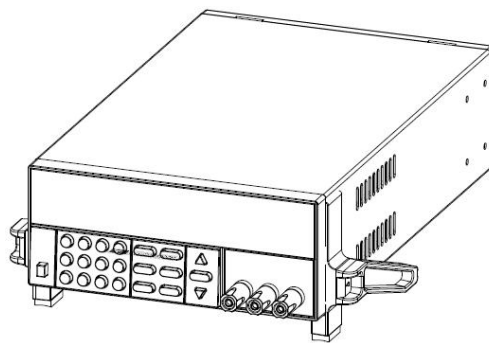


Programmable DC Power Supply

IT6800 Series User Manual



Model: IT6821/IT6822/IT6823
/IT6831/IT6832/IT6833/IT6834
Version: V1.1

Notices

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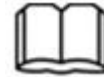
Safety Notices

CAUTION

A CAUTION sign denotes a hazard. It calls attention to an operating procedure or practice that, if not correctly performed or adhered to, could result in damage to the product or loss of important data. Do not proceed beyond a CAUTION sign until the indicated conditions are fully understood and met.

WARNING

A WARNING sign denotes a hazard. It calls attention to an operating procedure or practice that, if not correctly performed or adhered to, could result in personal injury or death. Do not proceed beyond a WARNING sign until the indicated conditions are fully understood and met.



NOTE

A NOTE sign denotes important hint. It calls attention to tips or supplementary information that is essential for users to refer to.

Quality Certification and Assurance

We certify that series IT6800 power supply meets all the published specifications at time of shipment from the factory.

Warranty

ITECH warrants that the product will be free from defects in material and workmanship under normal use for a period of one (1) year from the date of delivery (except those described in the Limitation of Warranty below).

For warranty service or repair, the product must be returned to a service center designated by ITECH.















- The product returned to ITECH for warranty service must be shipped PREPAID. And ITECH will pay for return of the product to customer.
- If the product is returned to ITECH for warranty service from overseas, all the freights, duties and other taxes shall be on the account of customer.


Limitation of Warranty

This Warranty will be rendered invalid in case of the following:

- Damage caused by circuit installed by customer or using customer own products or accessories;
- Modified or repaired by customer without authorization;
- Damage caused by circuit installed by customer or not operating our products under designated environment;
- The product model or serial number is altered, deleted, removed or made illegible by customer;
- Damaged as a result of accidents, including but not limited to lightning, moisture, fire, improper use or negligence.

Safety Symbols

| | | | |
|---|--|---|--------------------|
|  | Direct current |  | ON (power on) |
|  | Alternating current |  | OFF (power off) |
|  | Both direct and alternating current |  | Power-on state |
|  | Protective conductor terminal |  | Power-off state |
|  | Earth (ground) terminal |  | Reference terminal |
|  | Caution, risk of electric shock |  | Positive terminal |
|  | Warning, risk of danger (refer to this manual for specific Warning or Caution information) |  | Negative terminal |

| | | | |
|---|---------------------------|---|---|
|  | Frame or chassis terminal | - | - |
|---|---------------------------|---|---|

Safety Precautions

The following safety precautions must be observed during all phases of operation of this instrument. Failure to comply with these precautions or specific warnings elsewhere in this manual will constitute a default under safety standards of design, manufacture and intended use of the instrument. ITECH assumes no liability for the customer's failure to comply with these precautions.

WARNING

- Do not use the instrument if it is damaged. Before operation, check the casing to see whether it cracks. Do not operate the instrument in the presence of inflammable gasses, vapors or dusts.
- The power supply is provided with a three-core power line during delivery and should be connected to a three-core junction box. Before operation, be sure that the instrument is well grounded.
- Make sure to use the power cord supplied by ITECH.
- Check all marks on the instrument before connecting the instrument to power supply.
- Use electric wires of appropriate load. All loading wires should be capable of bearing maximum short-circuit current of power supply without overheating. If there are multiple electronic loads, each pair of the power cord must be capable of bearing the full-loaded rated short-circuit output current
- Ensure the voltage fluctuation of mains supply is less than 10% of the working voltage range in order to reduce risks of fire and electric shock.
- Do not install alternative parts on the instrument or perform any unauthorized modification.
- Do not use the instrument if the detachable cover is removed or loosen.
- To prevent the possibility of accidental injuries, be sure to use the power adapter supplied by the manufacturer only.
- We do not accept responsibility for any direct or indirect financial damage or loss of profit that might occur when using the instrument.
- This instrument is used for industrial purposes, do not apply this product to IT power supply system.
- Never use the instrument with a life-support system or any other equipment subject to safety requirements.

CAUTION

- Failure to use the instrument as directed by the manufacturer may render its protective features void.
- Always clean the casing with a dry cloth. Do not clean the internals.
- Make sure the vent hole is always unblocked.

Environmental Conditions

The instrument is designed for indoor use and an area with low condensation. The table below shows the general environmental requirements for the instrument.




| Environmental Conditions | Requirements |
|--------------------------|------------------------------|
| Operating temperature | 0°C to 40°C |
| Operating humidity | 20%-80% (non-condensation) |
| Storage temperature | -20°C to 70 °C |
| Altitude | Operating up to 2,000 meters |
| Pollution degree | Pollution degree 2 |
| Installation category | II |



Note

To make accurate measurements, allow the instrument to warm up for 30 min before operation.

Regulatory Markings

| | |
|---|---|
|  | The CE mark indicates that the product complies with all the relevant European legal directives. The specific year (if any) affixed refers to the year when the design was approved. |
|  | The instrument complies with the WEEE Directive (2002/96/EC) marking requirement. This affixed product label indicates that you must not discard the electrical/electronic product in domestic household waste. |
|  | This symbol indicates the time period during which no hazardous or toxic substances are expected to leak or deteriorate during normal use. The expected service life of the product is 10 years. The product can be used safely during the 10-year Environment Friendly Use Period (EFUP). Upon expiration of the EFUP, the product must be immediately recycled. |

Waste Electrical and Electronic Equipment (WEEE) Directive



2002/96/EC Waste Electrical and Electronic Equipment (WEEE) Directive

This product complies with the WEEE Directive (2002/96/EC) marking requirement. This affix product label indicates that you

must not discard the electrical/electronic product in domestic household waste.

Product Category

With reference to the equipment classifications described in the Annex I of the WEEE Directive, this instrument is classified as a “Monitoring and Control Instrument”.

To return this unwanted instrument, contact your nearest ITECH office.

Compliance Information

Complies with the essential requirements of the following applicable European Directives, and carries the CE marking accordingly:

- Electromagnetic Compatibility (EMC) Directive 2014/30/EU
- Low-Voltage Directive (Safety) 2014/35/EU

Conforms with the following product standards:

EMC Standard

IEC 61326-1:2012/ EN 61326-1:2013 ¹²³

Reference Standards

CISPR 11:2009+A1:2010/ EN 55011:2009+A1:2010 (Group 1, Class A)
IEC 61000-4-2:2008/ EN 61000-4-2:2009
IEC 61000-4-3:2006+A1:2007+A2:2010/ EN 61000-4-3:2006+A1:2008+A2:2010
IEC 61000-4-4:2004+A1:2010/ EN 61000-4-4:2004+A1:2010
IEC 61000-4-5:2005/ EN 61000-4-5:2006
IEC 61000-4-6:2008/ EN 61000-4-6:2009
IEC 61000-4-11:2004/ EN 61000-4-11:2004

1. The product is intended for use in non-residential/non-domestic environments. Use of the product in residential/domestic environments may cause electromagnetic interference.
2. Connection of the instrument to a test object may produce radiations beyond the specified limit.
3. Use high-performance shielded interface cable to ensure conformity with the EMC standards listed above.

