

Densité Fiber

The Densité series offers advanced fiber-based solutions for seamless connectivity and signal conversion, these solutions provide robust performance and adaptability for modern broadcast and production environments.

FXE-1501

Fiber Ethernet Transceiver

HDA-1911 / HDA-3911

Single 3G/HD/SD Distribution Amplifiers with Optional Fiber Connectivity

HDA-1931 / HDA-3931

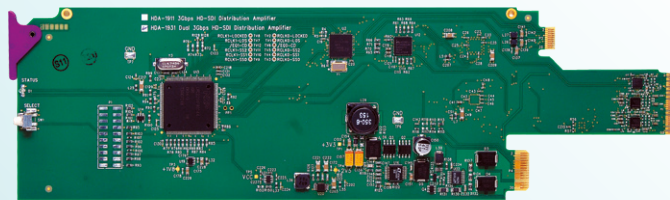
Dual 3G/HD/SD SDI Distribution Amplifier (DA) with Optional Fiber Connectivity

HDA-3962

Single/Dual 12G/3G/HD/SD-SDI Distribution Amplifier (DA) with Optional Fiber Connectivity and 12G

FXE-1501

Fiber Ethernet Transceiver



Space-saving, modular platform for advanced signal processing.

The FXE-1501 from Grass Valley® provides distribution of Ethernet signals using optical fiber. It incorporates a bidirectional 10/100/1000 Base-T Ethernet to 1000 Base SX/LX gigabit fiber converter and transceiver.

The Ethernet UTP port incorporates auto speed negotiation, auto-crossover for MDI/MDI-X, and full or half duplex. Speed and activity indicators are provided for this port on the rear panel. The SFP optical interface supports a loop back test, and lost link forwarding (LLF). Link activity and LLF status indicators are provided for this port on the rear panel.

Housed in a Densité® frame and easily controllable via the GV Orbit® or iControl™ software or the frame controller menu, the FXE-1501 occupies only one slot.

Key Features

- 10/100/1000 Base-T Ethernet to fiber
- Fiber interface on SFP module for maximum flexibility
- Support loop back test for the optical SFP interface
- Supports lost link forwarding (LLF)
- Auto-negotiation for 10/100/1000 Base-T on the UTP port
- Auto-crossover for MDI/MDIX on the UTP port
- Full or half duplex on the UTP port
- Speed and link activity LEDs on the rear connector panel for the UTP port
- Link activity status LED on the rear panel for the optical interface
- Single slot in a Densité frame

Specifications

UTP Port

Connector: RJ45

Compliant to: 10 Base-T/100 Base-Tx/1000 Base-T with IEEE 802.3, IEEE 802.3u and IEEE 802.3x, speed auto sensing and auto MDI/MDI-X

SFP Port

Connector: SFP-compliant

Compliant to: IEEE 802.3z, 1000 Base-LX/SX

Electrical

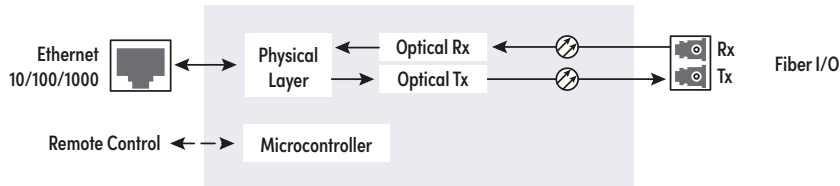
Power: 5W

Rx Optical Characteristics

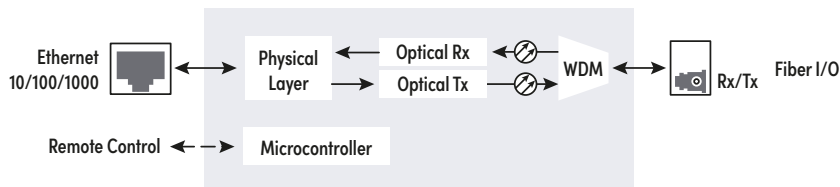
Transmitter type	Receiver sensitivity
S13	-19 dBm
W13 / W15	-20 dBm

Tx Optical Characteristics

Transmitter type	Transmit power	Wavelength	Laser type
S13	-9.5 to -3 dBm	Single-mode, 1310 nm	Fabry-Perot
W13 (WDM)	-9 to -3 dBm	Single-mode, 1310 nm	Fabry-Perot
W15 (WDM)	-9 to -3 dBm	Single-mode, 1550 nm	DFB (distributed feedback)



FXE-1501 Functional Block Diagram
with standard SFP cartridge



FXE-1501 Functional Block Diagram
with WDM SFP cartridge



FXE-1501-SRP

Ordering

Densité 2 Frame

FXE-1501

Fiber Ethernet transceiver*

FXE-1501-SRP

Single rear connector panel

Densité 3 Frame

FXE-1501-3RU

Fiber Ethernet transceiver*

FXE-1501-SRP-3RU

Single rear connector panel

*Note: One SFP cartridge must be ordered for each FXE-1501.

