PAC-400AI
5-slot Wall-mount Chassis
Version: 1.0

Quick Installation Guide

ABOUT THE PAC-400AI

The 5-slot, heavy-duty steel PAC-400AI compact wall-mount 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:** 5-slot compact chassis
- **SBC Form Factor:** Half-size CPU cards
- **Construction:** Metal
- **Slots Number:** 5-slot
- **Cooling:** 1 x 8cm
- **Drive Bay:** 1 x 3.5" HDD
- **Dimensions (DxWxH):**
  - o 269mm x 140mm x 230.5mm
- **Operating Temperature:** 0~40°C
- **Relative Humidity:** 5~95%
- **Vibration:**
  - o 5 to 17Hz, 0.1" double amplitude displacement
  - o 17 to 640Hz, 1.5G acceleration peak to peak
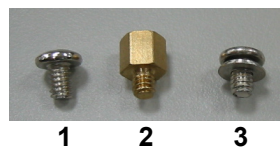- **Shock:** 10G acceleration peak to peak

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 Wall-mount plates
- 1 x Screw set

DETAILS OF INCLUDED SCREWS

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

Peripherals/Parts	Screw Label (refer to the picture above)
3.5" HDD	1
1U Power Supply Unit	1
Wall-mount Plate	3
Backplane	3
	2

Table 1: Screws for Peripheral/Parts

DIMENSION DRAWING
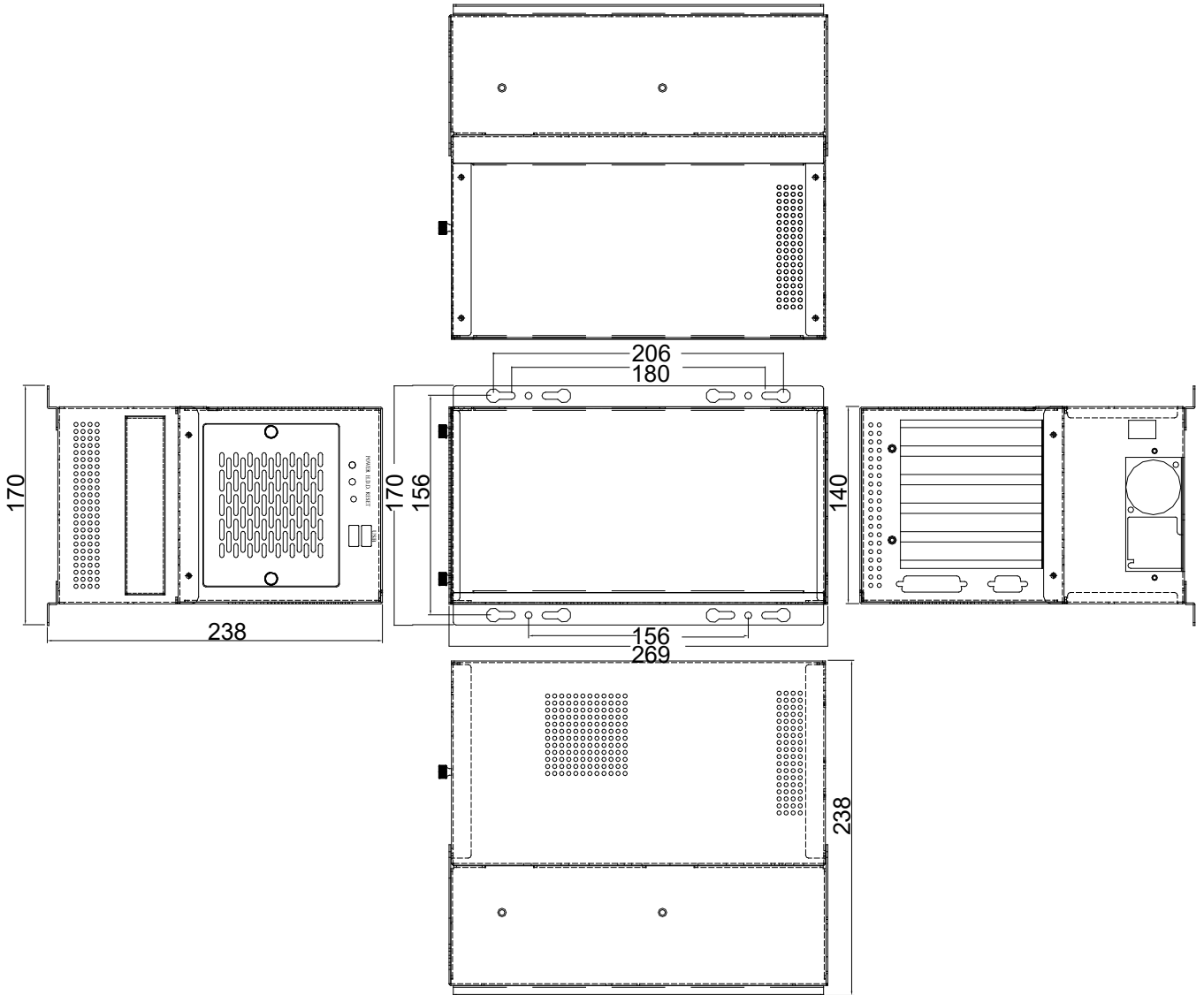
The dimensions of the PAC-400AI are shown below.

