MIC-3021/8

6U 8-slot enclosure for *CompactPCI™*

Copyright Notice

Acknowledgements

CE Notification

The MIC-3021/8, developed by Advantech CO., LTD., has passed the CE test for environment specification when shielded cables are used for external wiring. We recommend the use of shielded cables.

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Product warranty

Advantech warrants to you, the original purchaser, that each of its products will be free from defects in materials and workmanship for one year from the date of purchase.

This warranty does not apply to any products which have been repaired or altered by persons other than repair personnel authorized by Advantech, or which have been subject to misuse, abuse, accident or improper installation. Advantech assumes no liability under the terms of this warranty as a consequence of such events.

Because of Advantech's high quality-control standards and rigorous testing, most of our customers never need to use our repair service. If an Advantech product is defective, it will be repaired or replaced at no charge during the warranty period. For out-of-warranty repairs, you will be billed according to the cost of replacement materials, service time and freight. Please consult your dealer for more details.

If you think you have a defective product, follow these steps:

1. Collect all the information about the problem encountered. (For example, CPU speed, Advantech products used, other hardware and software used, etc.) Note anything abnormal and list any on-screen messages you get when the problem occurs.
2. Call your dealer and describe the problem. Please have your manual, product, and any helpful information readily available.
3. If your product is diagnosed as defective, obtain an RMA (return merchandize authorization) number from your dealer. This allows us to process your return more quickly.
4. Carefully pack the defective product, a fully-completed Repair and Replacement Order Card and a photocopy proof of purchase date (such as your sales receipt) in a shippable container. A product returned without proof of the purchase date is not eligible for warranty service.
5. Write the RMA number visibly on the outside of the package and ship it prepaid to your dealer.

Packing List

Before installation, ensure that the following materials have been received:

- One MIC-3021/8 Compact PCI enclosure with backplane
- One box of accessories
- One warranty certificate
- MIC-3451 user's manual
- This user's manual

If any of these items are missing or damaged, contact your distributor or sales representative immediately.

Technical Support and Sales Assistance

If you have any technical questions about the MIC-3021/8 or any other Advantech products, please visit our support website at:

- **http://www.advantech.com.tw/support**

For more information about Advantech's products and sales information, please visit:

- **http://www.advantech.com**

Contents

Figures

CHAPTER 1

General Information

1.1 Introduction

The MIC-3021/8 is a 6U 8-slot CompactPCI enclosure for rack or panel mounting. It has eight 6U card slots, and has a device bay which can accommodate devices and peripherals such as floppy disk drives and hard disk drives. Its rugged construction and flexible modular design allows users to configure it to meet the requirements of individual applications.

The MIC-3021/8 has a 1U high fan module which provides forced air cooling in the system. Two 86-CFM high-speed fans are mounted in a hot-swappable tray directly underneath the card slots. The fan's tachometer output enables the alarm module to monitor the speed of the fans. Tachometer signals are transmitted to the system through a 6-pin connector on the fan backplane. A protective circuit has been designed into the fan backplane to reduce electrical spikes and noise while hot swapping. This design allows users to replace fans safely without turning the system off.

The device bay itself accommodates up to four devices. It accepts standard HDDs and FDDs; there is no need for expensive special devices. Devices can be removed through the device bay front without the need for disassembling the enclosure, providing the shortest MTTR for device replacement. A lockable door prevents unauthorized access to the devices and to the power on/off switch.

The MIC-3021/8 series has two models: MIC-3021/8-7A and MIC-3021/8-7R. MIC-3021/8-7A is equipped with an ATX power supply while the MIC-3021/8-7R is equipped with a redundant power supply.

Model	**Power Supply**
MIC-3021/8-7A	400 W ATX AC
MIC-3021/8-7R	300 W Redundant

1.2 Features

- Eight 6U card slots
- Easy rackmount or panelmount installation
- Provides ATX power supply or redundant power supply
- Device bay accommodates up to four devices, including three 5.25" and one 3.5" FDD, secured by a lockable door
- Hot-swap fan tray
- Optional fault detection and alarm module

