19-inch Rack Mount
IT-E158 User Manual

Notices

Manual Part Number

IT-E158

Revision

First Edition: Feb. 2th, 2023

Itech Electronic, Co., Ltd.

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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 this 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 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

Symbol	Description	Symbol	Description
⎓	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 electronic load is provided with a power line during delivery and should be connected to a socket with a protective earth terminal. 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 electronic load 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.
- If you use the power supply to charge the battery, pay attention to the positive and negative polarity of the battery when wiring, otherwise the power supply will be damaged!
- 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	-10°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

C E	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.
UK CA	The UKCA mark indicates that the product complies with all relevant UK legal regulations (if accompanied by a year, it indicates the year 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.
10	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

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 [1][2][3]
Reference Standards
  CISPR 11:2015+A1:2016 Ed 6.1
  IEC 61000-3-2: 2018 RLV
  IEC 61000-3-3: 2013+A1:2017
  IEC 61000-4-2:2008
  IEC 61000-4-3 2006+A1:2007+A2:2010/ EN 61000-4-3 A1:2008+A2:2010
  IEC 61000-4-4:2012
  IEC 61000-4-5:2014+A1:2017
  IEC 61000-4-6:2013+cor1:2015
  IEC 61000-4-11:2004+A1:2017

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+A1:2016

Content

Chapter1 IT-E158 Introduction

IT2800, IT-N6900, IT-M3140 series and IT-M7723E model instruments can be installed in the standard 19-inch cabinet, we provide IT-E158A, IT-E158B, IT-E158C, IT-E158D four bracket models, users choose different bracket kits according to the actual use.
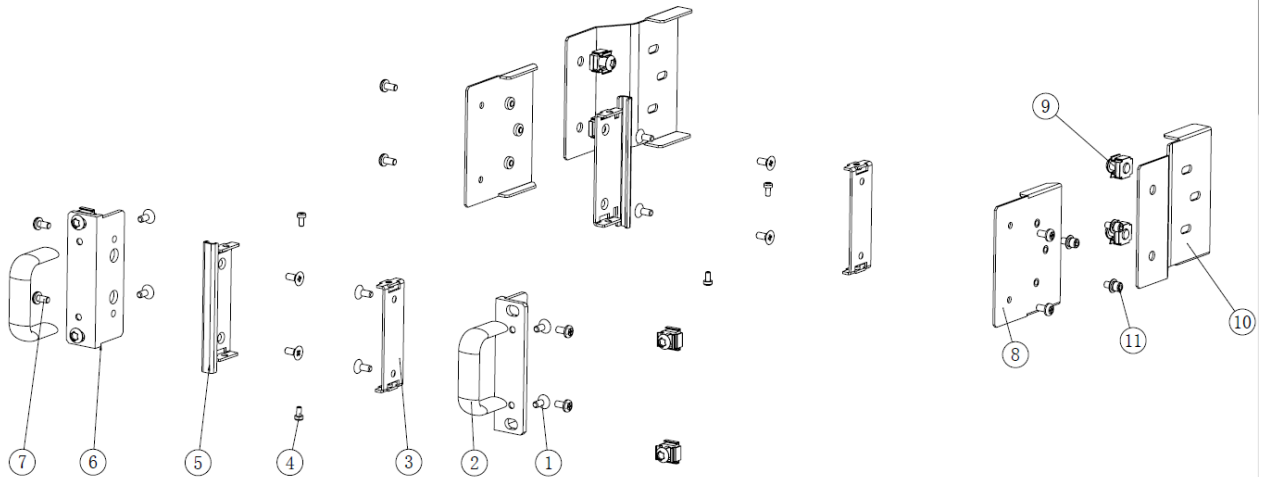
The following is a detailed description of the bracket.

IT-E158A

The IT-E158A is a kit for installing 2 instruments side-by-side into **an ITECH cabinet**.

Contains a mounting handle at the front of the instrument, a fixing piece connecting the middle of the 2 instruments, and a fixing piece at the rear of the instrument.

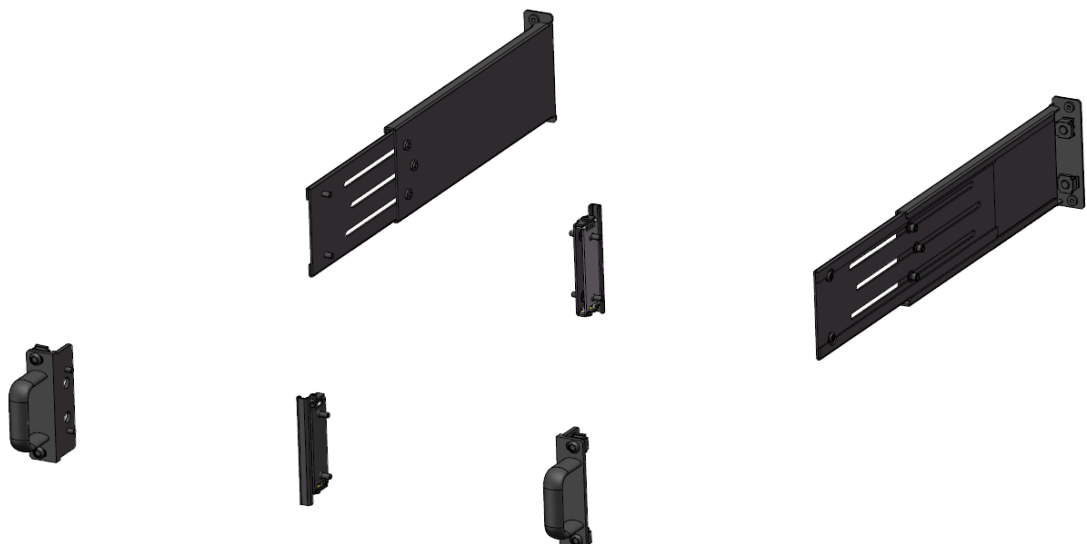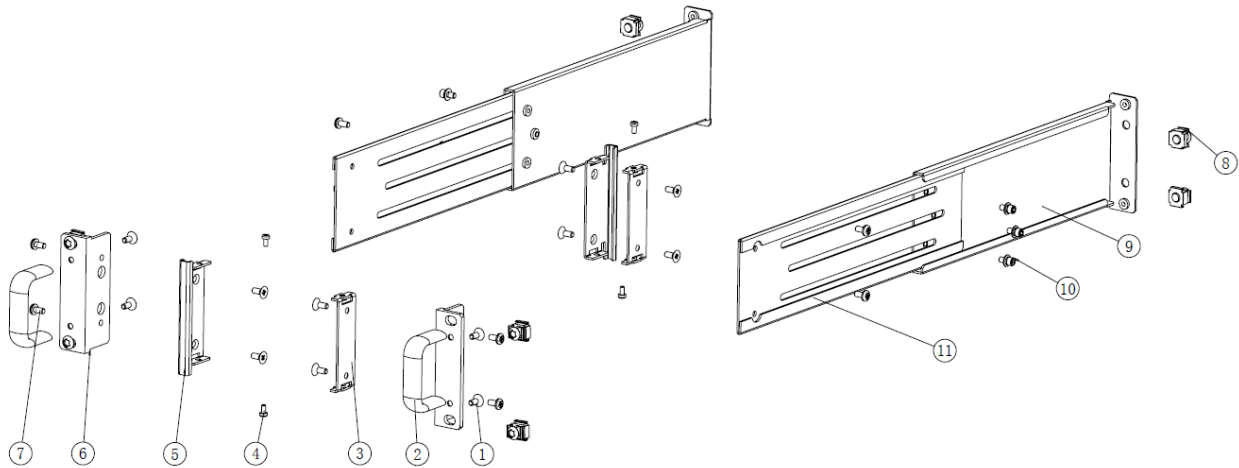Details of the parts and quantities are as follows.