Figure 1: Dimension Drawing (measurement units: millimeter)

INSTALLATION STEPS

To install the PAC-400AI chassis, the following installation steps must be completed:

Step 1: Unpack the chassis.

Step 2: Remove the cover.

Step 3: Install the PSU.

Step 4: Install the HDD.

Step 5: Reinstall the upper compartment.

Step 6: Install the backplane.

Step 7: Connect the cables.

Step 8: Install the CPU card.

Step 9: Install the PCI and ISA expansion cards.

Step 10: Reinstall the top cover.

Step 11: Install the wall-mount plates.

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

STEP 1: UNPACK

The PAC-400AI 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 any way.

STEP 2: REMOVE THE TOP COVER

The top cover is secured to the chassis with four retention screws on the left side of the chassis.

Step 1: Remove all four top cover retention screws from the left side of the chassis.

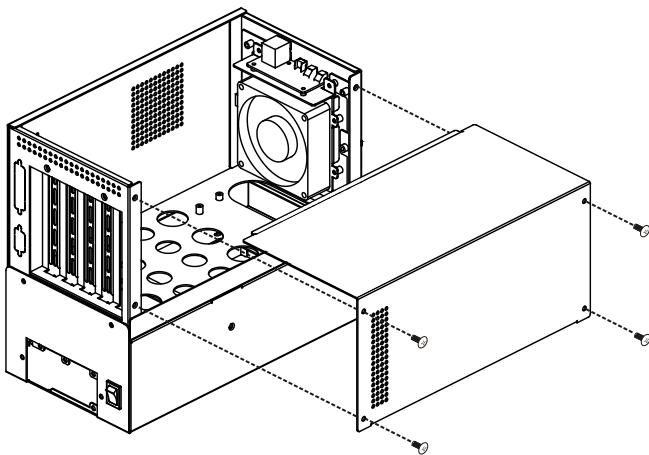**Step 2:** Slide the cover leftwards and then lift the cover up gently.

Figure 2: Remove the Top Cover

STEP 3: INSTALL THE POWER SUPPLY UNIT (PSU)

Once the top cover has been removed, the PSU must be installed. Compatible 1U IEI PSUs are listed in **Table 2** on *page 4*.

The PSU is secured to the rear of the lower compartment on a PSU bracket. To install a compatible PSU, please follow the steps below:

Step 1: Remove the upper compartment by removing the four upper compartment retention screws, two from the front and two from the rear of the chassis.
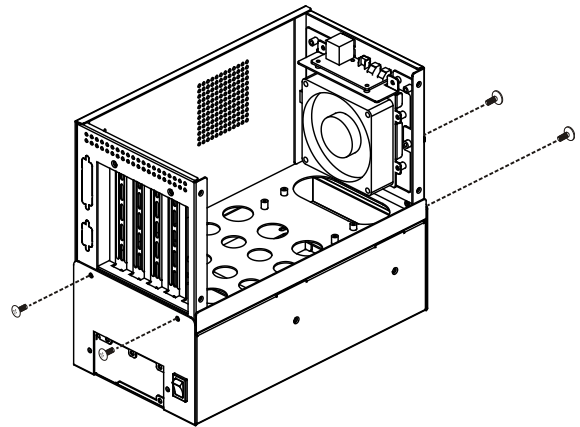

