



IN COOPERATION WITH NGI®

**N35200 CANopen
V20230415**

N35200 Series Programming Guide CANopen Protocol

CANopen

**Offizieller Partner von NGI: Service und Vertrieb direkt durch ET System electronic GmbH.
Official partner of NGI: Service and sales directly through ET System electronic GmbH.**

ET System electronic GmbH
www.et-system.de

Hauptstraße 119 - 121
D - 68804 Altlußheim

Vertrieb Kontakt: Tel.: +49 (0)6205 / 394 80
Sales contact: info@et-system.de

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1 Preface

Dear Customers,

First of all, we greatly appreciate your choice of N35200 series programmable DC power supply (N35200 for short). We are also honored to introduce our company, Hunan Next Generation Instrumental T&C Tech. Co., Ltd. (NGI for short).

About Company

NGI is a professional manufacturer of intelligent equipment and test & control instruments, mainly engaged in design, production, sales, installations and maintenance of instruments and meters, electronic products, mechanical equipment, automatic test systems, computer software, automatic control equipment, automatic monitoring and alarm systems.

NGI maintains close cooperation with many universities and scientific research institutions, and maintains close ties with many industry leaders. We strive to develop high-quality, technology-leading products, provide high-end technologies, and continue to explore new industry measurement and control solutions.

About Manual

This manual is applied to N35200 series programmable DC power supply, including programming guide based on CANopen protocol. The copyright of the manual is owned by us. Due to the upgrade of instrument, this manual may be revised without notice in future versions.

This manual has been reviewed carefully by us for the technical accuracy. The manufacturer declines all responsibility for possible errors in this operation manual, if due to misprints or errors in copying. The manufacturer is not liable for malfunctioning if the product has not correctly been operated.

To ensure the safety and correct use of N35200, please read this manual carefully, especially the safety instructions.

Please keep this manual for future use.

Thanks for your trust and support.

2 Safety Instructions

In the operation and maintenance of the instrument, please strictly comply with the following safety instructions. Any performance regardless of attentions or specific warnings in other chapters of the manual may impair the protective functions provided by the instrument.

NGI shall not be liable for the results caused by the neglect of those instructions.

2.1 Safety Notes

- **Confirm the AC input voltage before supplying power.**
- **Reliable grounding:** Before operation, the instrument must be reliably grounded to avoid the electric shock.
- **Confirm the fuse:** Ensure to have installed the fuse correctly.
- **Do not open the chassis:** The operator cannot open the instrument chassis. Non-professional operators are not allowed to maintain or adjust it.
- **Do not operate under hazardous conditions:** Do not operate the instrument under flammable or explosive conditions.
- **Confirm the working range:** Make sure the DUT is within N35200's rated range.

2.2 Safety Symbols

Please refer to the following table for definitions of international symbols used on the instrument or in the user manual.

Table 1

Symbol	Definition	Symbol	Definition
	DC (direct current)	N	Null line or neutral line
	AC (alternating current)	L	Live line
	AC and DC	I	Power-on
	Three-phase current		Power-off
	Ground		Back-up power
	Protective ground		Power-on state
	Chassis ground		Power-off state
	Signal ground		Risk of electric shock
WARNING	Hazardous sign		High temperature warning
Caution	Be careful		Warning

3 CANopen Overview

CANopen is a high-level protocol based on CAN (control area network) serial bus system and CAL (CAN application layer). CANopen assumes that the hardware of the connected device has a CAN transceiver that conforms to ISO11898 standard and a CAN controller. CANopen is developed on the basis of CAL, and uses a subset of CAL communication and service protocols to provide an implementation solution for a distributed control system. CANopen guarantees the interoperability of network nodes while allowing the functions of nodes to be expanded at will: simple or complex. The core concept of CANopen is the device object dictionary (OD), which is also used in other fieldbus (Profibus, Interbus-S) systems. CANopen communication can access all the parameters of the drive through the object dictionary (OD).

Note: The object dictionary is not part of CAL, but is implemented in CANopen.

The CANopen communication model defines the following types of messages (communication objects).

Abbreviation	Full Name	Function
SDO	Service Data Object	Used for non-time critical data, such as parameters
PDO	Process Data Object	Used to transmit time-critical process data (given value, control word, status information, etc.)
SYNC	Synchronization Message	Used to synchronize CAN nodes
EMCY	Emergency Message	Used to transmit the alarm events of the driver
NMT	Network Management	Used for CANopen network management
Heartbeat	Error Control Protocol	Used for monitoring the life status of all nodes

4 Communication Method

The protocol used by N35200 physical CAN is CANopen protocol. Before using N35200, please connect CAN communication and configure physical CAN interface parameters, for example, address is set to 01. Please refer to the user manual for details. The remote control process of N35200 power supply through CAN is as follows.

1. Factory default channel ID: 1 (configurable, restart takes effect).
2. Factory default CAN baud rate: 250K (can be set, restart takes effect).
3. The PC sends a start packet to the N35200.
4. After receiving the start message, N35200 enters the CAN remote control mode(the front panel of N63200 displays that N635200 enters the Rmt state). Only after entering the CAN remote control mode, N35200 can send and receive data with the PC normally.
3. N35200 periodically reports the parameters associated with TPDO to PC through CAN.
4. PC can also send RPTO or SDO messages through CAN to configure the relevant parameters of N35200.
5. To exit the physical CAN communication state, PC sends a stop message. At this time, N35200 returns to local operation. Specific exchange messages and setting messages will be described in subsequent chapters.

5 CAN Format

Different CAN analysis tools display different requirements and fields. The actual tool shall prevail. The following explains the meaning of some fields in different tools for reference during use.

In conventional tools, users need to pay attention to the frame ID and frame data when sending CAN commands.

For example, sending a heartbeat setting command.

Frame ID	Frame Data	Remark
0601	2b 17 10 00 e8 03 00 00	Setting the heartbeat time to 1000ms

The calculation method of frame ID is 0x600+CAN address. In this manual, CAN address is 01 as an example. 0x600 is the fixed address of N35200.

Frame data: Different functions correspond to different commands and different parameter values. Please refer to the command introduction in the subsequent chapters.

Example frame description:

2b: CS command specifier, which means to write two bytes. The command specifier description is as follows.

