	
	0x0098	ChargePeriod1_EndMinute	R	0-59	1	uint8(Hi)	1
		ChargePeriod1_EndHour	R	0-23	1	uint8(Lo)	
	0x0099	DischargePeriod1_StartMinute	R	0-59	1	uint8(Hi)	1
		DischargePeriod1_StartHour	R	0-23	1	uint8(Lo)	
	0x009A	DischargePeriod1_EndMinute	R	0-59	1	uint8(Hi)	1
		DischargePeriod1_EndHour	R	0-23	1	uint8(Lo)	
	0x009B	Set_Chrg&DischrgPeriod2_Enable	R	Whether to use period 2. 0:Disable 1:Enable	1	uint16	1
	0x009C	ChargePeriod2_StartMinute	R	0-59	1	uint8(Hi)	1
		ChargePeriod2_StartHour	R	0-23	1	uint8(Lo)	
	0x009D	ChargePeriod2_EndMinute	R	0-59	1	uint8(Hi)	1
		ChargePeriod2_EndHour	R	0-23	1	uint8(Lo)	
	0x009E	DischargePeriod2_StartMinute	R	0-59	1	uint8(Hi)	1
		DischargePeriod2_StartHour	R	0-23	1	uint8(Lo)	
	0x009F	DischargePeriod2_EndMinute	R	0-59	1	uint8(Hi)	1
		Discharge Period2_EndHour	R	0-23	1	uint8(Lo)	

0x00A0 ~0x00A5	REV	R		1	uint16	6
0x00A6	Safety_Mode	R	0:Only surport Italy 1:Surport others except italy	1/0	uint16	1
0x00A7	REV	R				1
0x00A8	wBatteryDischargeBackupVoltage	R	wBatteryDischargeBackupVoltage	0.1V	uint16	1
0x00A9	REV	R	-		uint16	1
0x00AA ~0x00AE	Registration Code （for external module）	R	Registration Code[10]	10char	uint16	5
0x00AF ~0x00B4	REV	R	-	-	uint16	6
0x00B5	Export control_factory limit	R	Export control_factory limit	1W	uint16	1
0x00B6	Export control user limit	R	Export_control user limit	1W	uint16	1
0x00B7	Off-grid_Mute	R	0(off)/1(on)	1	uint16	1
0x00B8	Off-grid_MinSoC	R	Off-grid_MinSoC	1%	uint16	1
0x00B9	REV	R	REV	-	uint16	1
0x00BA	Inverter Power Type	R	3000W/3680W/5000W /6000W/7500W (0:Error power type)	1W	uint16	1
0x00BB	Language	R	0:English 1:German 2:French 3:Polish 4:Spanish 5:Portuguese (Only surports English currently)	0~5	uint16	1
0x00BC	EnableMPPT	R	1:enable 0:Disable	0/1	uint16	1
0x00BD	wTuvp_L2	R	wTuvp_L2	1ms	uint16	1
0x00BE	wTovp_L2	R	wTovp_L2	1ms	uint16	1
0x00BF	wTufp_L2	R	wTufp_L2	1ms	uint16	1
0x00C0	wTofp_L2	R	wTofp_L2	1ms	uint16	1
0x00C1	wTuvp_L1	R	wTuvp_L1	1ms	uint16	1
0x00C2	wTovp_L1	R	wTovp_L1	1ms	uint16	1
0x00C3	wTufp_L1	R	wTufp_L1	1ms	uint16	1
0x00C4	wTofp_L1	R	wTofp_L1	1ms	uint16	1
0x00C5	TestStep	R	TestStep 1 means test Ovp(59.S2) 2 means test Uvp(27.S1) 3 means test Uvp(27.S2) 4 means test Ofp(81>.S1)	1~8	uint16	1
0x00C6	OvpValue(Ovp(59.S2))	R		0.1V	uint16	1
0x00C7	OvpTime(Ovp(59.S2))	R		1ms	uint16	1
0x00C8	UvpValue(Uvp(27.S1))	R		0.1V	uint16	1
0x00C9	UvpTime(Uvp(27.S1))	R		1ms	uint16	1

0x00CA	OfpValue(Ofp(81>.S1))	R	5 means test Ufp(81<.S1)	0.01Hz	uint16	1
0x00CB	OfpTime(Ofp(81>.S1))	R	6 means test Ofp2(81>.S2)	1ms	uint16	1
0x00CC	UfpValue(Ufp(81<.S1))	R	7 means test Ufp2(81<.S2)	0.01Hz	uint16	1
0x00CD	UfpTime(Ufp(81<.S1))	R	8 means test Ovp_10(59.S1)	1ms	uint16	1
0x00CE	SelfTestOvp10mAvgVal (Ovp_10(59.S1))	R	9 means success SelfTest_Time:the remaining time of each test	0.1V	uint16	1
0x00CF	SelfTestOvp10mAvgTime (Ovp_10(59.S1))	R		1S	uint16	1
0x00D0	SelfTestOfpVal_Restrictive (Ofp2(81>.S2))	R		0.01Hz	uint16	1
0x00D1	SelfTestOfpTime_Restrictive (Ofp2(81>.S2))	R		1ms	uint16	1
0x00D2	SelfTestUfpVal_Restrictive (Ufp2(81<.S2))	R		0.01Hz	uint16	1
0x00D3	SelfTestUfpTime_Restrictive (Ufp2(81<.S2))	R		1ms	uint16	1
0x00D4	SelfTest_UvpRestrictive_Val (Uvp(27.S2))	R		0.1V	uint16	1
0x00D5	SelfTest_UvpRestrictive_Time (Uvp(27.S2))	R		1ms	uint16	1
0x00D6	SelfTest_Time	R		1s	uint16	1
0x00D7	MainBreakerCurrentLimit	R	32A~100A	1A	uint16	1
0x00D8	~~PfLockInPoint~~	~~R~~	~~Set Power Factor parameter~~	~~105~110~~	uint16	1
0x00D9	~~PfLockOutPoint~~	~~R~~		~~98~90~~	uint16	1
0x00DA	wInverter_OutPut_Switch	R	1=ON;0=Off	0/1	uint16	1
0x00DB	OFPL_Point	R	Overfrequency load reduction point.	0.01Hz	uint16	1
0x00DC	OFPL_SetRate	R	Overfrequency load reduction rate.	1%	uint16	1
0x00DD	OFPL_DelayTime	R	Overfrequency load reduction delay time.	1ms	uint16	1
0x00DE	~~QuVrateUp~~	~~R~~	~~Q(U) curve up set point~~	~~1%~~	uint16	1
0x00DF	~~QuVrateLow~~	~~R~~	~~Q(U) curve low set point~~	~~1%~~	uint16	1
0x00E0	UserPassword	R	UserPassword	1	uint16	1
0x00E1	AdvancePassword	R	AdvancePassword	1	uint16	1
0x00E2	UFPL_Point	R	Underfrequency load increase point.	0.01Hz	uint16	1
0x00E3	UFPL_SetRate	R	Underfrequency load increase rate.	1%	uint16	1
0x00E4	UFPL_DelayTime	R	Underfrequency load increase	1ms	uint16	1