Figure 3: Upper Compartment Retention Screws

Step 2: Remove the 3.5" drive bracket by removing the four retention screws from both sides of the drive bracket, two from each side.
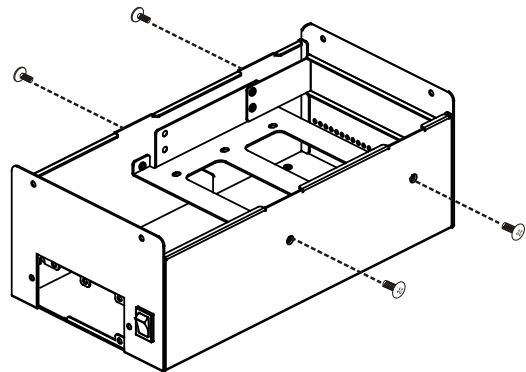

Figure 4: 3.5" HDD Bracket Retention Screws

Step 3: Remove the PSU bracket located in the lower compartment by removing the four PSU bracket retention screws, three from the rear of the chassis and one from the bottom surface of the chassis.
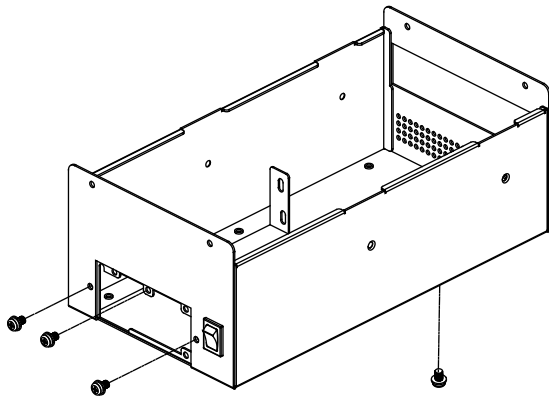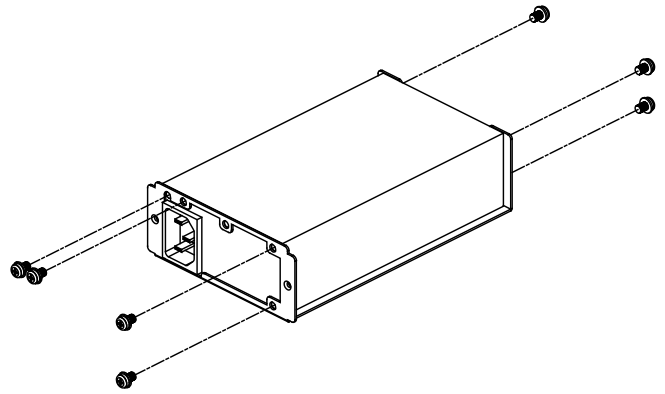
Figure 5: PSU Bracket Retention Screws

Figure 6: PSU Retention Screws at the Rear

Step 4: Mount the PSU onto the PSU bracket. Make sure the power socket and the PSU fan are inserted into the corresponding holes in the rear of the PSU bracket.

Step 5: To secure the PSU to the PSU bracket, insert seven retention screws, three into the rear and four into the front of the PSU bracket.

Step 6: Reinstall the PSU bracket with the PSU.

Step 7: To secure the PSU bracket to the chassis, reinsert the four previously removed PSU bracket retention screws.

Model No.	Input	Type	Watt	Output Range					
				+3.3V	+5V	+12V	-5V	-12V	+5Vsb
ACE-916AP-RS	AC	AT	150W	N/A	16A	6A	N/A	0.3A	N/A
ACE-A618B-RS	AC	ATX	180W	10A	14A	10A	N/A	0.3A	2.5A

Table 2: Compatible IEI PSUs

STEP 4: HDD INSTALLATION

The PAC-400AI chassis can support one 3.5" HDD in the lower compartment. To install a 3.5" HDD, please follow the steps below:

Step 1: Mount a 3.5" HDD onto the 3.5" drive bracket.

Step 2: To secure the 3.5" HDD to the 3.5" HDD bracket, insert four retention screws from the bottom surface of the 3.5" HDD bracket.
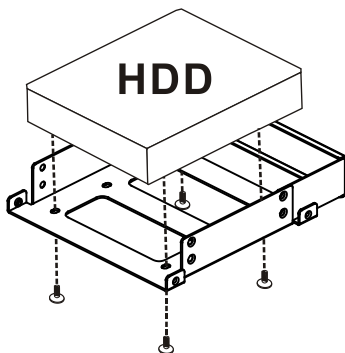

Figure 7: 3.5" HDD Retention Screws

Step 3: Reinstall the 3.5" drive bracket and reinsert the four previously removed retention screws.