40H=Read

2BH=Write two bytes

4BH=Read response two bytes

2FH=Write one byte

4FH=Read response one byte

27H=Write three bytes

47H=Read response three bytes

23H=Write four bytes

43H=Read response four bytes

60H=Write successful response

80H=Abnormal response

17 10: Main index 0x1017

00: Sub index 0x00

e8 03: data 0x03e8

6 Commands

6.1 Status Reading

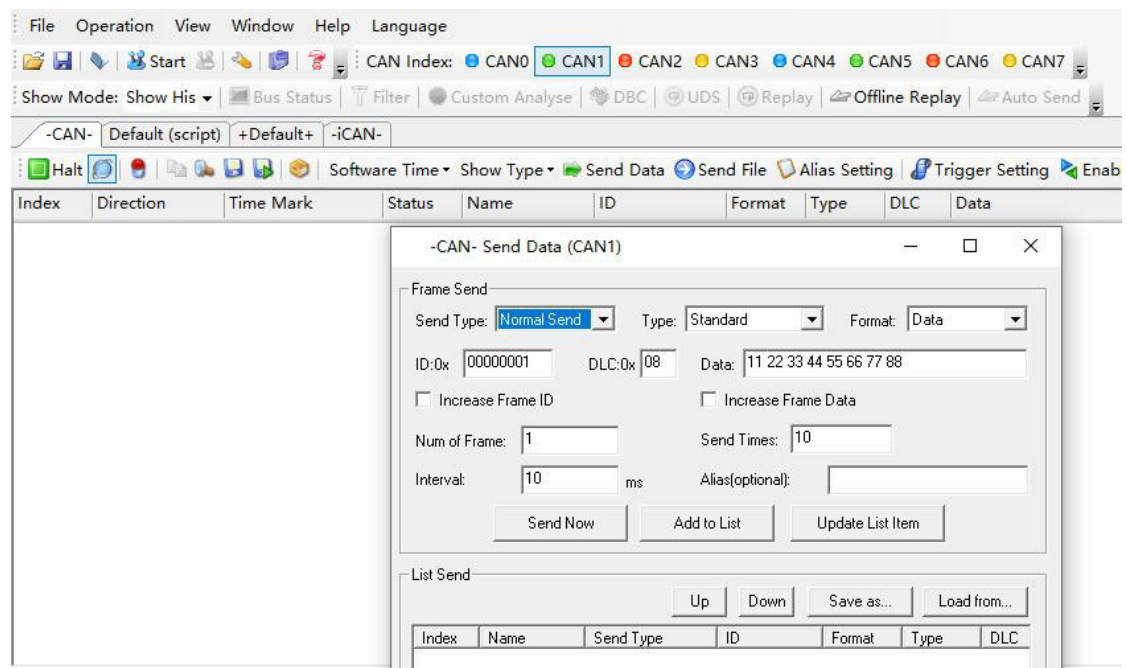
Reading command: 43 00 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2000	0x00	RO	int	4

Parameter description:

Returning data: 43 00 20 00 28 10 01 80



Converted to hexadecimal data as: 0x80011028, its status register bits are defined as follows:

31	30	29	28	27	26	25	24	23	22	21	20	19	18	17	16
					6			3			0				
started	calibrating	Remote Lockout	emergency stop	cascade enable	Analog Programming					Occurrence of protection indication					
15	14	13	12	11	10	9	8	7	6	5	4	3	2	1	0
					0										
testing	tested	Remote control	Voltage SENSEBit	Function Indication					Mode Indication		Source &load	current sampling	Voltage sampling	Output Indication	

						mode	over	over range	
						indicati	range		
						on			
Bit0	Bit0-OFF, 1-ON								
Bit1	0-Voltage sampling normal, 1-Voltage Sampling Over Range								
Bit2	0-Current sampling normal, 1-Current Sampling Over Range								
Bit3	0-Source mode, 1-load mode								
Bit4-6	0-CV, 1-CC, 2-CP, 3-CR								
Bit7-11	0-STATIC, 1-CR, 2-SEQ, 3-CHARGE, 4-DISCHARGE, 5-RAMP, 6-WAVE								
Bit12	0-local terminal, 1-remote terminal								
Bit13	0-local sense, 1-remote sense								
Bit14	0-untested, 1-tested								
Bit15	0-untesting, 1-testing								
Bit16-21	0-no protection, 1-MF, 2-OTP, 3-RV, 4-OC, 5-OV, 6-OP, 7-OC, 8-OVP, 9-OPP, 10-LVP, 15-SLA1, 16-SLA2, 17-SLA3, 18-SLA4, 19-SLA5, 20-SLA6, 21-SLA7, 22-SLA8, 23-SLA9								
Bit22-26	Bit0-ON, Bit1-ON BIT22-voltage, BIT23-Source current, BIT24-load current, BIT25-Source power, BIT26-load power								
Bit27	0-Parallelism OFF, 1-Parallelism ON								
Bit28	0-emergency return, 1-emergency occur								
Bit29	Preserve								
Bit30	0-uncalibrated, 1-calibrated								
Bit31	0-unstarted, 1-started								

6.2 Clear Protection

Writing command: 2F 00 20 02 01 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2000	0x02	WO	unsigned	1

Parameter description:

Return data: 60 00 20 02 00 00 00 00

6.3 Output Setting

6.3.1 Voltage Setting

Setting command: 23 01 20 00 88 13 00 00

Reading command: 43 01 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x00	WR	int	4

Parameter description: setting the voltage value

The unit is mV. Hexadecimal 0x00001388, converting to decimal, is 5000mV. That is, the setting voltage is 5.000V.

Return of setting command: 60 01 20 00 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 00 indicates sub index.

Return of reading command: 43 01 20 00 88 13 00 00

The red part is setting voltage data. Hexadecimal 0x00001388, converting to decimal, is 5000mV, that is, 5.000V.

6.3.2 Current Setting in Source Mode

Setting command: 23 01 20 01 E8 03 00 00

Reading command: 43 01 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x01	WR	int	4

Parameter description: setting the current value in source mode.

The unit is mA. Hexadecimal 0x000003E8, converting to decimal, is 1000mA. That is, the setting current is 1.000A.

Return of setting command: 60 01 20 01 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 01 indicates sub index.

Return of reading command: 43 01 20 01 E8 03 00 00

The red part is setting current data. Hexadecimal 0x000003E8, converting to decimal,

is 1000mA, that is, 1.000A.

6.3.3 Power Setting in Source Mode

Reading command: 43 01 20 02 00 00 00 00

Setting command: 23 01 20 02 88 13 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x02	WR	int	4

Parameter description:

Reading the power value in source mode. Hexadecimal 0x00001388, converting to decimal, is 5000mW.

Return of reading command: 43 01 20 01 88 13 00 00

setting the power value in source mode. The unit is mW.

Return of setting command: 60 01 20 01 00 00 00 00

6.3.4 Current Setting in Load Mode

Reading command: 43 01 20 03 00 00 00 00

Setting command: 23 01 20 03 E8 03 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x03	WR	int	4

Parameter description:

Reading the current value in load mode. Hexadecimal 0x000003E8, converting to decimal, is 1000mA. That is, the setting current is 1.000A.

Return of reading command: 43 01 20 03 E8 03 00 00

setting the power value in load mode. The unit is mA.

Return of setting command: 60 01 20 03 00 00 00 00

6.3.5 Power Setting in Load Mode

Reading command: 43 01 20 04 00 00 00 00

Setting command: 23 01 20 04 88 13 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x04	WR	int	4

Parameter description:

Reading the power value in load mode. Hexadecimal 0x00001388, converting to

decimal, is 5000mW.

