

DENSITÉ series

Densité 2 Housing Frame Guide to Installation and Operation

M624-9900-102

22 May 2012



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SAFETY COMPLIANCE



This equipment complies with:
CSA C22.2 No. 60950-1 Safety of Information Technology Equipment
UL 60950-1 Safety of Information Technology Equipment
IEC 60950-1 Safety of Information Technology Equipment

WARNING

An appropriately listed/certified mains supply power cord must be used for the connection of the equipment to the mains voltage at either 120V~ or 240V~.

The power cord supplied with this equipment meets the appropriate national standards for the country of destination.

CAUTION

These servicing instructions are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so. Refer all servicing to qualified service personnel.

ELECTROMAGNETIC COMPATIBILITY



This equipment has been tested for verification of compliance with FCC Part 15, Subpart B requirements for Class A digital devices.

NOTE: This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.



This equipment has been tested and found to comply with the requirements of the EMC directive 2004/108/CE:

- EN 55022 Conducted emissions, Class A
- EN 55022 Radiated emissions, Class A
- EN 61000-3-2 Harmonic current emission limits
- EN 61000-3-3 Limitation of voltage changes, voltage fluctuations and flicker
- EN 61000-4-2 Electrostatic discharge immunity
- EN 61000-4-3 Radiated electromagnetic field immunity – radio frequencies
- EN 61000-4-4 Electrical fast transient immunity
- EN 61000-4-5 Surge immunity
- EN 61000-4-6 Conducted emissions immunity
- EN 61000-4-11 Voltage dips, short interruptions and voltage variations immunity

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Guide to Installation and Operation

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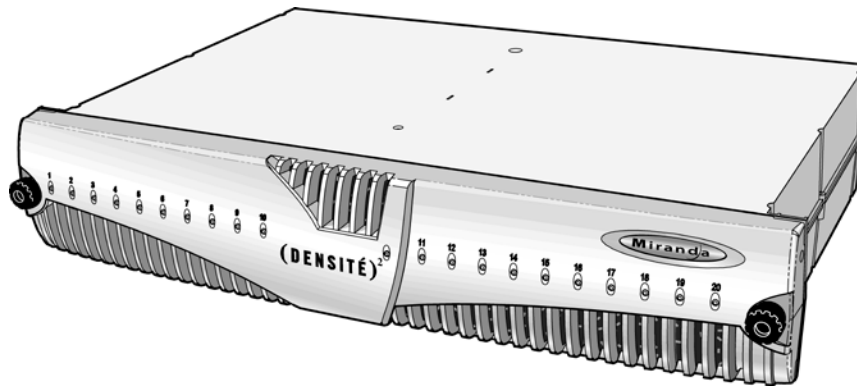
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1 Densité 2 Housing Frame

1.1 Introduction

The Densité 2 Frame is a 2-RU housing frame, designed for high density and low cost. The basic configuration includes one power supply unit, and a basic controller card with front panel controls for card adjustments. Up to 20 cards can be installed within a single frame. The Densité 2 frame offers full flexibility and integration of a variety of functions and signal types; also, all components are hot-swappable and can be quickly configured. The frame is air-cooled, the PSUs and fans are monitored and status reporting is available. Each card has a multicolored LED (visible with the door closed) for status reporting as well. Remote control via Ethernet is available with an optional controller.

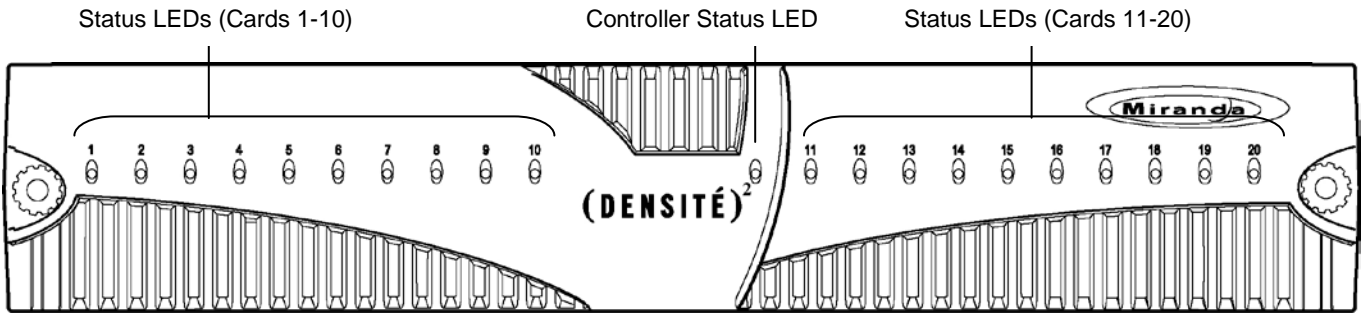


1.2 Features

- 32 RU with 19" rack mount
- Up to 20 cards
- 1 hot-swappable PSU with optional 2nd redundant PSU
- Basic controller with front panel for card configuration
- Optional controller with ethernet port