Safety Standard

IEC 61010-1:2010/ EN 61010-1:2010

CONTENT

| | |
|--|-----------|
| Quality Certification and Assurance | I |
| Warranty | I |
| Limitation of Warranty | I |
| Safety Symbols | I |
| Safety Precautions | II |
| Environmental Conditions | III |
| Regulatory Markings | III |
| Waste Electrical and Electronic Equipment (WEEE) Directive | III |
| Compliance Information | V |
| Chapter1 Inspection and Installation | 7 |
| 1.1 Verifying the Shipment | 7 |
| 1.2 Instrument Size Introduction | 7 |
| 1.3 Adjustment of Handle | 9 |
| 1.4 Disassembly of Handle | 9 |
| 1.5 Rack Mounting | 9 |
| 1.6 Connecting the Power Cord | 9 |
| 1.7 Connecting Test Lines (Optional) | 10 |
| Chapter2 Quick Start | 12 |
| 2.1 Brief Introduction | 12 |
| 2.2 Front Panel Introduction | 13 |
| 2.3 Keypad Introduction | 13 |
| 2.4 Display Annunciators | 14 |
| 2.5 Rear Panel Introduction | 15 |
| 2.6 Power-on Selftest | 15 |
| 2.7 Output Verification | 17 |
| Chapter3 Functions and Characteristics | 19 |
| 3.1 Front-Panel Operation | 19 |
| 3.2 Constant Voltage Operation | 19 |
| 3.3 Constant Current Operation | 20 |
| 3.4 Saving and Recalling Operation | 21 |
| 3.5 Output On/Off Operation | 21 |
| 3.6 Menu Operation | 22 |
| Chapter4 Remote Operation | 24 |
| 4.1 Communication Cable | 24 |
| 4.2 Communication Between Power Supply and PC | 25 |
| Chapter5 Specifications | 26 |
| 5.1 Specifications | 26 |
| 5.2 Supplementary Characteristics | 28 |
| Appendix | 30 |
| Specifications of Red and Black Test Lines | 30 |

Chapter1 Inspection and Installation

1.1 Verifying the Shipment

Unpack the box and check the contents before operating the instrument. If wrong items have been delivered, if items are missing, or if there is a defect with the appearance of the items, contact the dealer from which you purchased the instrument immediately. The package contents include:

Checklist of Package Contents:

| Item | Qty. | Model | Remarks |
|------------------------------|------|-------------------------------------|--|
| Programmable DC Power Supply | x1 | IT6800 Series | IT6800 series include: IT6821/IT6822/IT6823 /IT6831/IT6832/IT6833 /IT6834 |
| Power cord | x1 | IT-E171/IT-E172/ IT-E173/IT-E174 | User may select an appropriate power cord that matches the specifications of power socket used in the area. See the Section Connecting the Power Cord for details. |
| Calibration Certificate | x1 | - | It is the test report of the instrument before delivery. |



NOTE

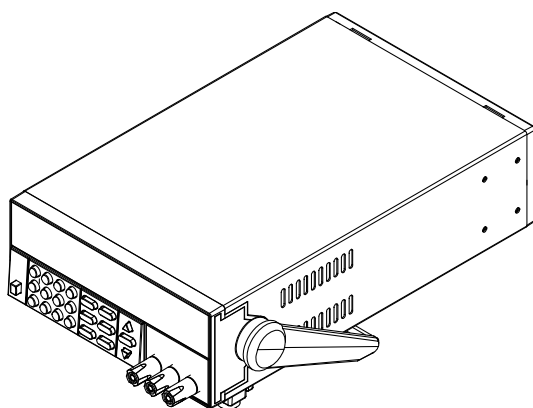
Upon verification of the shipment, keep the package and relevant contents thereof in a safe place. When returning the instrument for warranty service or repair, the specified packing requirements shall be met.

1.2 Instrument Size Introduction

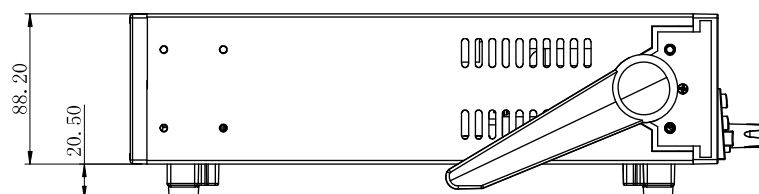
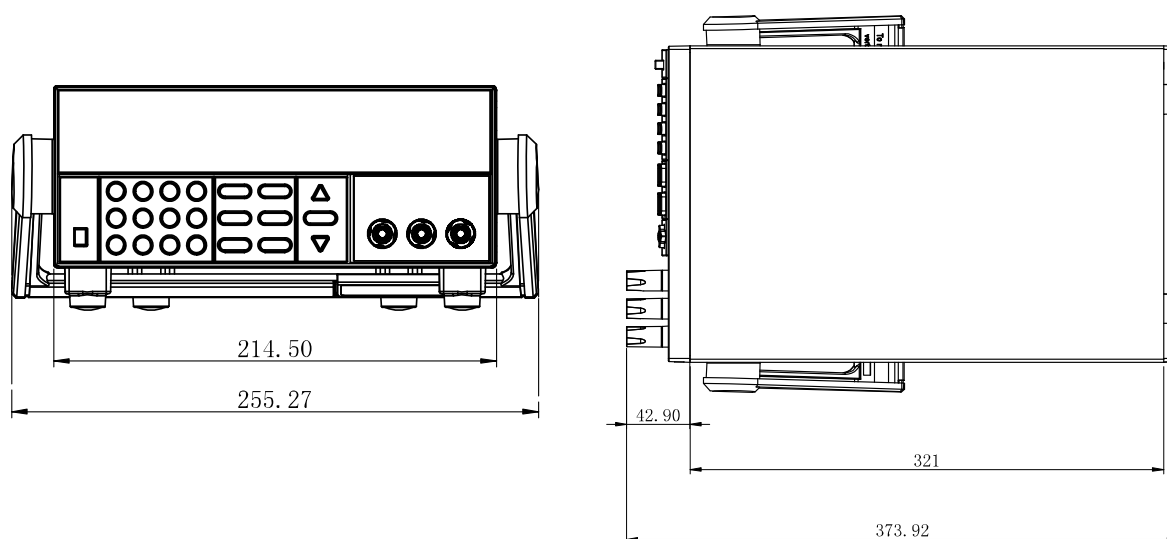
The instrument should be installed at well-ventilated and rational-sized space. Please select appropriate space for installation based on the power supply size.