Step 4: Connect the 3.5" HDD power connector and SATA connector.

STEP 5: UPPER COMPARTMENT REINSTALLATION

Before any other peripherals and components are installed, the upper compartment must be reinstalled. To do this, please follow the steps below:

NOTE:

■ If an AT PSU is installed, the power switch cable must be connected to the power switch before the upper compartment is reinstalled.

■ If an ATX PSU is installed, the power switch cable must be run through the elliptical hole at the front of the upper compartment base.

Step 1: Run all the cables, apart from the AT PSU power switch cable, through the elliptical hole in the upper compartment base.
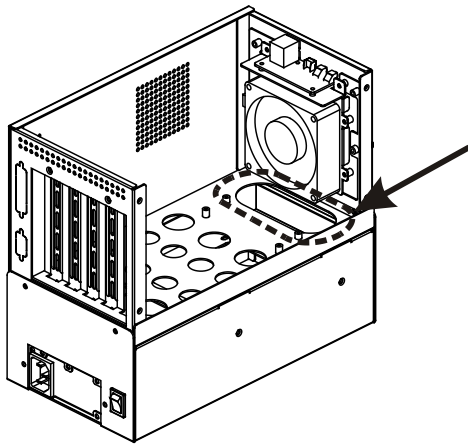
Figure 8: Run the Cables through the Elliptical Hole

Step 2: Reinstall the upper compartment and reinsert the four previously removed upper compartment retention screws.
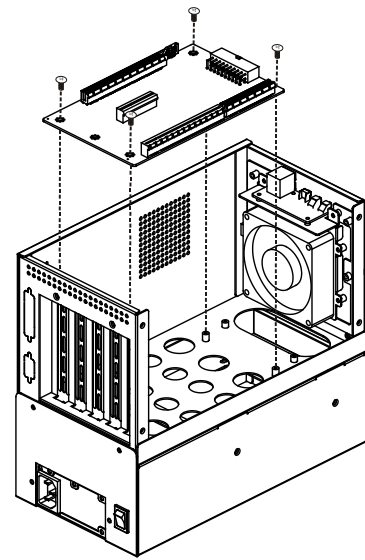
STEP 6: BACKPLANE INSTALLATION

The compatible IEI backplanes are listed below:

Model No.	SBC Type	PCI	ISA/ PCIe	PSU
BP-4S-RS	ISA	0	4 x ISA	AT
IP-4S-RS	PCISA	3	0	AT
IP-4S2A-RS	PCISA	3	0	ATX
HPE-4S1	PCI/PICOe	3	0	ATX
HPE-4S2	PCI/PICOe	2	1 x PCIe x4	ATX

To install a compatible IEI backplane, please follow the instructions below:

Step 1: Mount the backplane onto the base of the upper compartment. Make sure the backplane is positioned correctly, so that when the CPU card and PCI/ISA expansion cards are installed, both the CPU card and the PCI/ISA card I/O connectors face the rear of the chassis.

Step 2: Align the retention screw holes in the backplane with the retention screw holes in the four elevated predrilled retention screw holes in the base of the upper compartment.
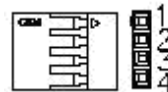
Step 3: Insert four retention screws to secure the backplane to the chassis.

Figure 9: Elevated Predrilled Screw Holes

Step 4: Connect the power cable to the backplane.

STEP 7: CABLING

The PAC-400AI has LEDs, buttons and ports on the front panel and a power switch at the rear panel:

- o 1 x Power LED
- o 1 x HDD LED
- o 1 x Power switch
- o 1 x Reset button
- o 2 x USB ports

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. USB cable pin definitions are shown below

PIN No.	Description	Color
1	+5V	Red
2	D-	Dark Yellow
3	D+	Yellow
4	GND	Brown

Table 3: USB Cable Pinouts

STEP 8: CPU CARD INSTALLATION

To install a CPU card, please follow the instructions below:

![NOTE icon] **NOTE:**

The cables must be connected to the CPU card before the CPU card installation due to the limitation of the space.

Step 1: Connect the HDD, USB, LED, reset and power cables to the CPU card.

