DATASHEET

DENSITÉ 3+ FR4 FRAME

High-density Modular Frame for Advanced Signal Processing

24 slots in a frame, double the power per slot.

The 4 RU Densité® 3+ FR4 Frame from Grass Valley® is a modular frame and controller designed to deliver more power per slot and higher speed connectivity needed by the increased feature set of the latest Densité products. The Densité 3+ FR4 frame offers true multiformat operation, with the ability to process simultaneously SDI and IP 12G, 3G, HD, SD, and analog video, as well as AES and analog audio. The frame provides advanced monitoring and back-up capabilities along with a color LCD panel with integrated touchscreen for ease of status and control navigation on the front panel.

The front-opening frame features dual hot-swappable power supplies (PSUs) and fans. The processing modules or cards for the frame are also hot-swappable, and can be configured automatically when a card is replaced. The frame is front-to-back air-cooled and all modules, redundant PSUs and fans are monitored to provide status via GPI or the Ethernet port. All frame configurations include two PSUs and a controller card with internal GbE switch connectivity, which allows card parameters adjustments from the front panel.

The Densité 3+ FR4 ADV is a version of the frame with an advanced controller that delivers additional functionality with a second reference and timecode inputs, and support of SMPTE ST 2059 genlock over IP reference option. Existing Densité 3+ FR4 frame Ethernet Controllers and rear panels can be field upgraded with the D3+FR4-ADV-UPG kit to deliver the same advanced controller features.

Fitting 3 RU and 2 RU cards in the Densité 3+ Frame

The Densité 3+ FR4 frame can host any of the latest high-powered Densité modules, such as the XIP-3901, and the IPG-3901 and KMX-3901 but is also fully backwards compatible with all existing 3 RU and 2 RU Densité modules. With over 100 modules to choose from, this gives you mix and match flexibility and preserves your investment.

Key Features

Key product capabilities:

- Fully backwards compatible with Densité 2 and Densité 3 cards
- 24 slots with a power budget of 25 watts per slots
- Optional frame reference on controller card providing:
  - Digitally generated reference for intra-frame distribution
  - Timecode extraction and embedding
  - Supports SMPTE ST 318 for perfect audio/video phasing
  - Easy control and monitoring
  - URS simplifies interformat processing
- Dual GbE port for system wide redundancy with internal GbE switch connectivity to each cards
- Full touchscreen color LCD panel for module status and control
- Modular frame controller with associated modular rear panel
- Advanced frame controller configuration provides:
  - Second reference and timecode inputs (with optional frame reference)
  - Support of SMPTE ST 2059 genlock over IP reference option

Standard Densité capabilities:

- Multiple video and audio formats can be fitted in a single frame
- Densité 3 RU and Densité 2 RU modules can co-exist in the same frame
- Easy configuration by front panel or remotely via the Ethernet frame controller
- Choice of control and monitoring options, including GV Orbit® remote control and PC-based iControl™ Solo GUI
- Two hot-swappable power supplies
- Supports full range of Densité Series modules
- Frame can be stacked without additional cooling spaces
- Optional redundant Ethernet connection

Specifications

Mechanical

Dimensions: 4 RU x 485 mm (19 in.) x 302 mm (11.88 in.) with connectors

Weight: 8.4 kg (18.5 lbs.), 2 PSUs and 1 controller

Power

Input range: AC 50-60 Hz, 100-240V

Rating: 700W

Control and Monitoring

Communication ports: Dual Gigabit Ethernet

(Also provides PTP (IEEE 1588) support on advanced controller for SMPTE ST 2059 reference)

Alarm: GPI contact

Cooling

Variable speed fans:

– 2 sets of 3 fans on the rear of the frame

– 2 on each PSU

Operating temp. range: 0°- 40° C (32°- 104° F)

Reference Input

Load: Passive loop-through

Impedance: 75Ω bridging

Return loss: >30 dB up to 30 MHz

Signal type: Composite NTSC-M, PAL-B blackburst with optional VITC

Standard: SMPTE ST 170, ITU-R BT.1700-1, SMPTE ST 318

Signal level: 1 Vp-p

Signal type: HD tri-level sync

Standard: SMPTE ST 274, SMPTE ST 296

Signal level: 600 mVp-p

LTC-IN

Signal type: LTC

Standard: SMPTE ST 12

Signal level: 0.5 Vp-p to 4.5 Vp-p

Media Ports

In Advanced Controller only (future use)

Ordering

DENSITE 3+ FR4 STD

4 RU modular frame, 24 slots, 2 power supplies, standard controller card with redundant Ethernet ports and direct access touchscreen, DENSITE 3+ CPU-ETH3-RP rear and blank rear panels

DENSITE 3+ FR4 ADV

4 RU modular frame, 24 slots, 2 power supplies, advanced controller card with redundant Ethernet ports and direct access touchscreen, DENSITE 3+ CPU-ETH3-RP-ADV rear and blank rear panels

Options

DENSITE 3+ CPU-ETH3-OPT-LINK

Full link redundancy using Channel Bounding (software option)