The detailed sizes of IT6800 series power supply are shown as below. (Unit: mm, allowable deviation value: $\pm 1\text{mm}$)

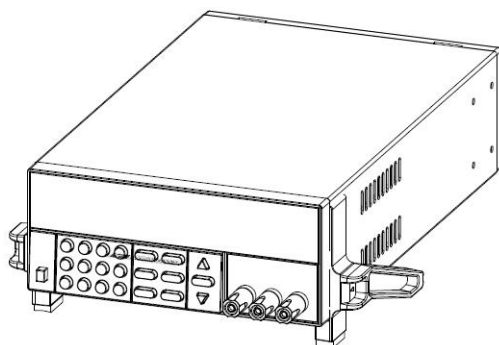
IT6821/IT6822/IT6823 /IT6831/IT6832/IT6833 Model



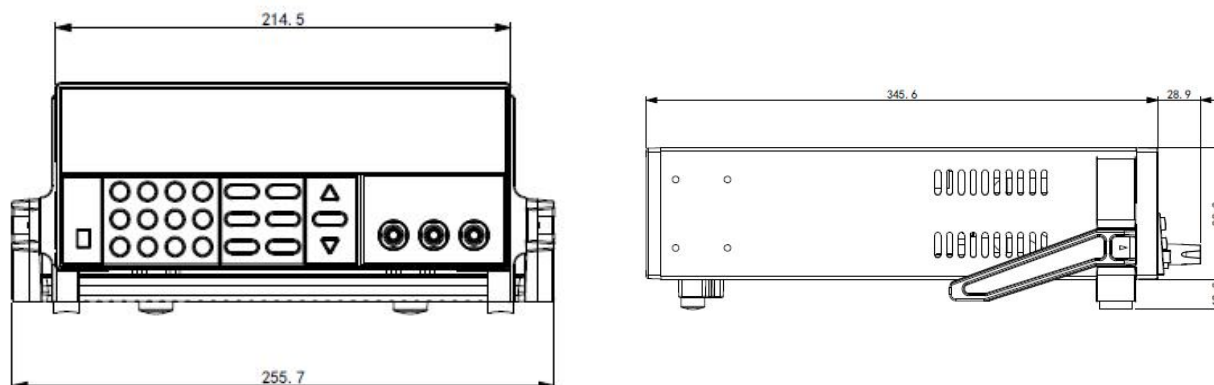
Detailed Dimension Drawing



IT6834 Model



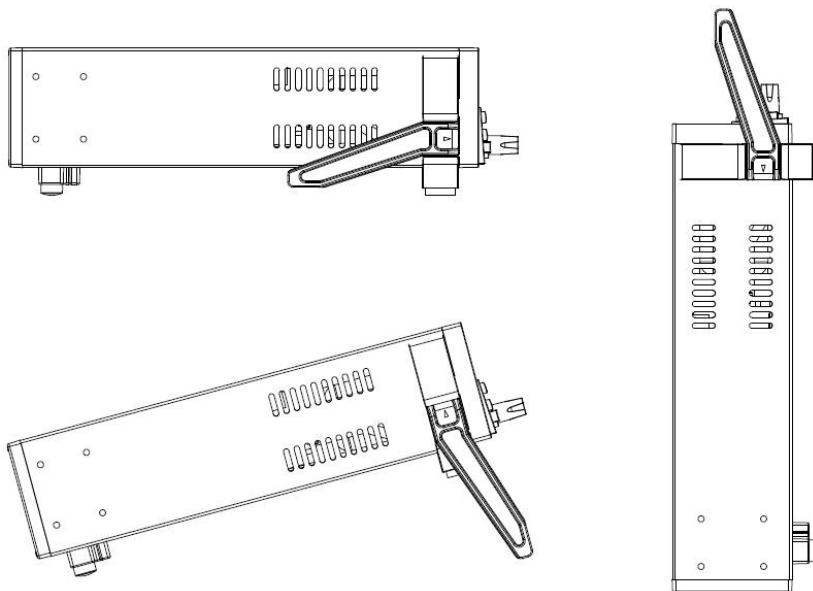
Detailed Dimension Drawing



1.3 Adjustment of Handle

IT6800 series power supplies are equipped with a handle for user to easily carry and place it.

The power supply handle may be adjusted based on three methods (as shown in icons below). Be sure that appropriate force is applied to adjust the power supply handle to appropriate position.



1.4 Disassembly of Handle

Please disassemble the load handle before installing equipment on the support.

Disassembly steps:

1. Rotate the handle to the desired position.



NOTE

To easily disassemble handle, align the locking mouth and locking device, which is between the handle and the instrument

2. Align the locking mouth, and pull out the handle towards two sides.



NOTE

Do not use too much force and mind your hands during disassembly of power supply handle.

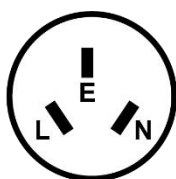
1.5 Rack Mounting

This instrument can be installed on standard 19-inch rack. ITECH provides user with IT-E151/IT-E151A rack, as an optional mount kit. The detailed operation please refer to the User Manual of your mount kit.

1.6 Connecting the Power Cord

Connect the power cord after checking that the power switch of the instrument is turned OFF. Only use the power cord supplied as a standard accessory.

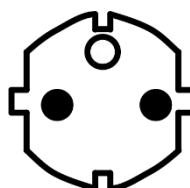
Select from the following Schedule of Power Cord Specifications an appropriate power cord that matches the voltage for the area in which you use the instrument. If the power cord included in the instrument you purchased does not match the voltage, contact the dealer or manufacturer for change.



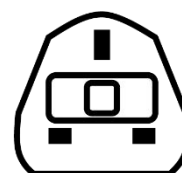
China
IT-E171



United States &
Canada & Japan
IT-E172



Europe
IT-E173



England
IT-E174

1.7 Connecting Test Lines (Optional)

Test lines are not standard accessories of the instrument. Please select optional red and black test lines for individual sales based on the maximum current value. For specifications of test lines and maximum current values, refer to "Specifications of Red and Black Test Lines" in "Appendix".

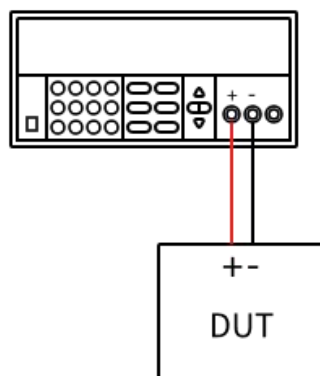
WARNING

- Before connecting test lines, be sure to switch off the instrument. Power switch is in Off position. Otherwise, contact with output terminals in rear panel may cause electrical shock.
- To avoid electrical shock, before testing, please make sure the rating values of the testing lines, and do not measure the current that higher than the rating value. All test lines shall be capable of withstanding the maximum short circuit output current of the power supply without causing overheat.
- If several loads are provided, each pair of load wires shall safely withstand the rated short circuit output current of the power supply under full load.
- Always use test lines provided by ITECH to connect the equipment. If test lines from other factories are used, please check that the test line can withstand maximum current.
- During wiring, check that the anode and cathode of the test lines are properly and tightly connected; anode ON and cathode OFF are prohibited.

Connecting the DUT

1. Before connecting the test lines, be sure that the instrument Power is in Off position.
2. One end of the red and black test lead is connected to the instrument's front panel output terminals.
3. Connect the other end of the red and black test leads directly to the terminals of the object to be tested.

As pictured:



Chapter2 Quick Start

This chapter introduces the front panel, the rear panel, key functions and VFD display function of the power supply, make sure that you can quickly know the appearance, instruction and the key function before you operate the load, Help you make better use of this series of power supply.