1.3 Specifications

1.3.1 General

- **Construction:** Aluminum frame and galvanized sheet steel
- **Device bay:** Accommodates up to four devices, including three 5.25" drives and one 3.5" floppy disk drive, front removable
- 12-slot space (48 TE), incl. 7 CompactPCI slots and one system slot.
- "Hot swappable" platform complies with PICMG 2.1 R 1.0 Hot Swap Specification
- **Dimensions** (W x H x D, mounting flanges not included)**:**
  7U: 440 x 311 x 254 mm (17.3" x 12.25" x 10")
- **Weight:** 12 kg
- **Operating temperature:** 0 ~ 50° C (32 ~ 122° F)
- **Storage temperature**: -20° C ~ 70° C (-4 ~ 158° F)
- **Relative humidity:** 10 ~ 95% @ 40° C, non-condensing
- **Operating altitude**: 0 to 10,000 feet (3048 meters)
- **Storage/transit altitude**: 0 to 40,000 feet (12,190 meters)
- **Shock**: 10 G (operating); 30 G (storage/transit)
- **Random vibration**:1 Grms (operating)

1.3.2 Fan Tray Module

- **Air flow**: Two 86-CFM fans, providing 172 CFM in total
- **Power Consumption:** 0.45 A @ 12 V per fan, 0.9 A total
- **Rated fan speed:** 2170 rpm
- **Life expectancy:** 50,000 hours @ 25° C

1.3.3 ATX Power Supply (MIC-3021/8-7A)

- **Input:** 90 ~ 135 or 180 ~ 265 V_{AC} @ 47 ~ 63 Hz, switchable
- **Output:** +3.3 V @ 20 A, +5 V @ 42 A, +12 V @ 14 A, -12 V @ 1.0 A
- **Minumum load:** +3.3 V @ 0.3 A, + 5V @ 2 A, +12 V @ 1 A
- **Max output**: 400 W total, 210 W for 5 V and 3.3 V
- **MTBF:** 100,000 hours @ 70% load
- **Safety:** UL/CUL/CE

1.3.4 Redundant Power Supply (MIC-3021/8-7R)

- **Input:** 90 ~ 264 V_{AC} @ 47 ~ 63 Hz
- **Output:** +3.3 V @ 22 A, +5 V @ 30 A, +12 V @ 13 A, -12 V @ 1.0 A
- **Minumum load:** +3.3 V @ 0.3 A, + 5V @ 2 A, +12 V @ 0.5 A
- **Max output**: 300 W + 300 W redundant, 160 W for 5 V and 3.3 V
- **MTBF:** 100,000 hours @ 70% load
- **Safety:** UL/CUL/CE

1.4 Dimensions

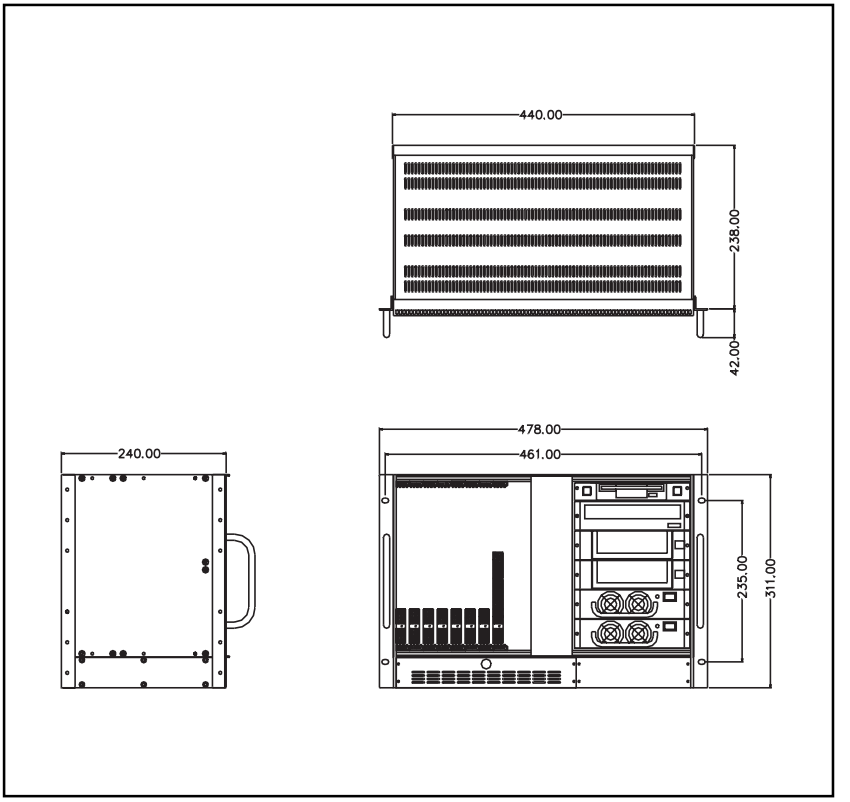

Figure 1-1: MIC-3021/8 dimensions

CHAPTER 2

Installation

2.1 Initial inspection

We have carefully inspected the MIC-3021/8 mechanically and electrically before shipping. It should be free of marks and scratches and in perfect working order upon receipt.