SFP Cartridges

SFP-ETH-10-S13-LC

Ethernet 10 km single-mode SFP cartridge / 1310 nm with LC/PC connector

SFP-ETH-RT-M85-LC

Ethernet 550m multimode cartridge / 850 nm with LC/PC connector

Remote Control

GV Orbit, iControl, iControl Solo

This product may be protected by one or more patents. For further information, please visit: www.grassvalley.com/patents

DS-PUB-3-0381B-EN

Grass Valley®, GV®, GV Grass Valley®, and the Grass Valley logo are trademarks or registered trademarks of Grass Valley USA, LLC, or its affiliated companies in the United States and/or other jurisdictions. Grass Valley products listed above are trademarks or registered trademarks of Grass Valley USA, LLC or its affiliated companies, and other parties may also have trademark rights in other terms used herein. Copyright © 2020-2026 Grass Valley Canada. All rights reserved. Specifications subject to change without notice.

www.grassvalley.com Join the Conversation at GrassValleyLive on [Facebook](#), [X](#), [YouTube](#) and Grass Valley on [LinkedIn](#)

HDA-1911 HDA-3911

3G/HD/SD SDI Distribution Amplifier (DA) with Optional Fiber Connectivity

Space-saving, modular platform for advanced signal distribution.

The HDA-1911 and HDA-3911 from Grass Valley® are 3G/HD/SD SDI video distribution amplifiers (DAs) that support a variety of compressed and uncompressed serial digital video signals.

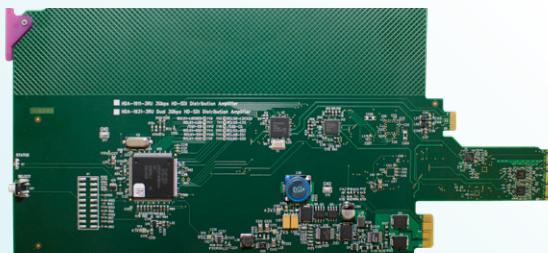
The HDA-1911 and HDA-3911 provide up to nine reclocked outputs with automatic equalization for up to 200 meters (656 feet) of cable using

Belden 1694A at 1.5 Gb/s and up to 100 meters (328 feet) at 3 Gb/s.

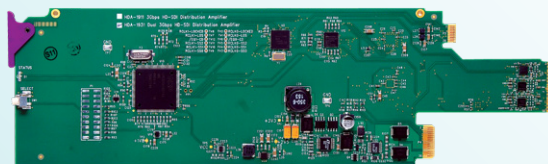
The HDA-1911 and HDA-3911 offer fiber connectivity, making it ideal for longer cable lengths. Critical applications protection is provided by a protection bypass relay available on selected rears.

The HDA-1911 and HDA-3911 share the same feature set and

specifications, except that HDA-1911 is a 2 RU card built for the Densité® 2 frame while the HDA-3911 is a 3 RU card made for the Densité 3 frame series. Each product has its specific rears as illustrated in the Key Features section and in the ordering information.



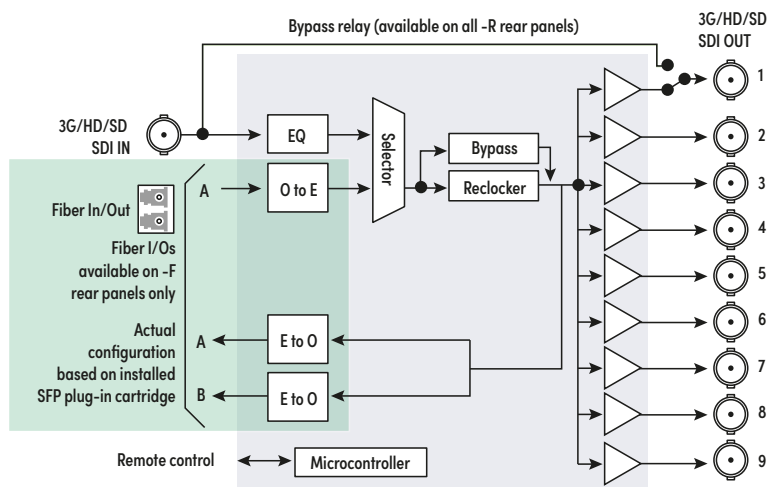
HDA-3911



HDA-1911

Key Features

- 3G/HD/SD SDI input
- Up to 9 3G/HD/SD SDI outputs
- Supports bit rates all the way up to 3 Gb/s
- Automatic format detection and cable equalization
- Optional fiber I/O



HDA-1911 / HDA-3911 Functional Block Diagram

Options Optical option: Refer to the ordering info to see different options

Specifications

Electrical Input

Signal:

3G/HD/SD SDI SMPTE ST 424, 292, and 259-C compliant

Supports data rates of 270, 1483.5, 1485, 2967, 2970 Mb/s

EN50 83-9 DVB-ASI 270 Mb/s

Cable length* (Belden 1694A):

3G: 100m (328 ft.) at 3 Gb/s

HD: 200m (656 ft.) at 1.5 Gb/s

SD: 400m (1,312 ft.) at 270 Mb/s

Return loss*:

>15 dB for up to 1.5 GHz

>10 dB from 1.5 GHz to 3 GHz

Electrical Outputs (9)

Signal:

3G/HD/SD SDI SMPTE ST 424, 292, and 259-C compliant

Supports data rates of 270, 1483.5, 1485, 2967, 2970 Mb/s

EN50 83-9 DVB-ASI 270 Mb/s (5 outputs only)

Return loss:

>15 dB up to 1.5 GHz

>10 dB from 1.5 GHz to 3 GHz

Jitter (wideband):

HD/SD: <0.2 UI

3G: <0.3 UI

Rise/fall time:

