
Solar-CMP10A controller communication protocol

1. protocol specification

Suitable for communication control of Solar-CMP10A.

2. Agreement content

2.1 Hardware interface: 485 interface, red line A, blue line B. Double-line half-duplex mode.

2.2 Baud rate: 9600bps, 8 data bits 8 bits, 1 stop bit.

2.3 Signaling type: read parameters, write parameters, state control, Four types of response.

2.4 Message format: prefix + signaling type + data length + data + checksum, each paragraph is described as follows:

First word: one byte in length, signal source transmitting device number, 0X40 is SD terminal, 0X20 refers to sending set.

Signaling type: one byte in length. The values are expressed as follows:

0x01 Read the SD terminal parameters;

0x02 Write the SD terminal parameters;

0x03 For the abnormal state, to clear the abnormal state instruction; if there is no abnormal state and the SD terminal is in the manual mode; if there is no abnormal state and the SD terminal is not in the manual mode, for the test instruction, the SD terminal will enter the test mode.

Data length: a length of one byte, whose value is the actual byte length of the subsequent data.

Data: The length is the byte length defined by Data Length and the SD controller parameters, see the attached table.

Checksum: 1 byte in length. For the prefix + command + data length + data 1 + data 2 +..... Data N, the lowest number of bytes retained after accumulation.

2.5 Signal response mode:

The master device issues the reading instruction- - -the controller returns the reading instruction to answer, see the message read example.

The main control device issues write instruction- - -the controller returns to write instruction answer, see message writing example.

The master control equipment issues the state control command- - -the controller performs the command, but does not respond.

2.6 Data format:

The word	order	DL	data field	Accumulation and verification
Terminal device 0x40	0x01 Read the command	Data area	Data 1 Data 2... Data N	Accumulation: prefix + command + data length + data 1 + data 2 +.....+ Data N, take the last byte of the cumulative sum.
Master control device 0x20	0x02 Write the command 0x03 Load switch reverse or abnormal state clear or test command	length N bytes		

	0x24 Read status			
--	------------------	--	--	--

3. Schedule: Definition of the data area

When the SD terminal answers the reading command of the master device, all data bits in the table must be included and cannot be omitted.

When the master device sends the write command to the SD terminal, all data bits in the table must be included and cannot be omitted.

Data shall be defined in order in the table, in the following format.

Write command		
The main control equipment is sent		
orde	Functional presentation	Content definition
0	The word	0x20 Master device sent
1	order	0x02 Write instructions
2	DL	71 Data
3	Product model	--
4	maximumoutput	--
5	The first time	High four byte hours, four lower ten digits of minutes, after the same. Example 0x12 represents 1 hour and 20 minutes
6	First time rent	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
7	The second time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
8	Second period rent	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
9	The third time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
10	Third period rent	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
11	intelligent ontrol	0x00 off 0x01 mode 1 0x02 Mode 2
12	advanced setup	0x00 off 0x01 open
13	Load control le	0x01 Manual mode 0x02 auto-mode mode 0x03 Debug mode 0x04 Pure light control mode
14	Light control ay time	Minutes; such as 0x10, representing 16 minutes

15	Optical control stage	0x01 is for the 0.1V,59=5.9V
16	Battery type	0x01 colloid 0x02 lead acid 0x03 custom 0x04 lithium battery
17	Overvoltage stage	0x01 is for the 0.1V,170=17.0V
18	Over and over stage	0x01 is for the 0.1V,111=11.1V
19	Over-put back stage	0x01 is for the 0.1V,126=12.6V
20	Raise the charging voltage	0x01 is for the 0.1V,146=14.6V
21	floating charge stage	0x01 is for the 0.1V,136=13.6V
22	Power supply priority	The default value is 00
23	The fourth time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
24	Fourth period current	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
25	The fifth time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
26	Fifth period current	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
27	The sixth time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
28	Load sleep output power	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.
29	Sensor enabling period	The highest bit of binary code indicates the on / off state of the sensor function at a time, 1 on 0 off.1111 1111 means that the sensor is valid during all periods, 0111 1111 means that the sensor is invalid in the first period and the remaining periods are valid.
30	Current in the nth period	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
31	System voltage level	0x01 is 12V (valid only if the battery type is lithium battery) 0x02 for 24V

