PowerStream

DATA-CONTROLLED POWER   SUPPLY

——— 3645A-TYPE ———

Operating Manual

PowerStream

3645A-Type Data-controlled Power Supply Operating Manual

1. General Introduction:

3645A-Type Data-controlled Power Supply is a kind of regulated power supply which can output 0~36V voltage and load 0~3A working current. Both voltage and current can be adjusted randomly. The operation is very easy when being used. Voltage, current and power can all be displayed on the LCD. The tableau is distinct and clear.

It is an essential instrument for scientific research, education,, education, vice and so on institutions.

2. Main Technical Index

(1). Output voltage: 0~36V (adjustable). It can be divided into two grades: 0~3.999V,4~36V.

Notes: In the range of 0~3.999V, the voltage set can be accurate to 1mV.

the range of 4~36V, the voltage set can be accurate to 10mV.

(2). The maximum loading current is 3A (adjustable).

The loading current set can be accurate to 1mA.

(3). Voltage Stability: =<0.01 %+3mV (loading =<3A).

(4). Ripple voltage and clutter: Vp-p<=2mVPP.

Explanation:

1. Output IC Power Supply Voltage: 110V/220V $\pm$ 10%

60HZ/50HZ $\pm$ 5%

2. Environment Requirements: Comparative Temperature: <=75RH

Environment Temperature: 0~40°C

3. Appearance Size: 250m $\times$ 212m $\times$ 88m

4. Weight: 6kg

Chapter 1   The Operation Manual

1. LCD Display
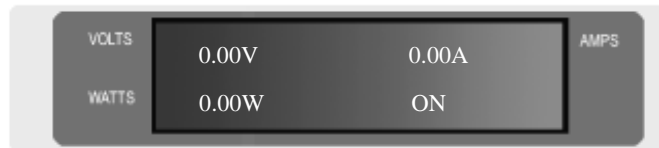

The Left-upper Conner:	The set voltage value.	
	The flashing voltage value means the low-voltage.	
The Left-bottom Conner:	The output power value.	
	The flashing power value means the over power.	
The Right-upper Conner:	The output current value.	
The Right-bottom Conner:	The state value.	
	ON (OFF) presents the output state of the power supply	
	PC (KEY) presents the operation of the keyboard or the computer	

2. The Arrangement of the Key

In common state, the keyboard will execute the prompting functions of the black words.
And in special mode, it will change into the functions of the orange color.
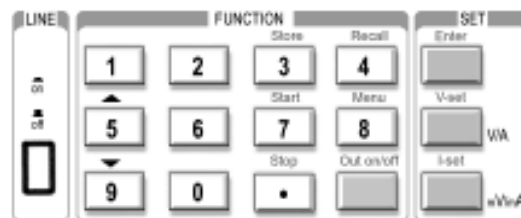
0~9:	The number keys	Menu:	The menu operation key
V-Set:	The output voltage value set	Store:	Save the current setting value
I-Set:	The max output current set	Recall:	Read the saved setting value
Enter:	The confirmation key	OUT ON/OFF:	Start/Stop the output
Up Operation:	The up moving key	Down Operation:	The down moving ke

Left Operation:	The left moving key
Right Operation:	The right moving key
ESC:	The giving-up key. It may used to exit any working state
OK:	The confirmation key and the same f unction as "enter" key
Rotary SW:	The side-to-side rotation key

3. The Brief Introduction of the Function

The main functions:

1. The voltage set
2. The max current set
3. ON/OFF of the power supply output
4. STORE
5. RECALL

The sub-function:

1. The max voltage set
2. Close/Open of the key sound
3. The communication set
4. The keyboard locking function
5. The max power set
6. The save selection set

4. The Operation of the Function

V-Set (the voltage set):

1. In common state and the keyboard unlocking state, rotate the "Rotary SW", the value of the voltage will change.
2. In common state, press "V-Set" key.