135 ps max., 20% to 80%, for HD

400 – 800 ps, 20% to 80%, for SD

Processing Performance

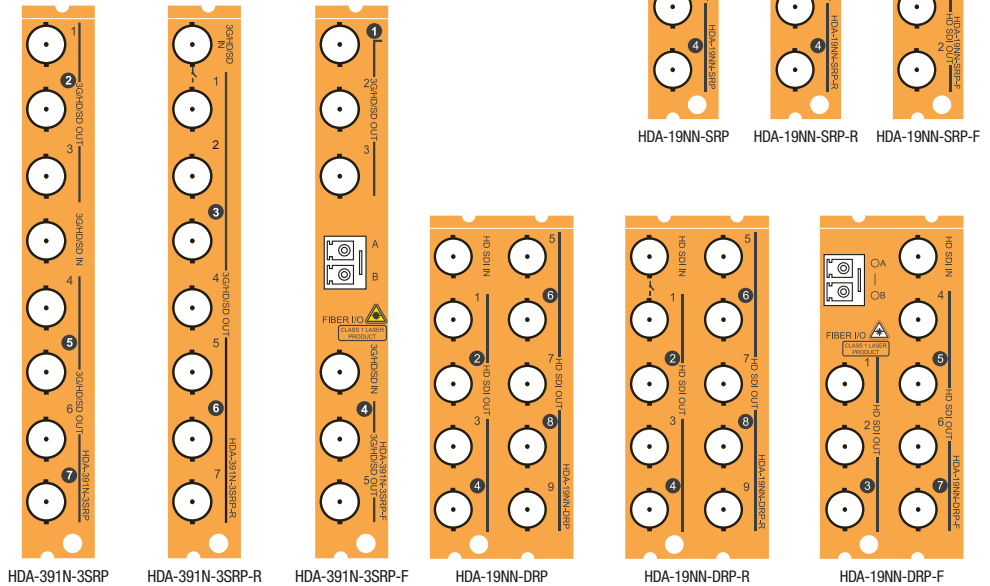
Signal path: 10 bits

Latency: <6 ns

Electrical

Power: 5W

* Cable length and return loss specifications will be reduced when using the output protected by the bypass relay on HDA-19NN-SRP-R, HDA-19NN-DRP-R and HDA-391N-3SRP-R. Refer to the manual for more details.



Note: Numbered outputs marked with black circles are not suitable for DVB-ASI distribution.

Ordering

Densité 2 frame	Densité 3 frame	Description	Densité 2 frame	Densité 3 frame	Description
HDA-1911	HDA-3911	3G/HD/SD distribution amplifier with EQ and reclocking		HDA-391N-3SRP-F	Single rear connector panel for single 1x5 operation mode with fiber option support
HDA-19NN-SRP		Single rear connector panel to be used in single 1x4 operation mode		HDA-391N-3SRP-R	Single rear connector panel for single 1x7 operation mode with bypass protection relay
HDA-19NN-SRP-R		Single rear connector panel to be used in single 1x4 operation mode with bypass protection relay			
HDA-19NN-SRP-F		Single rear connector panel to be used in single 1x2 operation mode with fiber option support	Fiber options	Description	
HDA-19NN-DRP	HDA-19NN-DRP-3RU	Double rear connector panel to be used in single 1x9 operation mode	SFP-R-LC	Single fiber RX (input) cartridge with LC/PC connector	
HDA-19NN-DRP-R	HDA-19NN-DRP-R-3RU	Double rear connector panel to be used in single 1x9 operation mode with bypass protection relay	SFP-T-S13-LC	Single fiber TX (output) cartridge at 1310 nm with LC/PC connector	
HDA-19NN-DRP-F	HDA-19NN-DRP-F-3RU	Double rear connector panel to be used in single 1x7 operation mode with fiber option support	SFP-RT-S13-LC	Dual fiber Rx/Tx (input/output) cartridge 1310 nm with LC/PC connector	
	HDA-391N-3SRP	Single rear connector panel to be used in single 1x7 operation mode	Note: This product can also make use of SFP Optical Plug-in Cartridges from the WDM and CWDM series. Other types of SFP Optical Plug-In Cartridges may be available for this product.		
			Remote control	GV Orbit®, iControl™, iControl Solo	

This product may be protected by one or more patents. For further information, please visit: www.grassvalley.com/patents

DS-PUB-3-0388B-EN

Grass Valley®, GV®, GV Grass Valley®, and the Grass Valley logo are trademarks or registered trademarks of Grass Valley USA, LLC, or its affiliated companies in the United States and/or other jurisdictions. Grass Valley products listed above are trademarks or registered trademarks of Grass Valley USA, LLC or its affiliated companies, and other parties may also have trademark rights in other terms used herein. Copyright © 2015, 2020, 2023, 2026 Grass Valley Canada. All rights reserved. Specifications subject to change without notice.

www.grassvalley.com Join the Conversation at GrassValleyLive on [Facebook](#), [X](#), [YouTube](#) and Grass Valley on [LinkedIn](#)

HDA-1931 HDA-3931

Dual 3G/HD/SD SDI Distribution Amplifier (DA) with Optional Fiber Connectivity

Space-saving, modular platform for advanced signal distribution.

The HDA-1931 and HDA-3931 from Grass Valley® are dual 3G/HD/SD SDI video distribution amplifiers (DAs) that support a variety of compressed and uncompressed serial digital video signals.