No.	Description	Quantity
1	Cross countersunk head screw M4x10	12
2	Carrying handle	2
3	Connections	2
4	Crossed small pan head screw M3x6	4
5	Connections	2
6	2U mounting ears	2
7	Crossed small pan head screw M4x8	8
8	Rear mounting connector (for fixing instrument)	2
9	Cassette Nut Set	8
10	Rear mounting connector (for fixing cabinet)	2
11	Hexagon socket cheese head combination screw M4x8	6

IT-E158B

The IT-E158B bracket is a kit for mounting 2 instruments side-by-side into **a non-ITECH cabinet**.

Contains a mounting handle at the front of the instrument, a fixing piece connecting the 2 instruments in the middle, and a retractable fixing piece at the rear of the instrument.

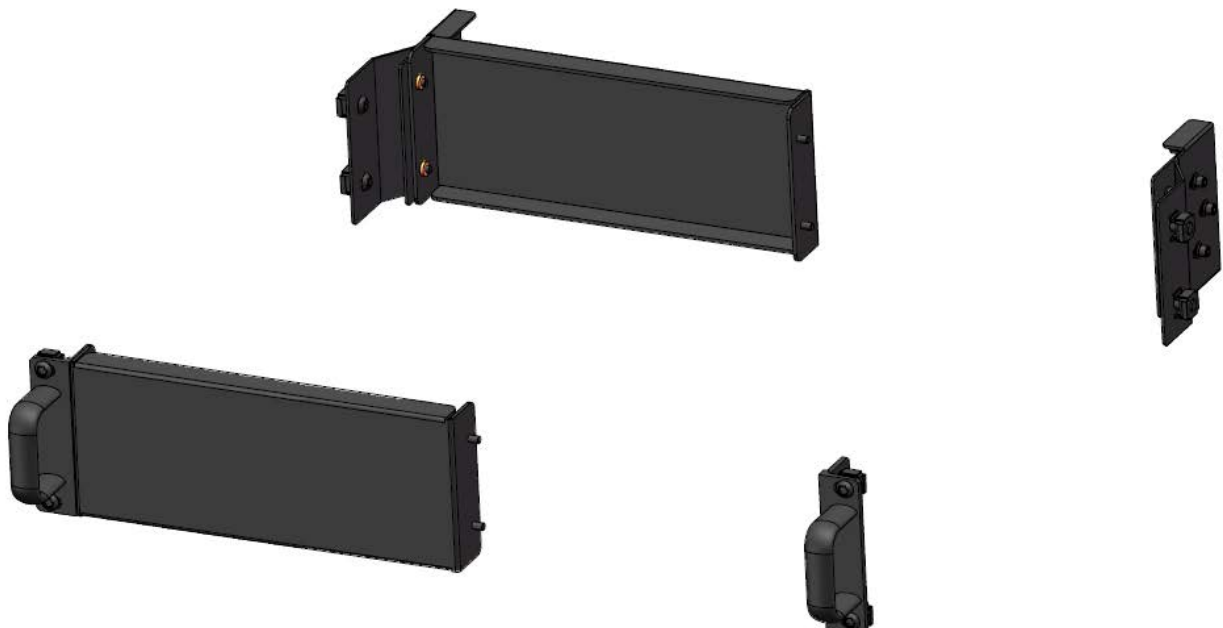Details of the parts and quantities are as follows.

No.	Description	Quantity
1	Cross countersunk head screw M4x10	12
2	Carrying handle	2
3	Connections	2
4	Crossed small pan head screw M3x6	4
5	Connections	2
6	2U mounting ears	2
7	Crossed small pan head screw M4x8	8
8	Cassette Nut Set	8
9	Rear mounting connector (for fixing cabinet)	2
10	Hexagon socket cheese head combination screw M4x8	6
11	Rear mounting connector (for fixing instrument)	2

IT-E158C

The IT-E158C is a kit for mounting a single instrument into **an ITECH cabinet** (with a baffle on the other side).
Includes mounting handle at the front of the instrument, baffle plate, and fixing piece at the rear of the instrument.
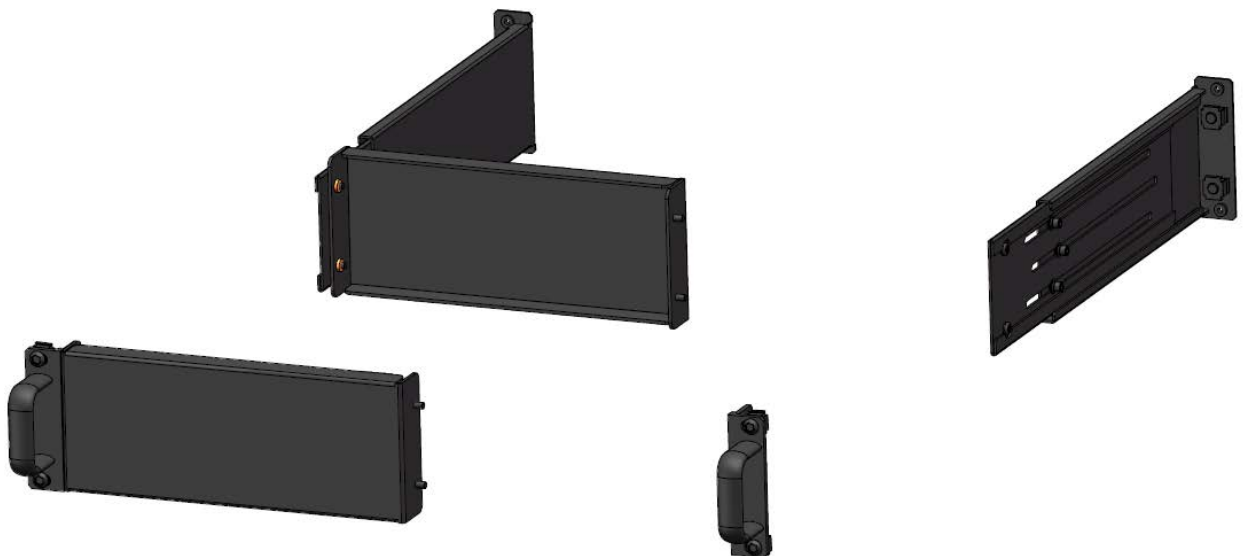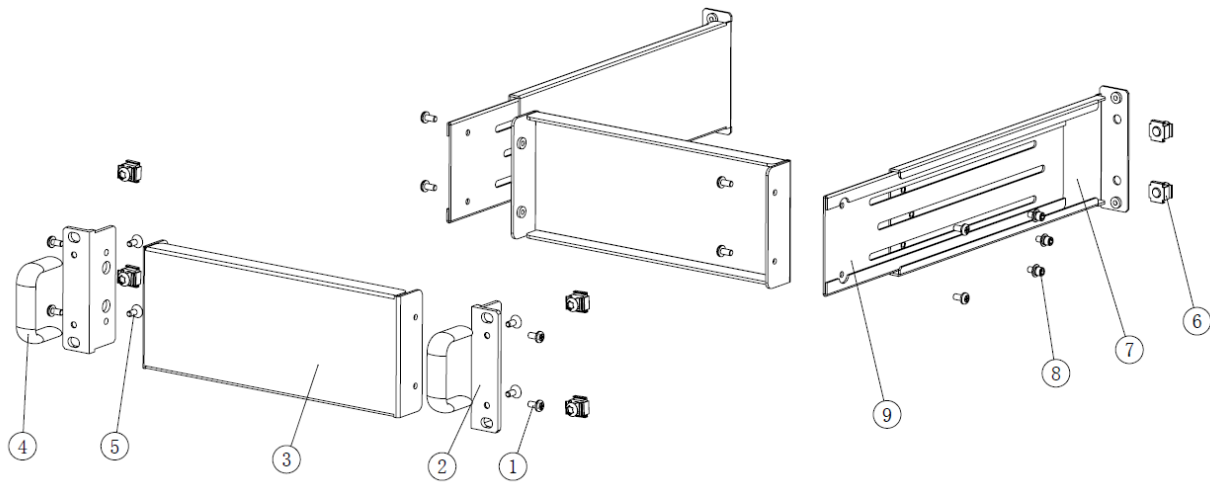
Details of the parts and quantities are as follows.
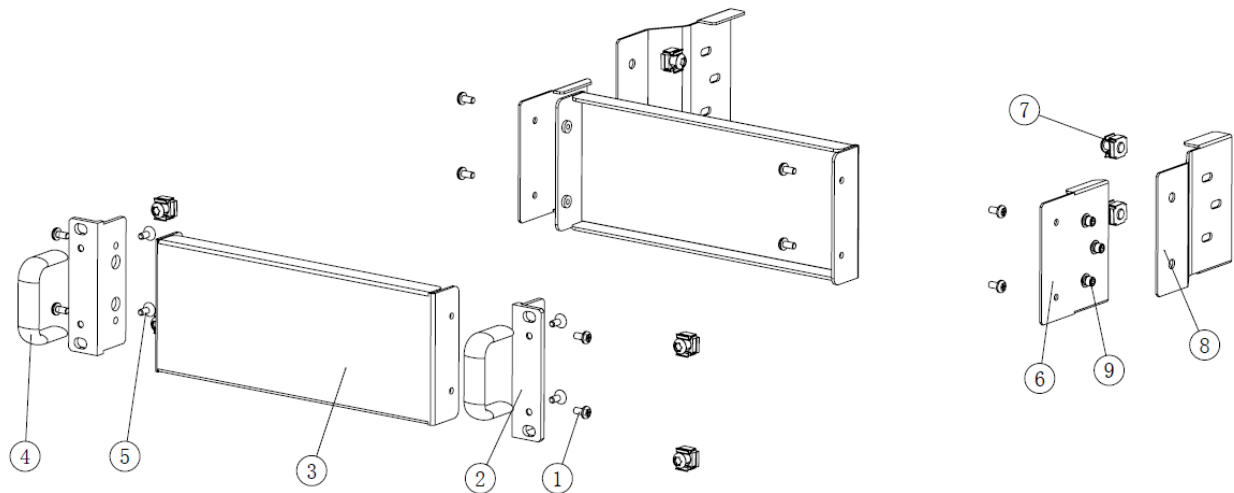
No.	Description	Quantity
1	Crossed small pan head screw M4x8	12
2	2U mounting ears	2
3	Panel brackets	2
4	Carrying handle	2
5	Cross countersunk head screw M4x10	4
6	Rear mounting connector (for fixing instrument)	2
7	Cassette Nut Set	8
8	Rear mounting connector (for fixing cabinet)	2
9	Hexagon socket cheese head combination screw M4x8	6