Procedure	The Operation Methods	LCD Display
1	Press "V-Set". Turn to the fourth step in the keyboard unlocking state	*****V *****W *****A **
2	Enter the locking password	ENTER PASSWORD_
3	Press "Enter" and return if the password is wrong. Step 2: Reenter the password.	ENTER PASSWORD ****
4	Press "Enter", return and sustain the regional unit. Directly input the voltage value. Or rotate "Rotary SW" to adjust the voltage value.	SET VOLT = *****V NEW =
5	Press "V/mV" to determine the voltage value. Return to step 4 and reenter if the input voltage value is larger than the max voltage set.	SET VOLT = *****V NEW = *****
	By pressing ESC, it will exit the voltage set operation in any procedure.	

I-Set (the set of the current upper limit): 0~3A

Procedure	The Operation Methods	LCD Display
1	Press "I-Set" key. Press "Enter", return and retain the original value	*****V *****W *****A **
2	Directly enter the current value. Or rotate "Rotary SW" to adjust the current value. Press "A/mA" key to determine the current unit.	SET CURR =*****Ma NEW =
3	Return to step 2 and reenter if the input current value is larger than the max current set (3A).	SET CURR =*****Ma NEW =
	By pressing ESC, it will exit the current set operation in any procedure	

STORE (the store operation): 1~10

Procedure	The Operation Methods	LCD Display
1	Press "Store" key	*****V *****W *****A **
2	Directly enter the setting value. Or rotate "Rotary SW" to adjust the set value.	STORE 1

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3	Press "Enter" to confirm the set value. Return to step 2 and reenter if the input set value is larger than 10 or small than 1.	STORE *
By pressing ESC, it will exit store operation in any procedure.		

Users may store 10 sets of power supply equipments. The store contents include: 1.the voltage set, 2. the max current set, 3.the max output voltage set, 4.the keyboard set, 5.the max power set, 6.the communication set and 7.the communication address set.

RECALL (the recall operation): 1~10 sets

Procedure	The Operation Methods	LCD Display
1	Press "Recall" key	*****V *****W *****A **
2	Directly enter the set value. Press side-to-side keys or rotate "Rotary SW" to adjust the set value.	RECALL 1
3	Press "Enter" to confirm the set value. Return to step 2 and reenter if the input setting value is larger than 10 or small than 1.	RECALL *
By pressing ESC, it will exit the recall operation in any procedure.		

Users may recall one of the 10 sets of power supply equipments. The recall contents include: 1.the voltage set, 2.the max current set, 3.the max output voltage set, 4.the keyboard set, 5.the max power set, 6.the communication address set.

OUT ON/OFF (the power supply output set)

After the powering off of the power supply and in the state of close, OUT ON/OFF may be used to change its state and the key is in the rotation state. That is to that, press it in the state of OFF, the output will change into the state of ON; and press it in the state of ON, the output will change into the state of OFF.

MENU (the menu function)

Procedure	The Operation Methods	LCD Display
1	Press "Menu" key	*****V *****W *****A **
2	It may display the selection menu on the LCD. Use the up and down operation keys or "Rotary SW", the functions on the right may be displayed in turn. Press "Enter" key, and it will enter the function at the position of the cursor.	MAX OUT VOLTAGE KEY SOUND SET COMMUNICATION SET ADDRESS SET KEY LOCK MAX OUT POWER SAVE SET EXIT
By pressing ESC, it will exit the menu operation in any procedure.		

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1. MAX OUT VOLTAGE: the max voltage set: (0~36.00)
The following will be displayed on the LCD.

```
MAX VOLT = ****V
NEW =
```

Users may use the up and down operation keys or "Rotary SW" to set the max voltage and press "Enter" key to end this function.

2. KEY SOUND SET
The following will be displayed on the LCD.

```
KEY SOUND ON
KEY SOUND OFF
```

Users may use the up and down operation keys or "Rotary SW" to change the key sound set and press "Enter" key to end this function. KEY SOUND ON means that the key sound is on; and KEY SOUND OFF means that the key sound is off.