Return of reading command: 43 01 20 04 88 13 00 00

setting the power value in load mode. The unit is mW.

Return of setting command: 60 01 20 04 00 00 00 00

6.3.6 Simulated Internal Resistance Setting

Setting command: 23 01 20 05 88 13 00 00

Reading command: 43 01 20 05 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x05	WR	int	4

Parameter description:

Reading command: Reading simulated internal resistance value, unit mΩ

Return of reading command: 43 01 20 05 88 13 00 00

Setting command: Setting simulated internal resistance value, unit mΩ

Return of setting command: 60 01 20 05 00 00 00 00

6.3.7 Simulated Internal Resistance Voltage Setting

Setting command: 23 01 20 09 88 13 00 00

Reading command: 43 01 20 09 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x09	WR	int	4

Parameter description:setting the simulated internal resistance voltage value. The unit is mV. Hexadecimal 0x00001388, converting to decimal, is 5000mV. That is, the setting voltage is 5.000V.

Return of setting command: 60 01 20 09 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 09 indicates sub index.

Return of reading command: 43 01 20 09 88 13 00 00

The red part is setting voltage data. Hexadecimal 0x00001388, converting to decimal, is 5000mV, that is, 5.000V.

6.3.8 Simulated Internal Resistance Current Setting

Setting command: 23 01 20 0A E8 03 00 00

Reading command: 43 01 20 0A 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x0A	WR	int	4

Parameter description: setting the simulated internal resistance current value. The unit is mA. Hexadecimal 0x000003E8, converting to decimal, is 1000mA. That is, the setting current is 1.000A.

Return of setting command: 60 01 20 0A 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 01 indicates sub index.

Return of reading command: 43 01 20 0A E8 03 00 00

The red part is setting current data. Hexadecimal 0x000003E8, converting to decimal, is 1000mA, that is, 1.000A.

6.3.9 Simulated Internal Resistance Power Setting

Setting command: 23 01 20 0B 88 13 00 00

Reading command: 43 01 20 0B 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x0B	WR	int	4

Parameter description: reading the simulated internal resistance power value. The unit is mW. Hexadecimal 0x00001388, converting to decimal, is 5000mW.

Return of reading command: 43 01 20 0B 88 13 00 00

Setting the simulated internal resistance power value, The unit is mW.

Return of setting command: 60 01 20 0B 00 00 00 00

6.3.10 Resistance Value in CR Loading Mode

Setting command: 23 01 20 06 88 13 00 00

Reading command: 43 01 20 06 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x06	WR	int	4

Parameter description: reading the resistance value in CR loading mode. The unit is $m\Omega$. Hexadecimal 0x00001388, converting to decimal, is 5000 $m\Omega$.

Return of reading command: 43 01 20 06 **88 13 00 00**

Setting the resistance value in CR loading mode, The unit is $m\Omega$.

Return of setting command: **60 01 20 06** 00 00 00 00

6.3.11 Current Value in CR Loading Mode

Setting command: 23 01 20 07 **E8 03 00 00**

Reading command: 43 01 20 07 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x07	WR	int	4

Parameter description: reading the current value in CR loading mode. The unit is mA. Hexadecimal 0x000003E8, converting to decimal, is 1000mA.

Return of reading command: 43 01 20 07 **E8 03 00 00**

Setting the current value in CR loading mode, The unit is mA.

Return of setting command: **60 01 20 07** 00 00 00 00

6.3.12 Power Value in CR Loading Mode

Setting command: 23 01 20 08 **88 13 00 00**

Reading command: 43 01 20 08 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x08	WR	int	4

Parameter description: reading the power value in CR loading mode. The unit is mW. Hexadecimal 0x00001388, converting to decimal, is 5000mW.

Return of reading command: 43 01 20 08 **88 13 00 00**

Setting the power value in CR loading mode, The unit is mA.

Return of setting command: **60 01 20 08** 00 00 00 00

6.3.13 Voltage Upper Limit

Setting command: 23 01 20 0C A0 86 01 00

Reading command: 43 01 20 0C 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x0C	WR	int	4

Parameter description: setting the voltage upper limit

The unit is mV. Hexadecimal 0x000186A0, converting to decimal, is 100000mV. That is, the setting voltage is 100.000V.

Return of setting command: 60 01 20 0C 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 0C indicates sub index.

Return of reading command: 43 01 20 0C A0 86 01 00

The red part is setting voltage data. Hexadecimal 0x000186A0, converting to decimal, is 100000mV, that is, 100.000V.

6.3.14 Voltage Lower Limit

Setting command: 23 01 20 0D E8 03 00 00

Reading command: 43 01 20 0D 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x0D	WR	int	4

Parameter description: setting the voltage lower limit

The unit is mV. Hexadecimal 0x000003E8, converting to decimal, is 1000mV. That is, the setting voltage lower limit is 1.000V.

Return of setting command: 60 01 20 0D 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 0D indicates sub index.

Return of reading command: 43 01 20 0D E8 03 00 00

The red part is setting voltage data. Hexadecimal 0x000003E8, converting to decimal, is 1000mV, that is, 1.000V.

6.3.15 Voltage Rise Slew Setting

Setting command: 23 01 20 0E A0 86 01 00

Reading command: 43 01 20 0E 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x0E	WR	int	4

Parameter description: setting the voltage rise slew

The unit is mV/s. Hexadecimal 0x000186A0, converting to decimal, is 100000mV/s.

That is, the voltage rise slew is 100.000V/s.

Return of setting command: 60 01 20 0E 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 0E indicates sub index.

Return of reading command: 43 01 20 0E A0 86 01 00

The red part is setting voltage rise slew. Hexadecimal 0x000186A0, converting to decimal, is 100000mV/S. That is, the voltage rise slew is 100.000V/S.

6.3.16 Voltage Fall Slew Setting

Setting command: 23 01 20 0F A0 86 01 00

Reading command: 43 01 20 0F 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x0F	WR	int	4

Parameter description: setting the voltage fall slew

The unit is mV/s. Hexadecimal 0x000186A0, converting to decimal, is 100000mV/s.

That is, the voltage fall slew is 100.000V/s.

Return of setting command: 60 01 20 0F 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 0F indicates sub index.

Return of reading command: 43 01 20 0F A0 86 01 00

The red part is setting voltage fall slew. Hexadecimal 0x000186A0, converting to

decimal, is 100000mV/S. That is, the voltage fall slew is 100.000V/S.

6.3.17 Source Current Upper Limit

Setting command: 23 01 20 10 **10 27 00 00**

Reading command: 43 01 20 10 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x10	WR	int	4

Parameter description: setting the source current upper limit

The unit is mA. Hexadecimal 0x00002710, converting to decimal, is 10000mA. That is, the setting current is 10.000A.

