

# RACK-3400G

## 4U Rackmount Chassis

### Version: 1.0

## Quick Installation Guide



### ABOUT THE RACK-3400G

The 4U, heavy-duty steel RACK-3400G AT/ATX compatible rackmount industrial chassis is designed to operate reliably in industrial environments where it will be exposed to dust, wide temperature variations, and shocks and vibrations, among other things.

### SPECIFICATIONS

- **Form Factor:** Standard 4U, 19" wide
- **SBC Form Factor:** Half-size, slot CPU cards
- **Construction:** Heavy-duty steel
- **Slots Number:** 10-slot
- **Cooling:** 2 x 8cm fans
- **Drive Bay Combinations:**
  - o 2 x 5.25" Optical drive bays
  - o 1 x 3.5" FDD (floppy disk drive) or HDD (hard disk drive) bay
- **Dimensions (DxWxH):**
  - o 283 mm x 431mm x 176mm
- **Operating Temperature:** 0~40°C
- **Relative Humidity:** 5~95%
- **Vibration:**
  - o 5-17Hz, 0.1" double amplitude displacement
  - o 17-640Hz, 1.5G acceleration peak to peak
- **Shock:** 10G acceleration peak to peak

### PACKING LIST

When you unpack the chassis, make sure the following items have been shipped.

- 1 x Quick Installation Guide
- 1 x Power cord
- 2 x Handles and handle plates
- 1 x Screw set
- 2 x Keys

### DETAILS OF INCLUDED SCREWS

The attached screw set includes five types of screws. Screws used for chassis installation are shown below.



| Peripherals/Parts    | Screw Label (refer to the picture above) |
|----------------------|--|
| 5.25" Optical Drives | 5  |
| 3.5" FDD             | 5  |
| 3.5" HDD             | 1  |
| 2.5" HDD             | 4  |
| Power Supply Unit    | 1  |
| Rackmount Bracket    | 3  |
| Backplane            | 3  |
|                      | 2  |

Table 1: Screws for Peripheral/Parts

## DIMENSION DRAWING

The dimensions of RACK-3400G are shown in the figure below.