3. COMMUNICATION SET: the Buad Set
The following will be displayed on the LCD.

```
BUAD RATE 4800
BUAD RATE 9600
BUAD RATE 19200
BUAD RATE 38400
```

Users may use the up and down operation keys or "Rotary SW" to change the communication set and press "Enter" key to end this function. BUAD RATE 4800 means that the Buad Rate is 4800; BUAD RATE 9600 means that the Buad Rate is 9600; BUAD RATE 19200 means that the Buad Rate is 19200; BUAD RATE 38400 means that the Buad Rate is 38400.

4. ADDRESS SET: the communication address set (0~254)
The following will be displayed on the LCD.

```
SET ADDRESS = ***
NEW =
```

Users may use the keyboard or "Rotary SW" to set the communication address and press "Enter" key to end this function.

5. KEY LOCK
The machine entering the KEY LOCK menu selection,
the following will be displayed on the LCD.

```
ENTER PASSWORD

_
```

Users may enter a four-digit password by using keyboard or acquire English letters or ASCII Codes as password by using the side-to-side keys or "Rotary SW" to and press "Enter" key to end this function.

Notes: When the machine entering the KEY LOCK menu selection, press "Enter" directly to cancel the key locking function. The master-password of the data-controlled power supply is 1556.

6. MAX OUT POWER (the power upper limit set: 0~108.0)
The following will be displayed on the LCD.

MAX POWER = ****V

NEW =

Users may use keyboard or "Rotary SW" to set the voltage upper limit and press "Enter" key to end this function.

7. SAVE OPTION (the save option set)
The following will be displayed on the LCD.

SAVE VOLTAGE

DON'T SAVE VOLTAGE

Users may use the up and down operation keys or "Rotary SW" to change the key sound set and press "Enter" key to end this function. SAVE VOLTAGE means to save the finally set voltage and DON'T SAVE VOLTAGE means not to save the set voltage.

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Chapter 2   System Installation

1. System Installation

1.1 Put the disk into the CDROM drive. Then the system will run automatically and the initial diagram as in Fig. 1-1 will be displayed.

Fig.1-1 The Installation Initial Interface

1.2 Then it will enter the interface as in Fig. 1-2. Press "NEXT" to continue.

Fig. 1-2 The Installation Interface 2

1.3 In Fig. 1-3, there is some explanation to some products' introduction. Read it and press "YES" to continue, otherwise there will be no way to install.
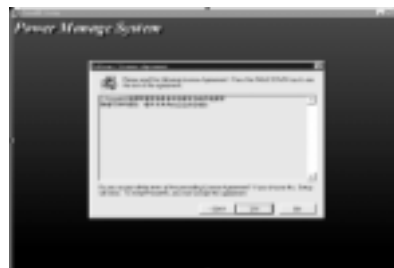
Fig. 1-3 The Installation Interface 3

1.4 In Fig. 1-4, click "BROWSE" to select installation directory path. The default directory path is "C:\Program Files\Array\PowerMS"

Fig. 1-4 The installation Interface 4 The Installation Directory Path Set

1.5 In Fig. 1-5, users may select the installation type. Generally, select "TYPICAL" and click "NEXT" to continue.

Fig. 1-5 The Installation Interface 5

1.6 In Fig. 1-6, enter the file folder's name and the default name is "POWERMS". Generally it is not needed to enter and it is just need to click "NEXT".
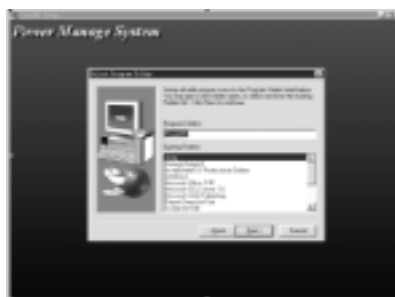
Fig. 1-6 The Installation Interface 6

1.7 Click "NEXT" and the installation system will enter the files' copying state. Please wait patiently for the end of the files' copying. Then the PowerMS system installation is finishing.

