Hantek®

Modbus Communication Protocol

Programmable DC Power Supply

HDP3323

Register address and corresponding function code table

Register Address	Name	Function	Function Code 0X03	Function Code 0X06	Function Code 0X10	Assignment Range
0X0000	Remote Mode	Remote operation mode	Y	Y	Y	0: local mode 1: remote mode
0X0002	CH1 V_Set	CH1 voltage parameter setting	Y	Y	Y	0-Vmax Step 1mV
0X0002	CH1 A_Set	CH1 current parameter setting	Y	Y	Y	0-Amax Step 0.1mA
0X0003	CH1 OVP_Set	CH1 over-voltage protection parameter setting	Y	Y	Y	0-Vmax Step 1mV
0X0004	CH1 OCP_Set	CH1 over-current protection parameter setting	Y	Y	Y	0-Amax Step 0.1mA
0X0005	CH1 OVP_State	CH1 over-voltage status parameter setting	Y	Y	Y	0: disable 1: enable
0X0006	CH1 OCP_State	CH1 over-current status parameter setting	Y	Y	Y	0: disable 1: enable
0X0007	CH1 OUT_State	CH1output status setting	Y	Y	Y	0: turn off 1: output
0X0008	CH2 V_Set	CH2 voltage parameter setting	Y	Y	Y	1-Vmax Step 1mV
0X0009	CH2 A_Set	CH2 current parameter setting	Y	Y	Y	1-Amax Step 0.1mA
0X000A	CH2 OVP_Set	CH2 over-voltage protection parameter setting	Y	Y	Y	1-Vmax Step 1mV
0X000B	CH2 OCP_Set	CH2 over-current protection parameter setting	Y	Y	Y	0-Amax Step 0.1mA
0X000C	CH2 OVP_State	CH2 over-voltage status parameter setting	Y	Y	Y	0: disable 1: enable
0X000D	CH2 OCP_State	CH2 over-current status parameter setting	Y	Y	Y	0: disable 1: enable
0X000E	CH2 OUT_State	CH2 output status setting	Y	Y	Y	0: turn off 1: output
0X000F	CH3 V_Set	CH3 voltage parameter setting	Y	Y	Y	2-Vmax Step 1mV
0X0010	CH3 A_Set	CH3 current parameter setting	Y	Y	Y	2-Amax Step 0.1mA
0X0011	CH3 OVP_Set	CH3 over-voltage protection parameter setting	Y	Y	Y	2-Vmax Step 1mV
0X0012	CH3 OCP_Set	CH3 over-current protection parameter setting	Y	Y	Y	0-Amax Step 0.1mA
0X0013	CH3 OVP_State	CH3 over-voltage status parameter setting	Y	Y	Y	0: disable 1: enable

0X0014	CH3 OCP_State	CH3 over-current status parameter setting	Y	Y	Y	0: disable 1: enable
0X0015	CH3 OUT_State	CH3 output status setting	Y	Y	Y	0: turn off 1: output
0X001D	COMB Mode	Channel combination mode	Y	Y	Y	0: independent 1: series mode 2: parallel mode
0X001E	CH1 STATE	CH1 status register	Y	Y	Y	u16 type, refer to the status register bit definition table.
0X001F	CH2 STATE	CH2 status register	Y	Y	Y	
0X0020	CH3 STATE	CH3 status register	Y	Y	Y	
0X0022	CH1 V_Out	CH1 actual output voltage value	Y	N	N	0-Vmax Step 1mV
0X0023	CH1 A_Out	CH1 actual output current value	Y	N	N	0-Amax Step 0.1mA
0X0024	CH2 V_Out	CH2 actual output voltage value	Y	N	N	0-Vmax Step 1mV
0X0025	CH2 A_Out	CH2 actual output current value	Y	N	N	0-Amax Step 0.1mA
0X0026	CH3 V_Out	CH3 actual output voltage value	Y	N	N	0-Vmax Step 1mV
0X0027	CH3 A_Out	CH3 actual output current value	Y	N	N	0-Amax Step 0.1mA

Status register bit definition table

Bit	Name	Property	Explanation
3	OTP_FLAG	**W/R**	1 is the over-temperature protection mark, write 0 to clear the over-temperature mark (when the temperature returns to a safe value).
2	OCP_FLAG	**W/R**	1 is the over-current protection mark, write 0 to clear the over-current mark.
1	OVP_FLAG	**W/R**	1 is the over-voltage protection mark, write 0 to clear the over-voltage mark.
0	CV/CC	**R**	0: constant voltage (CV) status, 1: constant current (CC) status

Function code and interval table

Function Code	Corresponding Function	Interval between two operations
0X03	Continuously read one or more register commands	N * 5ms
0X06	Single write register command	10ms
0X10	Continuously write one or more register commands	N * 5ms

Communication protocol format

Function code 0X03

PC sends: 8 byte

Address	Function Code	Start address high byte	Start address low byte	Register number high byte	Register number low byte	CRC16 checksum low byte	CRC16 checksum high byte
0X01	0X03						

Power supply return: 5+N*2 byte

Address	Function Code	Data length bytes	Return data high byte	Return data low byte	Return data N+1 high byte	Return N+1 data low byte	CRC16 checksum low byte	CRC16 checksum high byte
0X01	0X03							

Example 1: Read a single register (0X0000)
PC sends: 01 03 00 00 00 01 84 0A (starting address is 0X0000, length is 1 register, CRC16 check result is 0X0A84)
Power supply returns: 01 03 02 00 01 79 84 (0X0001 indicates remote operation mode, 0X8479 is CRC16 check result)

Example 2: Read multiple registers (0X0001~0X0002)
PC sends: 01 03 00 01 00 02 95 CB (starting address is 0X0001, length is 2 registers, CRC16 check result is 0XCB95)
Power supply returns: 01 03 04 13 88 27 10 8B F6 (0X1388 means 5.000V, 0X2710 means 1.0000A, 0XF68B is the CRC16 check result)

Function code 0X06

PC sends: 8 byte

Address	Function Code	Write address high byte	Write address low byte	Write data high byte	Write date low byte	CRC16 checksum low byte	CRC16 checksum high byte
0X01	0X06						

Power supply return: 8 byte

Address	Function Code	Write address high byte	Write address low byte	Write data high byte	Write date low byte	CRC16 checksum low byte	CRC16 checksum high byte
0X01	0X06						

Example 1: Write register status (0X0000)
PC sends: 01 06 00 00 00 01 48 0A (write address is 0X0000, write data is 0X0001, CRC16 check result is 0X0A48)
Power supply returns: 01 06 00 00 00 01 48 0A (write address is 0X0000, write data is 0X0001, CRC16 check result is 0X0A48)

Function code 0X10

PC sends: 9+N*2 byte

Address	Function Code	Start address high byte	Start address low byte	Register number high byte	Register number low byte	Data length bytes	Write data high byte	Write data low byte	Write data N+1 high byte	Write data N+1 low byte	CRC16 checksum low byte	CRC16 checksum high byte
0X01	0X10											

Power supply return: 8 byte

Address	Function Code	Start address high byte	Start address low byte	Data length high byte	Data length low byte	CRC16 checksum low byte	CRC16 checksum high byte
0X01	0X10						

Example 1: Write multiple register states (0X0001~0X0002)

PC sends: 01 10 00 01 00 02 04 13 88 27 10 AC F1 (starting address is 0X0001, length is 2 registers, write data 5.000V/1.0000A, CRC16 check result is 0XF1AC)

Power supply returns: 01 10 00 01 00 04 90 0A (starting address is 0X0001, data length is 4 bytes, CRC16 check result is 0X0A90)