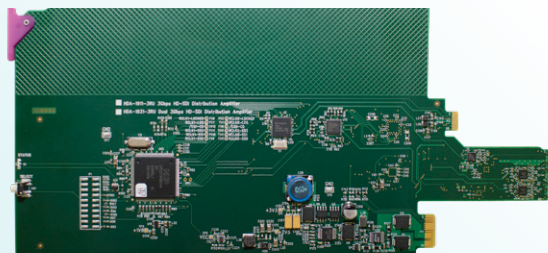
The HDA-1931 and HDA-3931 provide up to eight reclocked outputs with automatic equalization for up to

150 meters (492 feet) of cable using Belden 1694A at 1.5 Gb/s and up to 90 meters (295 feet) at 3 Gb/s.

The HDA-1931 and HDA-3931 offer fiber connectivity, making it ideal for longer cable lengths.

The HDA-1931 and HDA-3931 share the same feature set and

specifications, except that HDA-1931 is a 2 RU card built for the Densité® 2 frame while the HDA-3931 is a 3 RU card made for the Densité 3 frame series. Each product has its specific rears as illustrated in the Key Features section and in the ordering information.



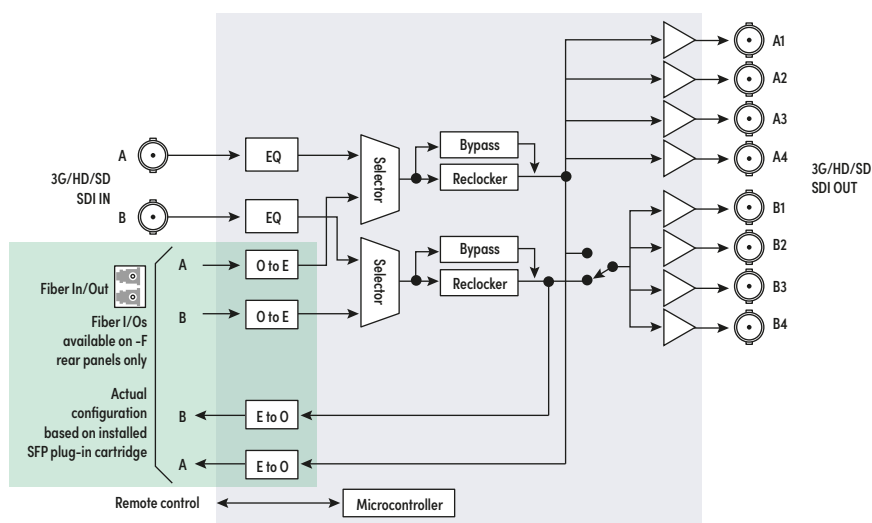
HDA-3931



HDA-1931

Key Features

- Two 3G/HD/SD SDI inputs
- Up to 8 3G/HD/SD SDI outputs
- Supports bit rates all the way up to 3 Gb/s
- Backup input available in single channel mode
- Automatic format detection and cable equalization
- Optional fiber I/O



HDA-1931 Functional Block Diagram

Options

Optical option: Refer to the ordering info to see different options

Specifications

Electrical Inputs (2)

Signal:

3G/HD/SD SDI ST SMPTE 424, 292 and 259-C compliant

Supports data rates of 270, 1483.5, 1485, 2967, 2970 Mb/s

EN50 83-9 DVB-ASI 270 Mb/s

Cable length (Belden 1694A):

3G: 90m (295 ft.) at 3 Gb/s

HD: 150m (492 ft.) at 1.5 Gb/s

SD: 300m (984 ft.) at 270 Mb/s

Return loss:

>15 dB up to 1.5 GHz

>10 dB from 1.5 GHz to 3 GHz

Electrical Outputs (9)

Signal:

3G/HD/SD SDI SMPTE ST 424, 292, and 259-C compliant

Supports data rates of 270, 1483.5, 1485, 2967, 2970 Mb/s

EN50 83-9 DVB-ASI 270 Mb/s (5 outputs only)

Return loss:

>15 dB up to 1.5 GHz

>10 dB from 1.5 GHz to 3 GHz

Jitter (wideband):

HD/SD: <0.2 UI

3G: <0.3 UI

Rise / fall time:

135 ps max., 20% to 80%, for HD

400 - 800 ps, 20% to 80%, for SD

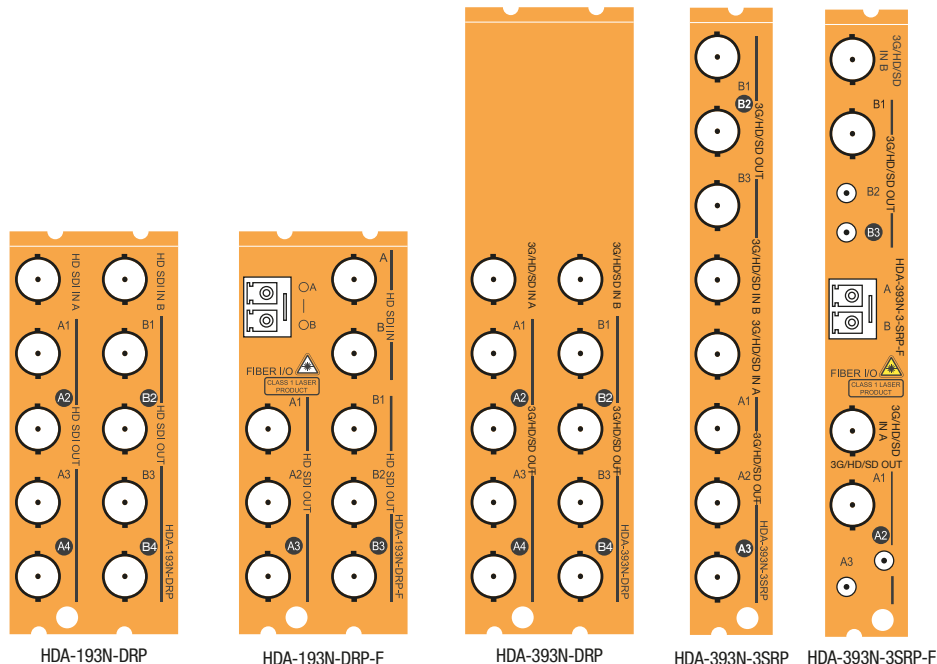
Processing Performance

Signal path: 10 bits

Latency: <6 ns

Electrical

Power: 5W



Ordering

Densité 2 frame	Densité 3 frame	Description	Fiber options	Description
HDA-1931	HDA-3931	3G/HD/SD distribution amplifier with EQ and reclocking	SFP-R-LC	Single fiber RX (input) cartridge with LC/PC connector
HDA-193N-DRP		Double rear for dual 1x4 operating mode	SFP-T-S13-LC	Single fiber TX (output) cartridge at 1310 nm with LC/PC connector
	HDA-393N-3DRP	Double rear for dual 1x4 operating mode	SFP-RT-S13-LC	Dual fiber Rx/Tx (input/output) cartridge 1310 nm with LC/PC connector
HDA-193N-DRP-F		Double rear for dual 1x3 operating mode with fiber option support		
	HDA-393N-3SRP-F	Single rear for dual 1x3 operating mode with fiber option support		
	HDA-393N-3SRP	Single rear for dual 1x3 operating mode		

Note that the HDA-393N-3SRP-F panel uses DIN1.0/2.3 connectors on outputs A2/A3 and B2/B3. All other electrical connectors on all panels are BNC.

Note: This product can also make use of SFP Optical Plug-in Cartridges from the WDM and CWDM series. Other types of SFP Optical Plug-In Cartridges may be available for this product.

Remote control GV Orbit®, iControl™, iControl Solo

This product may be protected by one or more patents. For further information, please visit: www.grassvalley.com/patents

DS-PUB-3-0388B-EN

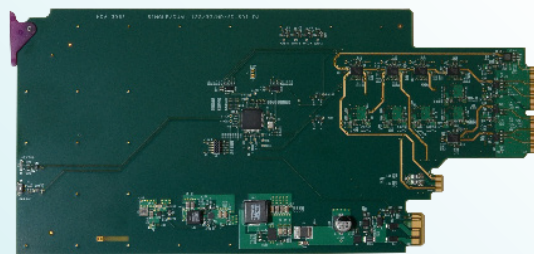
Grass Valley®, GV®, GV Grass Valley®, and the Grass Valley logo are trademarks or registered trademarks of Grass Valley USA, LLC, or its affiliated companies in the United States and other jurisdictions. Grass Valley products listed above are trademarks or registered trademarks of Grass Valley USA, LLC or its affiliated companies, and other parties may also have trademark rights in other terms used herein. Copyright © 2015, 2020, 2023, 2026 Grass Valley Canada. All rights reserved. Specifications subject to change without notice.

www.grassvalley.com Join the Conversation at GrassValleyLive on [Facebook](#), [Twitter](#), [YouTube](#) and Grass Valley on [LinkedIn](#)

DENSITÉ HDA-3962

Single/Dual 12G/3G/HD/SD-SDI Distribution Amplifier (DA) with Optional Fiber Connectivity and 12G Relay Input Bypass

Single and dual channel distribution for 12G/3G/HD/SD-SDI signals.



The HDA-3962 from Grass Valley® provides single and dual channel distribution for 12G/3G/HD/SD-SDI signals with flexible routing of inputs to outputs. Flexible output selection enables the HDA-3962 to be used either as a single channel DA with up to 10 outputs, or in dual channel mode with up to five outputs per input.

The HDA-3962 provides up to ten reclocked outputs with automatic equalization for up to 60 meters (197 feet) of cable using Belden 4794R at 12 Gb/s, and 100m (328 feet) at 3 Gb/s and up to 150 meters (492 feet) at 1.5 Gb/s using Belden 1694A cable.

The HDA-396N-3SRP-HF rear offers fiber connectivity, making it ideal for longer cable lengths. The HDA-3962

provides a user-configurable fiber optic transceiver for bidirectional conversion of 12G, 3G, HD and SD-SDI signals to 1310 nm optical signals. Ideal for mixed coax and fiber workflows, the HDA-3962 allows users to configure the inputs and outputs to match their infrastructure needs.

The HDA-3962-3DRP-HR rear provides a 12G relay input bypass feature, ideal for signal protection in critical applications.

Based on the proven Densité® modular framework of over 100 functional cards, the HDA-3962 provides a space-efficient signal distribution solution. With the flexibility to configure up to 20 HDA-3962 module per Densité 3 frame,

with each module carrying 12 12G single outputs or six 12G dual outputs, this platform scales to a density of 240 12G signals in a 3 RU frame. The HDA-3962 also support the Densité 3+ FR1 frame with four modules in 1 RU, the Densité 3+ FR4 frame with 24 modules in 4 RU and the Densité 3 mini frame with two modules in 1/2 RU.