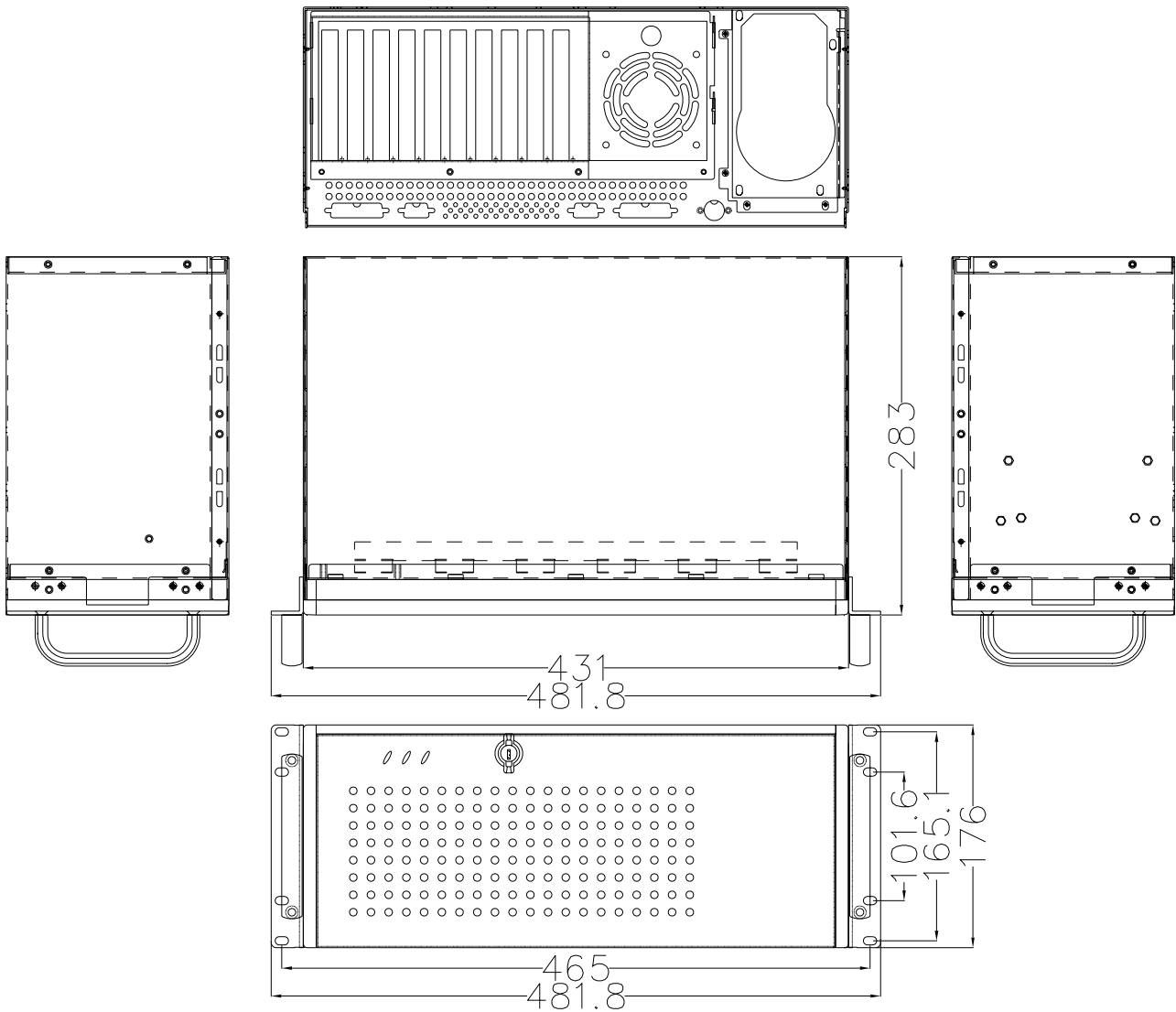


Figure 1: Dimension Drawing (measurement units: millimeter)

## INSTALLATION STEPS

To install the RACK-3400G chassis, the following installation steps must be completed.

- Step 1:** Unpack the chassis.
- Step 2:** Install the front handles.
- Step 3:** Remove the top cover and hold-down clamp.
- Step 4:** Install the PSU.
- Step 5:** Install the backplane.
- Step 6:** Install the CPU card.
- Step 7:** Install the PCI and ISA expansion cards.
- Step 8:** Install the disk drives.
- Step 9:** Connect the cables.
- Step 10:** Connect PSU cable and interface cable.
- Step 11:** Reinstall the hold-down clamp and the top cover.

The installation steps outlined above are described in detail below. Please refer to the relevant section.

### STEP 1: UNPACK

The RACK-3400G is shipped in a plastic bag that is placed inside a cardboard box. The items are also shipped with the chassis. When you unpack the chassis you must

- Make sure all the items listed in the **PACKING LIST** section are present.
- Make sure the chassis has not been damaged in anyway.

### STEP 2: FRONT HANDLE INSTALLATION

Two handles are shipped with the RACK-3400G chassis. The handles are installed on the sides, at the front of the chassis. Each handle is secured to the chassis by four retention screws. To install the handles, please follow the steps below.

- Step 1:** Align the retention screw holes on the side of the chassis with the retention screw holes in the handle.
- Step 2:** Insert four retention screws for each handle.

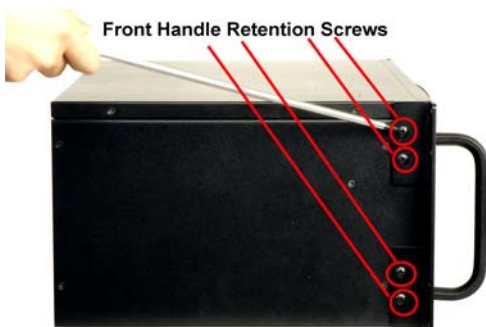


Figure 2: Front Handle Retention Screws

### STEP 3: TOP COVER AND HOLD-DOWN CLAMP REMOVAL

#### STEP 3.1: REMOVE THE TOP COVER

The top cover is secured by four retention screws on both sides, two on each side, of the chassis. Remove the screws and slide the cover toward the rear of the chassis. To remove the top cover, please follow the steps below.

- Step 1:** Remove all four top cover retention screws. Remove two retention screws from each side of the chassis.

#### Four Retention Screws on the Sides

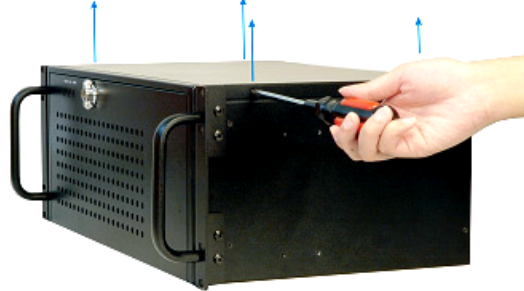


Figure 3: Top Cover Retention Screws

- Step 2:** Slide the cover backwards and then lift the cover up gently.



