

# **Anti-reverse Protection Unit IT-E165A User Manual**

## Notices

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### Manual Part Number

IT-E165A

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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 instrument 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 if the product is:




- Damaged resulting from customer-wired circuits or customer-supplied parts or accessories;
- Modified or repaired by customer without authorization;
- Damaged resulting from customer-wired circuits or use in an environment not designated by us;
- 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)
	Alternating current		OFF ( power)
	Both direct and alternating current		Power-on state
	Chassis (earth ground) symbol.		Power-off state
	Earth ( ground) terminal		Reference terminal
	Caution		Positive terminal
	Warning ( refer to this manual for specific Warning or Caution information)		Negative terminal

	A chassis terminal	-	-
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## 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 affix 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 useful 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 1 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 <sup>123</sup>

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

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# Chapter 1 IT-E165A Introduction

IT-E165A is an optional anti-reverse module we prepared for users, suitable for IT6000 series (including IT6000B, IT6000C, IT6000D, IT8000), IT-M3900 series (including IT-M3900B, IT-M3900C, IT-M3900D, IT-M3800) and IT6500C/D series.

It is necessary to consider that the voltage/current of the DUT is within the rated voltage/current range of IT-E165A.

The following models are available:

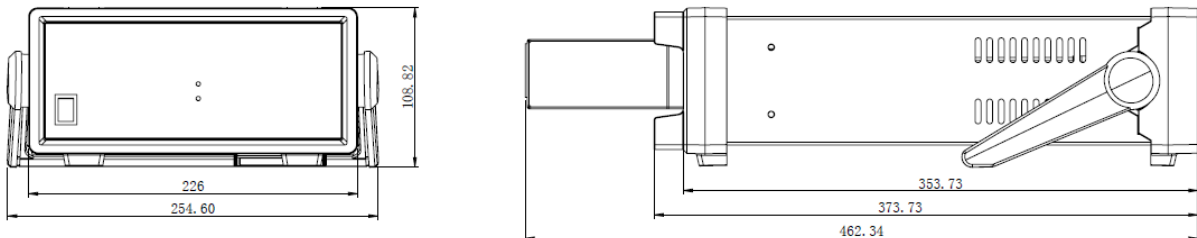
Model	Voltage	Current
IT-E165A-250	750V	250A
IT-E165A-400	750V	400A
IT-E165A-500	900V	400A

The main functions are as follows:

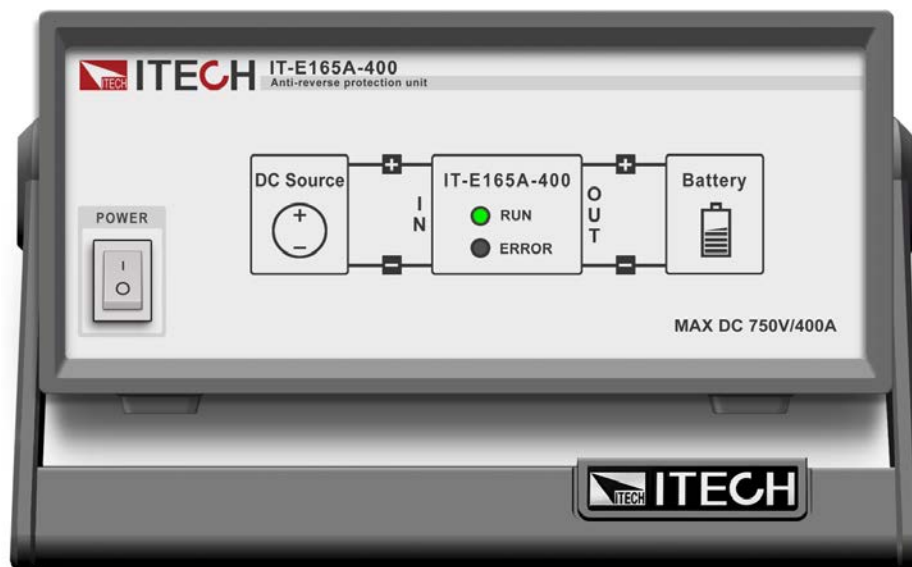
It can effectively avoid the reverse connection of the DUT. IT-E165A has a built-in detection circuit to detect the voltage difference to determine whether it is reversed. If it is reversed, the test circuit is disconnected to ensure the safety of the DUT and the operator.

## 1.1 Introduction

The dimensions of IT-E165A are shown in the figure below. Unit: mm



The front panel is shown in the figure below.



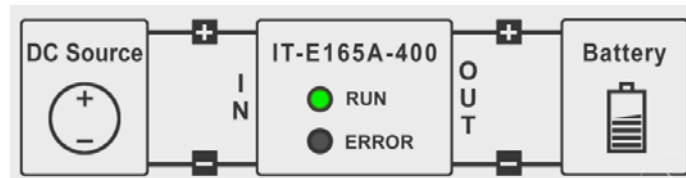
The rear panel is shown in the figure below.



**Attention: The maximum current of the positive and negative electrodes of IN and OUT on the rear panel is 1000A.**

## 1.2 How to Use

1. Make sure that the power of the battery, IT-E165A, and IT6000 is turned off.
2. Refer to the following diagram to connect the IT6000 series instrument and the DUT (battery).



Note: The green terminals Sense and IO on the rear panel are reserved terminals and do not need to be connected.

3. Connect the power cord of IT-E165A.
4. Start the battery and turn on the IT6000 power switch.
5. Turn on the Power switch of the IT-E165A.

If IT6000 (IN) and DUT (OUT) are not reversed, and the voltage difference between IT6000 (IN) and DUT (OUT) is less than 2V, the indicator will display RUN (green light);

If there is a reverse connection between IT6000 (IN) and DUT (OUT), or the voltage difference between IT6000 (IN) and DUT (OUT) is greater than 2V, the indicator will display ERROR (red light). Please recheck whether IT6000 (IN) and DUT (OUT) are reversely connected, and make sure that the voltage difference between IT6000 (IN) and DUT (OUT) is less than 2V.



## **Contact US**

Thank you for purchasing ITECH products. If you have any doubt about this product, please contact us as follows.

1. Visit ITECH website [www.itechate.com](http://www.itechate.com).
2. Select the most convenient contact for further consultation.