The HDA-3962 can be configured and monitored by the proven GV Orbit® Network Orchestration solution.

Key Features

- Single/dual 12G/3G/HD/SD-SDI inputs
- Flexible selection of inputs allows single or dual channel operation on some rear panels
- Supports bitrates up to 11.88 Gb/s
- Automatic format detection and cable equalization
- Up to 10 12G/3G/HD/SD-SDI with one bypass HD-BNC outputs on the HDA-3962-3DRP-HR rear
- Up to 7 12G/3G/HD/SD-SDI BNC outputs on the HDA-396N-3SRP rear
- Up to 6 12G/3G/HD/SD-SDI BNC outputs on the HDA-396N-3SRP-2IN rear
- Up to 10 12G/3G/HD/SD-SDI HD-BNC outputs on the HDA-396N-3SRP-HF rear
- Optional fiber I/O on the HDA-396N-3SRP-HF rear

Specifications

Electrical Inputs and Outputs

Physical:

8 BNC Connectors:

- 1 in, 7 out (HDA-396N-3SRP)
- 2 in, 6 out (HDA-396N-3SRP-2IN)

12 HD-BNC Connectors:

- 2 in, 10 out (HDA-396N-3SRP-HF)
- 1 in, 10 out with relay bypass for in 1 to out 1 (HDA-3962-3DRP-HR)

SDI standards:

- SMPTE ST 259-C (270 Mb/s)
- SMPTE ST 292 (1.485, 1.485/1.001 Gb/s)
- SMPTE ST 424 (2.970, 2.970/1.001 Gb/s)
- SMPTE ST 2082-1:2015 (2.970, 2.970/1.001 Gb/s)

Cable length (Belden 1694A cable):

- 365m (1197 ft.) at 270 Mb/s
- 150m (492 ft.) at 1.485 Gb/s
- 100m (328 ft.) at 2.970 Gb/s

Cable length (Belden 4794R cable):

- 60m (197 ft.) at 11.88 Gb/s

Return loss:

- >15 dB up to 1.5 GHz
- >10 dB from 1.5 GHz to 3 GHz

Jitter (wideband): <0.2 UI p-p

Rise/fall time:

- <135 ps, 20% to 80%, for HD and 3G
- 400-800 ps, 20% to 80%, for SD

Processing Performance

Processing delay: 7 ns typical

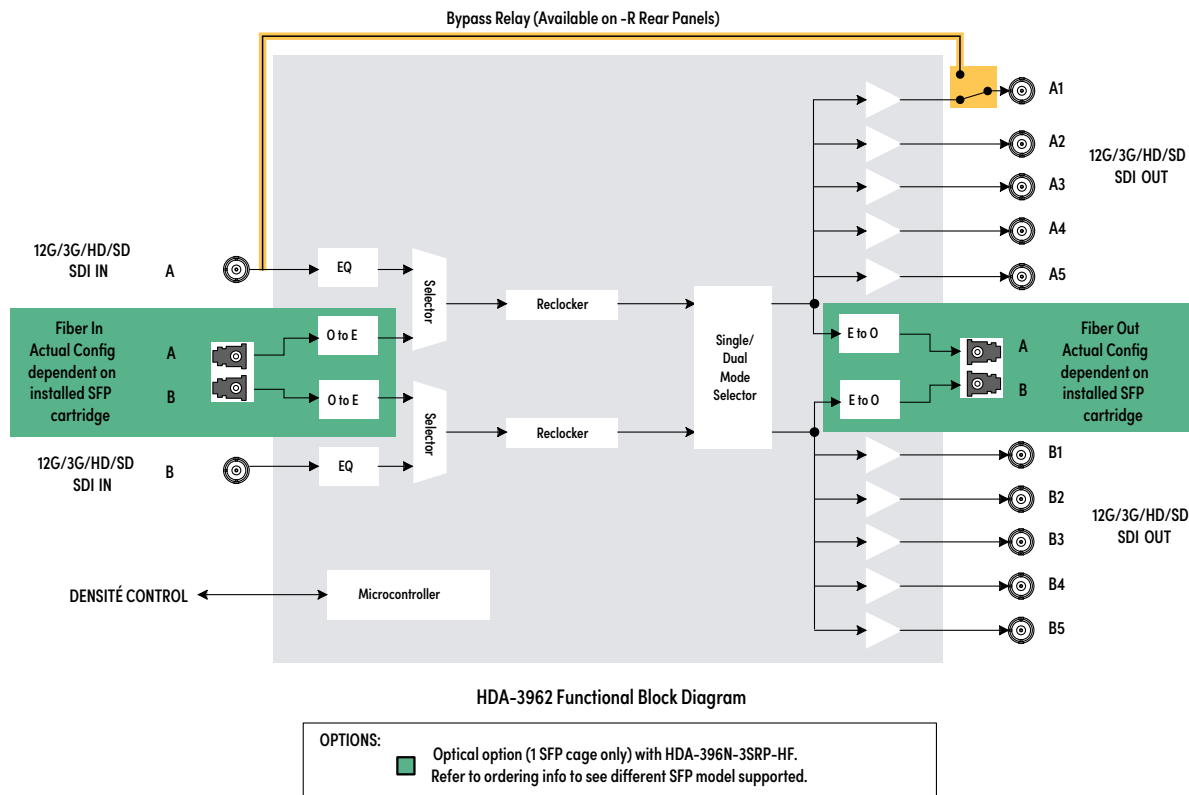
Electrical

Power: less than 12.5W max

NOTE: When using a rear panel that is equipped with a bypass relay (model: HDA-3962-3DRP-HR), performance will be reduced for equipment connected to the output protected by the bypass relay (Output 1).