IT-E158D

The IT-E158D is a kit for mounting a single instrument into **a non-ITECH cabinet** (with a baffle on the other side).

Includes mounting handle at the front of the instrument, a baffle plate, and a retractable fixture at the rear of the instrument.

Details of the parts and quantities are as follows.

| No.	Description	Quantity
1	Crossed small pan head screw M4x8	12
2	2U mounting ears	2
3	Panel brackets	2
4	Carrying handle	2
5	Cross countersunk head screw M4x10	4
6	Cassette Nut Set	8
7	Rear mounting connector (for fixing cabinet)	2
8	Hexagon socket cheese head combination screw M4x8	6
9	Rear mounting connector (for fixing instrument)	2

Chapter2 Installation Instruction

2.1 Instrument Preparation

Before installing the IT-E158 kit, the instrument handle and rubber protective sleeve need to be removed, as detailed below (take the IT2801 SMU as an example).

Do not block the air inlet holes on the side of the instrument and the air exhaust holes on the rear panel.

1. Grab the handle by the sides and pull outward. This will allow you to rotate the handle. As shown in the figure below.
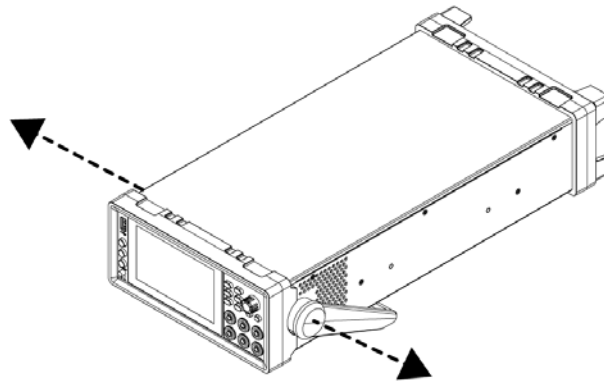
2. Refer to the figure below and turn the handle from position A to B.
   When turning the handle, take care to place the instrument gently to prevent it from falling.
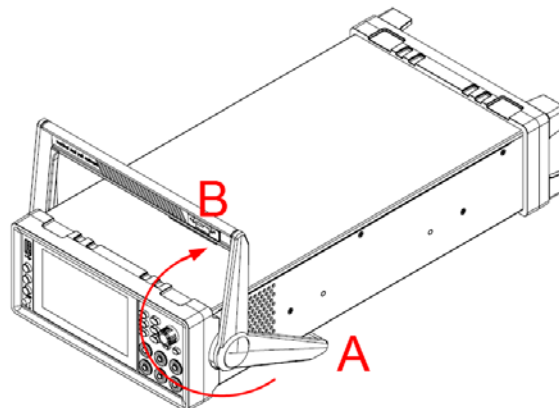
3. Pull outward and then lift the handle upward.
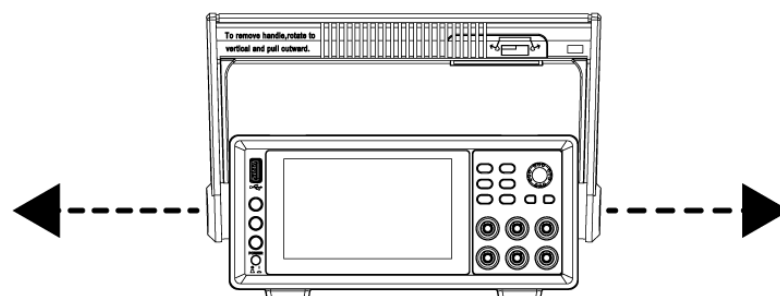
Note

When reattaching the handle, pay attention to its direction. Incorrect attachment may damage the hardware. When removing the handle, do not use excessive force and be careful of pinching your hand.