			delay time.			
0x00E5	OFPL_CurveType	R	Overfrequency load reduction curve type selction. 0:Symmetry curve 1:Asymmetry curve	0/1	uint16	1
0x00E6	OFPL_Tstop	R	Overfrequency load reduction asymmetry curve stop time.	1s	uint16	1
0x00E7	OFPL_RemovePoint	R	Overfrequency load reduction frequency remove point.	0.01Hz	uint16	1
0x00E8	UFPL_RemovePoint	R	Underfrequency load increase frequency remove point.	0.01Hz	uint16	1
0x00E9 ~0x00F2	REV	R	REV	-	uint16	10
0x00F3	wPowerLimitGra	R	wPowerLimitGra	0.0001	uint16	1
0x00F4	PuFunc_VoltResponse_V2	R	PuFunction Voltage	0.1V	uint16	1
0x00F5	PuFunc_VoltResponse_V3	R		0.1V	uint16	1
0x00F6	PuFunc_VoltResponse_V4	R		0.1V	uint16	1
0x00F7	~~VoltResponse_Ratio1~~ PuFunc_VoltResponse_V1	R	Volt-var Mode	~~0.01~~	uint16	1
0x00F8	~~VoltResponse_Ratio4~~ PuFunc_3Tau	R	Parameter	~~0.01~~	uint16	1
0x00F9	PUFuncEnable	R	0:disable 1:enable	1	uint16	1
0x00FA	~~Qpower_set~~	~~R~~	~~Qpower_set~~	~~1Var~~	uint16	1
0x00FB	~~bQpower_set_Max~~	~~R~~	~~bQpower_set_Max~~	~~1Var~~	uint16	1
0x00FC	~~bQpower_set_Min~~	~~R~~	~~bQpower_set_Min~~	~~1Var~~	uint16	1
0x00FD ~0x0101	REV	R	-	-	uint16	5
0x0102	DRMFunctionEnable	R	0:disable 1:enable	1	uint16	1
0x0103	REV	R	-	-	uint16	1
0x0104	wShadowFixFuncEnable	R	0:Off, 1:Low, 2:Middle, 3:Hight	1	uint16	1
0x0105	MachineType_X1orX3	R	1:X1 3:X3	-	uint16	1
0x0106	PhasePowerBalance(X3)	R	0:disable 1:enable	1	uint16	1
0x0107	wMachineStyle	R	0:X-Hybrid 1:X-FIT	1	uint16	1
0x0108	MeterFunction	R	0:disable 1:enable	1	uint16	1
0x0109	Meter1ID	R	Meter1ID 1~200	1	uint16	1
0x010A	Meter2ID	R	Meter2ID 1~200	1	uint16	1
0x010B	DirectionMeterCT1	R	0:Positive 1:Negative	1	uint16	1
0x010C	DirectionMeter2	R	0:Positive 1:Negative	1	uint16	1

	0x010D ~0x0110	REV	R	-	1	uint16	6
	0x0111	DischCutOffPoint_DifferentEN	R	Whether Lead-acid Battery discharge cut-off voltage point is enable. 0:disable 1:enable	1	uint16	1
	0x0112	REV	R	-	-	uint16	1
	0x0113	DischCutOffVoltage_GridMode	R	Lead-acid Battery discharge cut-off voltage in on-grid mode	0.1V	uint16	1
	0x0114	REV	R	-	-	uint16	1
	0x0115	Meter/CT select	R	0:Meter 1:CT	1	uint16	1
	0x0116	FVRT_Function	R	0:Disable 1:Enable	1	uint16	1
	0x0117	FVRT_VacUpper	R	If FVRT_Function is enable, FVRT Vac upper limit is available.	0.1V	uint16	1
	0x0118	FVRT_VacLower	R	If FVRT_Function is enable, FVRT Vac lower limit is available.	0.1V	uint16	1
	0x0119	REV	R	-	-	uint16	1
	0x011A	REV	R	-	-	uint16	1
	0x011C	bPVConnectionMode(X1)	R	PV connection.	1	uint16	1

Table 1-1 Data format description

Master request format		
	Bytes number	Content format
Slave ID	1 byte	0x00~0xFF (Inverter default 0x01)
Function code	1 byte	**0x03**
Start register address	2 byte Address MSB Address LSB	0x0000-0xFFFF
Register number	2byte Data MSB Data LSB	N
CRC	2byte CRC MSB CRC MSB	

Slave normal response		
Slave ID	1 byte	0x00~0xFF (Inverter default 0x01)
Function code	1 byte	**0x03**
Byte number	1 byte Data	2*N
Register date	N*2byte Data MSB Data LSB	
CRC	2byte CRC MSB CRC MSB	

Slave fault response		
Slave ID	1byte	0x00~0xFF (Inverter default 0x01)
Fault code	1byte	**0x83**
Abnormal code	1byte	0x01 or 0x02 or 0x03 or 0x04
CRC	2byte CRC MSB CRC MSB	

Example: read InverterSN(register:0x0000~0x006).
Master request: 01 03 00 00 00 07 04 08
Slave response: 01 03 0E 48 34 37 35 32 32 5A 48 45 4E 47 57 45 4E 63 26

0x04:Read Input Register

32bit data use little endian format

Function code	Read Input Register						
	Register	Variable	W/R	Decription	Unit	Data format	Lenth
0X04	0x0000	GridVoltage**(X1)**	R	GridVoltage	0.1V	uint16	1

0x0001	GridCurrent(X1)	R	GridCurrent	0.1A	int16	1
0x0002	GridPower(X1)	R	GridPower	1W	int16	1
0x0003	PvVoltage1	R	PvVoltage1	0.1V	uint16	1
0x0004	PvVoltage2	R	PvVoltage2	0.1V	uint16	1
0x0005	PvCurrent1	R	PvCurrent1	0.1A	uint16	1
0x0006	PvCurrent2	R	PvCurrent2	0.1A	uint16	1
0x0007	GridFrequency(X1)	R	GridFrequency	0.01Hz	uint16	1
0x0008	Temperature	R	radiator temperature	1℃	int16	1
0x0009	RunMode	R	Table 2-2 Run mode description	—	uint16	1
0x000A	Powerdc1	R	Powerdc1	1W	uint16	1
0x000B	Powerdc2	R	Powerdc2	1W	uint16	1
0x000C	TemperFaultValue	R	TemperFaultValue	1℃	int16	1
0x000D	Pv1VoltFaultValue	R	Pv1VoltFaultValue	0.1V	uint16	1
0x000E	Pv2VoltFaultValue	R	Pv2VoltFaultValue	0.1V	uint16	1
0x000F	GfciFaultValue	R	GfciFaultValue	1mA	uint16	1
0x0010	GridVoltFaultValue	R	GridVoltFaultValue	0.1V	uint16	1
0x0011	GridFreqFaultValueT	R	GridFreqFaultValueT	0.01Hz	uint16	1
0x0012	DciFaultValue	R	DciFaultValue	1mA	uint16	1
0x0013	TimeCountDown	R	TimeCountDown	1ms	uint16	1
0x0014	BatVoltage_Charge1	R	BatVoltage_Charge1	0.1V	int16	1
0x0015	BatCurrent_Charge1	R	BatCurrent_Charge1	0.1A	int16	1
0x0016	Batpower_Charge1	R	Batpower_Charge1	1W	int16	1
0x0017	BMS_Connect_State	R	0:Disconnected 1:Connected	-	uint16	1
0x0018	TemperatureBat	R	TemperatureBat	1℃	int16	1
0x0019 ~0x001B	REV	R	REV		uint16	3
0x001C	Battery Capacity	R	Battery capacity	1%	uint16	1
0x001D	OutputEnergy_Charge.LSB	R	OutputEnergy_Charge	0.1kWh	uint16	1
0x001E	OutputEnergy_Charge.MSB	R	OutputEnergy_Charge	0.1kWh	uint16	1
0x001F	REV	R	REV	1	uint16	1
0x0020	OutputEnergy_Charge_today	R	OutputEnergy_Charge_today	0.1kWh	uint16	1
0x0021	InputEnergy_Charge.LSB	R	InputEnergy_Charge	0.1kWh	uint16	1
0x0022	InputEnergy_Charge.MSB	R	InputEnergy_Charge	0.1kWh	uint16	1
0x0023	InputEnergy_Charge_today	R	InputEnergy_Charge_today	0.1kWh	uint16	1
0x0024	BMS ChargeMaxCurrent	R	BMS ChargeMaxCurrent (real time)	0.1A	uint16	1
0x0025	BMS DischargeMaxCurrent	R	BMS DischargeMaxCurrent (real time)	0.1A	uint16	1