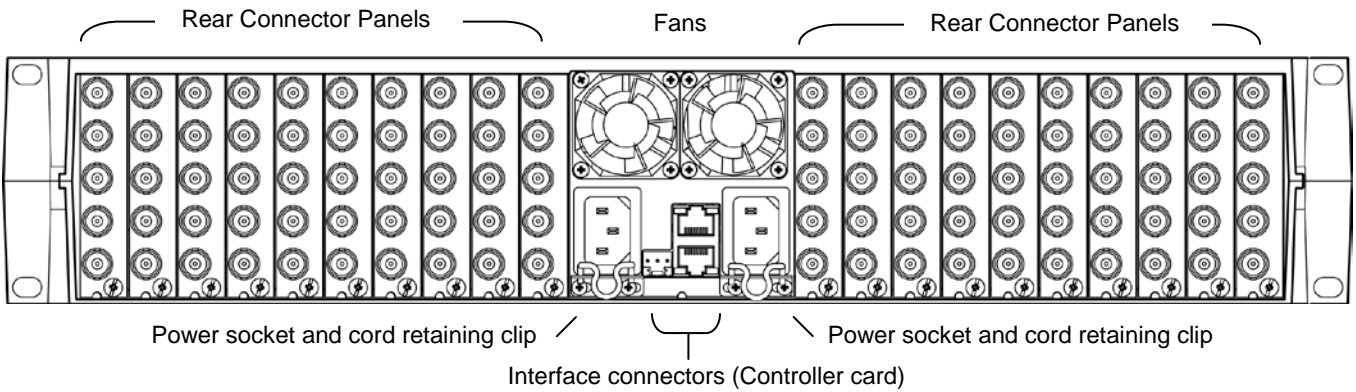
1.3 Physical Layout

Front Panel Appearance



Note the openings in the panel (numbered 1 to 20) which allow the status LEDs on the installed cards to be seen while the panel door is closed. The unnumbered opening near the center of the panel is for the controller card status LED.

Rear Panel Appearance



The functionality of the ethernet connectors is described in the Controller manual.

The details of the rear connector panels will vary depending on the card type.

2 Installation

2.1 Unpacking

Make sure the following items have been shipped with your Densité 2 frame:

- Densité 2 frame, including 1 Power Supply unit (AC in),
- 1 basic controller card
- An AC power cord
- Densité series cards (per order)
- Blank rear panels (for empty slots)
- A second power supply and AC cord (optional)

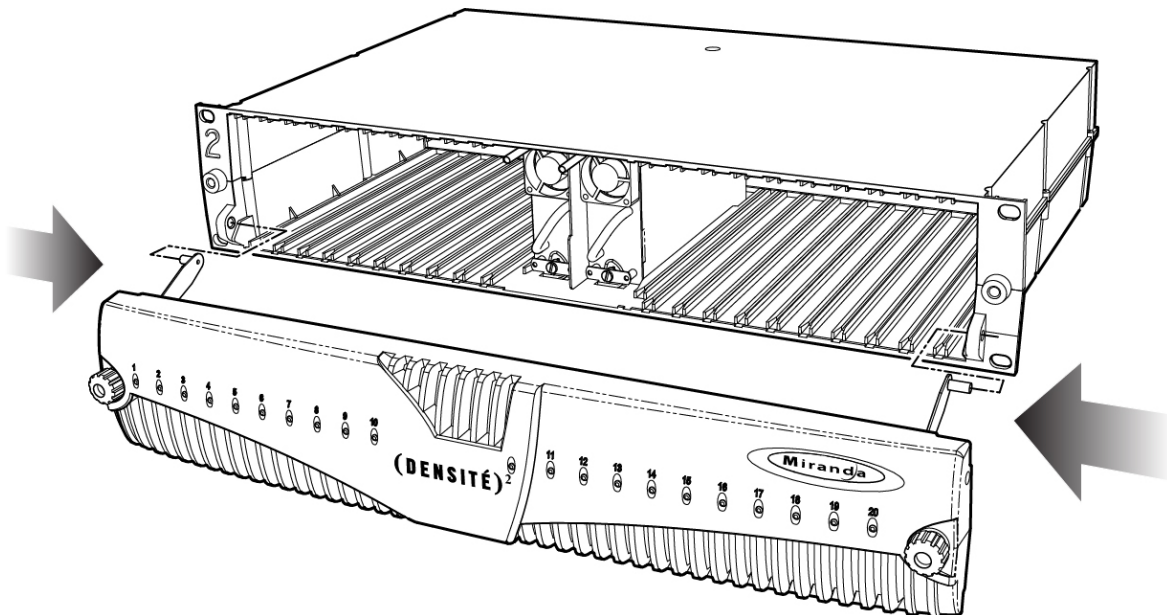
2.2 Mechanical Installation

The Densité 2 frame should be installed directly into a standard 19" rack using 4 standard rack-mounting screws through the four holes in the corners of the front mounting flange.