32	charging voltage	0x01 is 0.1V,140=14.0V (valid only if battery type is lithium battery)
33	charging current	0x01 is 0.1A,100=10.0A (valid only if battery type is lithium battery)
34	Charging end current	0x01 is 0.1A,3=0.3A (valid only if battery type is lithium battery)
35	Manufacturer settings	Fix to 0x00
36	Customer settings	Fix to 0x00
37	Protocol version number	36
38	Charging high temperature protection	65 for 25°C 40 for 0°C
39	Charging low temperature protection	65 for 25°C 40 for 0°C
40	Discharge high temperature protection	65 for 25°C 40 for 0°C
41	Discharge low temperature protection	65 for 25°C 40 for 0°C
42	Sensor delay start time	1 for a 1-day delay
43	The sensor triggers the delay-time	1 representation 10s. Example: 5 is for 5 * 10s.
44	continue to have	
45	First-order reduced power stage H	High 8 bits, 1201 indicates 12.01V
46	First-order reduced power stage L	Lower 8 bits, 1201 indicates 12.01V
47	Second-order reduced power stage H	High 8 bits, 1201 indicates 12.01V
48	Second-order reduced power stage L	Lower 8 bits, 1201 indicates 12.01V
49	Third-order reduced power stage H	High 8 bits, 1201 indicates 12.01V
50	Third-order reduced power stage L	Lower 8 bits, 1201 indicates 12.01V

	Reduced power voltage L	
51	First-order reduced power function amplitude	80 indicates that the battery voltage decreases to the first order reduced power voltage to 80% of the current voltage
52	Second-order reduced power amplitude	80 indicates that the battery voltage decreases to the second order reduced power voltage to 80% of the current power
53	Third-order reduced power function magnitude	80 indicates that the battery voltage decreases to the third order reduced power voltage to 80% of the current voltage
54	No one power H a time	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
55	No one power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
56	Two period of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
57	Two period of planned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
58	Three periods of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
59	Three periods of planned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
60	Four periods of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
61	Four periods of planned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
62	Five periods of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA

63	Five periods of hanned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
64	Six periods of hanned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
65	Six periods of hanned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
66	continue to have	
67	.....
68	.....
69	.....
70	.....
71	.....
72	Custom power duction mode	1 Open 0
73	continue to have	
74	Accumulation and rification	
Terminal equipment sent		
orde	Functional resentation	Content definition
0	The word	0x40 The terminal equipment is sent
1	order	0x02 Write the command
2	DL	0x01 One-bit data
3	reply	0x01 write successfully 0x02 Check error 0x03 model error
4	Accumulation and rification	

read command		
The main control equipment is sent		
orde	Functional resentation	Content definition
0	The word	0x20 Master device sent
1	order	0x01 Read the instructions
2	DL	0x01 One-bit data
3	Customer code	0x00
4	Accumulation and rification	0x22
Terminal equipment sent		

orde	Functional presentation	Content definition
0	The word	0x40 The terminal equipment is sent
1	order	0x01 Read the instructions
2	DL	71 Data
3	Product model	--
4	maximumoutput	--
5	accumulated operational time	0x01 is 1 day, and 170 means 170 days of accumulated work (this data is not required to write the command)
6	Accumulated number of perrelease times within 16 days	0x01 is 1,10 means 10 times in 16 days (this data is not required when writing the command)
7	The first time	High four byte hours, four lower ten digits of minutes, after the same. Example 0x12 represents 1 hour and 20 minutes
8	First time current	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
9	The second time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
10	Second period current	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
11	The third time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
12	Third period current	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
13	intelligent control	0x00 off 0x01 mode 1 0x02 Mode 2
14	advanced setup	0x00 off 0x01 open
15	Load control mode	0x01 Manual mode 0x02 auto-mode mode 0x03 Debug mode 0x04 Pure light control mode
16	Light control delay time	Minutes; such as 0x10, representing 16 minutes
17	Optical control stage	0x01 is for the 0.1V,59=5.9V
18	Battery type	0x01 colloid 0x02 lead acid