Address	Name	R/W	Description	Unit	Type	Count
0x0026	PowerToEV	R	PowerToEV (0x26:LSB,0x27:MSB)	1W	int32	2
0x0027						
0x0028	RefPowerToEV	R	RefPowerToEV	1W	int16	1
0x0029	PvRef	R	0: No PV 1:with PV	1W	uint16	1
0x002A ~0x003F	REV	R	REV	-	uint6	24
0x0040	InvFaultMessage.LSB	R	Inverter error code	-	uint16	1
0x0041	InvFaultMessage.MSB	R	X1:**Table2-4** X3:**Table2-3**	-	uint16	1
0x0042	REV	R	REV	-	uint16	1
0x0043	Mgr FaultMessage	R	**Table 2-5 Manager error code**	-	uint16	1
0x0044	Bat_BMS_FaultMessage.LSB	R	**Table 2-6 BMS error code**	-	uint16	1
0x0045	Bat_BMS_FaultMessage.MSB	R		-	uint16	1
0x0046 0x0047	feedin_power	R	Feedin power is obtained from Meter or CT. (Postive mean generate power; Negative mean consumed power) (0x46:LSB,0x47:MSB)	1W	int32	2
0x0048 0x0049	feedin_energy_total(meter)	R	energy to the grid (0x48:LSB,0x49:MSB)	0.01kWh	uint32	2
0x004A 0x004B	consum_energy_total(meter)	R	energy form the grid (0x4A:LSB,0x4B:MSB)	0.01kWh	uint32	2
0x004C	Off-gridVoltage**(X1)**	R	Off-grid Voltage	0.1V	uint16	1
0x004D	Off-gridCurrent**(X1)**	R	Off-grid Current	0.1A	uint16	1
0x004E	Off-gridPower**(X1)**	R	Off-grid power	1VA	uint16	1
0x004F	Off-gridFrequency**(X1)**	R	Off-grid _Frequency	0.01Hz	uint16	1
0x0050	Etoday_togrid	R	Today Energy (Inverter AC Port)	0.1kWh	uint16	1
0x0051	Rev	R	Rev	-	uint6	1
0x0052 0x0053	Etotal_togrid	R	Total Energy (Inverter AC Port) (0x52:LSB,0x53:MSB)	0.1kWh	uint32	2
0x0054	Lock State	R	0:locked 1:unlocked	-	uint16	1
0x0055 ~0x0065	REV	R	REV	-	uint16	17
0x0066	BusVolt	R	BusVolt	0.1V	uint16	1
0x0067	wDcvFaultVal	R	wDcvFaultVal	0.1V	uint16	1
0x0068	wOverLoadFaultval	R	wOverLoadFaultval	1W	uint16	1

0x0069	wBatteryVoltFaultVal	R	wBatteryVoltFaultVal	0.1V	uint16	1
0x006A	GridVoltage_R**(X3)**	R	GridVoltage_R	0.1V	uint16	1
0x006B	GridCurrent_R**(X3)**	R	GridCurrent_R	0.1A	int16	1
0x006C	GridPower_R**(X3**)	R	GridPower_R	1W	int16	1
0x006D	GridFrequency_R**(X3)**	R	GridFrequency_R	0.01Hz	uint16	1
0x006E	GridVoltage_S**(X3)**	R	GridVoltage_S	0.1V	uint16	1
0x006F	GridCurrent_S**(X3)**	R	GridCurrent_S	0.1A	int16	1
0x0070	GridPower_S**(X3)**	R	GridPower_S	1W	int16	1
0x0071	GridFrequency_S**(X3)**	R	GridFrequency_S	0.01Hz	uint16	1
0x0072	GridVoltage_T**(X3)**	R	GridVoltage_T	0.1V	uint16	1
0x0073	GridCurrent_T**(X3)**	R	GridCurrent_T	0.1A	int16	1
0x0074	GridPower_T**(X3)**	R	GridPower_T	1W	int16	1
0x0075	GridFrequency_T**(X3)**	R	GridFrequency_T	0.01Hz	uint16	1
0x0076	Off-grid_Volt_R**(X3)**	R	Off-grid_Volt_R	0.1V	uint16	1
0x0077	Off-grid_Current_R**(X3)**	R	Off-grid_Current_R	0.1A	uint16	1
0x0078	Off-grid_PowerActive_R**(X3)**	R	Off-grid_PowerActive_R	1W	int16	1
0x0079	Off-grid_PowerS_R**(X3)**	R	Off-grid_PowerS_R	1VA	uint16	1
0x007A	Off-grid_Volt_S**(X3)**	R	Off-grid_Volt_S	0.1V	uint16	1
0x007B	Off-grid_Current_S**(X3)**	R	Off-grid_Current_S	0.1A	uint16	1
0x007C	Off-gridPowerActive_S**(X3)**	R	Off-gridPowerActive_S	1W	int16	1
0x007D	Off-gridPowerS_S**(X3)**	R	Off-gridPowerS_S	1VA	uint16	1
0x007E	Off-grid_Volt_T**(X3)**	R	Off-grid_Volt_T	0.1V	uint16	1
0x007F	Off-grid_Current_T**(X3)**	R	Off-grid_Current_T	0.1A	uint16	1
0x0080	Off-gridPowerActive_T**(X3)**	R	Off-gridPowerActive_T	1W	int16	1
0x0081	Off-gridPowerS_T**(X3)**	R	Off-gridPowerS_T	1VA	uint16	1
0x0082 ~0x0083	FeedinPower_Rphase**(X3)**	R	FeedinPower_Rphase (meter/CT) (082:LSB,0x83:MSB)	1W	int32	2
0x0084 ~0x0085	FeedinPower_Sphase**(X3)**	R	FeedinPower_Sphase (meter/CT) (0x84:LSB,0x85:MSB)	1W	int32	2
0x0086 ~0x0087	FeedinPower_Tphase**(X3)**	R	FeedinPower_Tphase (meter/CT) (0x86:LSB,0x87:MSB)	1W	int32	2
0x0088 ~0x0089	On-gridRunTime	R	On-gridRunTime (0x88:LSB,0x89:MSB)	0.1h	int32	2
0x008A ~0x008B	Off-gridRunTime	R	Off-gridRunTime (0x8A:LSB,0x8B:MSB)	0.1h	int32	2
0x008C	REV	R	REV	-	uint16	2