2.3 Opening the Front Panel

The front panel of the Densité 2 frame is attached by swivel brackets. Two multi-turn knobs secure the panel in the closed position. To open the panel, turn the knobs to the open position and pull gently on them until the panel is in the desired position.

If required, the door can easily be detached from the frame. Push inward on the two support arms until they release from the frame body. There are no electrical connections to the panel. Reinstall the panel by pushing the support arms inward until the bracket ends can be inserted into the mounting holes on the frame.

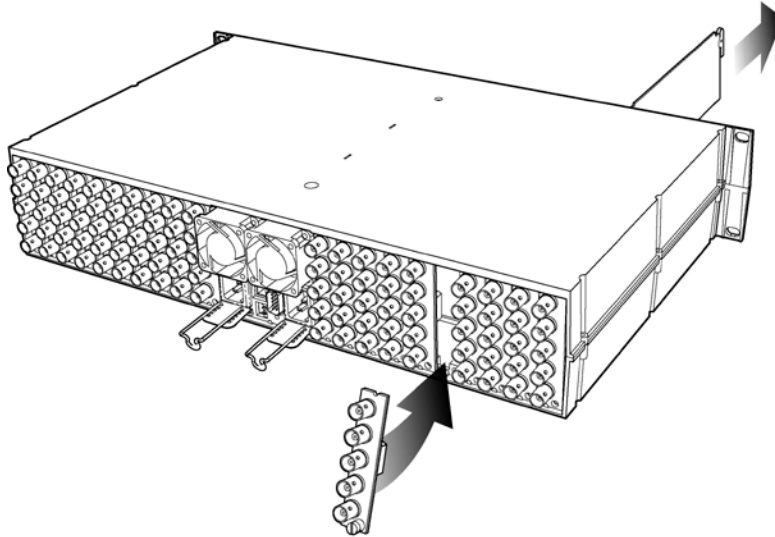


2.4 Installing Cards in the Densité 2 Frame

Each card comes with a rear connector panel which must be installed at the same time.

All cards and rear panels can be installed with the frame power on. The card has connectors which plug into a mid-frame mother board for distribution of power and for connection to the controller card, and a second connector which plugs directly into the rear connector panel for input and output.

The rear connector panel should be installed with the card out of the frame.



To install the rear connector panel:

1. If a card is installed in the slot whose rear panel is being changed, remove it as described below.
2. Remove the existing panel (either blank or belonging to an existing card that is being changed) by releasing the captive screw(s) at the bottom.
3. Position the new panel and secure it in place with the captive screw(s) at the bottom.

To install the card:

1. Open the front panel of the frame
2. To remove an existing card from the slot, tilt up the swivel handle on the front of the card to lever the connectors apart, then use the handle to pull the card straight out of the slot.
3. Slide the new card into the slot and push gently on the handle to seat the connectors. If the card requires a double-width rear panel to accommodate many connectors, it should be inserted into the right-hand slot. Inserting the card into the wrong slot will not damage the card, and will be flagged by the on-card status LED flashing red to indicate that there is no connection to the rear panel.
4. Close the front panel of the frame.

Note: Detailed descriptions of the rear panel connections are included in the individual manuals for each card. Information about the ethernet and GPI connections is found in the Controller manual

2.5 Ventilation

Ventilation for the frame is provided by a two fans mounted in the center of the rear panel, one behind each of the two power supply slots. These fans draw air through the frame and exhaust it to the rear. Ventilation slots are provided in the front panel to allow air to flow into the frame, and an air filter is mounted in the frame door.

Important Note: *to ensure proper cooling, the front panel of the Densité 2 frame must be closed at all times when cards are installed and operating*

The frame-mounted fans are supplemented by a fan mounted in each power supply. These are not field-serviceable.

Ensure that the front panel ventilation slots are not obstructed. Check the air filter regularly to ensure that it is not plugged up with debris. The filter may be cleaned by rinsing in warm water. Dry thoroughly before replacing it in the frame. See section 3.4 for details.