The total cable length of the bypass relay protected path must not be greater than the maximum input cable length requirement of the receiving equipment. For this, add the cable length of the equipment connected to the card's input to the cable length of the receiving equipment connected to the output protected by the bypass relay.

The return loss specifications of the bypass relay protected path will be reduced as it depends on the return loss of the receiving equipment connected to the output protected by the bypass relay.



Ordering

Densité 3 Frame

HDA-3962

Single/dual 12G SDI distribution amplifier with EQ and reclocking

HDA-396N-3SRP

Single rear panel with single 1x7 BNCs

HDA-396N-3SRP-2IN

Single rear panel with single 1x6 or dual 1x3 BNCs

HDA-396N-3SRP-HF

Single rear panel with single 1x10 or dual 1x5 HD-BNC with fiber option support

HDA-3962-3DRP-HR

Double rear panel with single 1x10 HD-BNC with relay bypass support on output 1

Fiber Options

SFP-U-R-LC

12G Single RX Fiber with LC/PC

SFP-U-RR-LC

12G Dual Rx Fiber with LC/PC

SFP-U-RT-S13-LC

12G Dual Rx/Tx Fiber 1310 nm with LC/PC

SFP-U-T-S13-LC

12G Single Tx Fiber 1310 nm with LC/PC

SFP-U-TT-S13S13-LC

12G Dual Tx Fiber 1310 nm with LC/PC

SFP-R-LC

Single fiber RX (input) cartridge with LC/PC connector

SFP-RR-LC

Dual fiber Rx (input) cartridge with LC/PC connector

SFP-T-S13-LC

Single fiber TX (output) cartridge at 1310 nm with LC/PC connector

SFP-TT-S13S13-LC

Dual fiber Tx (output) cartridge at 1310 nm with LC/PC connector

SFP-RT-S13-LC

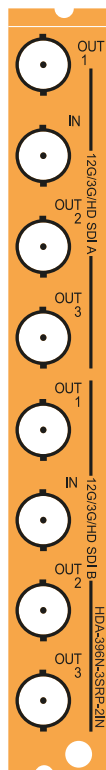
Dual fiber Rx/Tx (input/output) cartridge 1310 nm with LC/PC connector

NOTE: The HDA-3962 can also make use of SFP optical plug-in cartridges from the WDM and CWDM series. Other types of SFP optical plug-in cartridges may be available.

Remote control: GV Orbit, iControl or iControl Solo (version 7.10 or higher required)



