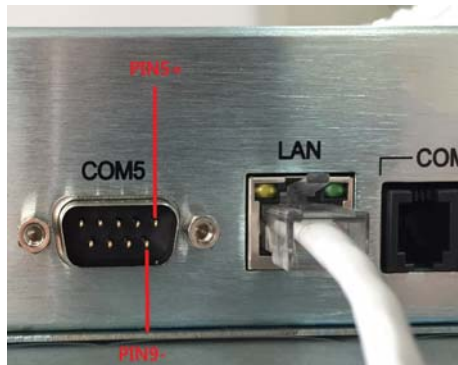


MODBUS Protocol

1 Port type

COM5,RS-485 type,pin9 is -,pin5 is +,pin1 is GND.



2 Bits per Byte

All Used in RTU mode, the default Bits per Byte listed as following.

START	1	2	3	4	5	6	7	8	STOP
-------	---	---	---	---	---	---	---	---	------

3 Communication rate

The default is 19200BPS, and can be set to 1200, 2400, 4800, 9600, ..38400, 56K, 115K in Contr

4 Data Format

All values with two bytes, the highest bit indicates sign if it's a temperature or a current.(0 is positive and 1 is negative)

Category	Conversion method	Unit
Cell Voltages	/1000	V
Cell Resistance	/1	$\mu\Omega$
Ambient	/10	$^{\circ}\text{C}$
String Voltage	/10	V
Current	/10	A

For the individual alarm , each bit represents a state, 1 means alarm, 0 means normal.

Different bit in same register means different alarm state, showed as below:

Bit 0: Communication Error

Bit 1: Low String Voltage

Bit 2: High String Voltage

Bit 3:N/A

Bit 4: High IR

Bit 5: N/A

Bit 6:Module Error with IR

Bit 7:Module Error with IR

Bit 8:Module Error with Temperature

Bit 9:High Temperature

Bit 10:Error with Temperature Sensor

5 Address

The high four bits indicate Control Module's address, and the low four bits indicate string's number.

For a sample,if the Control Module address is set to 1 and trying to access string 1# data,the modbus command address should be 11H(17 in decimal).

The Control Module's address can be set in the menu.

6 How to test COM5

We can connect Control Module to a PC by PC's serial port,usually a RS232-to-RS485 converter is requi
Supposing Control Module's address is 1,if accessing the battery 1# voltage of string 1#,the command and reponse are as the below:

The command from PC: 11 03 00 00 00 01 86 9A

The respose form Control Module:11 03 02 XX XX CRCL CRCH

"XX XX" is battery 1# voltage.

During the command is sending by PC,the RX5 light on Control Module's front panel flashes,then TX5 light flashes.

»l Module.

red.

Category	Name	Reference	Data Address
Last Voltage Updated Date	Year/Month	400001	0000H
	Day/Hour	400002	0001H
	Minute/Second	400003	0002H
Cell Voltages 300	Cell Voltage 1#	400004	0003H
	Cell Voltage 2#	400005	0004H
	Cell Voltage 3#	400006	0005H
			
	Cell Voltage300#	400303	012EH
Last Resistance Updated Date	Year/Month	400304	012FH
	Day/Hour	400305	0130H
	Minute/Second	400306	0131H
Cell Resistance 300	Cell Resistance 1#	400307	0132H
	Cell Resistance 2#	400308	0133H
	Cell Resistance 3#	400309	0134H
			
	Cell Resistance300#	400606	025DH
Last Temperature Updated Date	Year/Month	400907	038AH
	Day/Hour	400908	038BH
	Minute/Second	400909	038CH
Cell Temperature 300	Cell Temperature 1#	400910	038DH
	Cell Temperature 2#	400911	038EH
	Cell Temperature 3#	400912	038FH
			
	Cell Temperature 300#	401209	04B8H
General Alarm	General Alarm	401516	05EBH
Individual Alarm 300	Cell Alarm 1#	401517	05ECH
	Cell Alarm 2#	401518	05EDH
	Cell Alarm 3#	401519	05EEH
			
	Cell Alarm 300#	401816	0717H
String Data 16	String Voltage	401817	0718H
	Discharge & Charge Current	401818	0719H
	Complement Number For Discharge & Charge Current	401819	071AH
		401820	071BH
	Ambient 1	401821	071CH
	Ambient 2	401822	071DH
		401823	071EH
		401824	071FH
		401825	0720H
		401826	0721H
String Alarm	String Alarm	401833	0728H

Category	Name	Reference	Data Address	Remark
Readable Sign of Discharge	Readable Sign	425916	653BH	It's readable if the value in the high byte is not 0x50
Discharge Record 1	Beginning Address	425917	653CH	
	Record Lenth	425918	653DH	
	Reacord Head 1	425919	653EH	Year/Month, Start Time
	Reacord Head 2	425920	653FH	Date/Hour,Start Time
	Reacord Head 3	425921	6540H	Min/Sec,Start Time
	Reacord Head 4	425922	6541H	Year/Month, End Time
	Reacord Head 5	425923	6542H	Date/Hour, End Time
	Reacord Head 6	425924	6543H	Min/Sec, End Time
	Reacord Head 7	425925	6544H	Discharged Capicity
	Reacord Head 8	425926	6545H	The battery ID with the lowest voltage after discharge
	Reacord Head 9	425927	6546H	The voltage of the battery with the lowest
	Reacord Head 10	425928	6547H	N/A
	Reacord Head 11	425929	6548H	N/A
	Reacord Head 12	425930	6549H	Total item number of discharge record
	Reacord Head 13	425931	654AH	N/A
	String Voltage 1	425932	654BH	
	String Voltage 2	425933	654CH	
				
	String Voltage 120	426051	65C2H	
	String Discharge Current 1	426052	65C3H	
	String Discharge Current 2	426053	65C4H	
				
	String Discharge Current12	426171	663AH	
	Voltage 1 of Battery 1#	426172	663BH	
	Voltage 2 of Battery 1#	426173	663CH	
				
	Voltage 120 of Battery 1#	426291	66B2H	
	Voltage 1 of Battery 2#	426292	66B3H	
	Voltage 2 of Battery 2#	426293	66B4H	
				
	Voltage 120 of Battery 2#	426411	672AH	
				
	Voltage 1 of Battery 300#	462052	F263H	
				
	Voltage 120 of Battery 300#	462171	F2DAH	
	Year/Month for Item 1	462172	F2DBH	
	Date/Hour for Item 1	462173	F2DCH	
	Min/Sec for Item 1	462174	F2DDH	
				
	Year/Month for Item 120	462529	F440H	
	Date/Hour for Item 120	462530	F441H	
	Min/Sec for Item 120	462531	F442H	