Return of setting command: **60 01 20 10** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 10 indicates sub index.

Return of reading command: 43 01 20 10 **10 27 00 00**

The red part is setting current data. Hexadecimal 0x00002710, converting to decimal, is 10000mA, that is, 10.000A.

6.3.18 Source Current Lower Limit

Setting command: 23 01 20 11 **F4 01 00 00**

Reading command: 43 01 20 11 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x11	WR	int	4

Parameter description: setting the source current lower limit

The unit is mA. Hexadecimal 0x000001F4, converting to decimal, is 500mA. That is, the setting current is 0.500A.

Return of setting command: **60 01 20 11** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 11 indicates sub index.

Return of reading command: 43 01 20 11 **F4 01 00 00**

The red part is setting current data. Hexadecimal 0x000001F4, converting to decimal,

is 500mA, that is, 0.500A.

6.3.19 Source Current Rise Slew Setting

Setting command: 23 01 20 12 **A0 86 01 00**

Reading command: 43 01 20 12 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x12	WR	int	4

Parameter description: setting the source current rise slew

The unit is mA/s. Hexadecimal 0x000186A0, converting to decimal, is 100000mA/s. That is, the source current rise slew is 100.000A/s.

Return of setting command: **60 01 20 12** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 12 indicates sub index.

Return of reading command: 43 01 20 12 **A0 86 01 00**

The red part is setting the source current rise slew. Hexadecimal 0x000186A0, converting to decimal, is 100000mA/S. That is, the source current rise slew is 100.000A/S.

6.3.20 Source Current Fall Slew Setting

Setting command: 23 01 20 13 **A0 86 01 00**

Reading command: 43 01 20 13 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x13	WR	int	4

Parameter description: setting the source current fall slew

The unit is mA/s. Hexadecimal 0x000186A0, converting to decimal, is 100000mA/s. That is, the source current fall slew is 100.000A/s.

Return of setting command: **60 01 20 13** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main

index. 13 indicates sub index.

Return of reading command: 43 01 20 13 **A0 86 01 00**

The red part is setting the source current fall slew. Hexadecimal 0x000186A0, converting to decimal, is 100000mA/S. That is, the source current fall slew is 100.000A/S.

6.3.21 Load Current Upper Limit

Setting command: 23 01 20 14 **10 27 00 00**

Reading command: 43 01 20 14 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x14	WR	int	4

Parameter description: setting the load current upper limit

The unit is mA. Hexadecimal 0x00002710, converting to decimal, is 10000mA. That is, the setting current is 10.000A.

Return of setting command: **60 01 20 14** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 14 indicates sub index.

Return of reading command: 43 01 20 14 **10 27 00 00**

The red part is setting current data. Hexadecimal 0x00002710, converting to decimal, is 10000mA, that is, 10.000A.

6.3.22 Load Current Lower Limit

Setting command: 23 01 20 15 **F4 01 00 00**

Reading command: 43 01 20 15 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x15	WR	int	4

Parameter description: setting the load current lower limit

The unit is mA. Hexadecimal 0x000001F4, converting to decimal, is 500mA. That is, the setting current is 0.500A.

Return of setting command: **60 01 20 15** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 15 indicates sub index.

Return of reading command: 43 01 20 15 **F4 01 00 00**

The red part is setting current data. Hexadecimal 0x000001F4, converting to decimal, is 500mA, that is, 0.500A.

6.3.23 Load Current Rise Slew Setting

Setting command: 23 01 20 16 **A0 86 01 00**

Reading command: 43 01 20 16 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x16	WR	int	4

Parameter description: setting the load current rise slew

The unit is mA/s. Hexadecimal 0x000186A0, converting to decimal, is 100000mA/s. That is, the load current rise slew is 100.000A/s.

Return of setting command: **60 01 20 16** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 16 indicates sub index.

Return of reading command: 43 01 20 16 **A0 86 01 00**

The red part is setting the load current rise slew. Hexadecimal 0x000186A0, converting to decimal, is 100000mA/S. That is, the load current rise slew is 100.000A/S.

6.3.24 Load Current Fall Slew Setting

Setting command: 23 01 20 17 **A0 86 01 00**

Reading command: 43 01 20 17 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x17	WR	int	4

Parameter description: setting the load current fall slew

The unit is mA/s. Hexadecimal 0x000186A0, converting to decimal, is 100000mA/s.

That is, the load current fall slew is 100.000A/s.

Return of setting command: 60 01 20 17 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 17 indicates sub index.

Return of reading command: 43 01 20 17 A0 86 01 00

The red part is setting the load current fall slew. Hexadecimal 0x000186A0, converting to decimal, is 100000mA/S. That is, the load current fall slew is 100.000A/S.

6.3.25 Source Power Upper Limit

Setting command: 23 01 20 18 A0 86 01 00

Reading command: 43 01 20 18 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x18	WR	int	4

Parameter description: setting the source power upper limit

The unit is mW. Hexadecimal 0x000186A0, converting to decimal, is 100000mW. That is, the setting power is 100.000W.

Return of setting command: 60 01 20 18 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 18 indicates sub index.

Return of reading command: 43 01 20 18 A0 86 01 00

The red part is setting power data. Hexadecimal 0x000186A0, converting to decimal, is 100000mW, that is, 100.000W.

6.3.26 Source Power Lower Limit

Setting command: 23 01 20 19 E8 03 00 00

Reading command: 43 01 20 19 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
------------	-----------	------------	-----------	-----------

0x2001	0x19	WR	int	4
--------	------	----	-----	---

Parameter description: setting the source power lower limit

The unit is mW. Hexadecimal 0x000003E8, converting to decimal, is 1000mW. That is, the setting power lower limit is 1.000W.

Return of setting command: 60 01 20 19 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 19 indicates sub index.

Return of reading command: 43 01 20 19 E8 03 00 00

The red part is setting power data. Hexadecimal 0x000003E8, converting to decimal, is 1000mW, that is, 1.000W.

6.3.27 Load Power Upper Limit

Setting command: 23 01 20 1A A0 86 01 00

Reading command: 43 01 20 1A 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2001	0x1A	WR	int	4

Parameter description: setting the load power upper limit

The unit is mW. Hexadecimal 0x000186A0, converting to decimal, is 100000mW. That is, the setting load power upper limit is 100.000W.

Return of setting command: 60 01 20 1A 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 1A indicates sub index.

Return of reading command: 43 01 20 1A A0 86 01 00

The red part is setting power data. Hexadecimal 0x000186A0, converting to decimal, is 100000mW, that is, 100.000W.

6.3.28 Load Power Lower Limit

Setting command: 23 01 20 1B E8 03 00 00

Reading command: 43 01 20 1B 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
------------	-----------	------------	-----------	-----------

Parameter description: setting the load power lower limit

The unit is mW. Hexadecimal 0x000003E8, converting to decimal, is 1000mW. That is, the setting power is 1.000W.