~0x008D						
0x008E	Off-gridYieldTotal	R	Off-gridYieldTotal (0x8E:LSB,0x8F:MSB)	0.1kWh	uint32	2
~0x008F						
0x0090	Off-gridYieldToday	R	Off-gridYieldToday	0.1kWh	uint16	1
0x0091	EchargeToday	R	EchargeToday (Inverter AC Port)	0.1kWh	uint16	1
0x0092	EchargeTotal	R	EchargeTotal (Inverter AC Port) (0x92:LSB,0x93:MSB)	0.1kWh	uint32	2
~0x0093						
0x0094	SolarEnergyTotal	R	SolarEnergyTotal (0x94:LSB,0x95:MSB)	0.1kWh	uint32	2
~0x0095						
0x0096	SolarEnergyToday	R	SolarEnergyToday	0.1kWh	uint16	1
0x0097	REV	R	-	-	uint16	1
0x0098	feedin_energy_today	R	energy to the grid (meter) (0x98:LSB,0x99:MSB)	0.01kWh	uint32	2
0x0099						
0x009A	consum_energy_today	R	energy form the grid (meter) (0x9A:LSB,0x9B:MSB)	0.01kWh	uint16	2
0x009B						
0x009C	**InvVoltR(X3)**	R	**InvVoltR(X3)**	0.1V	uint16	2
0x009D	**InvVoltS(X3)**	R	**InvVoltS(X3)**	0.1V	uint16	2
0x009E	**InvVoltT(X3)**	R	**InvVoltT(X3)**	0.1V	uint16	2
0x009F ~0x00A7	Rev	R	-	-	uint16	12
0x00A8	feedin_power_Meter2	R	power to the grid (0xA8:LSB,0xA9:MSB)	1W	int32	2
0x00A9						
0x00AA	feedin_energy_total_Meter2	R	energy to the grid (0xAA:LSB,0xAB:MSB)	0.01kWh	uint32	2
0x00AB						
0x00AC	consum_energy_total_Meter2	R	energy form the grid (0xAC:LSB,0xAD:MSB)	0.01kWh	uint32	2
0x00AD						
0x00AE	feedin_energy_today_Meter2	R	energy to the grid (0xAE:LSB,0xAF:MSB)	0.01kWh	uint16	2
0x00AF						
0x00B0	consum_energy_today_Meter2	R	energy form the grid (0xB0:LSB,0xB1:MSB)	0.01kWh	uint16	2
0x00B1						
0x00B2	FeedinPower_Rphase_Meter2	R	FeedinPower_Rphase(X3) (0xB2:LSB,0xB3:MSB)	1W	int32	2
0x00B3						
0x00B4	FeedinPower_Sphase_Meter2	R	FeedinPower_Sphase(X3)	1W	int32	2

0x00B5			(0xB4:LSB,0xB5:MSB)			
0x00B6	FeedinPower_Tphase_Meter2	R	FeedinPower_Tphase(X3) (0xB6:LSB,0xB7:MSB)	1W	int32	2
0x00B7						
0x00B8	Meter1CommunicationSate	R	0:Com Error 1:Normal	1	uint16	1
0x00B9	Meter2CommunicationSate	R	0:Com Error 1:Normal	1	uint16	1
0x00BA	Battery_Tem_High	R	Battery_Tem_High	0.1℃	int16	1
0x00BB	Battery_Tem_Low	R	Battery_Tem_Low	0.1℃	int16	1
0x00BC	Cell_Voltage_High	R	Cell_Voltage_High	0.001V	Uint16	1
0x00BD	Cell_Voltage_Low	R	Cell_Voltage_Low	0.001V	Uint16	1
0x00BE ~0x00FF	Rev	R	-	-	uint16	70
0x0100	ModbusPowerControl	R	0:disable remote control 1:enable power control 2:enable electric quantity control 3:enable SOC target control	1	uint16	1
0x0101	TargetFinishFlag	R	0:unfinished 1:finish	-	uint16	1
0x0102	ActivePowerTarget	R	ActivePowerTarget	1W	int32	2
0x0103						
0x0104	wReactivePowerTarget	R	wReactivePowerTarget	1Var	int32	2
0x0105						
0x0106	wActivePowerReal	R	wActivePowerReal (0x106:LSB,0x107:MSB)	1W	int32	2
0x0107						
0x0108	wReactivePowerReal	R	wReactivePowerReal (0x108:LSB,0x109:MSB)	1Var	int32	2
0x0109						
0x010A	wActivePower_Upper	R	wActivePower_Upper (0x10A:LSB,0x10B:MSB)	1W	int32	2
0x010B						
0x010C	wActivePower_Lower	R	wActivePower_Lower (0x10C:LSB,0x10D:MSB)	1W	int32	2
0x010D						
0x010E	wReactivePowe_Upper	R	wReactivePowe_Upper (0x10E:LSB,0x10F:MSB)	1Var	int32	2
0x010F						
0x0110	wReactivePower_Lower	R	wReactivePower_Lower (0x110:LSB,0x111:MSB)	1Var	int32	2
0x0111						
0x0112	TargetEnergy	R	TargetEnergy	1Wh	int32	2
0x0113						
0x0114	Charge_Discharg_Power	R	Charge_Discharg_Power (0x114:LSB,0x115:MSB)	1W	int32	2
0x0115						
0x0116	ChargeableElectricCapacity	R	ChargeableElectricCapacity (0x116:LSB,0x117:MSB)	1Wh	uint32	2
0x0117						
0x0118	DischargeableElectricCapacity	R	DischargeableElectricCapacity	1Wh	uint32	2

0x0119			(0x118:LSB,0x119:MSB)			
0x011A	Time_of_Duration	R	Time_of_Duration	1s	uint16	1
0x011B	TargetSoc	R	TargetSoc	1%	uint16	1
0x011C	SocUpper	R	SocUpper	1%	uint16	1
0x011D	SocLower	R	SocLower	1%	uint16	1
0x011E	RemoteCtrlTimeOut	R	RemoteCtrlTimeOut (4~65535)	1s	uint16	1

Table 2-1 Data format description

Master request format		
	Bytes number	Content format
Slave ID	1 byte	0x00~0xFF (Inverter default 0x01)
Function code	1 byte	**0x04**
Start register address	2 byte Address MSB Address LSB	0x0000-0xFFFF
Register number	2byte Data MSB Data LSB	N
CRC	2byte CRC MSB CRC MSB	
Slave normal response		
Slave ID	1 byte	0x00~0xFF (Inverter default 0x01)
Function code	1 byte	**0x04**
Byte number	1 byte Data	2*N
Register date	N*2byte Data MSB Data LSB	
CRC	2byte CRC MSB	

	CRC MSB	
Slave fault response		
Slave ID	1byte	0x00~0xFF (Inverter default 0x01)
Fault code	1byte	**0x84**
Abnormal code	1byte	0x01 or 0x02 or 0x03 or 0x04
CRC	2byte CRC MSB CRC MSB	

Example: read Mgr FaultMessage, Bat_BMS_FaultMessage (Register:0x0043~0x0045)
Master request: 01 04 00 43 00 03 41 DF
Slave response: 01 04 06 00 00 00 00 00 00 60 93

Table 2-2 Run mode description

Run mode	
Code	**Description**
0	Waiting
1	Checking
2	Normal
3	Fault
4	Permanent Fault
5	Update
6	Off-grid waiting
7	Off-grid
8	Self Testing
9	Idle
10	Standby

Table 2-3 Inverter error code(X3)

Byte num	Bit	Fault
BYTE0	BIT0	TZ Protect Fault
	BIT1	Grid Lost Fault
	BIT2	Grid Volt Fault
	BIT3	Grid Freq Fault
	BIT4	PV Volt Fault
	BIT5	Bus Volt Fault
	BIT6	Bat Volt Fault
	BIT7	AC10mins Volt Fault
BYTE1	BIT8	DCI OCP Fault
	BIT9	DCV OCP Fault
	BIT10	SW OCP Fault
	BIT11	RC OCP Fault
	BIT12	Isolation Fault
	BIT13	Temp Over Fault
	BIT14	BatConnDir Fault
	BIT15	Off-grid Overload
BYTE2	BIT16	Overload
	BIT17	Bat Power Low
	BIT18	BMS Lost
	BIT19	Fan Fault
	BIT20	Low Temp Fault
	BIT21	Reserve21
	BIT22	Reserve22
	BIT23	INV Volt Sample Fault
BYTE3	BIT24	Inner Comm Fault
	BIT25	INV EEPROM Fault
	BIT26	RCD Fault
	BIT27	Grid Relay Fault
	BIT28	Off-grid Relay Fault
	BIT29	PV ConnDir Fault

	BIT30	Charger Relay Fault
	BIT31	Earth Relay Fault

Table 2-4 Inverter error code(X1)