4. Remove the front and rear rubber bumpers.

The bracket mounting holes can be seen on both sides of the instrument.
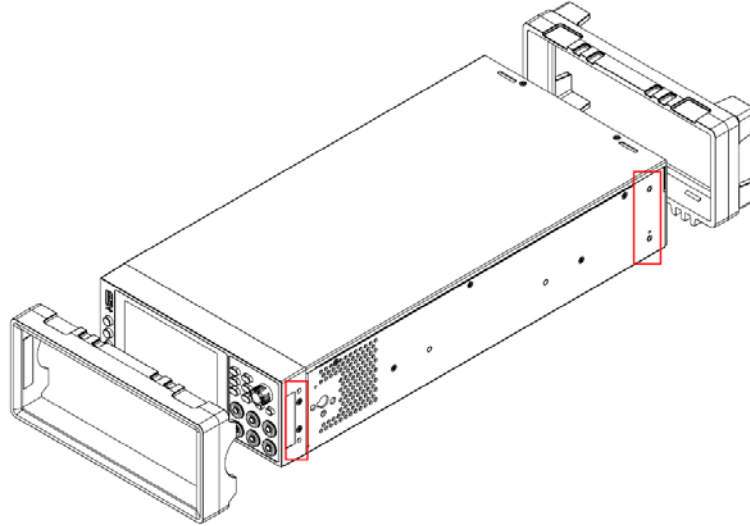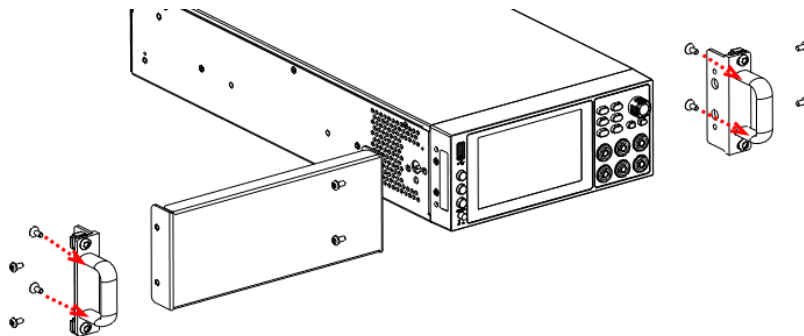

2.2 Installation of a single instrument

Installation into ITECH cabinet (select IT-E158C)

When installed into the ITECH cabinet, the installation method is shown below.

1. Fasten the cross countersunk head screws M4x10 (4pcs) in the IT-E158C kit to the mounting lugs as shown by the red arrows in the figure below.

2. Install the cross small pan head screws M4x8 (12pcs) in the IT-E158C kit to both sides of the instrument as shown by the red arrows in the figure below.
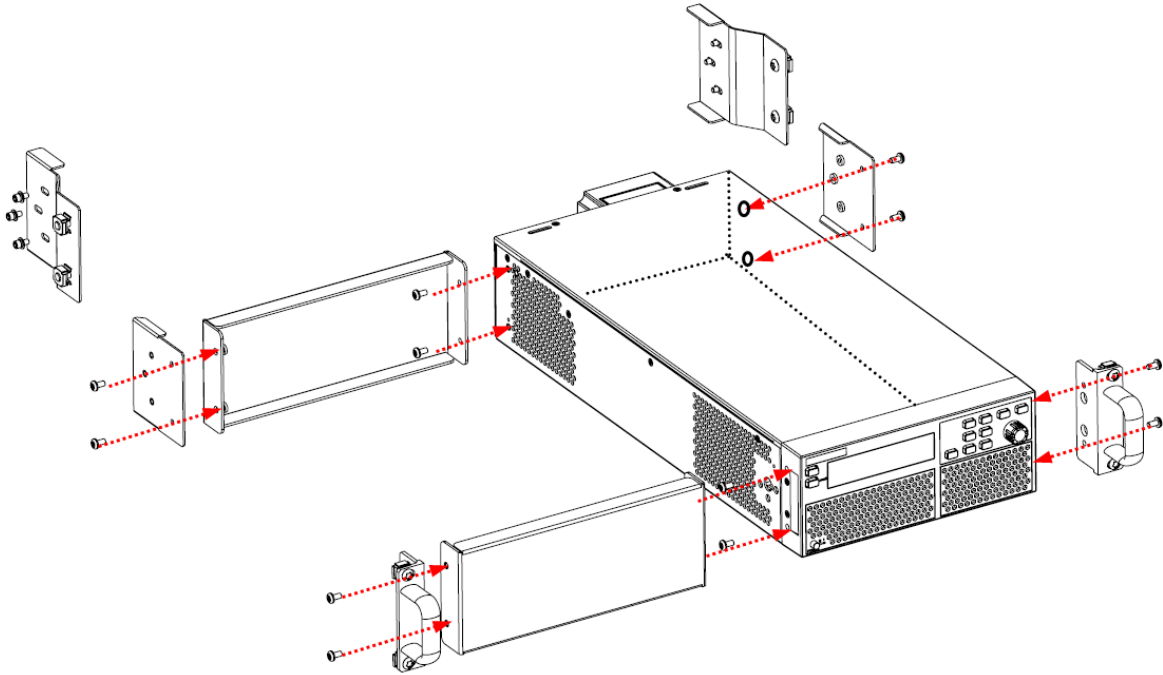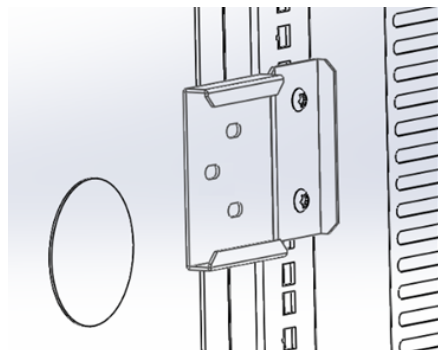
3. Fasten the cassette nut combination (4pcs) in the IT-E158C kit to the rear mounting lug connector (2pcs) and the square hole strip in the middle of the side of the ITECH cabinet as shown by the red arrow in the figure below.
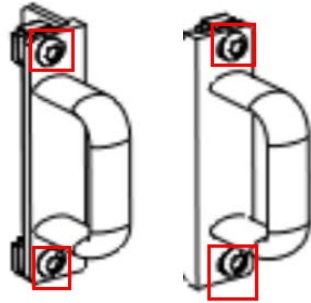
The installation schematic for one side is as follows.

After this step is installed, the following figure shows.

4. Drop the instrument with the carrying handle and rear end connector installed into the cabinet and fasten the cassette nut combination (4pcs) to the front mounting ears of the instrument and the cabinet.

Note: When there is no pallet load-bearing inside the cabinet, it is recommended that at least two people cooperate in the operation, with one person making sure to hold the instrument while the others lock the screws and other operations.


5. Fasten the hexagonal socket head combination screws M4x8 (6pcs) as shown by the red arrows in the figure below to the rear mounting lug connections already installed on the cabinet and already installed on the rear of the instrument.

Installation into non-ITECH cabinets (select IT-E158D)

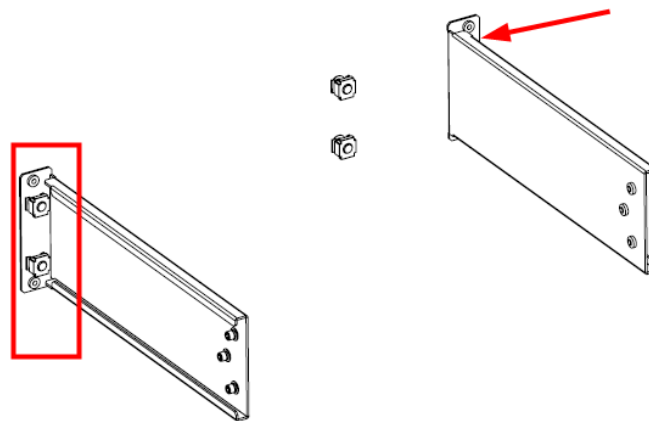When installed into a non-ITECH cabinet, the installation method is shown below.