Return of setting command: 60 01 20 1B 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 1B indicates sub index.

Return of reading command: 43 01 20 1B E8 03 00 00

The red part is setting power data. Hexadecimal 0x000003E8, converting to decimal, is 1000mW, that is, 1.000W.

6.4 Readback

6.4.1 Readback Voltage

Reading command: 43 02 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2002	0x00	RO	int	4

Parameter description: reading readback voltage, unit mV

Returning data: 43 02 20 00 88 13 00 00

The red part is voltage data. Hexadecimal 0x00001388, converting to decimal, is 5000mV, that is, 5.000V.

6.4.2 Readback Current

Reading command: 43 02 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2002	0x01	RO	int	4

Parameter description: reading readback current, unit mA

Returning data: 43 02 20 01 E8 03 00 00

The red part is current data. Hexadecimal 0x000003E8, converting to decimal, is 1000mA, that is, 1.000A.

6.4.3 Readback Power

Reading command: 43 02 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2002	0x02	RO	int	4

Parameter description: reading readback power, unit mW

Returning data: 43 02 20 02 88 13 00 00

The red part is power data. Hexadecimal 0x00001388, converting to decimal, is 5000mW, that is, 5.000W.

6.4.4 Readback Resistance

Reading command: 43 02 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2002	0x03	RO	int	4

Parameter description: reading readback resistance, unit m Ω

Returning data: 43 02 20 03 88 13 00 00

The red part is resistance data. Hexadecimal 0x00001388, converting to decimal, is 5000m Ω , that is, 5.000 Ω .

6.4.5 Readback Quantity of Electric Charge

Reading command: 43 02 20 04 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2002	0x04	RO	int	4

Parameter description: reading readback Quantity of electric charge, unit mAh

Returning data: 43 02 20 04 88 13 00 00

The red part is quantity data. Hexadecimal 0x00001388, converting to decimal, is 5000mAh, that is, 5.000Ah.

6.4.6 Readback Energy

Reading command: 43 02 20 05 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2002	0x05	RO	int	4

Parameter description: reading readback energy, unit Wh

Returning data: 43 02 20 05 88 13 00 00

The red part is energy data. Hexadecimal 0x00001388, converting to decimal, is 5000Wh, that is, 5.000KWh.

6.4.7 Readback Loading Time

Reading command: 43 02 20 06 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2002	0x06	RO	int	4

Parameter description: reading readback loading time, unit ms

Returning data: 43 02 20 06 88 13 00 00

The red part is energy data. Hexadecimal 0x00001388, converting to decimal, is 5000ms, that is, 5.000s.

6.4.8 Readback Temperature

Reading command: 43 02 20 07 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2002	0x07	RO	int	4

Parameter description: reading present temperature, unit °C

Returning data: 43 02 20 07 **88 13 00 00**

The red part is temperature data. Hexadecimal 0x00001388, converting to decimal, is 5.000°C.

6.5 Protection Parameters

6.5.1 Over Voltage Protection

Setting command: 23 04 20 00 00 00 00 00

Reading command: 43 04 20 00 60 EA 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2004	0x00	WR	int	4

Parameter description:

Return of setting command: 60 04 20 00 00 00 00 00

Return of reading command: 43 04 20 00 **60 EA 00 00**

The red part is the current over voltage protection data. Hexadecimal 0x0000EA60, converting to decimal, is 60000mV, that is, 60.000V.

6.5.2 Under Voltage Protection

Setting command: 23 04 20 01 **E8 03 00 00**

Reading command: 43 04 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2004	0x01	WR	int	4

Parameter description:

Return of setting command: 60 04 20 01 00 00 00 00

Return of reading command: 43 04 20 01 **E8 03 00 00**

The red part is under voltage protection data. Hexadecimal 0x000003E8, converting to decimal, is 1.000V.

6.5.3 Over Current Protection

Setting command: 23 04 20 02 40 9C 00 00

Reading command: 43 04 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2004	0x02	WR	int	4

Parameter description:

Return of setting command: 60 04 20 02 00 00 00 00

Return of reading command: 43 04 20 02 40 9C 00 00

The red part is the current over current protection data. Hexadecimal 0x00009C40, converting to decimal, is 40000mA, that is, 40.0A

6.5.4 Over Power Protection

Setting command: 23 04 20 03 40 42 0F 00

Reading command: 43 04 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2004	0x03	WR	int	4

Parameter description:

Return of setting command: 60 04 20 03 00 00 00 00

Return of reading command: 43 04 20 03 40 42 0F 00

The red part is the power over current protection data. Hexadecimal 0x000F4240, converting to decimal, is 1000000mW, that is, 1000W.

6.6 Reading Range

6.6.1 Reading Maximum Voltage Range

Reading command: 43 03 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2003	0x00	RO	int	4

Parameter description: reading the maximum voltage range , unit mV

Returning data: 43 03 20 00 F0 49 02 00

The red part is voltage range data. Hexadecimal 0x000249F0, converting to decimal, is 150000mV, that is, 150.000V. It is subject to the device model. Different models have different maximum voltage ranges.

6.6.2 Reading Maximum Current Range

Reading command: 43 03 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2003	0x01	RO	int	4

Parameter description: reading the maximum current range , unit mA

Returning data: 43 03 20 01 **E0 2E 00 00**

The red part is current range data. Hexadecimal 0x00002EE0, converting to decimal, is 12000mA, that is, 12.000A. It is subject to the device model. Different models have different maximum current ranges.

6.6.3 Reading Maximum Power Range

Reading command: 43 03 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2003	0x02	RO	int	4

Parameter description: reading the maximum output power range , unit mW

Returning data: 43 03 20 02 **A0 BB 0D 00**

The red part is power range data. Hexadecimal 0x0000DBBA0, converting to decimal, is 900000mW, that is, 900.000W. It is subject to the device model. Different models have different maximum power ranges.

6.7 Power Supply Control

6.7.1 ON-OFF Control

Setting command: 2F 05 20 00 **00** 00 00 00

Reading command: 4F 05 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2005	0x00	WR	int	1

Parameter description:

Return of setting command: 60 05 20 00 00 00 00 00

Return of reading command: 4F 05 20 00 00 00 00 00

00 – OFF

01 – ON

6.7.2 Output Setting

Setting command: 2F 05 20 01 00 00 00 00

Reading command: 4F 05 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2005	0x01	WR	int	1

Parameter description:

Return of setting command: 60 05 20 01 00 00 00 00

Return of reading command: 4F 05 20 01 00 00 00 00

Parameter description:

00 - V/I mode

01 - CR loading test mode

02 - SEQ mode

03 - Charge mode

04 - Discharge mode

05 - Slow rise&fall

06 - Car waveform test

07 - Simulated internal resistance

08 - Photovoltaic Simulation

6.7.3 Priority Mode

Setting command: 2F 05 20 02 00 00 00 00

Reading command: 4F 05 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2005	0x02	WR	int	1