Step 2: 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 3: Slide the 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 card guide located at the front of the chassis.
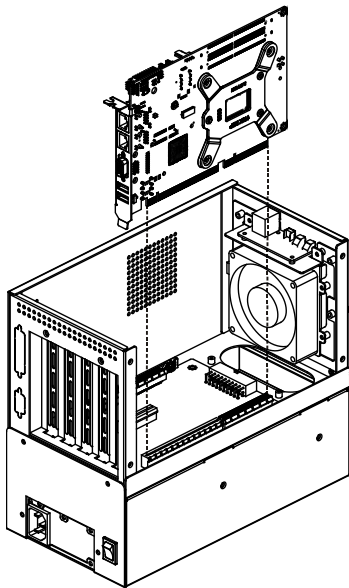

Figure 10: Slide the CPU Card into the Socket

Step 4: To secure the CPU card, reinsert the previously removed slot cover retention screw.

STEP 9: PCI/ISA EXPANSION CARD INSTALLATION

The PAC-400AI supports up to four 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 the 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 10: TOP COVER REINSTALLATION

After you have completed the above procedures, the top cover can be reinstalled. To reinstall the top cover, slide the cover back over the chassis and reinsert the four previously removed retention screws.

STEP 11: WALL-MOUNT PLATES INSTALLATION

Two wall-mount plates are shipped with the PAC-400AI chassis. The wall-mount plates are installed on the sides, at the bottom of the chassis. Each plate is secured to the chassis with three retention screws. To install the wall-mount plates, 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 wall-mount plate.

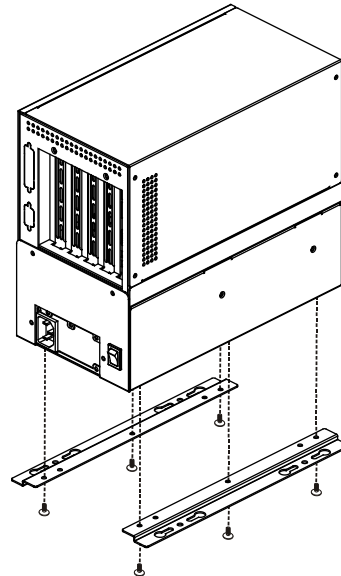**Step 2:** Insert three retention screws into each wall-mount plate.

Figure 11: Wall-mount Plate Retention Screws

CHASSIS MAINTENANCE

■ **FAN REPLACEMENT**

![NOTE icon] **NOTE:**

Please ensure that the power of the computer is switched off before you replace a fan.

There is one 8 cm cooling fan inside the PAC-400AI chassis. To replace a fan, please follow the steps below:

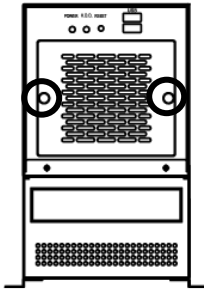**Step 1:** Loosen the two fan filter bracket thumbscrews.

Figure 12: Fan Filter Bracket Thumbscrews

Step 2: Unplug the power cable connected to the fan.

Step 3: Remove the four screws that secure the lattice plate with the fan filter bracket (A).

Step 4: Remove the four fan retention screws that secure the fan to the lattice plate (B).
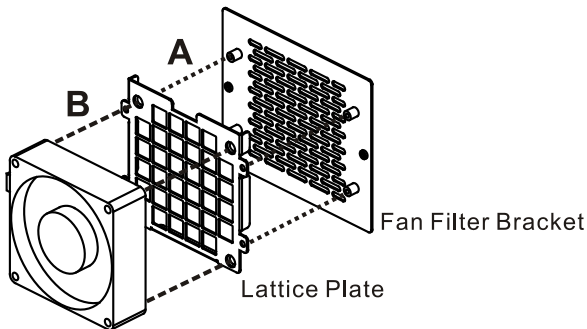

Figure 13: Fan Retention Screws

Step 5: Install a new fan and reinsert the four previously removed fan filter plate retention screws.

Step 6: Reinstall the fan filter plate with the fan.

Step 7: Reinstall the fan filter bracket and tighten the two fan filter bracket thumbscrews.

■ **FAN FILTER REPLACEMENT**

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

Step 1: Loosen the two fan filter bracket thumbscrews.

Step 2: Pull the fan filter pad out of the space between the lattice plate and the fan filter bracket.

Step 3: Insert a new fan filter pad.

Step 4: Reinstall the fan filter bracket and fasten the two fan filter bracket thumbscrews.