1. Fasten the cross countersunk head screws M4x10 (4pcs) in the IT-E158D kit to the mounting lugs as shown by the red arrows in the figure below.
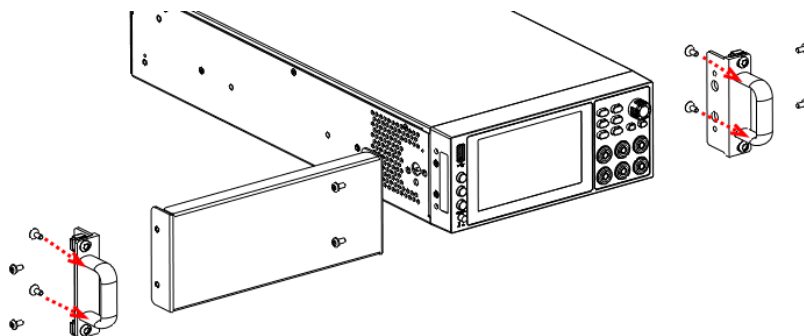
2. Install the cross small pan head screws M4x8 (12pcs) in the IT-E158D kit to both sides of the instrument as shown by the red arrows in the figure below.
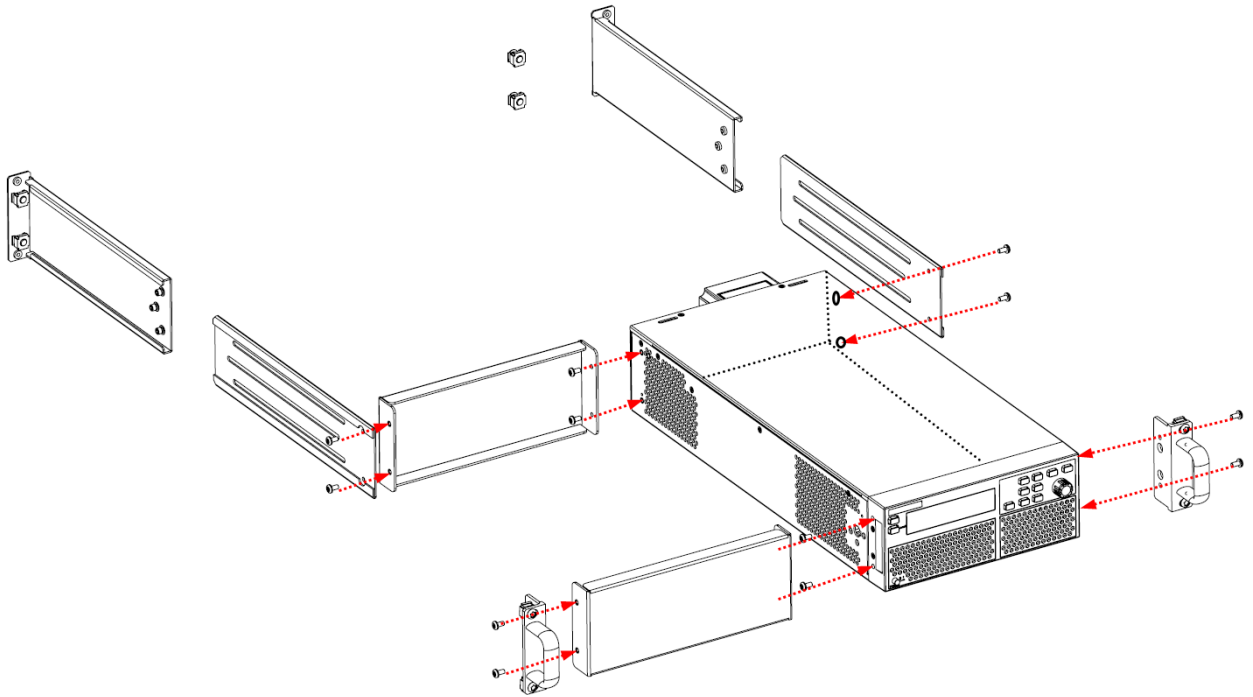
3. Fasten the cassette nut assembly (4pcs) to the rear mounting lug connectors (2pcs) and the square hole strip on the side of the cabinet as shown by the red arrow in the figure below.

4. Drop the instrument with the carrying handle and rear end connector installed into the cabinet and fasten the cassette nut combination (4pcs) to the front mounting ears of the instrument and the cabinet.
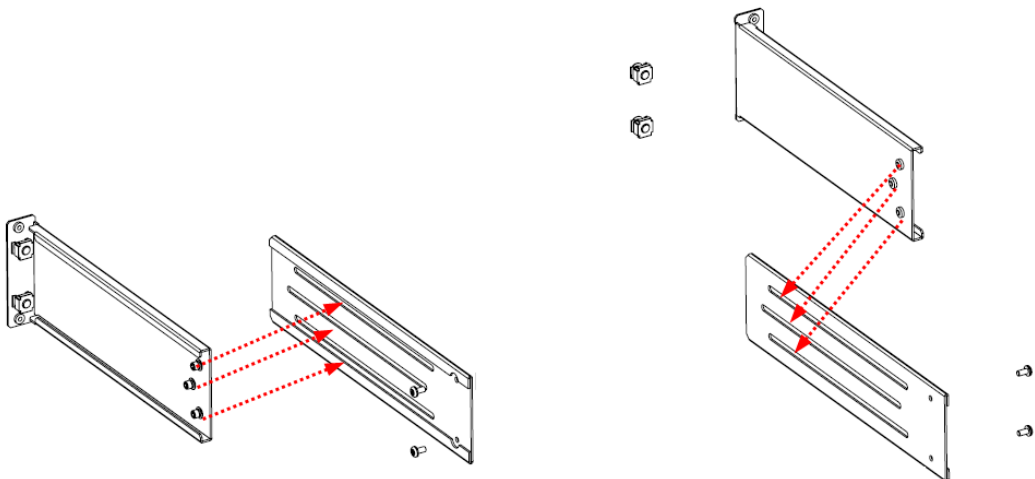
   Note: When there is no pallet load-bearing inside the cabinet, it is recommended that at least two people cooperate in the operation, with one person making sure to hold the instrument while the others lock the screws and other operations.
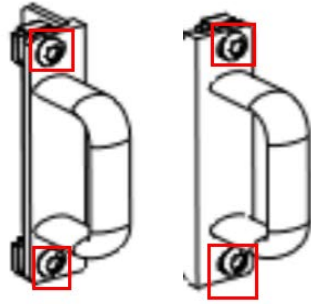
5. Adjust the length of the retractable kit according to the depth of your cabinet.
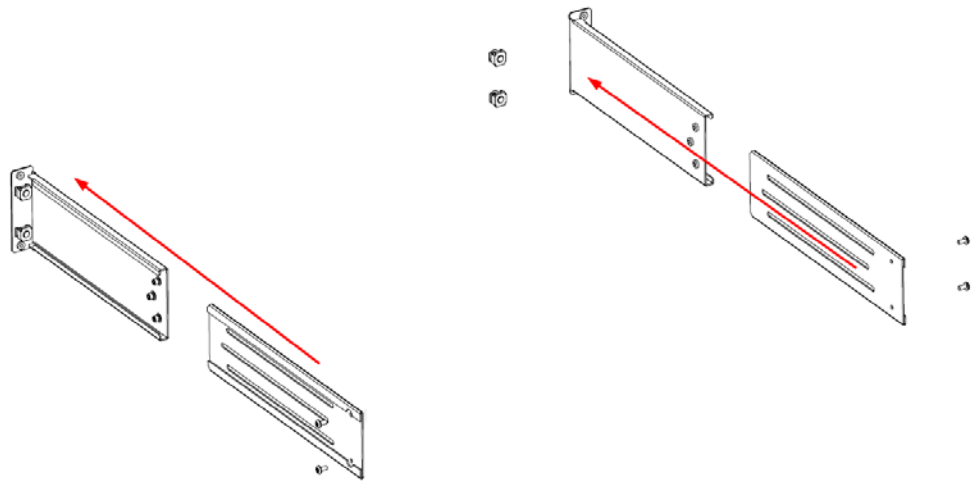
6. Fasten the hexagonal socket head combination screws M4x8 (6pcs) to the rear mounting lug connections already installed on the cabinet and already installed on the rear of the instrument as shown by the red arrows in the figure below.

After the installation is completed, the side is shown below (shortest and longest).