2.1 Brief Introduction

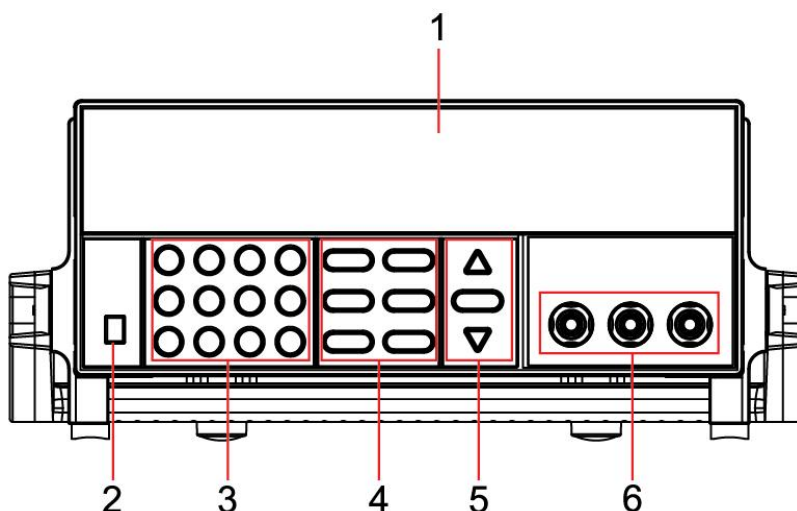
IT6800 Series power supplies are high performance single-output programmable DC power supplies with communication interfaces. The combination of bench-top and system features in these power supplies provides versatile solutions for your design and test requirements. Furthermore, ITECH provides free software PV6800 to monitor the power supply in computer, which can bring more convenience for your use.

- High-visibility vacuum fluorescent display (VFD)
- Digital keypad operation
- Optional communication interfaces
- Output on/off control
- High accuracy and high resolution
- Low ripple and low noise
- Over voltage/current/temperature protection
- Sixteen operating states storage
- Intelligent fan control, energy conservation, noise reduction
- Built-in buzzer as a warning prompt
- Output voltage and current values accordance with procedure
- Can be monitored by computer software

| Model | Voltage | Current | Power |
|--------|---------|---------|-------|
| IT6821 | 18V | 5A | 90W |
| IT6822 | 32V | 3A | 96W |
| IT6823 | 72V | 1.5A | 108W |
| IT6831 | 18V | 10A | 180W |
| IT6832 | 32V | 6A | 192W |
| IT6833 | 72V | 3A | 216W |
| IT6834 | 150V | 1.2A | 180W |

2.2 Front Panel Introduction

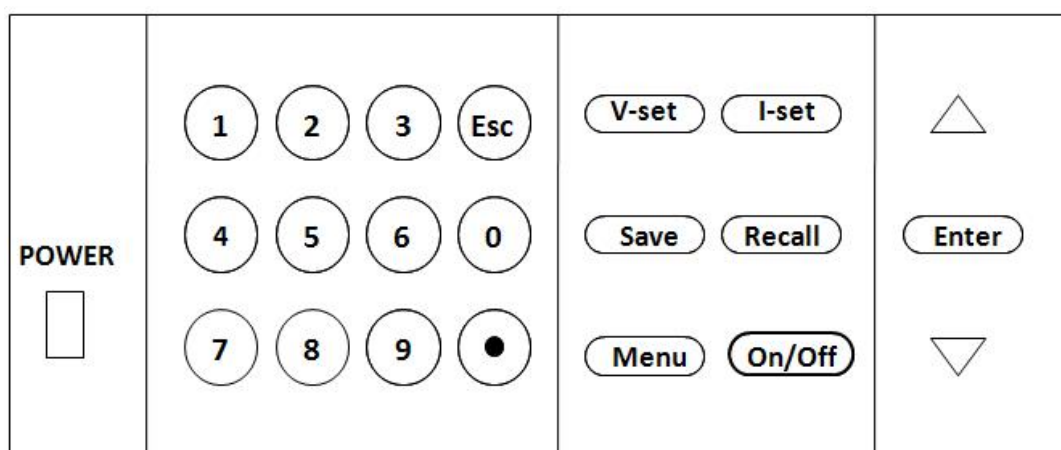
The front panel introduction of IT6800 is shown in the figure below.





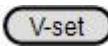
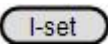
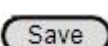
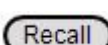
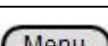
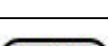


1. VFD display
2. Power switch
3. Number keys and ESC key
4. Function keys
5. UP, DOWN and ENTER key
6. Output terminals and grounding terminal

2.3 Keypad Introduction

The key functions and keys of IT6800 series power supply are shown as below picture.



| Key | Name and the function |
|---|-----------------------|
| Power | Power on key |
| 0-9 | Numeric keys |
|  | Dot key |

| Key | Name and the function |
|--|---|
|  | Escape key |
|  | Voltage set key, set the output voltage for the power supply. |
|  | Current set key, set the output current for the power supply. |
|  | Save key, save system parameter settings. |
|  | Callback key to call up a set value of system parameters already stored. |
|  | Menu function key, to set the relevant parameters for the power supply. |
|  | Output on (off) keys, control power output state. |
|  | Up and down keys, used to select an item in the menu or increase (decrease) the output voltage or current values. |
|  | Enter key, to confirm the number entered and operation. |

2.4 Display Annunciators

Indicators on the front panel of the Series IT6800 indicate the present state of the instrument. The following table describes these indicators.

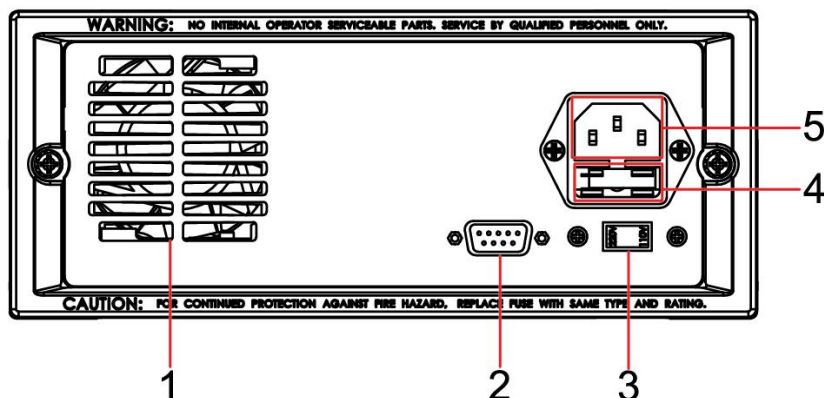


| Indicator | Meaning | Indicator | Meaning |
|--------------|---|--------------|---|
| OFF | Output is off. | Timer | Not in use |
| CV | The power supply is in constant voltage mode. | Sense | Not in use |
| CC | The power supply is in constant current mode. | Ext | Not in use |
| * | Not in use | Adrs | The connection between power supply and PC is successful. |
| Meter | The power supply is in meter mode. | Rmt | The power supply is in remote mode |
| Shift | Not in use | Error | The power supply has error or fault. |
| OVP | OVP function is enabled | Prot | Not in use |

| Indicator | Meaning | Indicator | Meaning |
|-----------|-------------------------|-----------|-------------------|
| OCP | OCP function is enabled | Lock | Keypad is locked. |

2.5 Rear Panel Introduction

The rear panel introduction of IT6800 is shown in the figure below.