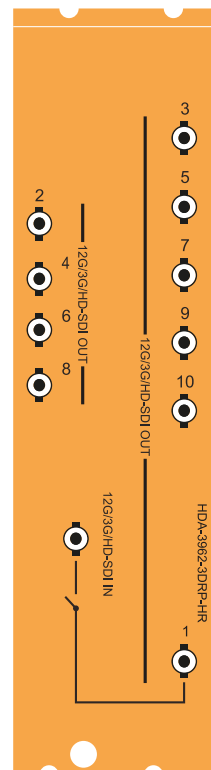
HDA-396N-3SRP



HDA-396N-3SRP-2IN



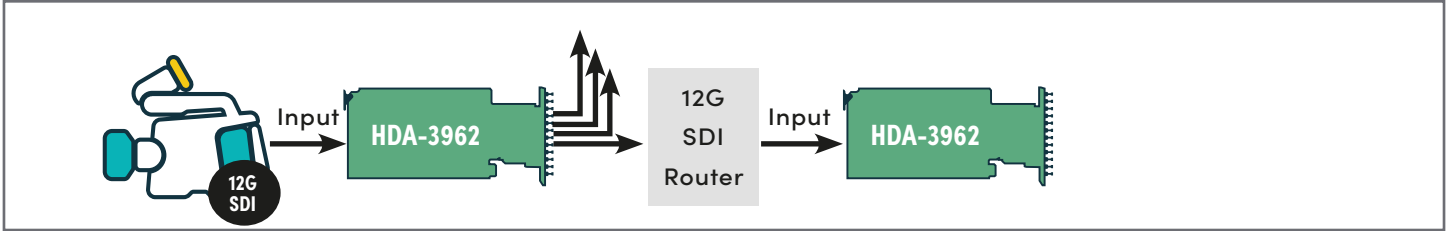
HDA-396N-3SRP-HF



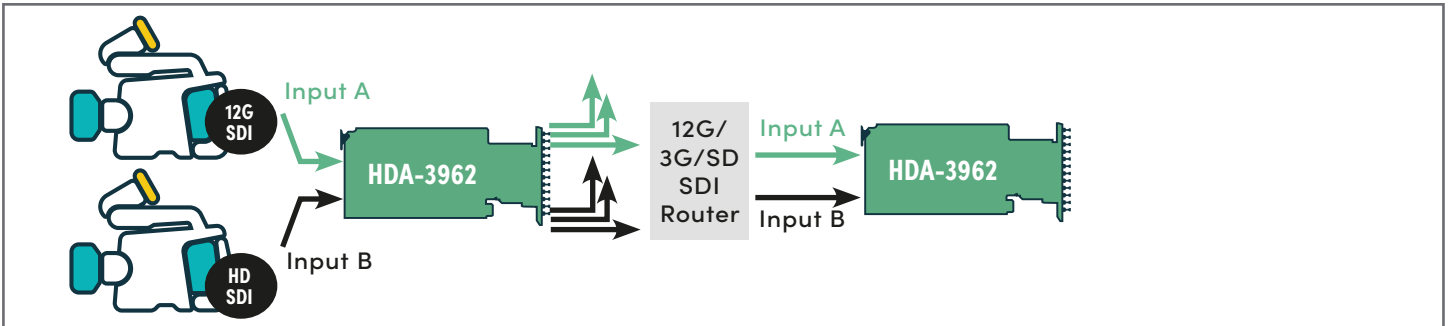
HDA-3962-3DRP-HR

Typical Applications

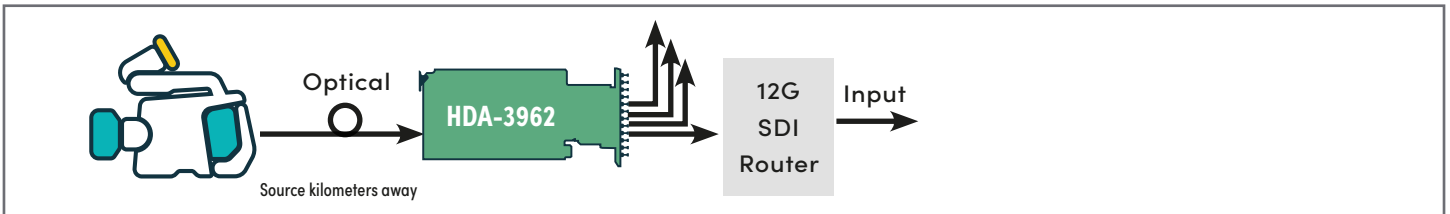
1) Simple router fan-in/fan-out application



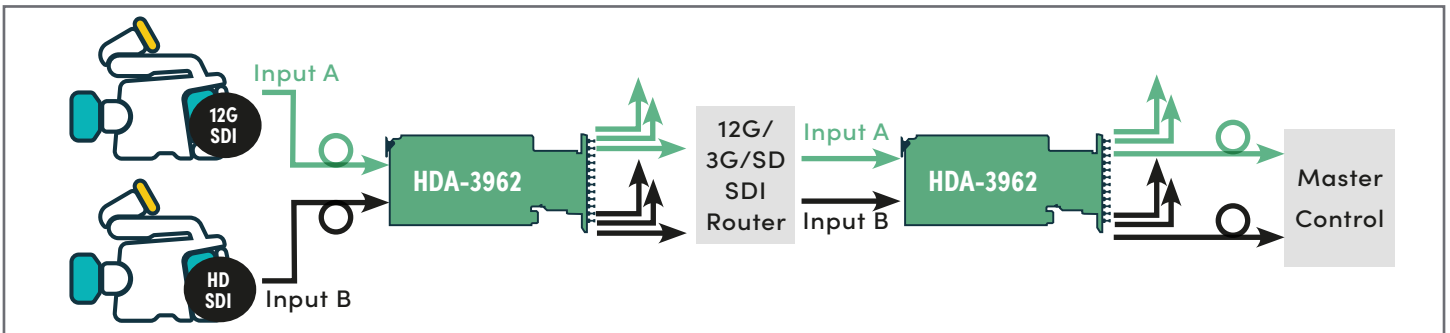
2) Dual channel, dual format multiformat fan-in/fan-out application



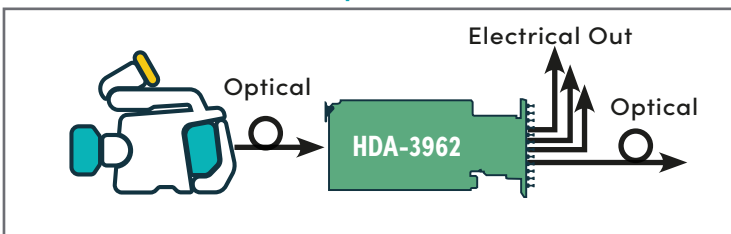
3) Simple channel fiber optic long distance router fan-in/fan-out



4) Dual channel fiber optic long distance router fan-in/fan-out



5) Fiber-to-fiber with electrical drop-down



This product may be protected by one or more patents. For further information, please visit: www.grassvalley.com/patents

DS-PUB-3-0973A-EN

Grass Valley®, GV® and the Grass Valley logo are trademarks or registered trademarks of Grass Valley USA, LLC, or its affiliated companies in the United States and other jurisdictions. Grass Valley products listed above are trademarks or registered trademarks of Grass Valley USA, LLC or its affiliated companies, and other parties may also have trademark rights in other terms used herein. Copyright © 2021-2023 Grass Valley Canada. All rights reserved. Specifications subject to change without notice.

www.grassvalley.com Join the Conversation at GrassValleyLive on [Facebook](#), [Twitter](#), [YouTube](#) and Grass Valley on [LinkedIn](#)