Figure 4: Remove the Top Cover

#### STEP 3.2: HOLD-DOWN CLAMP REMOVAL

Detach the hold-down clamp by removing the two screws located on each side of the chassis and lift the hold-down clamp off the chassis.



Figure 5: Remove the Hold-Down Clamp

| Model No.      | Input | Type | Watt | Output Range |     |       |       |      |      |       |
|----------------|-------|------|------|--------------|-----|-------|-------|------|------|-------|
|                |       |      |      | +3.3V        | +5V | +12V1 | +12V2 | -5V  | -12V | +5Vsb |
| ACE-940AP-RS   | AC    | AT   | 390W | N/A          | 40A | 15A   | N/A   | 0.3A | 0.8A | N/A   |
| ACE-832AP-RS   | AC    | ATX  | 300W | 28A          | 30A | 15A   | N/A   | 0.3A | 0.8A | 2A    |
| ACE-841AP-S-RS | AC    | ATX  | 400W | 28A          | 33A | 20A   | N/A   | 0.5A | 1A   | 2A    |
| ACE-850AP-RS   | AC    | ATX  | 500W | 27A          | 29A | 18A   | 18A   | 0.3A | 0.8A | 2A    |
| ACE-R4130AP-RS | AC    | ATX  | 300W | 18A          | 25A | 16A   | N/A   | 0.5A | 0.5A | 2A    |

**Table 2: Compatible IEI PSUs.**

## STEP 4: INSTALL THE POWER SUPPLY UNIT (PSU)

Once the top cover and hold-down clamp have been removed, the PSU must be installed. Compatible IEI PSUs are listed in the table above.

The PSU is installed at the rear of the chassis and secured to the chassis with six retention screws. To install the PSU, please follow the steps below.

- Step 1:** Correctly position the PSU at the rear of the chassis making sure that the power switch and the cable socket both face outwards.
- Step 2:** Once the PSU has been correctly positioned, secure the PSU to the chassis by inserting two retention screws through the side and four retention screws through the rear of the chassis.



**Figure 6: Insert PSU Retention Screws**

## STEP 5: BACKPLANE INSTALLATION

The IEI backplanes listed below are compatible with the RACK-3400G chassis.

| Model No.     | SBC Type  | PCI | ISA | PSU Connector |
|---------------|-----------|-----|-----|---------------|
| BP-10S-RS-R30 | ISA       | N/A | 10  | AT            |
| IP-10S-RS-R30 | PICMG 1.0 | 4   | 5   | AT/ATX        |
| IPX-9S-RS-R30 | PCIAGP    | 11  | N/A | AT/ATX        |

**Table 3: Compatible Backplane Modules**

To install the backplane please follow the instructions below.

- Step 1:** Insert the nine copper pillars in the predrilled screw holes in the bracket.



**Figure 7: Locations of the Seven Elevated Predrilled Screw Holes**

- Step 2:** Mount the backplane onto the nine copper pillars ensuring that the backplane retention screw holes are properly aligned with the nine screw holes in the copper pillars.
- Step 3:** Once the backplane is properly aligned with the retention screw holes, secure the backplane to the chassis with nine retention screws.

## STEP 6: CPU CARD INSTALLATION

To install the CPU card please follow the instructions below.

- Step 1:** Remove the slot cover at the back of the chassis. To do this, remove the slot cover retention screw at the top of the slot cover.



**Figure 8: Remove the Slot Cover Retention Screw**

- Step 2:** Slide a half-size CPU card into the socket on the backplane reserved for the CPU card. Make sure the back edge of the CPU card slots into the corresponding plastic guide rail located behind the cooling fans.

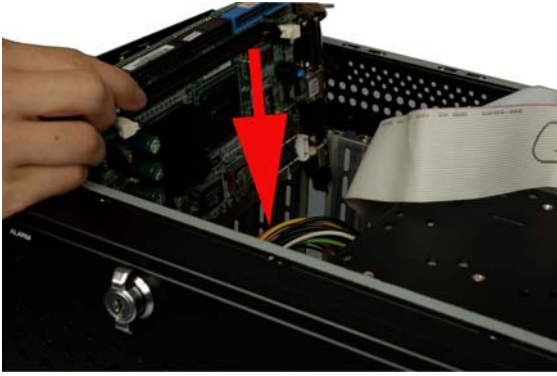


Figure 9: Slide the CPU Card into the Sockets

**Step 3:** To secure the CPU card, reinsert the previously removed slot cover retention screw.

## STEP 7: PCI/ISA EXPANSION CARD INSTALLATION

The RACK-3400G supports up to 10 PCI/ISA expansion cards. If you wish to install a PCI expansion card or an ISA expansion card please follow the instructions below.

