

4-channel programmable DC electronic load Communication Protocol



1 Introduction

1.1 communication

4-channel programmable DC electronic load modules via RS485 bus monitoring system composed of a large power aging. The structure of the system mainly from the formula, the host machine (computer, touch screen, etc.) as the host, electronic load module as a slave, the master sends various commands, make the appropriate action depending on the command or response from the machine.

1.2 communication format

Baud rate: 38400bps, 8 data bits, 1 stop bit, no parity.

1.3 host call frequency

Between the call issued by the host command frame transmission interval can not be less than 100ms, a command frame byte the sending intervals not greater than 5ms

1.4 communication error handling

If the communication error from the machine is not responding, the host should set the bus idle (waiting for host) at least 100ms after to send data from the machine to wait for the receiving buffer is emptied from the machine.

2. Communication command

2.1 host sends a command frame format

Command: Read command the slave status of all channels

Byte Serial number	Value	Functional Description
1	255	Frame synchronization head
2	9	The frame number of bytes
3	1-63	Slave address
4	170	Function code, read from the machine all the channel status
5	0-255	The system retains bytes to prepare for function expansion
6	0-255	The system retains bytes to prepare for function expansion
7	0-255	The system retains bytes to prepare for function expansion
8	0-255	The system retains bytes to prepare for function expansion
9	Checksum	8 byte value in front of the remainder of the sum is divided by 256

Command 2: Set slave channel parameters

Byte Serial number	Value	Functional Description
1	255	Frame synchronization head
2	62	The frame number of bytes
3	1-63	Slave address, including 97 as a broadcast address
4	173	Function code, set the slave parameters
5	0-1	0: CC mode 1: CV mode
6	0-255	1 channel constant current value / constant voltage value high byte
7	0-255	1 channel constant current value / constant voltage value of the second highest byte
8	0-255	1 channel constant current value / constant voltage value high byte
9	0-255	1 channel constant current value / constant voltage value high byte
10	0-255	2 channel constant current value / constant voltage value of the second highest byte
11	0-255	2 channel constant current value / constant voltage value high byte
12	0-255	3 channel constant current value / constant voltage value high byte
13	0-255	3 channel constant current value / constant voltage value of the second highest byte
14	0-255	3 channel constant current value / constant voltage value high

		byte
15	0-255	4 channel constant current value / constant voltage value high byte
16	0-255	4 channel constant current value / constant voltage value of the second highest byte
17	0-255	4 channel constant current value / constant voltage value high byte
18	0-255	The high byte of the upper limit of the first channel voltage / current ceiling
19	0-255	Maximum 1 channel voltage / current ceiling high byte
20	0-255	1 maximum channel voltage / current limit low byte
21	0-255	The high byte of the upper limit of 2-channel voltage / current ceiling
22	0-255	2-channel voltage the ceiling / current ceiling high byte
23	0-255	The low byte of the upper limit of 2-channel voltage / current ceiling
24	0-255	3 maximum channel voltage / current ceiling high byte
25	0-255	The maximum 3-channel voltage / current upper limit of the high byte
26	0-255	3 maximum channel voltage / current ceiling low byte
27	0-255	The high byte of the upper limit of the 4-channel voltage / current ceiling
28	0-255	Maximum 4-channel voltage / current ceiling high byte
29	0-255	The low byte of the upper limit of the 4-channel voltage / current ceiling
30	0-255	The lower limit of the minimum 1 channel voltage / current high byte
31	0-255	The lower limit of the high byte of the first lower channel voltage / current
32	0-255	Minimum 1 channel voltage / current lower limit of the low byte
33	0-255	The lower limit of the minimum second channel voltage / current high byte
34	0-255	The lower limit of the high byte of the second lower channel voltage / current
35	0-255	The lower limit of the second channel voltage / current lower limit of the low byte
36	0-255	The high byte of the lower channel voltage / current lower limit
37	0-255	The lower limit of the high byte of the 3 lower channel voltage / current
38	0-255	Minimum 3-channel voltage / current lower limit of the low byte
39	0-255	The lower limit of the high byte of the minimum 4-channel voltage / current
40	0-255	4-channel voltage lower limit / current lower limit of the high byte
41	0-255	Minimum 4-channel voltage / current lower limit of the low byte
42	0-255	1 channel start-voltage, high-byte (CC mode only)
43	0-255	The start voltage high byte 1 channel (CC mode only)
44	0-255	1 channel start-up voltage low byte (CC mode only)
45	0-255	2-channel start-up voltage high byte (CC mode only)
46	0-255	The start voltage high byte 2-channel (CC mode only)
47	0-255	2-channel start-up voltage low byte (CC mode only)