Fig. 1-7 The Installation Interface 7 The Files' Copying

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2. System Start

2.1 In Fig. 2-1, select the file folder of "Start | Program | Array". And then click the "PowerMS" in the menu.

Fig. 2-1 The System Start Interface

2.2 Enter the initial interface as shown in Fig. 2-2.

Fig. 2-2 The System Start Diagram

2.3 Wait for the end of the system initialization and then it will enter the main interface as shown in Fig. 2-3.
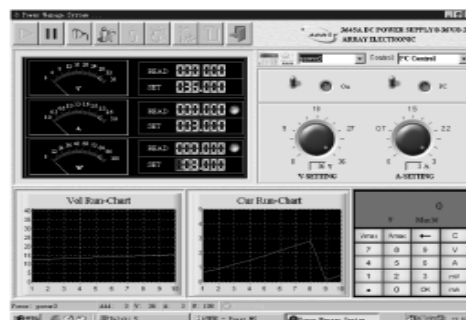
Fig. 2-3 The PowerMS Main Interface

Explanation:

1. Every time the PowerMS system is started, it will automatically in the minimized state. And at this time the icon ⬣ is in the state bar on the desk. Click the right key of the mouse on the icon, the menu as shown in Fig. 2-4 will be displayed.

Fig. 2-4

"Show": Show the interface.

"Hide": Hide the interface.

"Start Communicate": Start the communication.

"Stop Communicate": Stop the communication.

"About PMS": Show the help contents.

"Exit System": Close the system. (And users must register before.)

2. If the system is started from the program file folder, it will be at the maximized state.

3. System Uninstallation

It is only need to select " [Uninstall PowerMS] "in the program file folder. And it must be done after the closing of the system otherwise there will be no way to uninstall.

Chapter 3 The Function Introduction

3.1 Users' Login

When the system is first entered, it is set to be in the lowest limit of authority state. At this time, only the COM port set and the POWER selection can be carried out, and other function cannot be used. So users must login and operate and it guarantees the security of the system.

Select the icon [image] and the interface as shown in Fig. 3-1 will be displayed. After the first time installation, the system will provide with two users: the "Manager" and the "Lowest" for you to select. Selecting "Manager", entering the password "0001" and then clicking "OK", in this way the system will have all the functions.

Explanation: "Manager" is the user of management; "Lowest" is the user of the lowest limit of authority. And the two users are retained by the system.
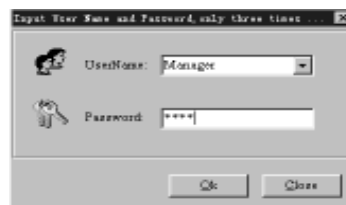
Fig.3-1 The User Login Interface

3.2 The Definition of the Power Supply

Select the function item [image] and then the interface as shown in Fig. 2-3 will be displayed.
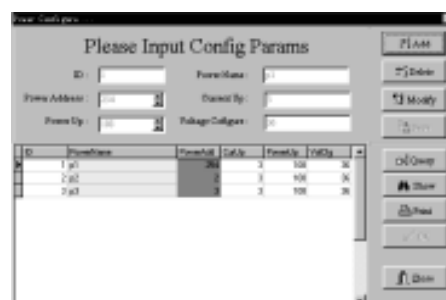

Fig. 3-2 The Power Definition Interface

Add: Select "Add" in the function items and then input the contents of each item. After the
set of the input, it is just needed to select "Save" to save it.

Delete: Select the POWER record to be deleted in the table and then select "Delete". Finally
select "Save" and it will be OK.

Modify: Select the POWER record to be modified in the table and then select "Modify" to
modify it. After the modification, select "Save" and it will be OK.

Query: Select "Query" and then wait for the name of the power supply to be queried.

Show: Select "Show" and it will show all the records.

Print: Select "Print" and it will print all the current records.