1. Cooling window
2. DB9 interface connector
3. 110V/220V selector
4. Fuse
5. AC power socket

2.6 Power-on Selftest

A successful test process indicates that the instrument meets the factory specifications and can be operated well.

Before operation, please confirm that you have fully understood the safety instructions.

WARNING

- The AC input voltage is 110V or 220V, please check the switching at the bottom of the power supply, to make sure it matches the voltage in your city. Otherwise, the power supply may be damaged.
- Use the wires of rating value and all load lines shall be capable of withstanding the maximum short circuit output current of the power supply without causing overheating. If there are more than one load, each pair of load lines shall be capable of withstanding the full rated short-circuit output current of the power supply.
- Be sure to connect the main power socket to the power outlet of protective grounding. Do not use terminal board without protective grounding. Before operation, be sure that the power supply is well grounded.
- To avoid burning out, pay attention to marks of positive and negative polarities before wiring.

Self-test Steps

Normal self-test procedures:

1. Correctly connect the power cord. Press **[Power]** key to start up.
The power supply starts the self-test and the indicators on the front panel are all lit. You can check if the indicators are normal.
2. After the power self-test, VFD displays the state of voltage and current as below.

| | |
|---------------|----------------|
| OFF | |
| 0.000V | 0.0000A |

Error Information References

The following error information may occur when an error occurs during Power On self-test:

- If the EEPROM was damaged or the last power status in EEPROM is lost, the VFD will display (about 2 S) the following prompt.


| |
|-------------------|
| ERR EEPROM |
|-------------------|

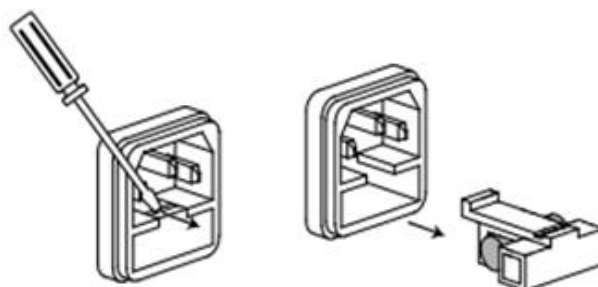
- If the calibration data in EEPROM is lost or the factory calibration data in EEPROM is lost, then VFD will display (about 2 S) the following prompt.

| |
|------------------|
| ERROR CAL |
|------------------|

Exception handling

If the power supply cannot start normally, please check and take measures by reference to steps below.

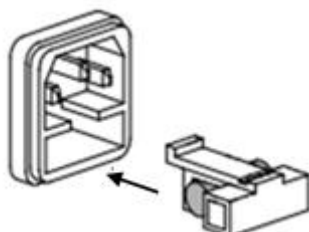
1. Check whether the power line is correctly connected and confirm whether the power supply is powered.
Correct wiring of power line => 2
Incorrect wiring of power line => Re-connect the power line and check whether the exception is removed.
2. Check whether the power in On. **[Power]** key is under “  ” On status.
Yes => 3
No => Please check the **[Power]** key to start power and check whether the exception is removed.
3. Check whether set power voltage of instrument is larger than the power supply voltage. If set power voltage is 220 V and the supply voltage is 110V, the power supply cannot start.
4. Check whether the fuse of electronic fuse is burned out.
If yes, change fuse. Detailed steps:
 - 1) Pull out power line and take out the fuse box at power line jack with a small screw driver. As shown below.



- 2) If the fuse is fused, please change fuse of same specification based on machine model. See the table below for matching information of fuse and machine model.

| Model | Specification (110VAC) | Specification (220VAC) |
|----------------------|------------------------|------------------------|
| IT6821/IT6822/IT6823 | Fuse 5A T 250V | Fuse 2.5A T 250V |
| IT6831/IT6832 | Fuse 6.3A T 250V | Fuse 3.15A T 250V |
| IT6833/IT6834 | Fuse 6.3A T 250V | Fuse 3.15A T 250V |

- 3) After replacement, install the fuse box back to original position, as shown below.



2.7 Output Verification

Output verification verify that the power supply outputs the correct voltage and current levels and properly responds to entries from the front panel.

Voltage Output Check

The following steps verify basic voltage functions without load.

1. Turn on the power supply.
2. Enable the outputs.

Press **[On/Off]** key to turn off the OFF annunciator and turn on the CV annunciator.

Notice: if the voltage value flash, then the power supply is in *Set* mode, "Set mode" means that the VFD display shows the setting output voltage and current. Or the power supply is in *Meter* mode, "Meter mode" means that the VFD display shows the actual output voltage and current and the "Meter" annunciator is lit.

3. Check that the front-panel voltmeter properly responds to numeric keys.

Set some different voltage values, then wait till the Meter mode to check if the VFD displayed voltage value is the same as the set voltage value, and to check if the VFD displayed current value is nearly zero.

4. Ensure that the voltage can be adjusted from zero to the full rated value.

Current Output Checkout

The following steps check basic current functions with a short across the power supply's output.

1. Turn on the power supply.

2. Disable the output.

Press **[On/Off]** key to ensure that the output is disabled. The OFF annunciator is turned on.

3. Connect a short across (+) and (-) output terminals with an insulated test lead.

Use a wire size sufficient to handle the maximum current.

4. Enable the output.

Press **[On/Off]** key to ensure that the output is enabled. The OFF annunciator is turned off.

5. Adjust the voltage value to 1.0 volt.

Adjust the voltage to 1.0 volt to ensure the power supply is in CC operation mode. The CC annunciator will turn on.

6. Adjust the current value.

Set some different voltage values, then wait till the Meter mode to check if the VFD displayed current value is the same as the set voltage value, and to check if the VFD displayed voltage value is nearly zero.

7. Ensure that the current can be adjusted from zero to the full rated value.

8. Turn off the power supply and remove the short wire from the output terminals.

Chapter3 Functions and Characteristics

This chapter elaborates on the functions and characteristics of power supplies. Contents following sections:

- Front-panel operation
- Constant voltage operation
- Constant current operation
- Saving and recalling operation
- Output on/off operation
- MENU operation

3.1 Front-Panel Operation

The power supply is shipped from the factory configured in the front-panel operation mode. At power-on, the power supply is automatically set to operate in the front-panel operation mode. When in this mode, the front panel keys can be used.

When the power supply is in remote operation mode, you cannot use the front-panel. A change between front-panel and remote operation modes will not result in any change in the output parameters. You can change the front-panel and remote operation modes by computer.

The power supply is in Meter mode when it is powered on, and the VFD will display the actual voltage and current output value. You can operate the following functions in Meter mode.

- Press **[I-set]** key, the power supply will changed to Set mode. In Set mode, the set current value will flash, you can press ▲ and ▼ keys to adjust the current value.
- Press **[V-set]** key, the power supply will changed to Set mode. In Set mode, the set voltage value will flash, you can press ▲ and ▼ keys to adjust the voltage value.
- In Set mode, the power supply will turn back to *Meter* mode if there is no any key is pressed for 3 seconds.
- The output of the power supply can be enabled or disabled from the front panel by pressing **[On/Off]** key. When the output is on, the OFF annunciator will turn off.
- The VFD display shows the present operating status of the power supply with annunciators. For example, the power supply is operating in CV mode, and then the CV annunciator will turn on. If, the power supply is remotely controlled, the Rmt annunciator will also turn on, See “Display Annunciators”.