Parameter description:

Return of setting command: 60 05 20 02 00 00 00 00

Return of reading command: 4F 05 20 02 00 00 00 00

Parameter description:

00 – CV priority

01 – CC priority

6.7.4 Zero Enable

Setting command: 2F 05 20 03 01 00 00 00

Reading command: 4F 05 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2005	0x03	WR	int	1

Parameter description:

Return of setting command: 60 05 20 03 00 00 00 00

Return of reading command: 4F 05 20 03 01 00 00 00

Parameter description: 00-Zero Enable OFF; 01-Zero Enable ON

6.7.5 Autorun Enable

Setting command: 2F 05 20 06 01 00 00 00

Reading command: 4F 05 20 06 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2005	0x06	WR	int	1

Parameter description:

Return of setting command: 60 05 20 06 00 00 00 00

Return of reading command: 4F 05 20 06 01 00 00 00

Parameter description: 00-Autorun Enable OFF; 01-Autorun Enable ON

6.7.6 Autorun Delay Time

Setting command: 23 05 20 07 88 13 00 00

Reading command: 43 05 20 07 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2005	0x07	WR	int	4

Parameter description:

Parameter description: setting the autorun delay time. The unit is ms. Hexadecimal 0x00001388, converting to decimal, is 5000ms. That is, the setting voltage is 5.000s.

Return of setting command: 60 05 20 07 00 00 00 00

The red portion of the data 60 indicates successful writing. 05 20 indicates main index. 07 indicates sub index.

Return of reading command: 43 05 20 07 88 13 00 00

The red part is setting autorun delay time data. Hexadecimal 0x00001388, converting to decimal, is 5000ms, that is, 5.000s.

6.8 SEQ Edit

6.8.1 SEQ File No.

Setting command: 2F 07 20 00 01 00 00 00

Reading command: 4F 07 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x00	WR	int	1

Parameter description:

SEQ file No. range: 1 - 10

Hexadecimal: 0x01~0x0A

6.8.2 Total Steps

Setting command: 2F 07 20 01 03 00 00 00

Reading command: 4F 07 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x01	WR	int	2

Parameter description:

Total steps range: 0-100

Hexadecimal: 0x01~0x64

Note: The total steps are 100. The total files are 10. If total steps of file number 1 is 100, it is not possible to set file number 2.

6.8.3 Cycle Times

Setting command: 23 07 20 02 02 00 00 00

Reading command: 43 07 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x02	WR	int	4

Parameter description:

File cycle times: 1-60000

Hexadecimal: 0x0001~0xEA60

6.8.4 Link to File

Setting command: 2F 07 20 03 02 00 00 00

Reading command: 4F 07 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x03	WR	int	4

Parameter description:

Link to the required file after the present file is completed.

Link to file range: 0-10

Hexadecimal: 0x01~0x0A

6.8.5 Step No.

Setting command: 2F 07 20 04 03 00 00 00
Reading command: 4F 07 20 04 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x04	WR	int	1

Parameter description:
Step No. range: 1-100
Hexadecimal: 0x01~0x64

6.8.6 Voltage Setting

Setting command: 23 07 20 06 88 13 00 00
Reading command: 43 07 20 06 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x06	WR	int	4

Parameter description: setting voltage for present step
The voltage range is the maximum voltage range supported by the device. Unit is mV.
Hexadecimal 0x00001388, converting to decimal, is 5000mV, that is, 5.000V.

6.8.7 Current Setting in Source Mode

Setting command: 23 07 20 07 E8 03 00 00
Reading command: 43 07 20 07 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x07	WR	int	4

Parameter description: setting current for present step
The current range is the maximum current range supported by the device. Unit is mA.
Hexadecimal 0x000003E8, converting to decimal, is 1000mA, that is, 1.000A.

6.8.8 Current Setting in Load Mode

Setting command: 23 07 20 08 **E8 03 00 00**

Reading command: 43 07 20 08 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x08	WR	int	4

Parameter description: setting current for present step

The current range is the maximum current range supported by the device. Unit is mA.

Hexadecimal 0x000003E8, converting to decimal, is 1000mA, that is, 1.000A.

6.8.9 Power Setting in Source Mode

Setting command: 23 07 20 09 **88 13 00 00**

Reading command: 43 07 20 09 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x09	WR	int	4

Parameter description: Reading power value in source mode. The unit is mW.

Hexadecimal 0x00001388, converting to decimal, is 5000mW.

Return of reading command: 43 07 20 09 **88 13 00 00**

Setting power value in source mode. The unit is mW.

Return of setting command: **60 07 20 09** 00 00 00 00

6.8.10 Power Setting in Load Mode

Setting command: 23 07 20 0A **88 13 00 00**

Reading command: 43 07 20 0A 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x0A	WR	int	4

Parameter description: Reading power value in load mode. The unit is mW.

Hexadecimal 0x00001388, converting to decimal, is 5000mW.

Return of reading command: 43 07 20 0A **88 13 00 00**

Setting power value in load mode.The unit is mW.
 Return of setting command: 60 07 20 0A 00 00 00 00

6.8.11 Dwell Time

Setting command: 23 07 20 0B 88 13 00 00
 Reading command: 43 07 20 0B 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x0B	WR	int	4

Parameter description: Reading dwell time in SEQ mode.
 Hexadecimal 0x00001388, converting to decimal, is 5000ms.
 Return of reading command: 43 07 20 0B 88 13 00 00
 Setting dwell time in SEQ mode.The unit is ms.
 Return of setting command: 60 07 20 0B 00 00 00 00

6.8.12 Data Save for Present Step

Setting command: 2F 07 20 0C 01 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x0C	WR	int	4

Parameter description:
 Return of setting command: 60 07 20 0C 00 00 00 00
 01-Save

6.9 SEQ Test

6.9.1 SEQ File

Setting command: 2F 08 20 00 01 00 00 00
 Reading command: 4F 08 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size

Parameter description: Reads the currently running sequence file. Sequence files are numbered from 1 to 10 , Hexadecimal 0x01 to 0x0A

Return of setting command: 60 08 20 00 00 00 00 00

Return of reading command: 4F 08 20 00 01 00 00 00

The red part is the number of the currently running file.

6.9.2 Running Status

Reading command: 43 08 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x01	RO	int	4

Parameter description: Reads the currently running status.

[7-0]: File No.; [15-8]: currently running file; [31-16]: cycle times

Return of reading command: 43 08 20 01 01 02 03 00

Indicates that the run is in the first step, the currently running file is the second file, and the current cycle times is 3.

6.9.3 Total Steps

Reading command: 4B 08 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x02	RO	int	4

Parameter description:

Return of reading command: 4B 08 20 02 03 00 00 00

Indicates the total steps is 3.