As you unpack the MIC-3021/8, check it for signs of shipping damage (damaged box, scratches, dents, etc.). If it is damaged or if it fails to meet specifications, notify our service department or your local representative immediately. Also notify the carrier. Retain the shipping carton and packing material for inspection by the carrier. After inspection we will make arrangements to repair or replace the unit.

Warning! *We strongly recommend that only qualified, experienced personnel install or remove components and that they practice extreme caution when doing so.*

2.2 The MIC-3021/8 Illustration

The MIC-3021/8 is designed to be installed and maitained easily. The following illustrations show the components on the front and rear side of the enclosure.

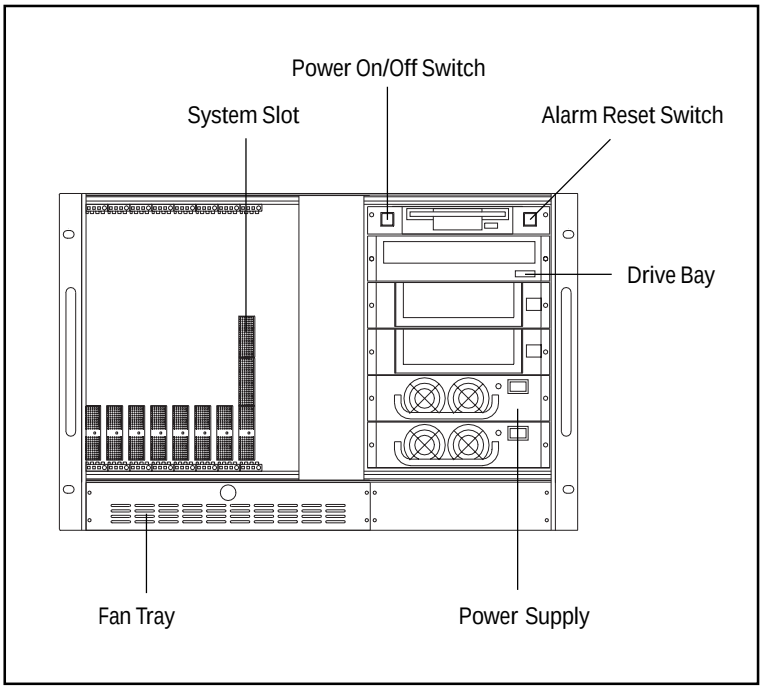

Figure 2-1: Front view of MIC-3021/8

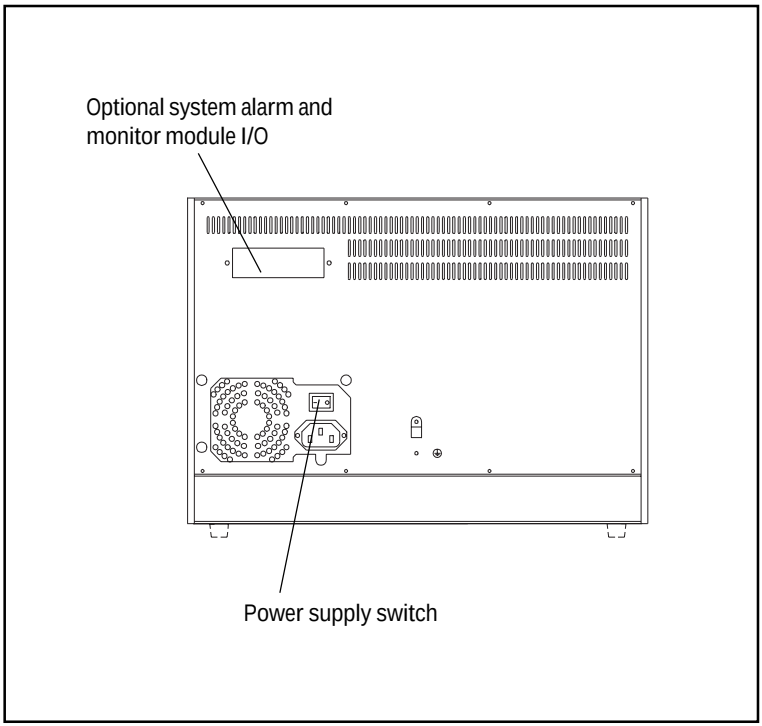

Figure 2-2: Rear view of MIC-3021/8

2.3 Installation Procedures

2.3.1 Card Installation and Removal

The CompactPCI connectors are firm and rigid, and require careful handling while plugging and unplugging. Improper installation of a card can easily damage the backplane of the chassis.

