

# P1 PC/104 Cover Installation

## Introduction

The PC/104 backshell expansion covers are designed to protect P1 PowerStation PC/104 expansion cards (8-bit and 16-bit, +5V, +12V only) and fit securely on the back of the P1 unit. These covers are strong, vented, plastic and metal enclosures with detachable slots on the side panels.

There are three available P1 PowerStation PC/104 expansion kits. Each kit includes an expansion cover with removable side panels, securing screws, all necessary mounting hardware, and a grounding wrist strap. This document provides instructions for installing the single, double, and triple PC/104 expansion covers to the back of the P1 PowerStation.

**Note** You can install up to three PC/104 expansion cards on the P1 PowerStation, provided that the cards do not exceed the total available power to the expansion cards (+5V @ 0.75A, +12V @ 0.1A). Note that the P1 will only support 8-bit and 16-bit PC/104 expansion cards

## Electrostatic Discharge Precautions

Modern integrated electronic devices, especially CPUs and memory chips, are extremely sensitive to electrostatic discharges (ESD) and fields. Before you install a PC/104 expansion cover, be sure to follow these precautions to protect you and the PowerStation from harm resulting from ESD.



1. To avoid electric shock, always disconnect the power from the PowerStation before you remove the backshell cover or separate the backshell from the front panel. Do not touch any components of the CPU card or other cards while the PowerStation is on.
2. Disconnect power before making any hardware configuration changes. The sudden rush of power as you connect a jumper or install a card may damage sensitive electronic components.
3. Only handle internal components in an ESD safe location using appropriate grounding methods.
  - Always ground yourself to remove any static charge before you touch the CPU card.

## P1 PC/104 Cover Installation

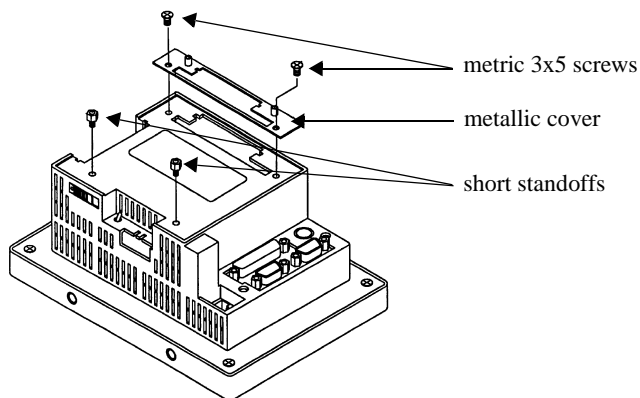
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- Be particularly careful not to touch the chip connectors.
- Keep the adapter in its anti-static packaging when it is not installed in the PowerStation, and place it on a static dissipative mat when you are working on it.
- Wear a grounding wrist strap for continuous protection.

## Installing the PC/104 Cover for One Card

Follow these steps to install the expansion cover for a single PC/104 card:

1. Turn off the PowerStation.
  2. Disconnect the power source from the PowerStation.
- Important** The PC/104 expansion cover kit includes an ESD wrist strap. To prevent static discharge, you must wear this wrist strap, or an equivalent one, connected to a known earth ground.
3. Copy the PowerStation serial number from the backshell label onto the label located on the expansion cover.
  4. Remove the two fastening screws that secure the original metal PC/104 protective cover.
  5. Install the new silver metallic cover included with the expansion cover and fasten with two metric 3x5 (M3x5) screws.



This will expose the PC/104 connector and the two pre-installed standoffs on the metallic cover.

6. Install the two short standoff screws included with the PC/104 cover kit into the two empty screw holes located at the lower two corners of the backshell of the P1 unit.

Refer to the preceding diagram for standoff locations.

**Note** Be careful not to overtighten the standoffs.

7. Install the PC/104 card securely onto the PC/104 connector.

The PC/104 card should rest evenly on the four standoffs.

8. Snap off the detachable plastic slots of the PC/104 side panels, as needed, for any PC/104 card connector(s) to show through the side panel(s).
9. Place the new PC/104 expansion cover on the backshell and align over the PC/104 card. The cover will align with the standoffs in only one orientation for securing to the backshell; the solid side of the cover should face the top of the unit
10. Secure the PC/104 cover to the backshell using the four longer, slotted screws provided with the PC/104 expansion cover kit.
11. Perform any cable connections or further setup required for the PC/104 card.

The P1 PowerStation with the expansion cover is now ready to be mounted back in its enclosure.

**Note** Access to the Compact Flash (CF) card on the PowerStation is restricted once the PC/104 expansion cover is installed on the P1 unit. If you wish to remove or replace the CF card on the PowerStation, the PC/104 cover may need to be removed.

## Installing the PC/104 Cover for Two Cards

Installation of a PC/104 Expansion Cover for two cards is similar to the installation of the cover for one card, except for a few additional steps.