3.2 Constant Voltage Operation

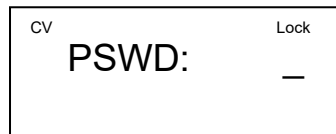
The constant voltage range is from 0V to the maximum voltage value of each model. It is very easy for you to set the constant voltage output. You have two solutions to set the constant voltage value.

- Solution 1:
Step1. Power on the IT6800 series instrument.
Step2. Press the ▲ and ▼ keys to change the value.

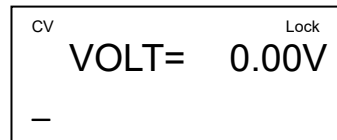
- Solution 2:
 - Step1. Power on the IT6800 series instrument.
 - Step2. Press **[V-set]** key.
 - Step3. Use the numeric keys 0 to 9 or ▲ and ▼ keys to change the voltage value.
 - Step4. Press **[Enter]** to confirm the value.

For example, the operation steps to set the power supply to 18V are as follows.

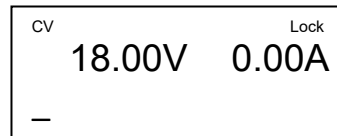
1. Press **[V-set]** key. If the function keys are locked by password, the VFD displays as follows. If the function keys aren't locked, you don't need to enter the password and the VFD doesn't display Lock. Directly use the numeric keys to enter 18 and press **[Enter]** to confirm.



2. Use the numeric keys to enter the correct password. The VFD displays as follows and the digits are flashing.



3. Use the numeric keys to enter 18 and press **[Enter]** to confirm. The VFD displays as follows. The setting will be finished after two seconds.



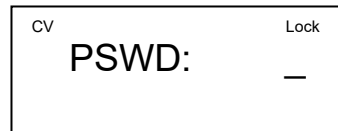
3.3 Constant Current Operation

The constant current output range is from 0A to the maximum current value of each type. It is very easy for you to set the constant current output.

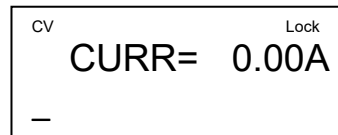
- Step1. Power on the IT6800 series instrument.
- Step2. Press **[I-set]** key.
- Step3. Use the numeric keys 0 to 9 or use ▲ and ▼ keys to change the current value.
- Step4. Press **[Enter]** key to confirm the value.

For example, the operation steps to set the power supply to 2.5A are as follows.

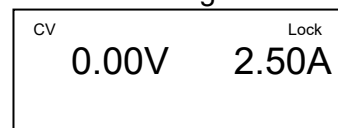
1. Press **[I-set]** key. If the function keys are locked by password, the VFD displays as follows. If the function keys aren't locked, you don't need to enter the password and the VFD doesn't display Lock. Directly use the numeric keys to enter 2.5 and press **[Enter]** to confirm.



2. Use the numeric keys to enter the correct password. The VFD displays as follows and the digits are flashing.



3. Use the numeric keys to enter 2.5 and press **[Enter]** to confirm. The VFD displays as follows. The setting will be finished after two seconds.



Note

The power supply defaults to be in CV mode. If the circuit current is limited by the setting current, the output of the power supply will automatically switch to CC mode. The display annunciators indicate the working mode of the power supply. If the CV status indicator lamp is lit, it indicates the power supply functions in CV mode. If the CC status indicator lamp is lit, it indicates the power supply functions in CC mode.

3.4 Saving and Recalling Operation

You can store up to 16 different output states in storage register locations (1 to 16). Each output state includes Constant voltage value, Constant current value and Maximum output voltage value. When shipped from factory, storage locations "1" through "16" are empty. You can recall the saved settings by Recall function.

Step1. After you setting an output state (CV value, CC value and Maximum voltage), press **[Save]** key.

Step2. Use the numeric keys 0 to 9 or **▲** and **▼** keys to select the memory location (the range is 1 to 16) which you want to store in.

Step3. Press **[Enter]** to confirm the memory location.

Step4. Press **[Recall]** key.

Step5. Use numeric keys 0 to 9 or **▲** and **▼** keys to select the states which you want to recall.

Step6. Press **[Enter]** key to confirm. Then the saved settings will come on.

3.5 Output On/Off Operation

[On/Off] key is used to control the output of power supply. When **[On/Off]** key is lit, it represents output has been turned on. If **[On/Off]** key is dark, it indicates that output is off. In output on mode, the indicator light CV or CC will be lit.



Note

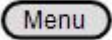
Please ensure the power supply and DUT have been connected well and then press **[On/Off]** key to turn the output on; otherwise, it may strike sparks.

Please check the status of current in SET whether it is zero; if it is set as zero, please modify to non-zero value; if still no output, please connect ITECH directly.

3.6 Menu Operation

Press **[Menu]** key to enter menu mode. Use ▲ and ▼ keys to scroll through the menu list. Press **[Enter]** key to select an item and view the parameters. Press **[Esc]** key to return to the higher level menu.

Menu List

| | | |
|---|----------------------|---|
|  | | |
| ▼ | >MAX VOLT | Set the maximum output voltage value |
| ▼ | >INIT OUT | Initiate the output state to ON or not |
| ▼ | >INIT VOLT | Initiate the output voltage to 0 volt or not |
| ▼ | >KEY SOUND | Switch On/Off the buzzer sound when you press any key |
| ▼ | >BAUD RATE | Set the communication baud rate |
| ▼ | >ADDR | Set the communication address |
| ▼ | >KEY LOCK | Set the password for function keys |
| ▼ | >EXIT | Exit |



Note

Pressing **[Esc]** key can help to quit Menu setup and any function button operation.

Set Maximum Voltage (>MAX VOLT)

Please be well known that the Max voltage value should be in the range of each type of IT68xx Power supply.

Step1. Press **[Menu]** key.

Step2. Select >MAX VOLT by using ▲ and ▼ key.

Step3. Press **[Enter]** key.

Step4. Change the voltage value by using numeric keys 0 to 9 or ▲ and ▼ key.

Step5. Press **[Enter]** key.



Note

After you setting the maximum voltage value, the output voltage setup should be in the range from 0 volt to maximum voltage. The default maximum voltage is the full voltage range of its model.

Initiating the Output State (>INIT OUT)

This instruction can initiate the output state when the power supply is powered on. If you select ON, the power supply will initiate the output to OFF state when the power supply is powered on. If you select OFF, the output will remain the same state as last time you turned off the power supply.



Note

Default selection is ON and the output state is always OFF state.

Initiating the Output Voltage (>INIT VOLT)

This instruction can set the initial output voltage. If you select ON, the power supply will initiate the output voltage to 0 Volt when the power supply is powered on. If you select OFF, the output voltage will remain as the same volts as the last time you turned off the power supply.



Note

Default setting is ON and the output voltage is 0 volt.

Setting the Key Sound (>KEY SOUND)

This instruction can switch on/off the buzzing sound when you press any key, if you select ON, the buzzer will sound when any key was pressed. If you select OFF, the buzzer will not sound when the keys were pressed.