**Step 1:** Remove the slot cover at the back of the chassis. To do this, remove the slot cover retention screw at the top of the slot cover.

**Step 2:** Slide the PCI/ISA expansion card into reserved PCI/ISA socket on the backplane.

**Step 3:** To secure the PCI/ISA expansion card, reinsert the previously removed slot cover retention screw.

## STEP 8: DISK DRIVES INSTALLATION

The RACK-3400G chassis has the capacity for

- o 2 x 5.25" Optical drives
- o 1 x 3.5" FDD or HDD

To install the drives please follow the steps outlined in the sections below.

### STEP 8.1: DRIVE BRACKET REMOVAL

Remove the three screws that secure the drive bay to the chassis front panel.



Figure 10: Remove the Three Retention Screws

### STEP 8.2: FDD/HDD INSTALLATION

To install a 3.5" drive into the drive bracket, please follow the steps below.

**Step 1:** Remove the drive bracket. To do this, please refer to **STEP 8.1: DRIVE BRACKET REMOVAL**.

**Step 2:** Remove the metal front cover of the 3.5" drive bay by removing the two retention screws, one from each side.



Figure 11: Remove the 3.5" Drive Bay Front Cover Retention Screws

**Step 3:** Slide a 3.5" drive (FDD or HDD) into the 3.5" drive bay. Make sure both the 4-pin power connector and the IDE/SATA connector face the rear of the bracket.

**Step 4:** To secure the 3.5" drive to the drive bracket, insert four retention screws.

### STEP 8.3: OPTICAL DRIVE INSTALLATION

To install a 5.25" drive into the drive bracket, please follow the steps below.

**Step 1:** Remove the drive bracket. To do this, please refer to **STEP 8.1: DRIVE BRACKET REMOVAL**.

**Step 2:** Remove the front metal cover from the front of the selected drive bay by removing the two retention screws (one on each side) securing the front cover to the drive bracket.



Figure 12: Remove the 5.25" Drive Bay Retention Screws

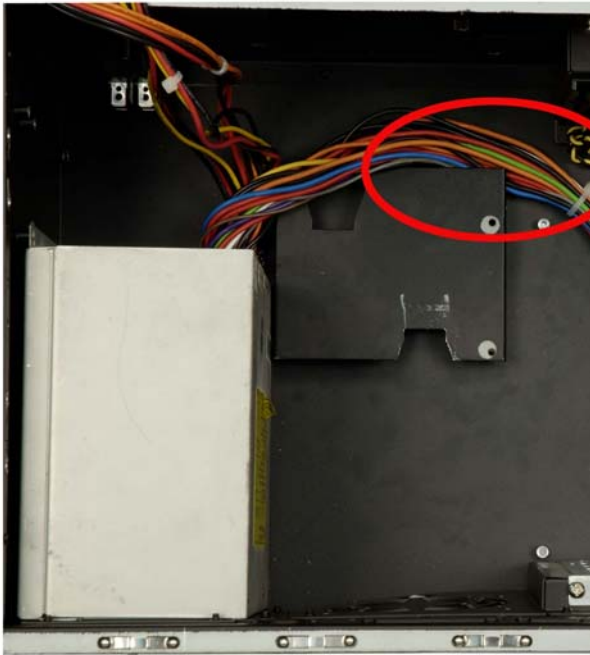
**Step 3:** Slide a 5.25" optical drive into the 5.25" drive bay making sure both the 4-pin power connector and the IDE/SATA connector are facing the rear of the chassis.

**Step 4:** Insert four retention screws, two on each side of the drive bay to secure the 5.25" optical drive.

**STEP 8.4: DRIVE BRACKET REINSTALLATION**

After the disk drives have been properly installed into the drive brackets, reinstall the drive brackets into the chassis. To reinstall the drive brackets into the chassis please follow the steps below.

**Step 1:** Before the drive bracket is reinstalled, the 20-pin power cable has to be secured underneath the bracket at the base of the chassis to allow the top cover to be reinstalled later in the installation procedure.