The system card can be installed only in the system slot. The CompactPCI specification allows the system slot to be at any position in the backplane. Do not insert the system card into any other slot, or insert a peripheral card into the system slot. The MIC-3021/8 may accept different backplanes, thus the location of the system slot may vary. The system slot is marked by a triangle enclosing the slot number. Please refer to the backplane user's manual.

The inject/eject handles on CompactPCI cards help you to install and remove the cards easily and safely. Follow the procedures below to install a card into a chassis:

To install a card:

1. Hold the card vertically. Be sure that the card is pointing in the correct direction. The components of the card should be pointing to the right-hand side.
2. Be sure that the handles of the card are not latched. Release the handles if they are latched. Handles from different vendors may have different latch designs.

Caution: Keep your fingers away from the latch hinges to prevent your fingers from getting pinched.

3. Insert the card into the chassis by sliding the upper and lower edges of the card into the card guides.
4. Push the card into the slot gently by sliding the card along the card guide until the handles meet the rectangular holes of the cross rails.

Note: *If the card is correctly positioned and has been slid all the way into the chassis, the handles should match the rectangular holes. If not, remove the card from the card guide and repeat step 3 again. Do not try to install a card by forcing it into the chassis.*

5. Pull the upper handle down and lift the lower handle up to push the card into place.
6. Secure the card by locking the handles in place.

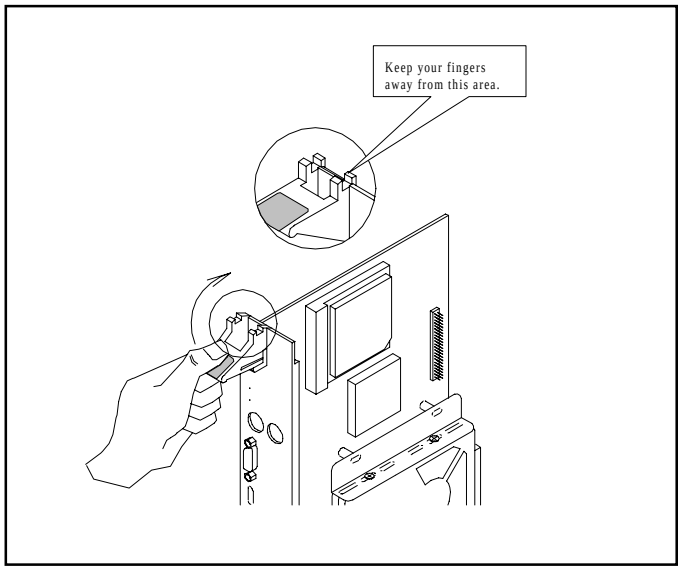

Figure 2-3: Installing a card into the chassis

To remove a card:

1. Unscrew the screws on the card front panel. Release the locking latches on the handles.
2. Lift the upper handle up and press the lower handle down to release the card from the backplane.
3. Slide the card out.

2.3.2 Before Operating the System

Before operating your system, first check your power supply source. Adjust the switch on the power supply to the correct voltage.

Two mounting flanges are included for users who would like to install the MIC-3021/8 on a 19" rack or on a panel. These flanges can be installed on the front side for rack mounting or on the rear side for panel mounting.

Four rubber stands can be attached to the bottom of the chassis for desktop operation. They are not required for rack operation.

There are ventilation holes on the top and bottom of the chassis for cooling. We advise you not to block these holes when installing the chassis on a rack or placing it on a desktop.

2.3.3 Installing Peripherals

The device bay of the MIC-3021/8 accepts up to four devices. However, the actual available space depends on the system configuration. The device bay of the MIC-3021/8 can be separated into six segments. The space on top is designed to accommodate one 3.5" floppy disk, the middle three space are for three 5.25" drives, and the bottom two space are reserved for power supplies. Please see Figure 2-4 for recommended configuration illustration.