Follow these steps to install the expansion cover for two cards:

1. Follow Steps 1 through 6 for installing a PC/104 expansion cover for one card. See the preceding set of instructions.

## P1 PC/104 Cover Installation

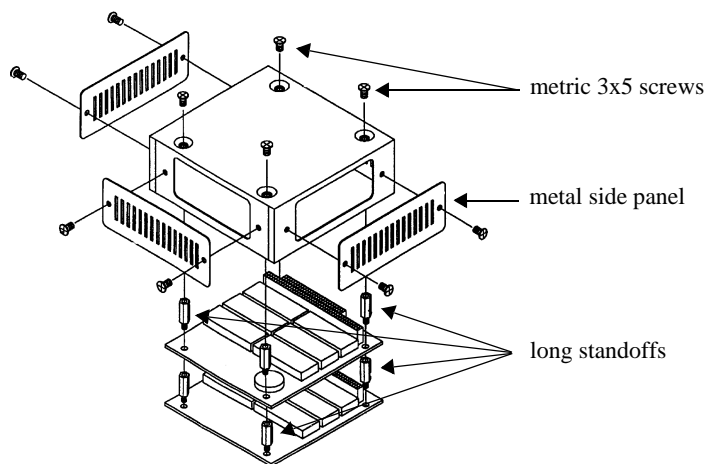
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2. Fasten four of the longer standoff screws to the four corner points of the first PC/104 card.
3. Install the second PC/104 card securely onto the first PC/104 card connector.

The second PC/104 card should rest evenly on the longer set of standoffs.

**Note** If you are installing a PC/104 card on top of a MachineLogic Control Adapter, be sure that no metallic parts of the card are touching the touch relay of the Control Adapter (metallic box on bottom of the card). Otherwise, a short may occur and damage the MachineLogic Control Adapter.

If you are installing a PC/104 MachineLogic Control Adapter with a UCS adapter, it must be installed last (top card) in order for the card to fit properly within the expansion cover.



4. Fasten a second set of the longer standoff screws onto the second PC/104 card.
5. Remove the detachable metal side panels of the PC/104 cover, as needed, for the connectors of the PC/104 cards to show through the side panel.
6. Place the new PC/104 expansion cover on the backshell and align over the PC/104 card. Make sure the non-detachable side of the cover is facing the top of the unit.

7. Secure the PC/104 cover to the backshell using four metric 3x5 (M3x5) screws provided with the PC/104 expansion cover kit.
8. Perform any cable connections or further setup required for the PC/104 card.

The P1 PowerStation with the expansion cover is now ready to be mounted back in its enclosure.

**Note** Access to the Compact Flash (CF) card on the PowerStation is restricted once the PC/104 expansion cover is installed on the P1 unit. If you wish to remove or replace the CF card on the PowerStation, the PC/104 cover may need to be removed.

## Installing the PC/104 Cover for Three Cards

Installation of a PC/104 Expansion Cover for three cards is similar to the installation of the cover for two cards, except for a few additional steps.

Follow these steps to install the expansion cover for three cards:

1. Follow Steps 1 through 6 for installing a PC/104 expansion cover for one card. See the first set of instructions at the beginning of this document.
2. Follow Steps 2 through 4 for installing a PC/104 expansion cover for two cards. See the preceding set of instructions.

Refer to the preceding two card installation diagram for a visual representation of the following installation steps.

3. Install the third PC/104 card securely onto the second PC/104 card connector.

The third PC/104 card should rest evenly on the longer set of standoffs.

**Note** If you are installing a PC/104 card on top of a MachineLogic Control Adapter, be sure that no metallic parts of the card are touching the touch relay of the Control Adapter (metallic box on bottom of the card). Otherwise, a short may occur and damage the MachineLogic Control Adapter.

If you are installing a PC/104 MachineLogic Control Adapter with a UCS adapter, it must be installed last (top card) in order for the card to fit properly within the expansion cover.

## P1 PC/104 Cover Installation

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4. Fasten a third set of the longer standoff screws onto the third PC/104 card.
5. Remove the detachable metal side panels of the PC/104 cover, as needed, for the connectors of the PC/104 cards to show through the side panel.
6. Place the new PC/104 expansion cover on the backshell and align over the PC/104 card. Make sure the non-detachable side of the cover is facing the top of the unit.
7. Secure the PC/104 cover to the backshell using four metric 3x5 (M3x5) screws provided with the PC/104 expansion cover kit.
8. Perform any cable connections or further setup required for the PC/104 card.

The P1 PowerStation with the expansion cover is now ready to be mounted back in its enclosure.

**Note** Access to the Compact Flash (CF) card on the PowerStation is restricted once the PC/104 expansion cover is installed on the P1 unit. If you wish to remove or replace the CF card on the PowerStation, the PC/104 cover may need to be removed.