Inverter error code(X1)		
Byte num	Bit	Fault
BYTE0	BIT0	TZ Protect Fault
	BIT1	Grid Lost Fault
	BIT2	Grid Volt Fault
	BIT3	Grid Freq Fault
	BIT4	PV Volt Fault
	BIT5	Bus Volt Fault
	BIT6	Bat Volt Fault
	BIT7	AC10mins Volt Fault
BYTE1	BIT8	DCI OCP Fault
	BIT9	Reserve9
	BIT10	SW OCP Fault
	BIT11	RC OCP Fault
	BIT12	Isolation Fault
	BIT13	Temp Over Fault
	BIT14	BatConnDir Fault
	BIT15	Missed CT Fault
BYTE2	BIT16	Off-grid Overload Fault
	BIT17	Overload Fault
	BIT18	PV ConnDir Fault
	BIT19	Bat Power Low
	BIT20	Low Temp Fault
	BIT21	Reserve
	BIT22	Charger Relay Fault
	BIT23	BMS Lost
BYTE3	BIT24	Inner Comm Fault
	BIT25	Fan Fault
	BIT26	Earth Relay Fault
	BIT27	INV EEPROM Fault

	BIT28	RCD Fault
	BIT29	Off-grid Relay Fault
	BIT30	Grid Relay Fault
	BIT31	Other Device Fault

Table 2-5 Manager error code

Manager error code		
Byte num	**Bit**	**Fault**
BYTE0	BIT0	Power Type Fault
	BIT1	Port OC Warning
	BIT2	Mgr EEPROM Fault
	BIT3	Reserve3
	BIT4	NTC Sample Invalid
	BIT5	Bat Temp Low
	BIT6	Bat Temp High
	BIT7	Reserve7
BYTE1	BIT8	Reserve8
	BIT9	Meter Fault
	BIT10	Bypass Relay Fault
	BIT11	Fan 2 Fault
	BIT12	Reserve12
	BIT13	Reserve13
	BIT14	Reserve14
	BIT15	Reserve15

Table 2-6 BMS warning code

BMS warning code		
Byte num	**Bit**	**Fault**
BYTE0	BIT0	BMS_External_Err
	BIT1	BMS_Internal_Err

	BIT2	BMS_OverVoltage
	BIT3	BMS_LowerVoltage
	BIT4	BMS_ChargeOCP
	BIT5	BMS_DischargeOCP
	BIT6	BMS_TemHigh
	BIT7	BMS_TemLow
BYTE1	BIT8	BMS_CellImbalance
	BIT9	BMS_Hardware_Protect
	BIT10	BMS_Circuit_Fault
	BIT11	BMS_ISO_Fault
	BIT12	BMS_VolSen_Fault
	BIT13	BMS_TempSen_Fault
	BIT14	BMS_CurSen_Fault
	BIT15	BMS_Relay_Fault
BYTE2	BIT16	BMS_Type_Unmatch
	BIT17	BMS_Ver_Unmathch
	BIT18	BMS_MFR_Unmathch
	BIT19	BMS_SW_Unmathch
	BIT20	BMS_ M&S_Unmatch
	BIT21	BMS_CR_NORespond
	BIT22	BMS_SW_Protect
	BIT23	BMS_536_Fault
BYTE3	BIT24	BMS_SelfcheckErr
	BIT25	BMS_TempdiffErr
	BIT26	MS_BreakFault
	BIT27	BMS_Flash_Fault
	BIT28	BMS_Precharge_Fault
	BIT29	BMS_AirSwitch_Break
	BIT30	Rev
	BIT31	Rev

0x04:Read Input Register(Selftest)

32bit data use little endian format

Function code	Read Input Register(Selftest)						
	Register	Variable	W/R	Decription	Unit	Data format	Lenth

0x04	0x0180	wSelfTest_step	R	TestStep 1 means test Ovp(59.S2) 2 means test Uvp(27.S1) 3 means test Uvp(27.S2) 4 means test Ofp(81>.S1) 5 means test Ufp(81<.S1) 6 means test Ofp2(81>.S2) 7 means test Ufp2(81<.S2) 8 means test Ovp_10(59.S1) 9 means success	1	uint16	1
	0x0181	wSelfTest_Time	R	The remaining time of each test	1s	uint16	1
	0x0182	wSelfTest_State	R	bit0:OvpTestState bit1:UvpTestState bit2:Uvp_RestriTestState bit3:OfpTestState bit4:UfpTestState bit5:Ofp_RestriTestState bit6:Ufp_RestriTestState bit7:Ovp10mAvgTestState 1-finish 0-testing	1	uint16	1
	0x0183	Ovp_Threshold_Target	R	Ovp(59.S2)test	0.1V	uint16	1
	0x0184	Ovp_Threshold_Time	R		1ms	uint16	1
	0x0185	Ovp_Outcome_Sample_R	R		0.1V	uint16	1
	0x0186	Outcome_TripValue_R	R		0.1V	uint16	1
	0x0187	Ovp_Outcome_Time_R	R		1ms	uint16	1
	0x0188	Ovp_Outcome_Sample_S(X3)	R		0.1V	uint16	1
	0x0189	Ovp_Outcome_TripValue_S(X3)	R		0.1V	uint16	1
	0x018A	Ovp_Outcome_Timel_S(X3)	R		1ms	uint16	1
	0x018B	Ovp_Outcome_Sample_T(X3)	R		0.1V	uint16	1
	0x018C	Ovp_Outcome_TripValue_T(X3)	R		0.1V	uint16	1
	0x018D	Ovp_Outcome_Timel_T(X3)	R		1ms	uint16	1
	0x018E	Uvp_Threshold_Target	R	Uvp(27.S1)test	0.1V	uint16	1
	0x018F	Uvp_Threshold_Time	R		1ms	uint16	1
	0x0190	Uvp_Outcome_Sample_R	R		0.1V	uint16	1
	0x0191	Uvp_Outcome_TripValue_R	R		0.1V	uint16	1
	0x0192	Uvp_Outcome_Time_R	R		1ms	uint16	1
	0x0193	Uvp_Outcome_Sample_S(X3)	R		0.1V	uint16	1
	0x0194	Uvp_Outcome_TripValue_S(X3)	R		0.1V	uint16	1