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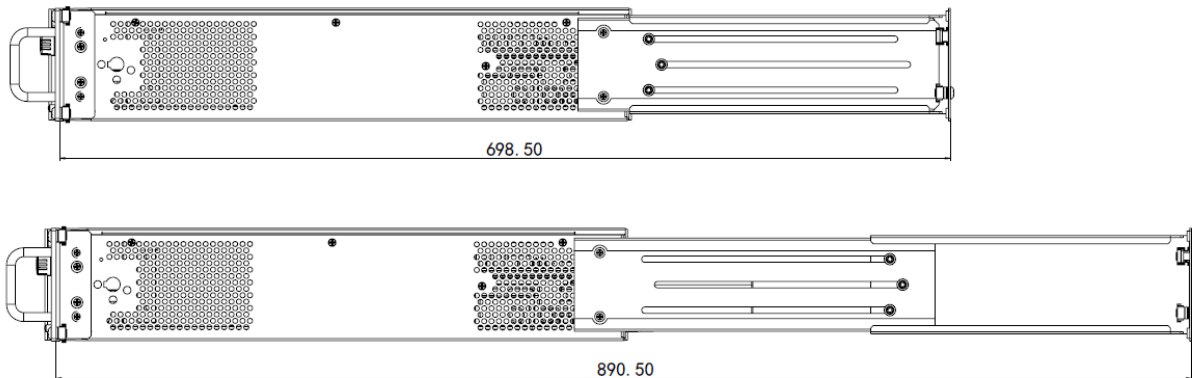
2.3 Installation of two instruments

Installation into ITECH cabinet (select IT-E158A)

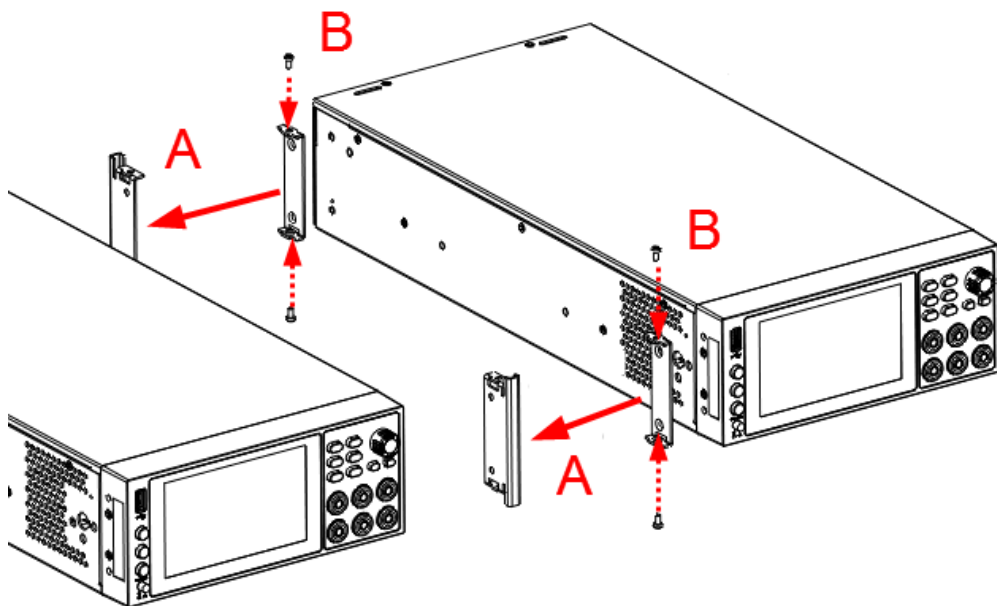When installed into the ITECH cabinet, the installation method is shown below.

1. Fasten the cross countersunk head screws M4x10 (4pcs) in the IT-E158A kit to the mounting lugs as shown by the red arrows in the figure below.
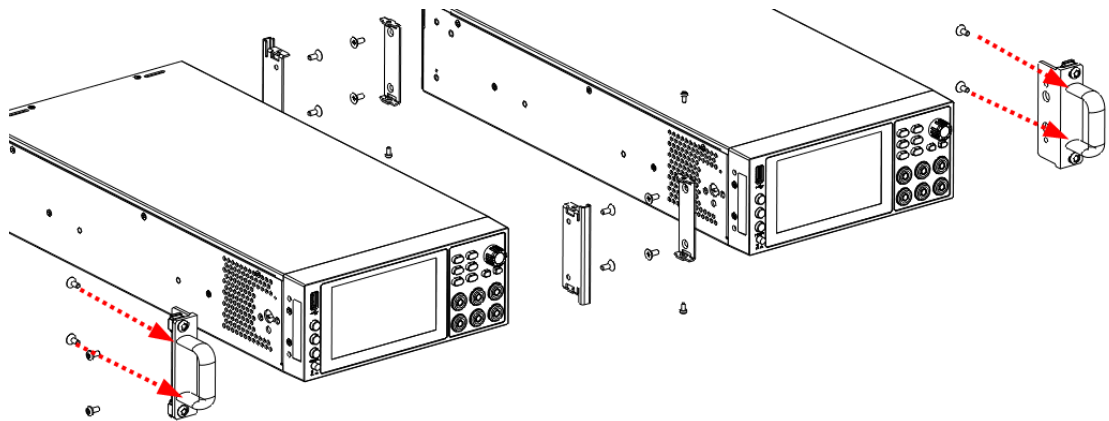
2. Install the cross small pan head screws M4x8 (8pcs, shown by red arrows) and cross countersunk head screws M4x10 (8pcs, shown by blue arrows) to both sides of the instrument as shown by the arrows in the figure below.
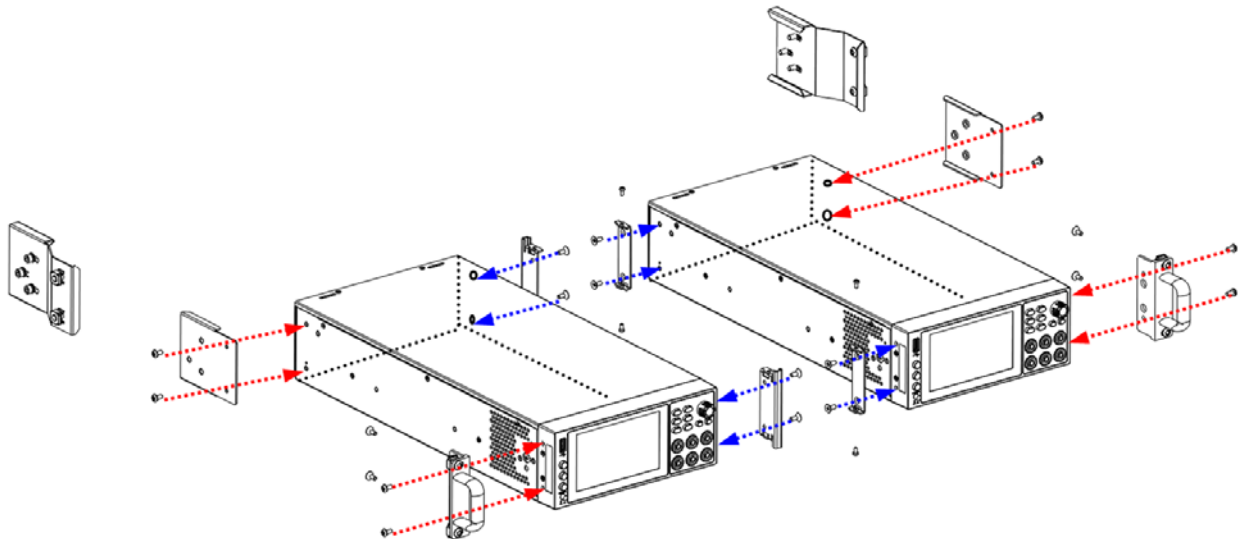
3. According to the red arrow shown in the figure below, first merge the connection pieces in the middle of the two instruments (**at note A in the figure**), and after aligning the mounting holes in the middle, fasten them (**at note B in the figure**) with cross small pan head screws M3x6 (4pcs).
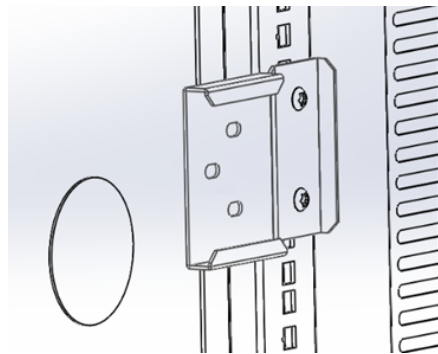
4. Fasten the cassette nut combination (4pcs) to the rear mounting lug connectors (2pcs) and the square hole strip at the middle of the side of the ITECH cabinet as shown by the red arrow in the figure below.