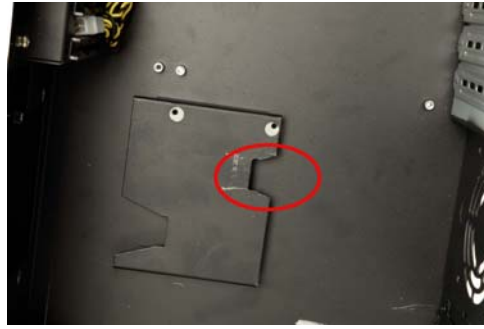


**Figure 13: Secure the 20-pin Power Cable underneath the Bracket**

**Step 2:** Place the main drive bracket into the chassis. Make sure the front of the drives face out of the chassis, the 4-pin drive power connectors and IDE/SATA interface connectors all face the rear of the chassis, and the clip at the bottom of the bracket slides into the bracket at the base of the chassis.



**Figure 14: Bottom Clip of the Drive Bracket**



**Figure 15: Bracket at the Base of the Chassis**





**Step 3:** Secure the drive bracket into the chassis by reinserting the three previously removed retention screws.

**STEP 9: CABLING**

The RACK-360G has the following components accessible at the front:

- o 1 x Power LED
- o 1 x HDD LED
- o 1 x Power switch
- o 1 x Reset button

These components are all connected to the CPU card with cables. To correctly connect these cables, please refer to the technical documentation that came with your CPU card. The connectors that are provided with the chassis are listed below:

| No. | Name   |
|-----|--|
| 1   | <br>Power LED cable    |
| 1   | <br>Reset Switch cable |
| 1   | <br>HDD LED cable      |
| 1   | <br>Power switch cable |

**Table 4: Chassis Connectors**

**STEP 10: PSU CABLE AND INTERFACE CABLE CONNECTIONS**

To connect the power and ribbon cables please follow the instructions below.

**Step 1:** Connect the PSU cables from the PSUs to the backplane, half-size CPU card, HDD, FDD, cooling



fans and CD drives power connector.

**Step 2:** The drive interface connectors must be connected to the CPU card.

## STEP 11: HOLD-DOWN CLAMP AND TOP COVER REINSTALLATION

After you have completed the above procedures, the hold-down clamp and cover can be reinstalled. To do this, align the screw holes on both ends of the hold-down clamp with the screw holes on both sides of the chassis and reinsert the four previously removed retention screws. After that, slide the cover back over the chassis and reinsert the six previously removed retention screws.

## CHASSIS MAINTENANCE

### ■ Fan Replacement



#### NOTE:

Please ensure that the power of the computer is switched off before fan replacement procedure.

There are two 8 cm cooling fans inside the RACK-3400G chassis. To replace a fan, please follow the steps below.

**Step 1:** Open the front panel. (Please refer to **STEP 3: TOP COVER AND HOLD-DOWN CLAMP REMOVAL**)

**Step 2:** Remove the fan bracket securing the fan you want to replace by loosening the two thumbscrews on the upper right and lower left of the fan bracket.

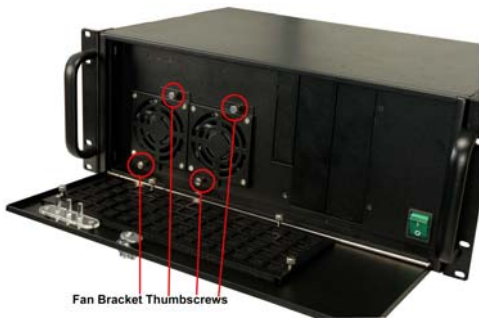


Figure 16: Remove the Fan Bracket Thumbscrews

**Step 3:** Unplug the power cable that is connected to the fan.



Figure 17: Disconnect the Fan Connector

**Step 4:** Remove the four retention screws in each of the four corners of the fan that must be replaced.

**Step 5:** Replace the fan and secure the new fan to the bracket with the four previously removed retention screws.

**Step 6:** Reinstall fan bracket into the chassis and secure the fan bracket to the chassis with the previously loosened thumbscrews.

### ■ Fan Filter Replacement

To replace the fan filter, please follow the steps below.

**Step 1:** Open the front panel.

**Step 2:** Remove the four thumbscrews on the fan filter bracket.



Figure 18: Remove the Fan Filter

**Step 3:** Replace the filter pad inside.

**Step 4:** Secure the fan filter bracket back to the front panel of the chassis with the four previously removed thumbscrews.

### ■ Cabinet Installation

Supporting rails, rack trays, or slide rails can be implemented using the mounting holes on the sides of the chassis. The eight mounting holes in the two handles on the sides of the chassis are shown below.



Figure 19: Locations of the Eight Mounting Holes



#### NOTE:

If the system is running critical applications, please find the appropriate time to backup data and properly shut down the system.