Parameter Explanation

Parametrer	Explanation	Range	Remarks
Power Name	Name Of the Power Supply		Must be Input
Current Up	The Max Current	0~3A	Must be Input
Power Up	The Max Power	0~108W	Must be Input
Voltage Configure	The Max Voltage	1~36V	Must be Input
Configure			
ID	The ID Number		No Consideration

Notes: When selecting the "Add" function item to add POWER, the name and address of the POWER cannot be repeated. After entering all the information, click "OK" and the dialogue frame as shown in Fig. 3-3 will be displayed. In Fig.3-3, select "YES" and the system will close and restart.
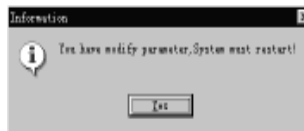
Fig. 3-3 System Prompt the restart

3.3 The COM Port and Lower Machine (Power Supply) Address Set

Login in the identity of "Manager" and then select the quick icon   after the system restarts. The dialogue frame as shown in Fig.3-4 will be displayed.
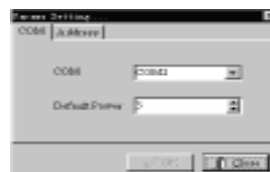

Fig. 3-4 COM Port and address set

In Fig. 3-4, select the page key "COM" and select the COM port from the pull-down table. If the COM port does not exit, the system will prompt the diagram as shown in Fig. 3-5. And the "OK" button and the page key "AD-DRESS" are out of work. And vice versa. (And users must be in the identity of the "Manager" otherwise the "ADDRESS" cannot be used.

Fig. 3-5 COM Port Failurely Opening Dialogue Frame

Set Default POWER Address:

The system will automatically be in the networking state after the start according to the default COM port and the default POWER. It is just needed to enter the address in the "Default POWER" bar.

Set POWER Address:

Login in the identity of the "Manager" and select the existing COM port. Then the "ADDRESS" page key will be available.

Fig. 3-6 POWER Address Set

In Fig. 3-6, enter the default address (245) of the lower machine and then click "READ". If testing successfully, the "NEW ADDRESS" and "WRITE" functions will be available. If testing failure, then the new address of the power cannot be set and the prompting diagram as shown in Fig. 3-7 will be displayed. This time the communication cable must be checked.

Fig. 3-7 Communication Failure

Explanation: For the first time installation each POWER must be deployed with but one address so as to communicate rightly. Set the parameter and select "OK" and it will enter into the common communication. The default COM port is COM1 and the default POWER address is 1.

3.4 Run the Communication

After the COM port and ADDRESS set, select the button ▷ and the system will start the communication. If the communication is normal, the prompting information as shown in Fig. 3-8 will be displayed. And if the communication is failure, the prompting information as shown in Fig. 3-9 will be displayed.

Fig. 3-8 Normal Communication   Fig.3-9 Failure Communication

3.5 Stop the Communication

Select the button ❚❚ and the system will stop the communication.

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3.6 Select POWER

In Fig. 3-10, select the POWER name from the listing frame and it will be OK.

Fig. 3-10 Selecting the POWER

3.7 Select PC to POWER Control Instructions

1.) Methods 1

As in Fig. 3-11, there are four control instructions in total.

CLOSE POWER   OPEN POWER

PC CONTROL   POWER SELF

Fig. 3-11-1 Select the Control Instruction

Explanation: The system defaulting control instruction is the PC CONTROL state. And when the system is closed or the POWER is switching, the system will automatically set to POWER SELF state.

2.) Methods 2

POWER ON/OFF Set   POWER Control Set
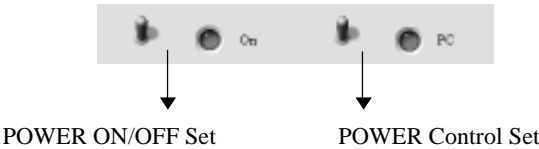
Fig. 3-11-2 Selecting Control Instruction

3.8 Set the Voltage Range

There are two methods to set the voltage range: one is by using the rotary button (1~36) and the other is by using the keyboard (0.004~36.000). If you want to set accurately, please use the keyboard. In general state, you can use the rotary button.

Fig. 3-12 Using the Rotary Button   Fig. 3-13 Using the Keyboard

1) Using the rotary button: Move the mouse to the icon   and then rotate the button.