48	0-255	The first 3-channel the start voltage high byte (CC mode only)
49	0-255	The start voltage high byte channel 3 (CC mode only)
50	0-255	The first 3-channel the start voltage low byte (CC mode only)
51	0-255	The start voltage 4-channel high byte (CC mode only)
52	0-255	The start voltage high byte 4-channel (CC mode only)
53	0-255	The start voltage 4-channel low byte (CC mode only)
54	0-255	1 channel fixture impedance high byte (CC mode only)
55	0-255	1 channel fixture impedance low byte (CC mode only)
56	0-255	2 channel fixture impedance high byte (CC mode only)
57	0-255	Channel 2 fixture impedance low byte (CC mode only)
58	0-255	The 3rd channel fixture high impedance bytes (CC mode only)
59	0-255	Channel 3 fixture impedance low byte (CC mode only)
60	0-255	Channel 4 fixture impedance high byte (CC mode only)
61	0-255	Channel 4 fixture impedance low byte (CC mode only)
62	0-255	Checksum, 61 bytes in front of the remainder of the sum divided by 256

Command: stop all channels pull out

Byte Serial number	Value	Functional Description
1	255	Frame synchronization head
2	9	The frame number of bytes
3	1-63	Slave address, including 97 as a broadcast address
4	140	Function code, stop all channels tensile load
5	0-255	The system retains bytes to prepare for function expansion
6	0-255	The system retains bytes to prepare for function expansion
7	0-255	The system retains bytes to prepare for function expansion
8	0-255	The system retains bytes to prepare for function expansion
9	Checksum	8 byte value in front of the remainder of the sum is divided by 256

2.2 from the machine returns command frame

Only host sends commands to return data from the machine only.

Byte number	serial	Value	Functional Description
1		255	Frame synchronization head
2		170	Function code to indicate that the response of the host command: Read all channels of the slave state life Make
3		1-63	Slave address code
4		0-255	Channel 1 Voltage high byte
5		0-255	Channel 1 Voltage high byte
6		0-255	Channel 1 voltage low byte
7		0-255	Channel 2 voltage high byte
8		0-255	Channel 2 voltage high byte
9		0-255	Channel 2 voltage low byte
10		0-255	Channel 3 voltage high byte
11		0-255	Channel 3 Voltage high byte
12		0-255	Channel 3 voltage low byte
13		0-255	Channel 4 voltage high byte
14		0-255	Channel 4 voltage times high byte
15		0-255	Channel 4 voltage low byte
16		0-255	Channel 1 current high byte
17		0-255	The high byte of the channel 1 current times
18		0-255	Channel 1 current low byte
19		0-255	Channel 2 current high byte
20		0-255	Channel 2 current times of high byte
21		0-255	Channel 2 current low byte
22		0-255	Channel 3 current high byte
23		0-255	Channel 3 high byte of the current times
24		0-255	Channel 3 current low byte
25		0-255	Channel 4 current high byte
26		0-255	The high byte of the Channel 4 current times
27		0-255	Channel 4 current low byte
28		0-1	The state of the system: 0: load parameter is not set 1: load parameters have been set
29		0-255	Parity value, the first 31 bytes by dividing the sum of a remainder of 256

Slave returns, for example, the first channel voltage = (1-channel voltage high byte * 65536 + 1 channel voltage times High byte * 256 + 1 channel voltage low byte) / 1000.0 as the rest of the channel current, voltage calculation.

For example, the first channel current = (1 channel current high byte * 65536 + channel current times of high byte * 256 + Channel 1 current low byte) / 1000.0 the rest of the channel current, voltage calculated as