There are three types of mounting brackets shipped with the MIC-3021/8. One pair of mounting brackets are designed for mounting a 3.5" floppy disk drive. Please refer to Figure 2-5 for an illustration of mounting. Three pairs of mounting brackets are designed for mounting 5.25" devices such as hard disk drives or CD-ROM drives. Please refer to Figure 2-6 for an illustration of mounting. However, if users would like to install a 3.5" hard disk drive extension brackets (3.5" to 5.25") are required. These extension brackets are available in PC shops, or users can contact an Advantech distributor to order them. An additional pair of mounting brackets are included in the MIC-3021/8's package. This pair of mounting brackets are reserved for drives installed at the bottom space next to the fan tray. Please refer to Figure 2-7 for an illustration.

2.3.4 Device bay recommended configuration

Advantech recommends the device bay of the MIC-3021/8 to be configured as one 3.5" floppy disk drive, two 5.25"hard disk drives (in removable rack), and one 5.25" CD-ROM drive. Please refer to Figure 2-4 for illustration.

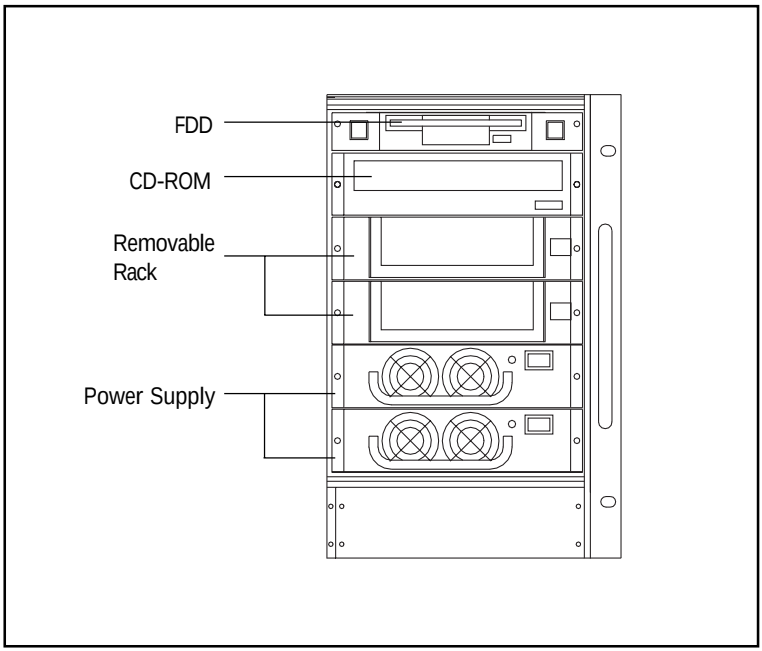

Figure 2-4: Recommended Configuration for device bay

2.3.5 Installing a 3.5" floppy disk drive

Follow the procedures below to install a 3.5" floppy disk drive on the top tray:

1. Fasten one pair of mounting brackets to both sides of a 3.5" floppy disk drive. Note that the guide edge of the mounting brackets should be at the lower side.
2. Open the door of the device bay. Unfasten and remove the top cover plate of the device tray.
3. Insert the floppy disk drive with attached mounting brackets into the device tray.
4. Fasten the mounting brackets to the device bay.
5. Open the back cover of the chassis, and connect the cables from the installed device to the backplane of the MIC-3021/8.
6. Close the back cover.

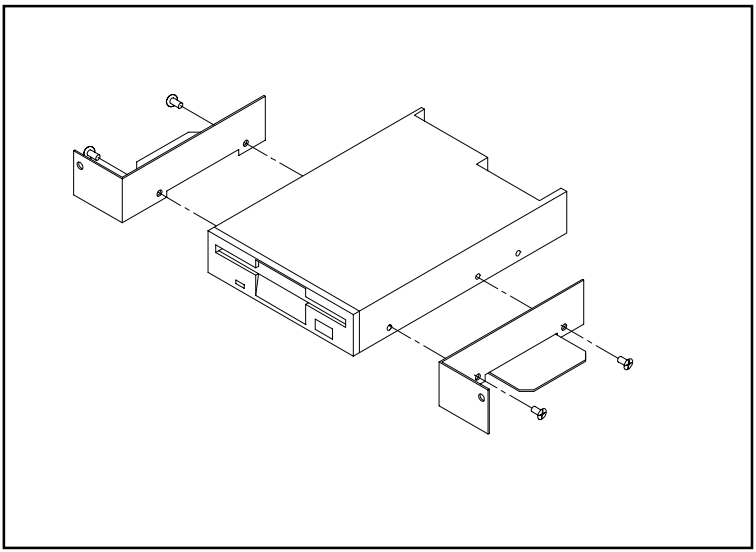

Figure 2-5: Install a 3.5" floppy disk drive on the top tray

2.3.6 Installing a 5.25" drive

Follow the procedures below to install a 5.25" drive:

1. Fasten one pair of mounting brackets to both sides of a drive. Note that the guide edge of the mounting brackets should be at the lower side.
2. Open the door of the device bay. Unfasten and remove the cover plate of the device tray.
3. Insert the floppy disk drive with attached mounting brackets into the device tray.
4. Fasten the mounting brackets to the device bay.
5. Open the back cover of the chassis, and connect the cables from the installed device to the backplane of the MIC-3021/8.
6. Close the back cover.