	0x0195	Uvp_Outcome_Time_S(X3)	R		1ms	uint16	1
	0x0196	Uvp_Outcome_Sample_T(X3)	R		0.1V	uint16	1
	0x0197	Uvp_Outcome_TripValue_T(X3)	R		0.1V	uint16	1
	0x0198	Uvp_Outcome_Time_T(X3)	R		1ms	uint16	1
	0x0199	UvpRestric_Threshold_Target	R		0.1V	uint16	1
	0x019A	UvpRestric_Threshold_Time	R		1ms	uint16	1
	0x019B	UvpRestric_Outcome_Sample_R	R		0.1V	uint16	1
	0x019C	UvpRestric_Outcome_TripValue_R	R		0.1V	uint16	1
	0x019D	UvpRestric_Outcome_Time_R	R		1ms	uint16	1
	0x019E	UvpRestric_Outcome_Sample_S(X3)	R	Uvp(27.S2)test	0.1V	uint16	1
	0x019F	UvpRestric_Outcome_TripValue_S(X3)	R		0.1V	uint16	1
	0x01A0	UvpRestric_Outcome_Time_S(X3)	R		1ms	uint16	1
	0x01A1	UvpRestric_Outcome_Sample_T(X3)	R		0.1V	uint16	1
	0x01A2	UvpRestric_Outcome_TripValue_T(X3)	R		0.1V	uint16	1
	0x01A3	UvpRestric_Outcome_Time_T(X3)	R		1ms	uint16	1
	0x01A4	Ofp_Threshold_Target	R		0.01Hz	uint16	1
	0x01A5	Ofp_Threshold_Time	R		1ms	uint16	1
	0x01A6	Ofp_Outcome_Sample_R	R		0.01Hz	uint16	1
	0x01A7	Ofp_Outcome_TripValue_R	R		0.01Hz	uint16	1
	0x01A8	Ofp_Outcome_Time_R	R		1ms	uint16	1
	0x01A9	Ofp_Outcome_Sample_S(X3)	R	Ofp(81>.S1)test	0.01Hz	uint16	1
	0x01AA	Ofp_Outcome_TripValue_S(X3)	R		0.01Hz	uint16	1
	0x01AB	Ofp_Outcome_Time_S(X3)	R		1ms	uint16	1
	0x01AC	Ofp_Outcome_Sample_T(X3)	R		0.01Hz	uint16	1
	0x01AD	Ofp_Outcome_TripValue_T(X3)	R		0.01Hz	uint16	1
	0x01AE	Ofp_Outcome_Time_T(X3)	R		1ms	uint16	1
	0x01AF	Ufp_Threshold_Target	R		0.01Hz	uint16	1
	0x01B0	Ufp_Threshold_Time	R		1ms	uint16	1
	0x01B1	Ufp_Outcome_Sample_R	R		0.01Hz	uint16	1
	0x01B2	Ufp_Outcome_TripValue_R	R		0.01Hz	uint16	1
	0x01B3	Ufp_Outcome_Time_R	R		1ms	uint16	1
	0x01B4	Ufp_Outcome_Sample_S(X3)	R	Ufp(81<.S1)test	0.01Hz	uint16	1
	0x01B5	Ufp_Outcome_TripValue_S(X3)	R		0.01Hz	uint16	1
	0x01B6	Ufp_Outcome_Time_S(X3)	R		1ms	uint16	1
	0x01B7	Ufp_Outcome_Sample_T(X3)	R		0.01Hz	uint16	1
	0x01B8	Ufp_Outcome_TripValue_T(X3)	R		0.01Hz	uint16	1

0x01B9	Ufp_Outcome_Time_T(X3)	R		1ms	uint16	1
0x01BA	OfpRestric_Threshold_Target	R		0.01Hz	uint16	1
0x01BB	OfpRestric_Threshold_Time	R		1ms	uint16	1
0x01BC	OfpRestric_Outcome_Sample_R	R		0.01Hz	uint16	1
0x01BD	OfpRestric_Outcome_TripValue_R	R		0.01Hz	uint16	1
0x01BE	OfpRestric_Outcome_Time_R	R		1ms	uint16	1
0x01BF	OfpRestric_Outcome_Sample_S(X3)	R	Ofp2(81>.S2)test	0.01Hz	uint16	1
0x01C0	OfpRestric_Outcome_TripValue_S(X3)	R		0.01Hz	uint16	1
0x01C1	OfpRestric_Outcome_Time_S(X3)	R		1ms	uint16	1
0x01C2	OfpRestric_Outcome_Sample_T(X3)	R		0.01Hz	uint16	1
0x01C3	OfpRestric_Outcome_TripValue_T(X3)	R		0.01Hz	uint16	1
0x01C4	OfpRestric_Outcome_Time_T(X3)	R		1ms	uint16	1
0x01C5	UfpRestric_Threshold_Target	R		0.01Hz	uint16	1
0x01C6	UfpRestric_Threshold_Time	R		1ms	uint16	1
0x01C7	UfpRestric_Outcome_Sample_R	R		0.01Hz	uint16	1
0x01C8	UfpRestric_Outcome_TripValue_R	R		0.01Hz	uint16	1
0x01C9	UfpRestric_Outcome_Time_R	R		1ms	uint16	1
0x01CA	UfpRestric_Outcome_Sample_S(X3)	R	Ufp2(81<.S2)test	0.01Hz	uint16	1
0x01CB	UfpRestric_Outcome_TripValue_S(X3)	R		0.01Hz	uint16	1
0x01CC	UfpRestric_Outcome_Time_S(X3)	R		1ms	uint16	1
0x01CD	UfpRestric_Outcome_Sample_T(X3)	R		0.01Hz	uint16	1
0x01CE	UfpRestric_Outcome_TripValue_T(X3)	R		0.01Hz	uint16	1
0x01CF	UfpRestric_Outcome_Time_T(X3)	R		1ms	uint16	1
0x01D0	Ovp10mAvg_Threshold_Target	R		0.1V	uint16	1
0x01D1	Ovp10mAvg_Threshold_Time	R		1s	uint16	1
0x01D2	Ovp10mAvg_Outcome_Sample_R	R		0.1V	uint16	1
0x01D3	Ovp10mAvg_Outcome_TripValue_R	R		0.1V	uint16	1
0x01D4	Ovp10mAvg_Outcome_Time_R	R		1s	uint16	1
0x01D5	Ovp10mAvg_Outcome_Sample_S(X3)	R	Ovp10(59.S1)test	0.1V	uint16	1
0x01D6	Ovp10mAvg_Outcome_TripValue_S(X3)	R		0.1V	uint16	1
0x01D7	Ovp10mAvg_Outcome_Time_S(X3)	R		1s	uint16	1
0x01D8	Ovp10mAvg_Outcome_Sample_T(X3)	R		0.1V	uint16	1
0x01D9	Ovp10mAvg_Outcome_TripValue_T(X3)	R		0.1V	uint16	1
0x01DA	Ovp10mAvg_Outcome_Time_T(X3)	R		1s	uint16	1

0x04:Read Input Register(Parallel)

32bit data use little endian format

Function code	Register	Variable	W/R	Decription	Unit	Data format	Lenth
		Read Input Register(Parallel State)					
0x04	0x01DD	SystemInvNum	R	SystemInvNum	1	uint16	1
	0x01DE	Rev	R	Rev	1	uint16	1
	0x01DF	Rev	R	Rev	1	uint16	1
	0x01E0	InvActivePower_R_All	R	InvActivePower_R_All	1W	int32	2
	0x01E1						
	0x01E2	InvActivePower_S_All	R	InvActivePower_S_All	1W	int32	2
	0x01E3						
	0x01E4	InvActivePower_T_All	R	InvActivePower_T_All	1W	int32	2
	0x01E5						
	0x01E6	InvReactiveOrApparentPower_R_All	R	InvReactiveOrApparentPower_R_All	1VA	int32	2
	0x01E7						
	0x01E8	InvReactiveOrApparentPower_S_All	R	InvReactiveOrApparentPower_S_All	1VA	int32	2
	0x01E9						
	0x01EA	InvReactiveOrApparentPower_T_All	R	InvReactiveOrApparentPower_T_All	1VA	int32	2
	0x01EB						
	0x01EC	InvCurrent_R_All	R	InvCurrent_R_All	0.1A	int32	2
	0x01ED						
	0x01EE	InvCurrent_S_All	R	InvCurrent_S_All	0.1A	int32	2
	0x01EF						
	0x01F0	InvCurrent_T_All	R	InvCurrent_T_All	0.1A	int32	2
	0x01F1						
	0x01F2	PvPower_ChannelA_All	R	PvPower_ChannelA_All	1W	uint32	2
	0x01F3						
	0x01F4	PvPower_ChannelB_All	R	PvPower_ChannelB_All	1W	uint32	2
	0x01F5						
	0x01F6	PvCurrent_ChannelA_All	R	PvCurrent_ChannelA_All	0.1A	uint32	2
	0x01F7						
	0x01F8	PvCurrent_ChannelB_All	R	PvCurrent_ChannelB_All	0.1A	uint32	2
	0x01F9						