   The installation schematic for one side is as follows.
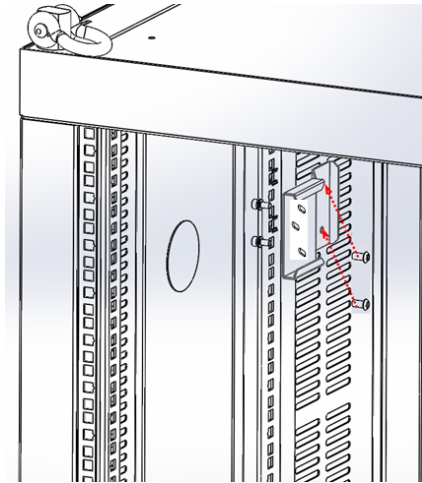
After this step is installed, the following figure shows.

5. Drop the instrument with the carrying handle and rear connector installed into the cabinet and fasten the cassette nut combination (4pcs) to the front mounting ears of the instrument and the cabinet.

    Note: When there is no pallet load-bearing inside the cabinet, it is recommended that at least two people cooperate in the operation, with one person making sure to hold the instrument while the others lock the screws and other operations.
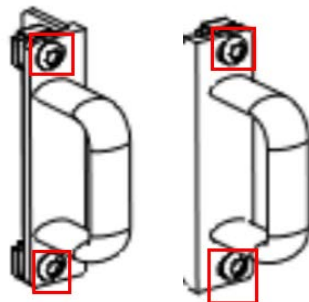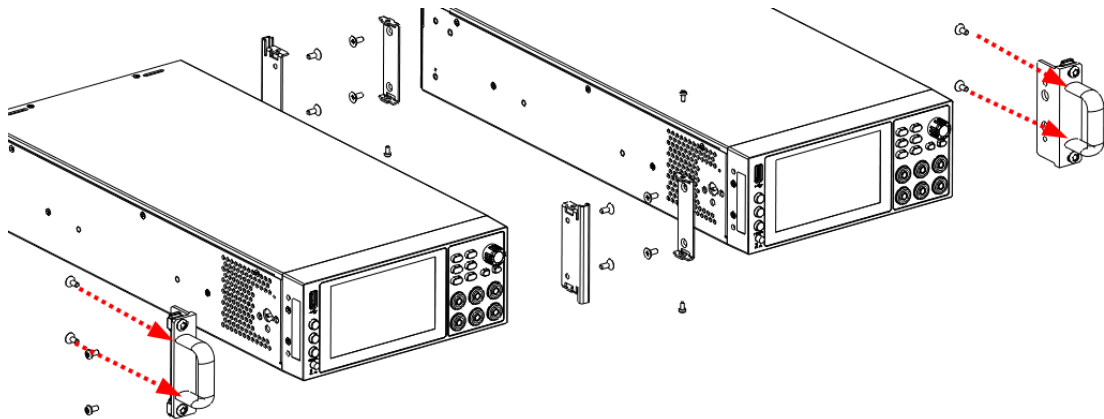

6. Fasten the hexagonal socket head combination screws M4x8 (6pcs) as shown by the red arrows in the figure below to the rear mounting lug connections already installed on the cabinet and already installed on the rear of the instrument.
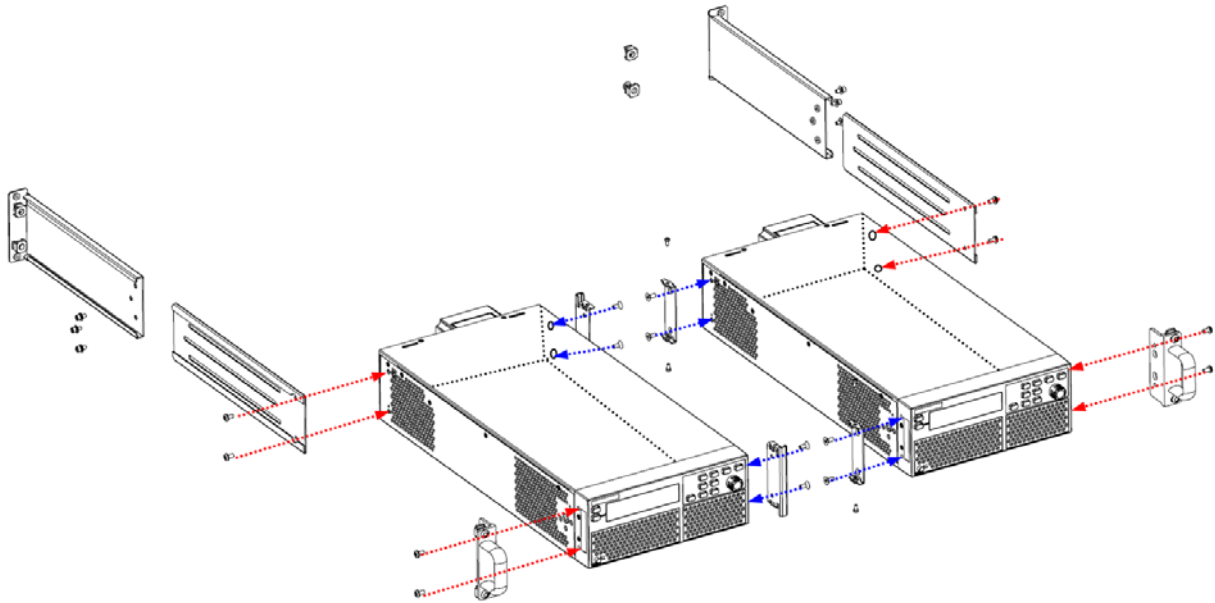
Installation into non-ITECH cabinets (select IT-E158B)

When installed into a non-ITECH cabinet, the installation method is shown below.
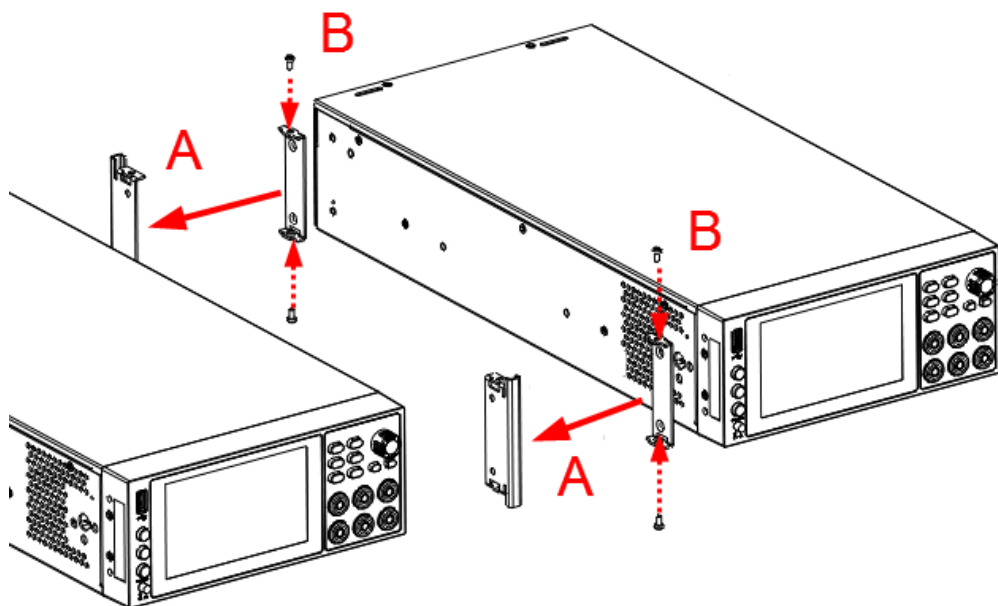
1. Fasten the cross countersunk head screws M4x10 (4pcs) in the IT-E158B kit to the mounting lugs as shown by the red arrows in the figure below.