3 Field-Serviceable Items

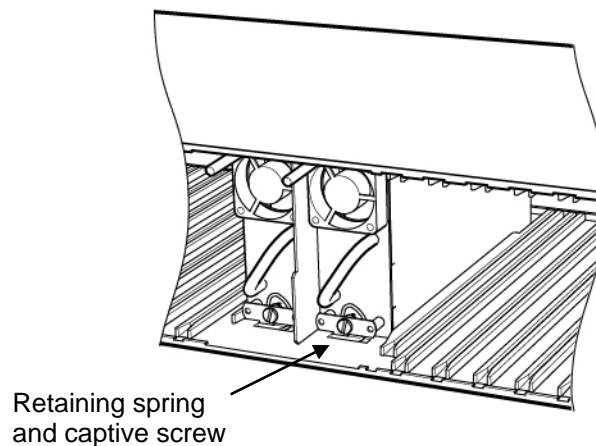
3.1 Changing the Power Supply

The Densité 2 frame supports dual redundant hot-swappable power supplies. The basic configuration includes a single supply, plus an empty slot for the optional redundant power supply. Installing a second power supply module and applying power to it automatically engages the redundant supply mode. Each power supply has its own power socket on the rear panel, and should be connected to the AC supply using the supplied power cord or other approved cord.

- A single supply can be installed in either of the two slots

To install or change a power supply module:

1. Open the front panel of the frame
2. Swing the controller card operating panel open – it is hinged on its right-hand side – to provide access to the power supply slots



3. Release the retaining spring by turning the captive screw mounted on the lower front panel of the power supply counterclockwise
4. Remove the power supply module by pulling on the handle on its front panel and sliding it out of the frame
5. Slide the new power supply module into the slot, and push it gently into position to seat the connectors
6. Secure the supply in position by turning the captive screw mounted on the lower front of the power supply clockwise. This engages a retaining spring which holds the supply securely in place.
7. Swing the controller operating panel into the closed position
8. Close the front panel of the frame.

3.2 Replacing or Upgrading the Controller Card

The Controller card is located to the right of the power supply slots at the center of the frame. To replace the card, proceed as follows:

1. Hook your finger through the opening at the top of the card. Pull gently until the card is released from the rear connector, and then slide the card out of the frame.

NOTE: do not pull on the hinged control panel to remove the card.

2. Slide the new card into the controller slot, and push gently on the card edge to engage the rear connectors. The connectors will not engage if the card is accidentally inserted in the wrong slot.

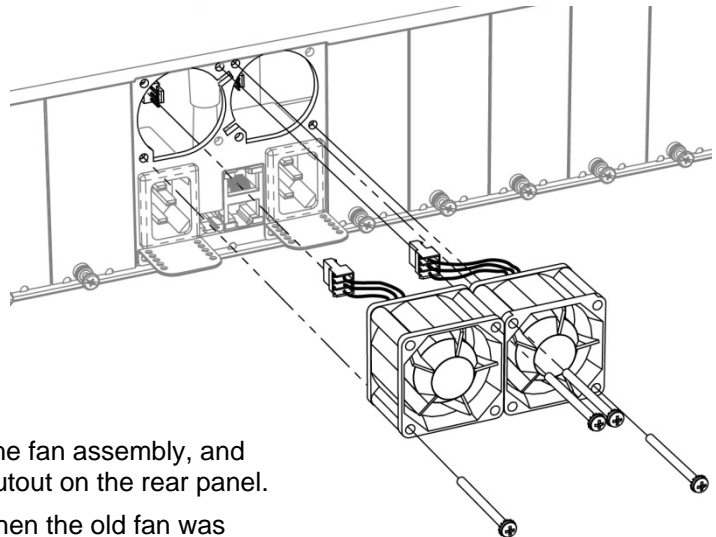
3.3 Replacing a Frame Ventilation Fan

In case of failure of one of the two cooling fans on the rear of the frame, replace it by following these steps:

1. Procure a replacement fan. It is available from Miranda as part #0624-1200-100

2. Remove the defective fan from the frame:

- Remove the two screws that secure the fan unit to the frame.
- Retain the screws, as they will be used to install the replacement fan.
- Pull the unit away from the frame, and disconnect the power feed by grasping the connector and pulling straight out.



3. Install the replacement fan:

- Grasp the power connector attached to the fan assembly, and push it onto the power outlet inside the cutout on the rear panel.
- Use the two screws that were retained when the old fan was removed to install the new fan.

3.4 Replacing the air filter

To remove the air filter for cleaning or replacement, proceed as follows:

- Open the front panel of the frame
- Grasp the top of the filter installed on the rear of the door, and pull it gently out of its mounting slot

To install a filter, proceed as follows:

- Slide the filter into the slot at the bottom of the front panel door. Ensure that the filter is not bunched or folded.
- Close the front panel of the frame

4 Specifications

MECHANICAL

Dimensions:	2RU x 19" W (485 mm) x 11.25" D (286 mm) with connectors
Weight:	7 lbs (3.2 kg) with 1 PSU and no cards installed

POWER

Input Range:	AC 96-264V, 60-50 Hz
Rating:	300 W max
Operating Temp. Range:	0-40° C
Alarm:	GPI contact

COOLING

Fans:	2 on frame 1 on each PSU
Sound Pressure Level:	8.9 dBA (1 m in front of unit)