	0x01FA	BatPower_All	R	BatPower_All	1W	int32	2
	0x01FB						
	0x01FC	BatCurrent_All	R	BatCurrent_All	0.1A	int32	2
	0x01FD						
	0x01FE	ChargePowerLimit_All	R	ChargePowerLimit_All	1W	int32	2
	0x01FF						
	0x0200	DischargePowerLimit_All	R	DischargePowerLimit_All	1W	int32	2
	0x0201						
	0x0202	Rev	R	Rev	-	uint16	1
	0x0203	Rev	R	Rev	-	uint16	1
	0x0204	InvActivePower_R	R		1W	int16	1
	0x0205	InvActivePower_S	R		1W	int16	1
	0x0206	InvActivePower_T	R		1W	int16	1
	0x0207	InvReactiveOrApparentPower_R	R		1VA	int16	1
	0x0208	InvReactiveOrApparentPower_S	R		1VA	int16	1
	0x0209	InvReactiveOrApparentPower_T	R		1VA	int16	1
	0x020A	InvCurrent_R	R		0.1A	int16	1
	0x020B	InvCurrent_S	R		0.1A	int16	1
	0x020C	InvCurrent_T	R		0.1A	int16	1
	0x020D	PvPower_ChannelA	R		1W	uint16	1
	0x020E	PvPower_ChannelB	R		1W	uint16	1
	0x020F	PvVoltage_ChannelA	R		0.1V	uint16	1
	0x0210	PvVoltage_ChannelB	R		0.1V	uint16	1
	0x0211	PvCurrent_ChannelA	R	slave1 data	0.1A	uint16	1
	0x0212	PvCurrent_ChannelB	R		0.1A	uint6	1
	0x0213	BatPower	R		1W	uint16	1
	0x0214	BatVoltage	R		0.1V	uint16	1
	0x0215	BatCurrent	R		0.1A	uint16	1
	0x0216	ChargePowerLimit	R		1W	uint16	1
	0x0217	DischargePowerLimit	R		1W	uint16	1
	0x0218	BatFaultMessage	R		1	uint16	1
	0x0219	BatCapacity	R		1%	uint16	1
	0x021A	Rev	R		1	uint32	2
	0x021B						
	0x021C	Rev	R		1	uint32	2
	0x021D						

	0x021E	InvActivePower_R	R		1W	int16	1
	0x021F	InvActivePower_S	R		1W	int16	1
	0x0220	InvActivePower_T	R		1W	int16	1
	0x0221	InvReactiveOrApparentPower_R	R		1VA	int16	1
	0x0222	InvReactiveOrApparentPower_S	R		1VA	int16	1
	0x0223	InvReactiveOrApparentPower_T	R		1VA	int16	1
	0x0224	InvCurrent_R	R		0.1A	int16	1
	0x0225	InvCurrent_S	R		0.1A	int16	1
	0x0226	InvCurrent_T	R		0.1A	int16	1
	0x0227	PvPower_ChannelA	R		1W	uint16	1
	0x0228	PvPower_ChannelB	R		1W	uint16	1
	0x0229	PvVoltage_ChannelA	R		0.1V	uint16	1
	0x022A	PvVoltage_ChannelB	R		0.1V	uint16	1
	0x022B	PvCurrent_ChannelA	R	slave2 data	0.1A	uint16	1
	0x022C	PvCurrent_ChannelB	R		0.1A	uint6	1
	0x022D	BatPower	R		1W	uint16	1
	0x022E	BatVoltage	R		0.1V	uint16	1
	0x022F	BatCurrent	R		0.1A	uint16	1
	0x0230	ChargePowerLimit	R		1W	uint16	1
	0x0231	DischargePowerLimit	R		1W	uint16	1
	0x0232	BatFaultMessage	R		1	uint16	1
	0x0233	BatCapacity	R		1%	uint16	1
	0x0234	Rev	R		1	uint32	2
	0x0235						
	0x0236	Rev	R		1	uint32	2
	0x0237						
	0x0238	InvActivePower_R	R		1W	int16	1
	0x0239	InvActivePower_S	R		1W	int16	1
	0x023A	InvActivePower_T	R		1W	int16	1
	0x023B	InvReactiveOrApparentPower_R	R		1VA	int16	1
	0x023C	InvReactiveOrApparentPower_S	R	slave3 data	1VA	int16	1
	0x023D	InvReactiveOrApparentPower_T	R		1VA	int16	1
	0x023E	InvCurrent_R	R		0.1A	int16	1
	0x023F	InvCurrent_S	R		0.1A	int16	1
	0x0240	InvCurrent_T	R		0.1A	int16	1
	0x0241	PvPower_ChannelA	R		1W	uint16	1

	0x0242	PvPower_ChannelB	R		1W	uint16	1
	0x0243	PvVoltage_ChannelA	R		0.1V	uint16	1
	0x0244	PvVoltage_ChannelB	R		0.1V	uint16	1
	0x0245	PvCurrent_ChannelA	R		0.1A	uint16	1
	0x0246	PvCurrent_ChannelB	R		0.1A	uint16	1
	0x0247	BatPower	R		1W	uint16	1
	0x0248	BatVoltage	R		0.1V	uint16	1
	0x0249	BatCurrent	R		0.1A	uint16	1
	0x024A	ChargePowerLimit	R		1W	uint16	1
	0x024B	DischargePowerLimit	R		1W	uint16	1
	0x024C	BatFaultMessage	R		1	uint16	1
	0x024D	BatCapacity	R		1%	uint16	1
	0x024E	Rev	R		1	uint32	2
	0x024F						
	0x0250	Rev	R		1	uint32	2
	0x0251						
	0x0252	InvActivePower_R	R		1W	int16	1
	0x0253	InvActivePower_S	R		1W	int16	1
	0x0254	InvActivePower_T	R		1W	int16	1
	0x0255	InvReactiveOrApparentPower_R	R		1VA	int16	1
	0x0256	InvReactiveOrApparentPower_S	R		1VA	int16	1
	0x0257	InvReactiveOrApparentPower_T	R		1VA	int16	1
	0x0258	InvCurrent_R	R		0.1A	int16	1
	0x0259	InvCurrent_S	R		0.1A	int16	1
	0x025A	InvCurrent_T	R		0.1A	int16	1
	0x025B	PvPower_ChannelA	R		1W	uint16	1
	0x025C	PvPower_ChannelB	R	slave4 data	1W	uint16	1
	0x025D	PvVoltage_ChannelA	R		0.1V	uint16	1
	0x025E	PvVoltage_ChannelB	R		0.1V	uint16	1
	0x025F	PvCurrent_ChannelA	R		0.1A	uint16	1
	0x0260	PvCurrent_ChannelB	R		0.1A	uint16	1
	0x0261	BatPower	R		1W	uint16	1
	0x0262	BatVoltage	R		0.1V	uint16	1
	0x0263	BatCurrent	R		0.1A	uint16	1
	0x0264	ChargePowerLimit	R		1W	uint16	1
	0x0265	DischargePowerLimit	R		1W	uint16	1