2) Using the keyboard: Select the "V" button, enter the data and then select the "OK" button.

3.9 Set the Max Current

There are two methods to set the voltage range: one is by using the rotary button (1~36) and the other is by using the keyboard (0.004~36.000). If you want to set accurately, please use the keyboard. In general state, you can use the rotary button.

Fig. 3-14   Fig. 3-15

1) Using the rotary button: Move the mouse to the icon and then rotate the button.

2) Using the keyboard: Select the "A" button, enter the data and then select the "OK" button.

Explanation: User to do this set must have the authority above the "General".

3.10 Users' Manage

For the security of the system, the manager must set a login user name and a password for each operator. (This can only be done by the manager.)

Select the button and the interface as shown in Fig. 3-16 will be displayed.
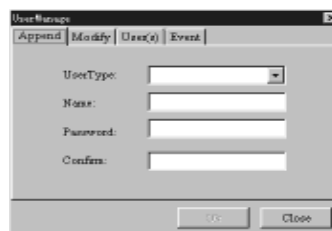
Fig. 3-16 Users Manage

1.) Append User

Select the page key "APPEND" and the user type (generally is "General"). Enter the user's name (cannot be blank) and the password twice (must be the same) and then click "OK".

Explanation: "General" is the general user; "Lowest" is the user of the lowest limit of authority.

2.) Modify the User's Name and Password

In Fig. 3-17, select the user name and enter the password. Then enter a new user name (cannot be blank) and a new password twice (must be the same). After the entering, press "OK".
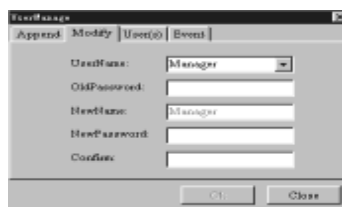
Fig. 3-17 Modify the Password and the Name

Explanation: The user "Lowest" is retained by the system and cannot be modified.

3.) Query User(s)

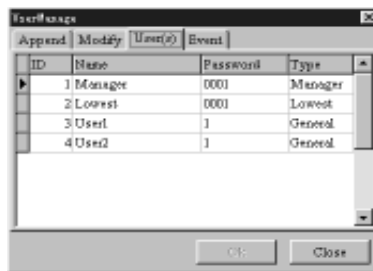Select the page key "USER(S)", the dialogue frame as shown in Fig. 3-18 will be displayed.

Fig. 3-18 Query the User(s)

If you want to delete the user, select the user from the listing table and click "Delete". Then the confirmation dialogue frame will be displayed for you to confirm. In Fig. 3-19, if you select "YES", the user will be deleted. And if you select "NO", the deletion will be given up.

Fig. 3-19 Deleting User Prompting

Explanation: "Manager" and "Lowest" are retained by the system and cannot be deleted.

4.) Event

Select the page key "EVENT" and the dialogue as shown in Fig. 3-20 will be displayed. It is mainly used to query the users' login and logout times so as to manage conveniently. If you want clear records, select "CLEAR" and "YES" in the prompting confirmation dialogue frame.

Fig. 3-20 Clearing Data Prompting
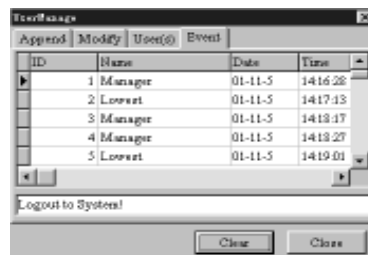
Fig. 3-21 User Operating Information

Click the right key of the mouse and query according to the users' name or date. And the following dialogue will be displayed.

Fig. 3-22

Query – Name: Query according to the user's name.

Query – Date: Query according to the date.

Name and Date: Query according to the name and date.

Show all: Show all the information about the users.