		0x03 custom
19	Overvoltage tage	0x01 is for the 0.1V,170=17.0V
20	Over and over tage	0x01 is for the 0.1V,111=11.1V
21	Over-put back tage	0x01 is for the 0.1V,126=12.6V
22	Raise the arging voltage	0x01 is for the 0.1V,146=14.6V
23	floating charge tage	0x01 is for the 0.1V,126=12.6V
24	Power supply ority	The default value is 00
25	The fourth time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
26	Fourth period rent	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
27	The fifth time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
28	Fifth period rent	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
29	The sixth time	Four bytes higher represent hours, and four lower indicate ten digits in minutes
30	Current in the nth period	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.255 for 0 mA, 254 for 50 mA and 253 for 100 mA
31	System voltage rel	0x01 is 12V (valid only if the battery type is lithium battery) 0x02 for 24V
32	charging voltage	0x01 is 0.1V,140=14.0V (valid only if battery type is lithium battery)
33	charging current	0x01 is 0.1A,100=10.0A (valid only if battery type is lithium battery)
34	Charging end rent	0x01 is 0.1A,3=0.3A (valid only if battery type is lithium battery)
35	Protocol version nber	36
36	Charging high emperature rotection	65 for 25°C 40 for 0°C
37	Charging low emperature	65 for 25°C 40 for 0°C

	Protection	
38	Discharge high temperature protection	65 for 25°C 40 for 0°C
39	Discharge low temperature protection	65 for 25°C 40 for 0°C
40	Sensor unmanned over	0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA.
41	Sensor delay start	The highest bit of binary code indicates the on / off state of the sensor function at a time, 1 on 0 off. 1111 1111 means that the sensor is valid during all periods, 0111 1111 means that the sensor is invalid in the first period and the remaining periods are valid.
42	Sensor delay start time	1 for a 1-day delay
43	The sensor triggers the delay-time	1 representation 10s. Example: 5 is for 5 * 10s.
44	continue to have	
45	First-order reduced power voltage H	High 8 bits, 1201 indicates 12.01V
46	First-order reduced power voltage L	Lower 8 bits, 1201 indicates 12.01V
47	Second-order reduced power voltage H	High 8 bits, 1201 indicates 12.01V
48	Second-order reduced power voltage L	Lower 8 bits, 1201 indicates 12.01V
49	Third-order reduced power voltage H	High 8 bits, 1201 indicates 12.01V
50	Third-order reduced power voltage L	Lower 8 bits, 1201 indicates 12.01V
51	First-order reduced power voltage amplitude	80 indicates that the battery voltage decreases to the first order reduced power voltage to 80% of the current voltage
52	Second-order reduced power voltage amplitude	80 indicates that the battery voltage decreases to the second order reduced power voltage to 80% of the current power
53	Third-order	80 indicates that the battery voltage decreases to the

	Reduced power fluctuation magnitude	third order reduced power voltage to 80% of the current voltage
54	No one power H a time	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
55	No one power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
56	Two period of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
57	Two period of planned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
58	Three periods of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
59	Three periods of planned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
60	Four periods of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
61	Four periods of planned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
62	Five periods of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
63	Five periods of planned power L	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
64	Six periods of planned power H	High 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
65	Six periods of	Low 8 bits, 0 is 150 mA 1 is 200 mA; and so on, for

	anned power L	every 1 increase in this value, the corresponding output current increases by 50 mA. 255 for 0 mA, 254 for 50 mA and 253 for 100 mA
66	continue to have	
67	.....
68	.....
69	.....
70	.....
71	.....
72	Custom power reduction mode	1 Open 0
73	continue to have	
74	Accumulation and verification	

Read the state		
The main control equipment is sent		
Order	Functional presentation	Content definition
0	The word	0x20 Master device sent
1	order	0x24 Read the state instruction
2	DL	0x02 No data bits
3	Sensor status	0x00 still 0x01 trigger
4	Customer code	
5	Accumulation and verification	
Terminal equipment sent		
Order	Functional presentation	Content definition
0	The word	0x40 The terminal equipment is sent
1	order	0x24 Read the state instruction
2	DL	The 0x2E 46-bit data
3	accumulator stage H	120 representation 12V
4	accumulator stage L	
5	Battery status	0x00 overrelease 0x01 underpressure 0x02 normal 0x03 charging limit 0x04 overpressure 0x09 over temperature protection
6	load current H	15 representation 0.15A
7	load current L	
8	load voltage H	350 representation 35V
9	load voltage L	
10	Load status	0x00 off 0x01 on 0x02 open circuit protection 0x06 straight through protection 0x09 short circuit protection