2. Install the cross small pan head screws M4x8 (8pcs, shown by red arrows) and cross countersunk head screws M4x10 (8pcs, shown by blue arrows) to both sides of the instrument as shown by the arrows in the figure below.
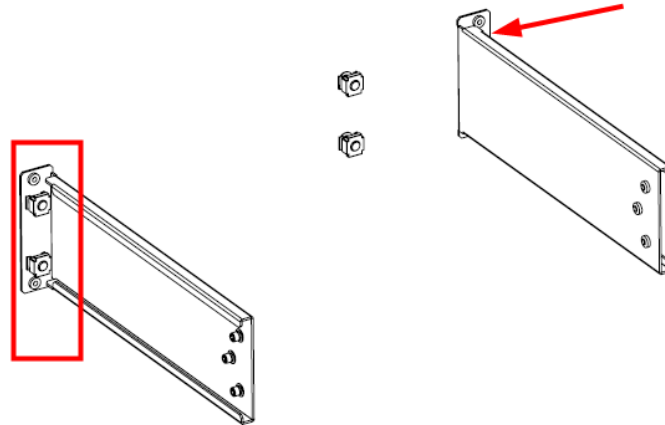
3. According to the red arrow shown in the figure below, first merge the connection pieces in the middle of the two instruments (**at note A in the figure**), and after aligning the mounting holes in the middle, fasten them (**at note B in the figure**) with cross small pan head screws M3x6 (4pcs).


4. Fasten the cassette nut assembly (4pcs) to the rear mounting lug connectors (2pcs) and the square hole strip on the side of the cabinet as shown by the red arrow in the figure below.

5. Drop the instrument with the carrying handle and rear end connector installed into the cabinet and fasten the cassette nut combination (4pcs) to the front mounting ears of the instrument and the cabinet.
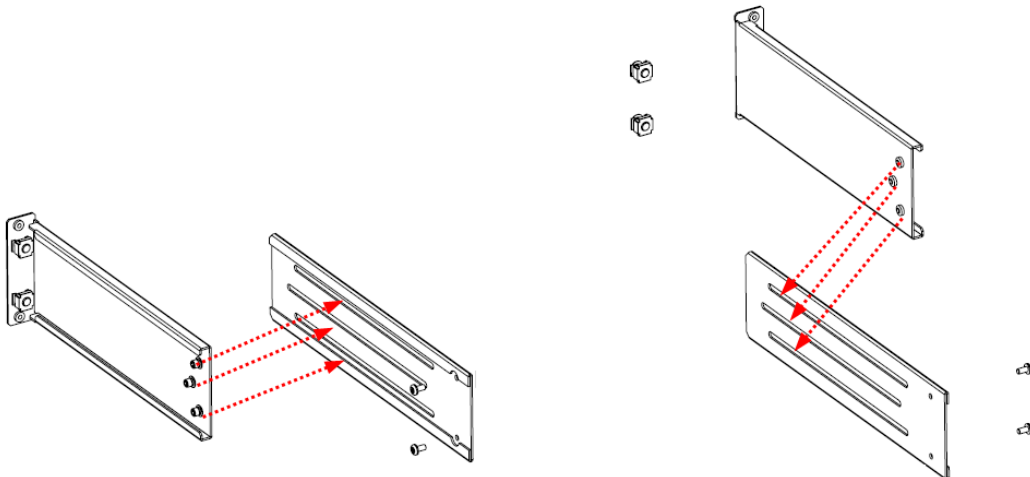
Note: When there is no pallet load-bearing inside the cabinet, it is recommended that at least two people cooperate in the operation, with one person making sure to hold the instrument while the others lock the screws and other operations.
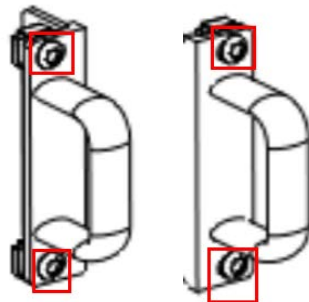
6. Adjust the length of the retractable kit according to the depth of your cabinet.
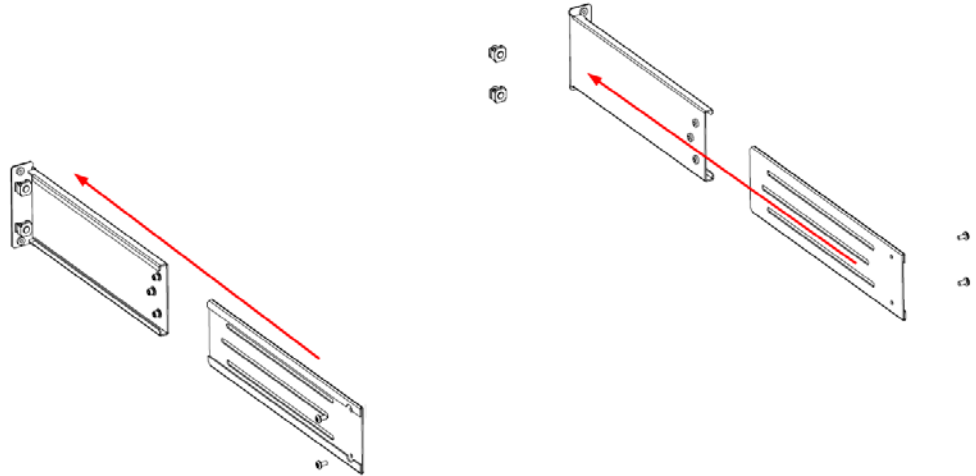
7. Fasten the hexagonal socket head combination screws M4x8 (6pcs) to the rear mounting lug connections already installed on the cabinet and already installed on the rear of the instrument as shown by the red arrows in the figure below.

After the installation is completed, the side is shown below (shortest and longest).

698.50

890.50
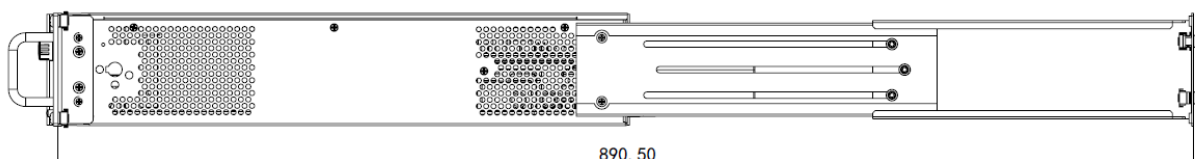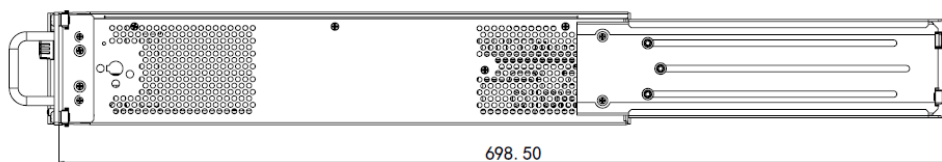
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