Note

Default setting is ON; the buzzer will sound when you press any key.

Setting the Baud Rate (>BAUD RATE)

This instruction can change the communication baud rate for the power supply, the baud rate range is 4800, 9600, 19200 or 38400. Before the communication, you must make sure that there is same baud rate between the power supply and the computer. **Default baud rate is 9600.**

Setting Address (>ADDR)

This instruction can set the communication address for each power supply. The address range is from 0 to 30. Before the communication, you must make sure that there is same address between the power supply and the computer. **Default address is 0.**

Setting Password for Function Keys (>KEY LOCK)

This instruction can set a password (1 through 4 digits) to lock the function keys operation. After setting the password, all the function keys on the front panel will be locked except the **[On/Off]** key. You must enter the correct password to unlock them, then you can continue to do the function key operation. If you don't want to lock the function keys, please don't press any number key when you enter the >KEY LOCK instruction, just press **[Enter]** key to unlock it.

If you forget the password, just enter the all-powerful password to unlock it. The all-powerful password is the model number of each power supply. For example, if the power supply is IT6831, the all-powerful password is "6831".



Note

When shipped from factory, there is no password and function keys are unlocked. The start bit of your desired password shouldn't be 0.

Chapter4 Remote Operation

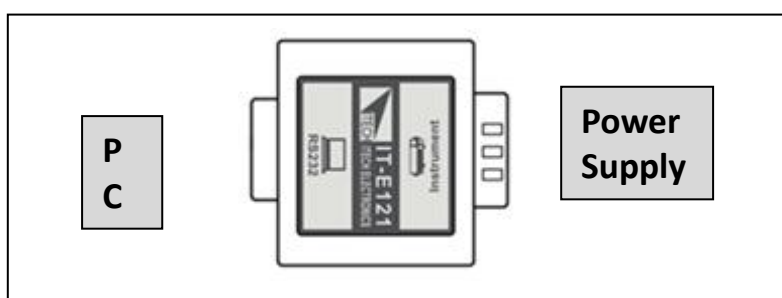
The DB9 interface connector on the rear panel of the power supply can be transferred to RS-232 interface, the following information will tell you how to use the computer to control the output of the power supply.

4.1 Communication Cable

RS232 Communication Cable

RS232 communication cable consists of the IT-E121 communication cable and a standard RS232 extension cable.

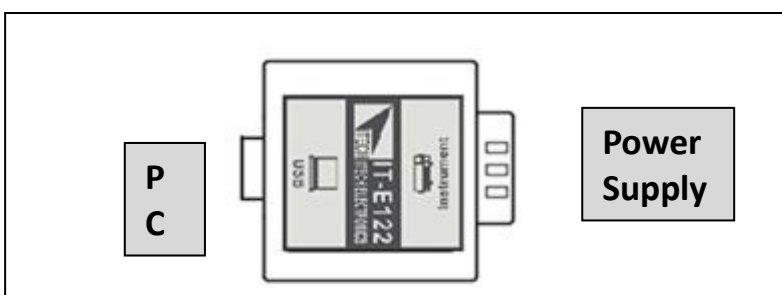
The DB9 interface connector on the rear panel of the IT6800 power supply is TTL voltage level; you can use the communication module IT-E121 and a standard RS232 extension cable to connect the DB9 interface connector of the power supply and the RS-232 interface connector of computer for the communication.



USB Communication Cable

USB communication cable consists of the IT-E122 communication cable and a standard USB communication cable.

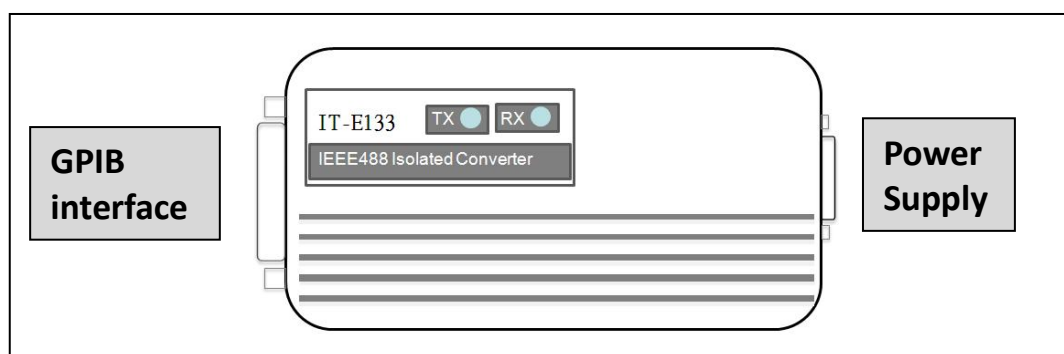
The DB9 interface connector on the rear panel of the IT6800 power supply is TTL voltage level; you can use the communication module IT-E122 and a standard USB cable to connect the DB9 interface connector of the DC load and the USB interface connector of computer for the communication. Before using IT-E122, you must install the USB driver (contained in CD or contact ITECH to get). The USB interface will be virtual serial port.



GPIB Communication Cable

The DB9 interface connector on the rear panel of power supply is TTL voltage level; you can use the GPIB communication cable (IT-E133) to connect the DB9 interface connector of the power supply, and then connect the GPIB interface of

the IT-E133 and computer with GPIB/IEEE 488 line for the communication.



CAUTION

The DB9 interface connector on the rear panel of power supply can't be connected to PC by using standard RS-232, USB or GPIB cable. You must use the communication module IT-E121, IT-E122 or IT-E133 to connect

4.2 Communication Between Power Supply and PC

Before using the remote operation mode, please make sure that the baud rate and communication address in power supply are the same as in the computer software, otherwise, the communication will fail, you can change the baud rate and communication address from the front panel or from computer.

- Baud rate: 4800,9600,19200 and 38400 are selectable, default setting is 9600
- Data bit: 8 bit
- Stop bit: 1
- Parity: (none, even, odd)
- Address

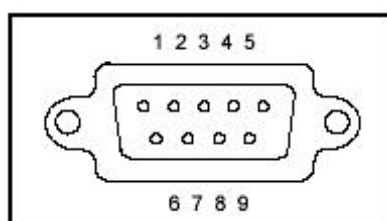
| | | | |
|-----------|-------------|-------------|----------|
| Start Bit | 8 Data Bits | Parity=None | Stop Bit |
|-----------|-------------|-------------|----------|



Note

You can change the baud rate and communication address from the front panel or from computer, but the data bite, stop bit and parity are the defaults and can't be changed.

DB9 Interface Details



Chapter5 Specifications

This chapter will introduce the main technical parameters of IT6800 series power supply.