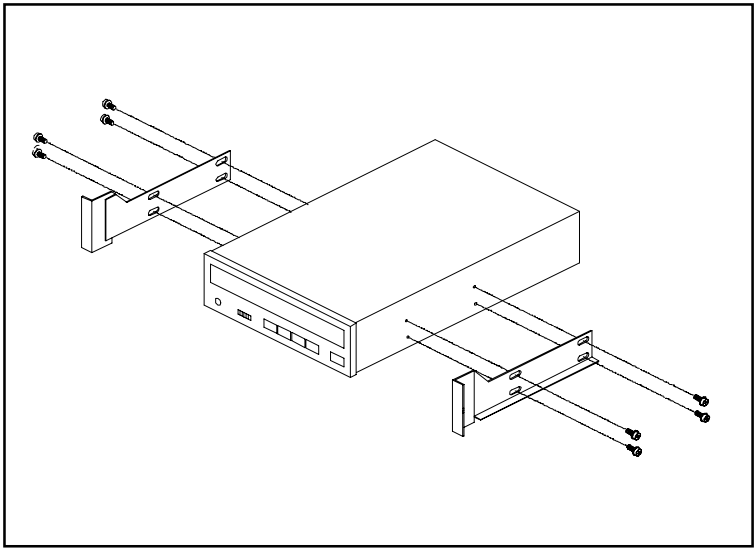

Figure 2-6: Attaching the mounting brackets to a 5.25" device

2.3.7 Installing a device next to the fan tray

One device space is available next to the fan tray module in the MIC-3021/8, which can be used for installing a 5.25" device. One pair of mounting brackets without guiding flange are included for mounting the device. Since the brackets are not guided, we recommend that users install only a half-height device such as a CD-ROM or a removable drive mount. Please refer to Figure 2-7 for illustration.

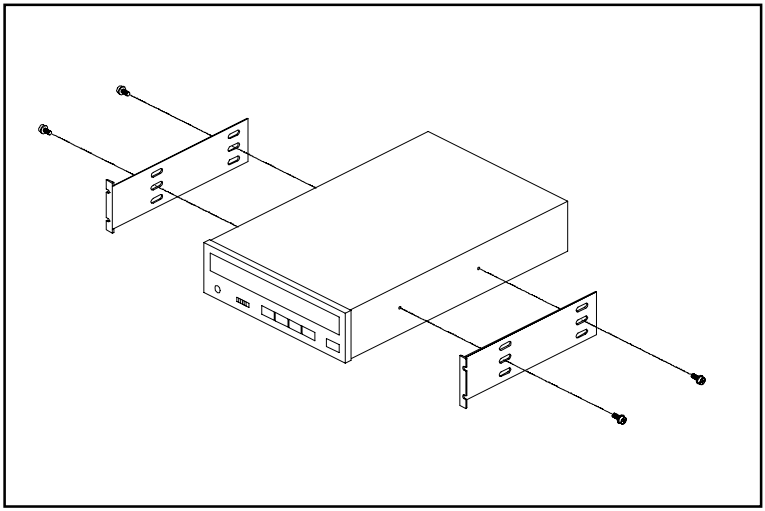

Figure 2-7: Attaching mounting brackets to a half-height device for mounting in device space next to the fan tray module

2.3.8 Replacing the Fan Tray and Air Filter

The fan tray module of MIC-3021/8 is designed to be "hot-swappable", i.e., users can remove and install the fan tray without turning off the system power.

Follow the steps below to replace a fan tray:

1. Unfasten the fan tray.
2. Slide the fan tray out.
3. Insert a new fan tray.
4. Fasten the new fan tray.

The air filter can become dirty after a period of use. Follow the steps below to replace a filter:

1. Remove the filter cover.
2. Replace the dirty filter with a clean one.
3. Reattach the filter cover.

Repeat steps 1 to 3 to replace other filters.