6.9.4 Link to File

Reading command: 4F 08 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x03	RO	int	4

Parameter description:

Return of reading command: 4F 08 20 03 02 00 00 00

Indicates the Link to file : 02

6.9.5 Cycle Times

Reading command: 43 08 20 04 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x04	RO	int	4

Parameter description:

Return of reading command: 43 08 20 04 01 00 00 00

The red part is the cycle times for present step.

6.9.6 Voltage Setting

Reading command: 43 08 20 05 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x05	WR	int	4

Parameter description: reading voltage for present step

The voltage range is the maximum voltage range supported by the device. Unit is mV.

Hexadecimal 0x00001388, converting to decimal, is 5000mV, that is, 5.000V.

Return of reading command: 43 08 20 05 88 13 00 00

6.9.7 Current Setting in Source Mode

Reading command: 43 08 20 06 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2007	0x06	WR	int	4

Parameter description: setting current in source mode

The current range is the maximum current range supported by the device. Unit is mA.

Hexadecimal 0x000003E8, converting to decimal, is 1000mA, that is, 1.000A.

Return of reading command: 43 08 20 06 E8 03 00 00

6.9.8 Current Setting in Load Mode

Reading command: 43 08 20 07 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x07	WR	int	4

Parameter description: setting current for present step in load mode

The current range is the maximum current range supported by the device. Unit is mA.

Hexadecimal 0x000003E8, converting to decimal, is 1000mA, that is, 1.000A.

Return of reading command: 43 08 20 07 **E8 03 00 00**

6.9.9 Power Setting in Source Mode

Reading command: 43 08 20 08 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x08	WR	int	4

Parameter description: Reading power value in source mode. The unit is mW.

Hexadecimal 0x00001388, converting to decimal, is 5000mW.

Return of reading command: 43 08 20 08 **88 13 00 00**

6.9.10 Power Setting in Load Mode

Reading command: 43 08 20 09 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x09	WR	int	4

Parameter description: Reading power value in load mode. The unit is mW.

Hexadecimal 0x00001388, converting to decimal, is 5000mW.

Return of reading command: 43 08 20 09 **88 13 00 00**

6.9.11 Setting Time

Reading command: 43 08 20 0A 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x0A	WR	int	4

Parameter description: Reading setting time in SEQ Test mode.

Hexadecimal 0x00001388, converting to decimal, is 5000ms.

Return of reading command: 43 08 20 0A 88 13 00 00

6.9.12 Dwell Time

Reading command: 43 08 20 0B 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2008	0x0B	RO	int	4

Parameter description: Reading dwell time in SEQ Test mode.

Hexadecimal 0x00001388, converting to decimal, is 1000ms.

Return of reading command: 43 08 20 0B E8 03 00 00

6.10 External Programming

6.10.1 Voltage Setting

Setting command: 2F 06 20 00 00 00 00 00

Reading command: 4F 06 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2006	0x00	WR	int	1

Parameter description:

Return of setting command: 60 06 20 00 00 00 00 00

Return of reading command: 4F 06 20 00 00 00 00 00
00-OFF; 01-ON

6.10.2 Current Setting

Setting command: 2F 06 20 01 00 00 00 00

Reading command: 4F 06 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2006	0x01	WR	int	1

Parameter description:

Return of setting command: 60 06 20 01 00 00 00 00

Return of reading command: 4F 06 20 01 00 00 00 00

00-shut off the current programming

01-shut on current programming in source and load mode

02-shut on current programming in source mode

03-shut on current programming in load mode

6.10.3 Power Setting

Setting command: 2F 06 20 02 00 00 00 00

Reading command: 4F 06 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x2006	0x02	WR	int	1

Parameter description:

Return of setting command: 60 06 20 02 00 00 00 00

Return of reading command: 4F 06 20 02 00 00 00 00

00-shut off the power programming

01-shut on power programming in source and load mode

02-shut on power programming in source mode

03-shut on power programming in load mode

6.10.4 External Control

Setting command: 2F 06 20 03 00 00 00 00

Reading command: 4F 06 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
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0x2006	0x03	WR	int	1
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Parameter description:

Return of setting command: 60 06 20 03 00 00 00 00

Return of reading command: 4F 06 20 03 00 00 00 00

00-shut off the external control

01-toggle

02-hold

6.11 Parallel Setting

6.11.1 Parallel Startup

Setting command: 2F 0A 20 00 01 00 00 00

Reading command: 4F 0A 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200A	0x00	WR	int	1

Parameter description:

Return of setting command: 60 0A 20 00 00 00 00 00

Return of reading command: 4F 0A 20 00 01 00 00 00

00-OFF; 01-ON

6.11.2 Master-Slave Setting

Setting command: 2F 0A 20 01 00 00 00 00

Reading command: 4F 0A 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200A	0x01	WR	int	1

Parameter description:

Return of setting command: 60 0A 20 01 00 00 00 00

Return of reading command: 4F 0A 20 01 00 00 00 00

00 - set to Master

01 - set to Slave1

- 02 - set to Slave2
- 03 - set to Slave3
- 04 - set to Slave4
- 05 - set to Slave5
- 06 - set to Slave6
- 07 - set to Slave7
- 08 - set to Slave8
- 09 - set to Slave9

6.11.3 No. of Slaves

Setting command: 2F 0A 20 02 02 00 00 00

Reading command: 4F 0A 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200A	0x02	WR	int	1

Parameter description:

Return of setting command: 60 0A 20 02 00 00 00 00

Return of reading command: 4F 0A 20 02 02 00 00 00

The red portion is the data of slaves. Hex 0x02, converted to decimal 2, that is, the current 2 slaves.

Note: The number of slaves must first be set by disabling parallel startup.

6.12 Slow Rise&Fall

6.12.1 A. Voltage Setting

Setting command: 23 0B 20 00 88 13 00 00

Reading command: 43 0B 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x00	WR	int	4

Parameter description: setting A. voltage

The voltage range is the maximum voltage range supported by the device. Unit is mV.

Hexadecimal 0x00001388, converting to decimal, is 5000mV, that is, 5.000V.

6.12.2 B. Voltage Setting

Setting command: 23 0B 20 01 **E8 03 00 00**

Reading command: 43 0B 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x01	WR	int	4

Parameter description: setting B. voltage

The voltage range is the maximum voltage range supported by the device. Unit is mV.

Hexadecimal 0x000003E8, converting to decimal, is 1000mV, that is, 1.000V.

6.12.3 C. Voltage Setting

Setting command: 23 0B 20 02 **D0 07 00 00**

Reading command: 43 0B 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x02	WR	int	4

Parameter description: setting C. voltage

The voltage range is the maximum voltage range supported by the device. Unit is mV.

Hexadecimal 0x000007D0, converting to decimal, is 2000mV, that is, 2.000V.

6.12.4 Current Setting

Setting command: 23 0B 20 03 **E8 03 00 00**

Reading command: 43 0B 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x03	WR	int	1

Parameter description: setting the slow rise&fall current. The unit is mA. Hexadecimal 0x000003E8, converting to decimal, is 1000mA, that is, 1.000A.