			0x0A Overload protection 0x11 overload warning
11	Optical current H	cell	50 indicates that 5A 0xFF indicates the invalid data
12	Optical current L	cell	
13	Optical voltage H	cell	200 representation 20V
14	Optical voltage L	cell	
15	Optical status	cell	0x00 battery cell low voltage, 0x01 battery voltage high, 0x02 battery reaches charging voltage, 0x03 battery overvoltage, 0x0A charge overcurrent
16	external temperature		65 representation 25°C
17	Internal temperature		65 representation 25°C
18	Working days L		1 indicates 1 day
19	Overtimes (16 hrs)		1 represents 1 time
20	Today's discharge quantity is H		
21	Today's discharge quantity, L		1 representation 1WH
22	Yesterday the discharge quantity is		
23	Yesterday the discharge quantity L		1 representation 1WH
24	Accumulated discharge quantity H		
25	Accumulated discharge quantity: L		1 representation 1KWH
26	Today's charge level is H		
27	Today's charge level is L		1 indicates that 1WH 0xFF indicates the invalid data
28	Yesterday the charge is H		
29	Yesterday, the charge quantity is L		1 indicates that 1WH 0xFF indicates the invalid data
30	Accumulated charge quantity: H		
31	Accumulated charge quantity: L		1 indicates that 1KWH 0xFF indicates the invalid data
32	Working days H		
33	Battery power H		--

34	Battery power L	--
35	Battery allowance	0~100 1 represents 1%
36	The number of erlets is H	1 Show 1 time
37	The number of erlets L	
38	Overpressure umber H	1 Show 1 time
39	Overpressure umber L	
40	Number of erpressure: 16 days	1 Show 1 time
...	continue to re...	
49	Accumulation and rification	

20 05 04 01 00 64

Remote control command		
The main control equipment is sent		
orde	Functional presentation	Content definition
0	The word	0x20 Master device sent
1	order	0x05 Remote control command
2	DL	0x04 Quad digit data
3	Remote mode switch	0 Close 1 open
4	load switch	0 Close 1 open
5	output power	0~100%。Maximum percentage of current value set for active period For example, if 1 time period 150mA 2 time period 1000 the rest of the time period is 00.00 output Power is set to 50. The actual output power is 100050 00 = 500mA
6	heartbeat time	0x01 indicates 1 min.60 indicates 60 min. After the ecommunication command is sent successfully The controller starts time. During the set heartbeat ne, if the controller is not there again Receiving the communication command, then exit the note control mode to run automatically.
7	Accumulation and rification	
Terminal equipment sent		
orde	Functional presentation	Content definition
0	The word	0x40 The terminal equipment is sent
1	order	0x05 Remote control command

2	DL	0x01 1-bit data
3	Set success	0x01
4	Accumulation and rification	0x47

Clears up the historical data command		
The main control equipment is sent		
orde	Functional presentation	Content definition
0	The word	0x20 Master device sent
1	order	0x28 Remote control command
2	DL	0
3	Accumulation and rification	0x48

The Baud rate setting command		
The main control equipment is sent		
orde	Functional presentation	Content definition
0	The word	0x20 Master device sent
1	order	0x27 Paud rate control
2	DL	0x02
3	Baud rate H	0x09
4	Baud rate L	0x60 (0x960, means 2400 baud rate)
5	Accumulation and rification	
Terminal equipment sent		
orde	Functional presentation	Content definition
0	The word	0x40 The terminal equipment is sent
1	order	0x27
2	DL	0x01
3	reply	The 0x01 was set successfully The 0x02 setting has failed
4	Accumulation and rification	

Baud rate read command		
The main control equipment is sent		
orde	Functional presentation	Content definition
0	The word	0x20 Master device sent
1	order	0x26 Paud rate control
2	DL	0x00

3	Accumulation and rification	
Terminal equipment sent		
orde	Functional presentation	Content definition
0	The word	0x40 The terminal equipment is sent
1	order	0x26
2	DL	0x02
3	Baud rate H	0x09
4	Baud rate L	0x60 (0x960, means 2400 baud rate)
5	Accumulation and rification	