3.11 Query the Report

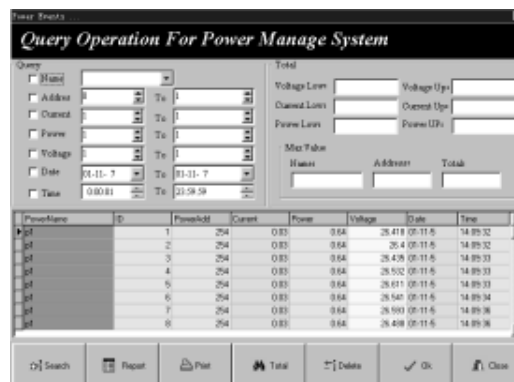Select the button and the diagram as shown in Fig. 3-23 will be displayed.

Fig. 3-23 Query the Report

1.) Set the Query Conditions: Set the parameters in the "Query" frame.

2.) Query: After setting the conditions, select "SEARCH" button and all the records agreed with the conditions will be listed.

3.) Set the Report: Select "REPORT' and it will be OK.

4.) Print the Report: Select "PRINT" and it will be OK.

5.) Query Totally: Select "TOTAL" and it will be OK. The date range must be selected and the other conditions cannot be selected. Its main function is to analyze several POWER so as to list the POWER that overflow the most data. The overflowing data includes the voltage overflowing, the current overflowing and the power overflowing.

6.) Delete the History Record: Select "DELETE" and the diagram as shown in Fig. 3-24 will be displayed. If you confirm to delete, select "YES" and it will be OK.

Fig. 3-24 Delete the History Data

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Explanation: The date range condition must be set.

7.) Close: Select "CLOSE" and return to the upper-interface.

3.12 Explanation of the Interface Indicating Components

1.) Instrument Part

The Voltage Value ⟵ Voltage Set Value
(Accuracy rate: 2 digits) (Accuracy rate: 5 digits)
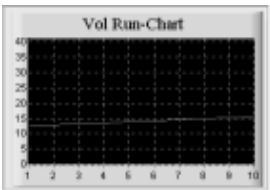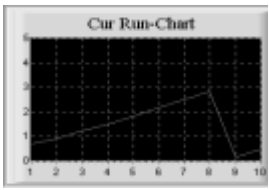
Common Data: Green

Overflowing Data: Red

Fig. 3-25 Instrument Indication

Common Date and Overflowing Data are both in the normal communication state.

2.) Running Curve: Indicates the data acquired at the nearest 10 ports.

3.13 The State Bar

The Voltage Running Diagram   The Current Running Diagram

3.) Keyboard Explanation

Number Keys: 0-9   ".": the point key
"C": the clearing key   "←": the backspace key
"V": the voltage setting key (Unit: V 0~36.000)
"A": the current setting key (Unit: A 0~3.000)
"mV": the voltage setting key (Unit: mV 0~36000)
"mA": the current setting key (Unit: mA 0~3000)
"Vmax": input the max voltage value (36V)
"Amax": input the max current value (3A)
"OK": the confirmation key

Panel Part:

Fig. 3-26
Keyboard Explanation

V: presents the current voltage set state (Unit: V).

Max 36: presents that the max set voltage value is 36.

0: the current set value

3.14 Help

Power: p3: presents the current selected POWER.

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Add: 3: presents the POWER address.

V: 36: presents the defined voltage max value.

A: 3: presents the defined current max value.

W: 108: presents the defined power max value.

Sending: presents the operation state.

3.15 Logout User

Click the icon and the help diagram as shown in Fig. 3-26 will be displayed.

Fig. 3-27 Help Interface

It main includes the information about the Http and the e-mail addresses of Company and so on.

Select the icon and the system will automatically be in the lowest limit of authority. User must login again for the operation. When leaving, the user must carry out the canceling operation, especially the manager.

3.16 Power Supply State Indication

1. Overloading current indication:

    Blue presents normal.   Red presents overloading.

2. Overloading power indication:

    Blue presents normal.   Red presents overloading.

3. Power supply ON/OFF state

Blue presents OFF.   Red presents ON.

4.Power supply control type:

Blue presents CONROL SELF.   Red presents PC CONTROL.

3.17 Exit the System

Select the icon . To do this, you must login first, otherwise the system cannot be closed.

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