6.12.5 Power Setting

Setting command: 23 0B 20 04 **88 13 00 00**

Reading command: 43 0B 20 04 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x04	WR	int	4

Parameter description: setting the slow rise&fall power. The unit is mW. Hexadecimal 0x00001388, converting to decimal, is 5000mW, that is, 5.000W.

6.12.6 AB Voltage Slew Setting

Setting command: 23 0B 20 05 **A0 86 01 00**

Reading command: 43 0B 20 05 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x05	WR	int	4

Parameter description: setting AB voltage Slew. The unit is mV/s. Hexadecimal 0x000186A0, converting to decimal, is 100000mV/s, that is, 100.000V/s.

Return of setting command: **60 0B 20 05** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 05 indicates sub index.

6.12.7 BC Voltage Slew Setting

Setting command: 23 0B 20 06 **A0 86 01 00**

Reading command: 43 0B 20 06 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x06	WR	int	4

Parameter description: setting BC voltage Slew. The unit is mV/s. Hexadecimal 0x000186A0, converting to decimal, is 100000mV/s, that is, 100.000V/s.

Return of setting command: **60 0B 20 06** 00 00 00 00

The red portion of the data 60 indicates successful writing. 01 20 indicates main index. 06 indicates sub index.

6.12.8 A. Holding Time Setting

Setting command: 23 0B 20 07 88 13 00 00

Reading command: 43 0B 20 07 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x07	WR	int	4

Parameter description: reading the A. Holding time. The unit is ms. Hexadecimal 0x00001388, converting to decimal, is 5000ms.

Return of reading command: 43 0B 20 07 88 13 00 00

Setting the A. holding time, The unit is ms.

Return of setting command: 60 0B 20 07 00 00 00 00

6.12.9 B. Holding Time Setting

Setting command: 23 0B 20 08 88 13 00 00

Reading command: 43 0B 20 08 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x08	WR	int	4

Parameter description: reading the B. Holding time. The unit is ms. Hexadecimal 0x00001388, converting to decimal, is 5000ms.

Return of reading command: 43 0B 20 08 88 13 00 00

Setting the B. holding time, The unit is ms.

Return of setting command: 60 0B 20 08 00 00 00 00

6.12.10 C. Holding Time Setting

Setting command: 23 0B 20 09 88 13 00 00

Reading command: 43 0B 20 09 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200B	0x09	WR	int	4

Parameter description: reading the C. Holding time. The unit is ms. Hexadecimal 0x00001388, converting to decimal, is 5000ms.

Return of reading command: 43 0B 20 09 88 13 00 00

Setting the C. holding time, The unit is ms.

Return of setting command: 60 0B 20 09 00 00 00 00

6.13 Charge Mode

6.13.1 Voltage Setting

Setting command: 23 0C 20 00 88 13 00 00

Reading command: 43 0C 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200C	0x00	WR	int	1

Parameter description: setting voltage. The unit is mV. Hexadecimal 0x00001388, converting to decimal, is 5000mV. That is, 5.000V.

6.13.2 Current Setting

Setting command: 23 0C 20 01 E8 03 00 00

Reading command: 43 0C 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200C	0x01	WR	int	1

Parameter description: setting current. The unit is mA. Hexadecimal 0x000003E8, converting to decimal, is 1000mA. That is, 1.000A.

6.13.3 Power Setting

Setting command: 23 0C 20 02 88 13 00 00

Reading command: 43 0C 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200C	0x02	WR	int	1

Parameter description: reading power. Hexadecimal 0x00001388, converting to

decimal, is 5000mW.

Return of reading command: 43 0C 20 02 88 13 00 00

Setting the power value, The unit is mW.

Return of setting command: 60 0C 20 02 00 00 00 00

6.13.4 Cutoff Voltage Setting

Setting command: 23 0C 20 03 70 17 00 00

Reading command: 43 0C 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200C	0x03	WR	int	4

Parameter description: setting cutoff voltage. The unit is mV. Hexadecimal 0x00001770, converting to decimal, is 6000mV. That is, 6.000V.

6.13.5 Cutoff Current Setting

Setting command: 23 0C 20 04 D0 07 00 00

Reading command: 43 0C 20 04 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200C	0x04	WR	int	1

Parameter description: setting cutoff current. The unit is mA. Hexadecimal 0x000007D0, converting to decimal, is 2000mA. That is, 2.000A.

6.13.6 Cutoff Power Setting

Setting command: 23 0C 20 05 D0 07 00 00

Reading command: 43 0C 20 05 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200C	0x05	WR	int	4

Parameter description: setting cutoff power. The unit is mAh. Hexadecimal 0x000007D0, converting to decimal, is 2000mAh. That is, 2.000Ah.

6.13.7 Cutoff Time Setting

Setting command: 23 0C 20 06 88 13 00 00

Reading command: 43 0C 20 06 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200C	0x06	WR	int	4

Parameter description: setting cutoff time. The unit is ms. Hexadecimal 0x00001388, converting to decimal, is 5000ms. That is, 5.000s.

6.14 Discharge Mode

6.14.1 Current Setting

Setting command: 23 0D 20 00 E8 03 00 00

Reading command: 43 0D 20 00 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200D	0x00	WR	int	4

Parameter description: setting current. The unit is mA. Hexadecimal 0x000003E8, converting to decimal, is 1000mA. That is, 1.000A.

6.14.2 Power Setting

Setting command: 23 0D 20 01 88 13 00 00

Reading command: 43 0D 20 01 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200D	0x01	WR	int	4

Parameter description: reading power. Hexadecimal 0x00001388, converting to decimal, is 5000mW.

Return of reading command: 43 0C 20 01 88 13 00 00

Setting the power value, The unit is mW.

Return of setting command: 60 0C 20 01 00 00 00 00

6.14.3 Cutoff Voltage Setting

Setting command: 23 0D 20 02 70 17 00 00

Reading command: 43 0D 20 02 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200D	0x02	WR	int	4

Parameter description: setting cutoff voltage. The unit is mV. Hexadecimal 0x00001770, converting to decimal, is 6000mV. That is, 6.000V.

6.14.4 Cutoff Power Setting

Setting command: 23 0D 20 03 D0 07 00 00

Reading command: 43 0D 20 03 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200D	0x03	WR	int	4

Parameter description: setting cutoff power. The unit is mAh. Hexadecimal 0x000007D0, converting to decimal, is 2000mAh. That is, 2.000Ah.

6.14.5 Cutoff Time Setting

Setting command: 23 0D 20 04 88 13 00 00

Reading command: 43 0D 20 04 00 00 00 00

Format

Main Index	Sub Index	Read/Write	Data Type	Byte Size
0x200D	0x04	WR	int	4

Parameter description: setting cutoff time. The unit is ms. Hexadecimal 0x00001388, converting to decimal, is 5000ms. That is, 5.000s.