DENSITE 3+ CPU-ETH3-REF

Frame reference software option

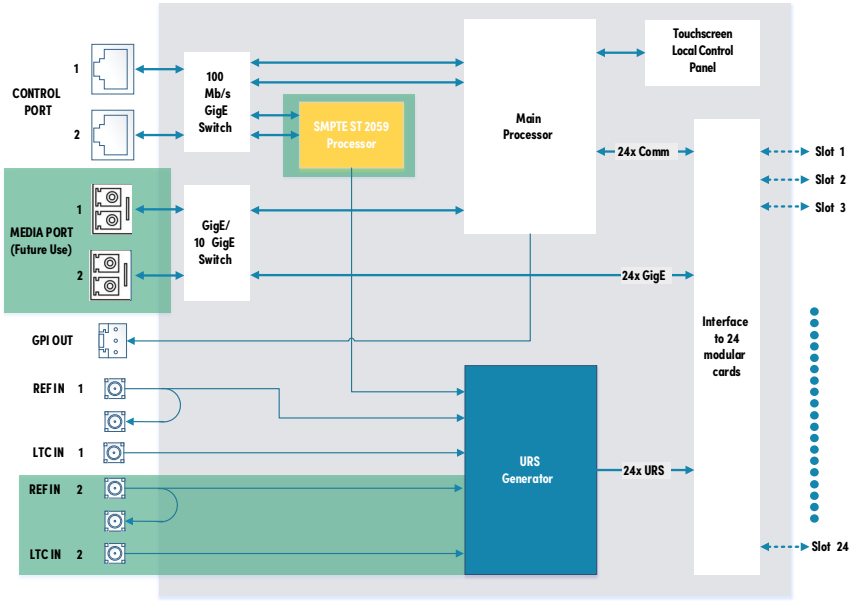
D3+FR4-ADV-PTP

IEEE 1588 and SMPTE ST 2059 option on Densité 3+ FR4 Advanced Controller

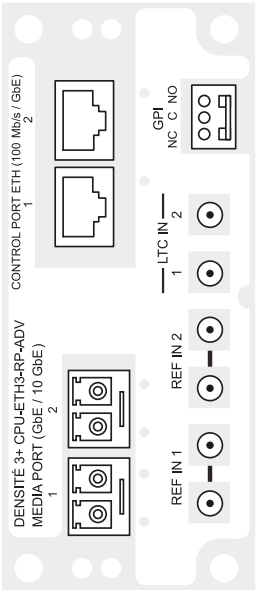
D3+FR4-ADV-UPG

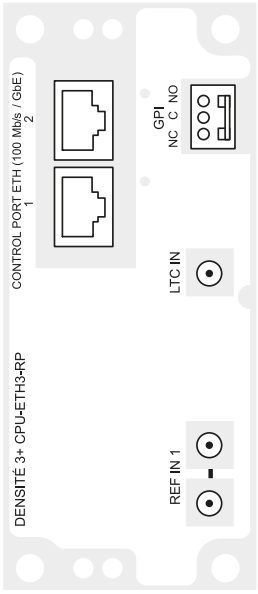
Densité 3+ FR4 Advanced Controller with rear panel field upgrade

Note: Rear panels must be specified and ordered with appropriate cards.



DENSITÉ 3+ FR4 STD Controller Functional Block Diagram



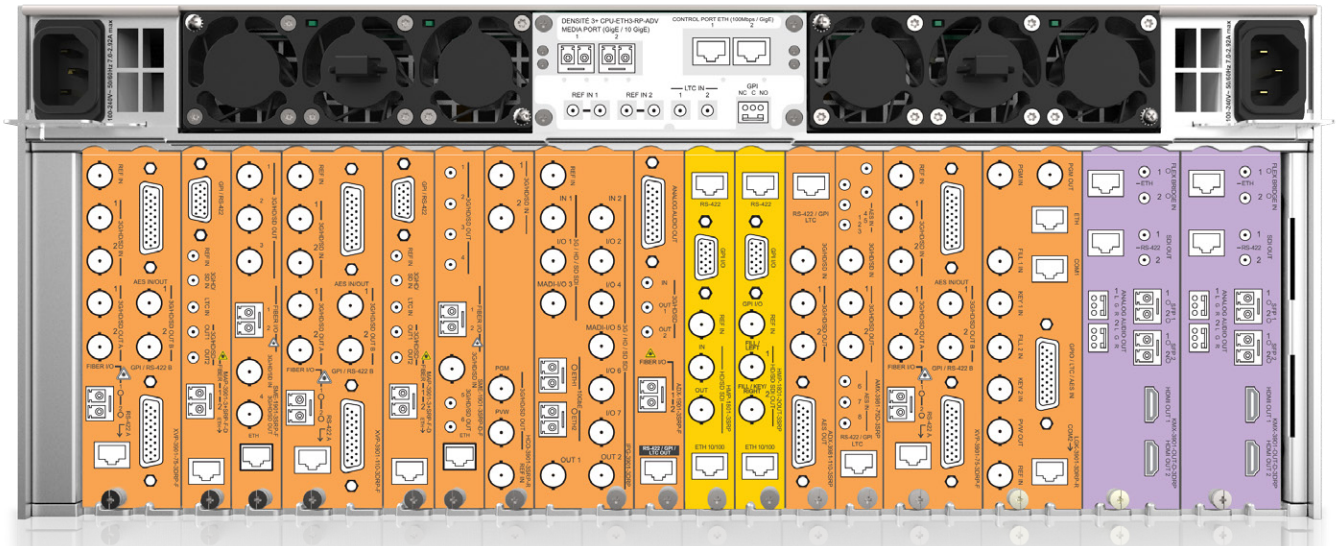


CONTROLLER OPTIONAL PLATFORM

- DENSITÉ 3+ FR4 ADV additional functions (Advanced Controller Platform) with DENSITE 3+ CPU-ETH3-RP-ADV rear

OPTIONAL LICENSES :

- DENSITÉ 3+ CPU-ETH3-REF
- D3+FR4-ADV-PTP option



Back of the Densité 3+ FR4 chassis shown with Advanced Controller rear.