0x0266	BatFaultMessage	R		1	uint16	1
0x0267	BatCapacity	R		1%	uint16	1
0x0268	Rev	R		1	uint32	2
0x0269						
0x026A	Rev	R		1	uint32	2
0x026B						
0x026C	InvActivePower_R	R		1W	int16	1
0x026D	InvActivePower_S	R		1W	int16	1
0x026E	InvActivePower_T	R		1W	int16	1
0x026F	InvReactiveOrApparentPower_R	R		1VA	int16	1
0x0270	InvReactiveOrApparentPower_S	R		1VA	int16	1
0x0271	InvReactiveOrApparentPower_T	R		1VA	int16	1
0x0272	InvCurrent_R	R		0.1A	int16	1
0x0273	InvCurrent_S	R		0.1A	int16	1
0x0274	InvCurrent_T	R		0.1A	int16	1
0x0275	PvPower_ChannelA	R		1W	uint16	1
0x0276	PvPower_ChannelB	R		1W	uint16	1
0x0277	PvVoltage_ChannelA	R	slave5 data	0.1V	uint16	1
0x0278	PvVoltage_ChannelB	R		0.1V	uint16	1
0x0279	PvCurrent_ChannelA	R		0.1A	uint16	1
0x027A	PvCurrent_ChannelB	R		0.1A	uint16	1
0x027B	BatPower	R		1W	uint16	1
0x027C	BatVoltage	R		0.1V	uint16	1
0x027D	BatCurrent	R		0.1A	uint16	1
0x027E	ChargePowerLimit	R		1W	uint16	1
0x027F	DischargePowerLimit	R		1W	uint16	1
0x0280	BatFaultMessage	R		1	uint16	1
0x0281	BatCapacity	R		1%	uint16	1
0x0282	Rev	R		1	uint32	2
0x0283						
0x0284	Rev	R		1	uint32	2
0x0285						
0x0286	InvActivePower_R	R		1W	int16	1
0x0287	InvActivePower_S	R	slave6 data	1W	int16	1
0x0288	InvActivePower_T	R		1W	int16	1
0x0289	InvReactiveOrApparentPower_R	R		1VA	int16	1

	0x028A	InvReactiveOrApparentPower_S	R		1VA	int16	1
	0x028B	InvReactiveOrApparentPower_T	R		1VA	int16	1
	0x028C	InvCurrent_R	R		0.1A	int16	1
	0x028D	InvCurrent_S	R		0.1A	int16	1
	0x028E	InvCurrent_T	R		0.1A	int16	1
	0x028F	PvPower_ChannelA	R		1W	uint16	1
	0x0290	PvPower_ChannelB	R		1W	uint16	1
	0x0291	PvVoltage_ChannelA	R		0.1V	uint16	1
	0x0292	PvVoltage_ChannelB	R		0.1V	uint16	1
	0x0293	PvCurrent_ChannelA	R		0.1A	uint16	1
	0x0294	PvCurrent_ChannelB	R		0.1A	uint16	1
	0x0295	BatPower	R		1W	uint16	1
	0x0296	BatVoltage	R		0.1V	uint16	1
	0x0297	BatCurrent	R		0.1A	uint16	1
	0x0298	ChargePowerLimit	R		1W	uint16	1
	0x0299	DischargePowerLimit	R		1W	uint16	1
	0x029A	BatFaultMessage	R		1	uint16	1
	0x029B	BatCapacity	R		1%	uint16	1
	0x029C / 0x029D	Rev	R		1	uint32	2
	0x029E / 0x029F	Rev	R		1	uint32	2
	0x02A0	InvActivePower_R	R		1W	int16	1
	0x02A1	InvActivePower_S	R		1W	int16	1
	0x02A2	InvActivePower_T	R		1W	int16	1
	0x02A3	InvReactiveOrApparentPower_R	R		1VA	int16	1
	0x02A4	InvReactiveOrApparentPower_S	R		1VA	int16	1
	0x02A5	InvReactiveOrApparentPower_T	R		1VA	int16	1
	0x02A6	InvCurrent_R	R	slave7 data	0.1A	int16	1
	0x02A7	InvCurrent_S	R		0.1A	int16	1
	0x02A8	InvCurrent_T	R		0.1A	int16	1
	0x02A9	PvPower_ChannelA	R		1W	uint16	1
	0x02AA	PvPower_ChannelB	R		1W	uint16	1
	0x02AB	PvVoltage_ChannelA	R		0.1V	uint16	1
	0x02AC	PvVoltage_ChannelB	R		0.1V	uint16	1
	0x02AD	PvCurrent_ChannelA	R		0.1A	uint16	1

	0x02AE	PvCurrent_ChannelB	R		0.1A	uint16	1
	0x02AF	BatPower	R		1W	uint16	1
	0x02B0	BatVoltage	R		0.1V	uint16	1
	0x02B1	BatCurrent	R		0.1A	uint16	1
	0x02B2	ChargePowerLimit	R		1W	uint16	1
	0x02B3	DischargePowerLimit	R		1W	uint16	1
	0x02B4	BatFaultMessage	R		1	uint16	1
	0x02B5	BatCapacity	R		1%	uint16	1
	0x02B6 0x02B7	Rev	R		1	uint32	2
	0x02B8 0x02B9	Rev	R		1	uint32	2
	0x02BA	InvActivePower_R	R		1W	int16	1
	0x02BB	InvActivePower_S	R		1W	int16	1
	0x02BC	InvActivePower_T	R		1W	int16	1
	0x02BD	InvReactiveOrApparentPower_R	R		1VA	int16	1
	0x02BE	InvReactiveOrApparentPower_S	R		1VA	int16	1
	0x02BF	InvReactiveOrApparentPower_T	R		1VA	int16	1
	0x02C0	InvCurrent_R	R		0.1A	int16	1
	0x02C1	InvCurrent_S	R		0.1A	int16	1
	0x02C2	InvCurrent_T	R		0.1A	int16	1
	0x02C3	PvPower_ChannelA	R		1W	uint16	1
	0x02C4	PvPower_ChannelB	R		1W	uint16	1
	0x02C5	PvVoltage_ChannelA	R	slave8 data	0.1V	uint16	1
	0x02C6	PvVoltage_ChannelB	R		0.1V	uint16	1
	0x02C7	PvCurrent_ChannelA	R		0.1A	uint16	1
	0x02C8	PvCurrent_ChannelB	R		0.1A	uint16	1
	0x02C9	BatPower	R		1W	uint16	1
	0x02CA	BatVoltage	R		0.1V	uint16	1
	0x02CB	BatCurrent	R		0.1A	uint16	1
	0x02CC	ChargePowerLimit	R		1W	uint16	1
	0x02CD	DischargePowerLimit	R		1W	uint16	1
	0x02CE	BatFaultMessage	R		1	uint16	1
	0x02CF	BatCapacity	R		1%	uint16	1
	0x02D0 0x02D1	Rev	R		1	uint32	2

	0x02D2	Rev	R		1	uint32	2
	0x02D3						
	0x02D4	InvActivePower_R	R		1W	int16	1
	0x02D5	InvActivePower_S	R		1W	int16	1
	0x02D6	InvActivePower_T	R		1W	int16	1
	0x02D7	InvReactiveOrApparentPower_R	R		1VA	int16	1
	0x02D8	InvReactiveOrApparentPower_S	R		1VA	int16	1
	0x02D9	InvReactiveOrApparentPower_T	R		1VA	int16	1
	0x02DA	InvCurrent_R	R		0.1A	int16	1
	0x02DB	InvCurrent_S	R		0.1A	int16	1
	0x02DC	InvCurrent_T	R		0.1A	int16	1
	0x02DD	PvPower_ChannelA	R		1W	uint16	1
	0x02DE	PvPower_ChannelB	R		1W	uint16	1
	0x02DF	PvVoltage_ChannelA	R		0.1V	uint16	1
	0x02E0	PvVoltage_ChannelB	R	slave9 data	0.1V	uint16	1
	0x02E1	PvCurrent_ChannelA	R		0.1A	uint16	1
	0x02E2	PvCurrent_ChannelB	R		0.1A	uint16	1
	0x02E3	BatPower	R		1W	uint16	1
	0x02E4	BatVoltage	R		0.1V	uint16	1
	0x02E5	BatCurrent	R		0.1A	uint16	1
	0x02E6	ChargePowerLimit	R		1W	uint16	1
	0x02E7	DischargePowerLimit	R		1W	uint16	1
	0x02E8	BatFaultMessage	R		1	uint16	1
	0x02E9	BatCapacity	R		1%	uint16	1
	0x02EA	Rev	R		1	uint32	2
	0x02EB						
	0x02EC	Rev	R		1	uint32	2
	0x02ED						