5.1 Specifications

| Model | | IT6821 | IT6822 | IT6823 |
|---|---------|-------------------------------|------------------------|------------------------|
| Rated Value (0 °C - 40 °C) | Voltage | 0 ~ 18V | 0 ~ 32V | 0 ~ 72V |
| | Current | 0 ~ 5A | 0 ~ 3A | 0 ~ 1.5A |
| | LVP | 0 ~ 19V | 0 ~ 33V | 0 ~ 73V |
| Load Regulation | Voltage | (rated current≤3A) <0.01%+3mV | | |
| | | (rated current≤5A)<0.02%+5mV | | |
| | Current | <0.01%+3mA | | |
| Line Regulation | Voltage | <0.01%+3mV | | |
| | Current | <0.1%+2mA | | |
| Programming Resolution | Voltage | 10mV | | |
| | Current | 10mA | | |
| Readback Resolution | Voltage | 10mV(<20V); 100mV(>20V) | | |
| | Current | 10mA | | |
| Programming Accuracy (25 °C ± 5 °C) | Voltage | ≤0.05%+10mV | ≤0.05%+10mV | ≤0.05%+15mV |
| | Current | 0.2%+10mA | | |
| Readback Accuracy (25 °C ± 5 °C) | Voltage | ≤0.05%+15mV (<20V) | ≤0.05%+15mV (<20V) | ≤0.05%+20mV (<20V) |
| | | ≤0.05%+120mV (<20V) | ≤0.05%+120mV (<20V) | ≤0.05%+120mV (<20V) |
| | Current | <0.1%+15mA | | |
| Ripple (20Hz~20MHz) | Voltage | ≤0.5mVrms /3mVp-p | ≤0.5mVrms /3mVp-p | ≤0.5mVrms /4mVp-p |
| | Current | 5mA _{rms} | | |
| Temperature Coefficient (0 °C ~ 40 °C) | Voltage | <0.02%+5mV | | |
| | Current | <0.1%+5mA | | |
| Readback Temperature Coefficient | Voltage | <0.02%+5mV | | |
| | Current | <0.1%+5mA | | |

| Model | | IT6831 | IT6832 | IT6833 |
|---|------------------------|--------------------------------|-------------------------|-------------------------|
| Rated Value (0 °C - 40 °C) | Voltage | 0~18V | 0~32V | 0~72V |
| | Current | 0~10A | 0~6A | 0~3A |
| | LVP | 0~19V | 0~33V | 0~73A |
| Load Regulation | Voltage | (rated current≤3A) <0.01%+3mV | | |
| | | (rated current≤10A) <0.02%+5mV | | |
| | Current | <0.01%+3mA | | |
| Line Regulation | Voltage | <0.01%+3mV | | |
| | Current | <0.1%+2mA | | |
| Programming Resolution | Voltage | 10mV | | |
| | Current | 10mA | | |
| Readback Resolution | Voltage | 10mV(<20V); 100mV(>20V) | | |
| | Current | 10mA | | |
| Programming Accuracy (25 °C ± 5 °C) | Voltage | ≤0.05%+10mV | ≤0.05%+10mV | ≤0.05%+15mV |
| | Current | 0.2%+10mA | | |
| Readback Accuracy (25 °C ± 5 °C) | Voltage | ≤0.05%+15mV (<20V) | ≤0.05%+15mV (<20V) | ≤0.05%+20mV (<20V) |
| | | ≤0.05%+120mV (<20V) | ≤0.05%+120mV (<20V) | ≤0.05%+120mV (<20V) |
| | Current | <0.1%+15mA | | |
| Ripple (20Hz~20MHz) | Voltage | ≤0.5mVrms /3mVp-p | ≤0.5mVrms /3mVp-p | ≤0.5mVrms /4mVp-p |
| | Current | 5mA _{rms} | | |
| Temperature Coefficient (0 °C ~ 40 °C) | Voltage | <0.02%+5mV | | |
| | Current | <0.1%+5mA | | |
| Readback Temperature Coefficient | Voltage | <0.02%+5mV | | |
| | Current | <0.1%+5mA | | |
| Dimension | 214.5mm*88.2mm*373.9mm | | | |
| Weight (net weight) | 8.5kg | | | |

| Model | | IT6834 |
|-------------------------------|---------|--------|
| Rated Value (0 °C - 40 °C) | Voltage | 0~150V |
| | Current | 0~1.2A |

| Model | | IT6834 |
|---|------------------------|--------------------|
| | LVP | 0~151V |
| Load Regulation | Voltage | <0.01%+3mV |
| | Current | <0.01%+3mA |
| Line Regulation | Voltage | <0.01%+3mV |
| | Current | <0.1%+2mA |
| Programming Resolution | Voltage | 10mV |
| | Current | 10mA |
| Readback Resolution | Voltage | 100mV |
| | Current | 10mA |
| Programming Accuracy (25 °C ± 5 °C) | Voltage | ≤0.1%+38mV |
| | Current | 0.2%+10mA |
| Readback Accuracy (25 °C ± 5 °C) | Voltage | ≤0.1%+120mV |
| | Current | <0.1%+15mA |
| Ripple (20Hz~20MHz) | Voltage | ≤0.6mVrms/7mVp-p |
| | Current | 5mA _{rms} |
| Temperature Coefficient (0 °C ~ 40 °C) | Voltage | <0.02%+5mV |
| | Current | <0.1%+5mA |
| Readback Temperature Coefficient | Voltage | <0.02%+5mV |
| | Current | <0.1%+5mA |
| Dimension | 214.5mm*88.2mm*374.5mm | |
| Weight (net weight) | 8.5kg | |

*The above specifications may be subject to change without prior notice.

5.2 Supplementary Characteristics

- State Storage Memory: Sixteen (16) user-configurable stored states
- Recommended Calibration Interval: 1 year
- AC Input Ratings (selectable via switch on the rear panel):
Option Opt.01: 220VAC ± 10%, 47 to 63 Hz
Option Opt.02: 110 VAC ± 10%, 47 to 63 Hz
- Maximum input power

| IT6821 | IT6822 | IT6823 | IT6831 | IT6832 | IT6833 | IT6834 |
|--------|--------|--------|--------|--------|--------|--------|
| 350VA | 350VA | 350VA | 750VA | 750VA | 750VA | 750VA |

- Cooling type: Intelligent fans

Appendix

Specifications of Red and Black Test Lines

ITECH provides you with optional red and black test lines, which individual sales and you can select for test. For specifications of ITECH test lines and maximum current values, refer to the table below.

| Model | Specification | Cross Section | Length |
|--------------|---------------|-------------------|--------|
| IT-E301/10A | 10A | - | 1m |
| IT-E301/30A | 30A | 6mm ² | 1.2m |
| IT-E301/30A | 30A | 6mm ² | 2m |
| IT-E301/60A | 60A | 20mm ² | 1.5m |
| IT-E301/120A | 120A | 50mm ² | 2m |
| IT-E301/240A | 240A | 70mm ² | 1m |
| IT-E301/240A | 240A | 70mm ² | 2m |
| IT-E301/360A | 360A | 95mm ² | 2m |

For maximum current of AWG copper wire, refer to table blow.

| AWG | 10 | 12 | 14 | 16 | 18 | 20 | 22 | 24 | 26 | 28 |
|-------------------------------|----|----|----|----|----|----|----|-----|-----|-----|
| The Maximum Current Value(A) | 40 | 25 | 20 | 13 | 10 | 7 | 5 | 3.5 | 2.5 | 1.7 |

Note: AWG (American Wire Gage), it means X wire (marked on the wire). The table above lists current capacity of single wire at working temperature of 30°C. For reference only.

Contact Us

Thanks for purchasing ITECH products. In case of any doubts, please contact us as follows:

1. Visit ITECH website: www.itechate.com.
2. Select the most convenient contact method for further information.