MultiDyne
Video & Fiber Optic Systems

HD-4000 Series

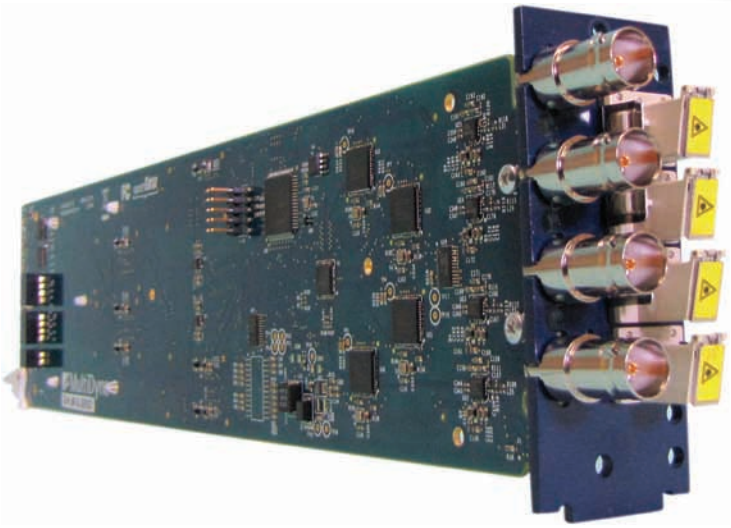
3Gbps Fiber transport for openGear

Features

- Supports SMPTE 424M, 292M, 310M & 259M
- Reclocking @ 270Mbps, 1.483Gbps, 2.970 Gbps & DVB-ASI
- Auto-detect of incoming data rate
- Card-edge LEDs for signal presence, rate & other key parameters
- Blind-mating SC fiber connectors
- 4x4 Matrix/cross-point
- 1,2,3 or 4 signals/card
- Up to 18 signals/fiber
- Up to 40 signals in 2RU
- Dashboard enabled
- Supports embedded audio and data
- 7 year warranty

Applications

- Studio Links
- Signal Trunking
- Signal distribution
- Campus interconnects
- Transmission links
- Telco circuits
- Outside Broadcast "B-Unit" interconnects



From 1 to 18 signals per fiber and built-in cross-points, the HD-4000 Series makes your SDI signal transport and distribution SIMPLE!

The HD-4000 series of modules for the openGear platform provides unprecedented flexibility in how you handle your SDI signal transport. Capable of handling SDI rates from 5 Mb/sec all the way up to 3 Gb/sec uncompressed, these cards will automatically detect the incoming signal and give you full control over re-clocking and routing.

The table, below, shows the 5 different card-sets available in the HD-4000 line. With each module you get the same control features that are available both on the front card edge (via dip switches) or through the openGear DashBoard software.

MODEL	FUNCTION
4100	1 Signal, 1 Fiber
4200	2 Signals, 2 Fibers
4300	3 Signals, 3 Fibers
4400	4 Signals, 4 Fibers
4400-CWDM	4 Signals, 1 Fiber

But the true power of the 4000-Series is the ability to daisy chain up to five cards to create an 18-Channel CWDM mux that is ideal for high-density signal trunking.

The HD-4000's also incorporate an integrated cross-point matrix that allows not only the ability to assign a given input signal to one or more outputs, but also to enable and disable outputs should the need arise. There's also an automatic fail-over mode that, when selected, will switch to another input should the signal in the first input somehow fail. Embeded audio is fully supported. All outputs are non-inverting and ASI capable.

The HD-4000's. The cost effective way to move all of your HD signals along with the convenience of a built-in switcher, remote monitoring and automatic fail-over protection switching.

Designed and manufactured in New York.

7 Year MultiDyne Warranty

The HD-4000 Series: 1 signal or 18 per Fiber

1,2,3 or 4 signals per card

We know that one size never fits all and signal transport is no exception. Whatever your signal count, our cards can be easily combined to match your requirement. In cases where signals are being optically multiplexed with a CWDM, we mount the CWDM filter directly on the card so that you don't need to waste valuable slots in your frame. And the cards are automatically detected by the Dashboard software so there is no need to set DIP switches to indicate how many signals are present on a given card. A fully populated frame with 4-channel cards will give you 40 signals in just 2 RU.

Built-in Cross Point

It is one thing to move HD signals over fiber but it is really nice to be able to route a given input to one or all of the outputs. Our built-in cross point gives you unprecedented control over your signal flow by allowing you to simply route signals or to turn them off entirely...all from the Dashboard or via the front-edge DIP switches. If you suddenly need an HD video DA, simply route one input to all 4 outputs of the card. It's that simple.

Protection Switching

Once we had the cross point, providing a protection switching scheme was an easy decision. So, not only can you route your signals through the frame, you can also assign a secondary input should the primary input fail. Once the card deterts that the HD carrier has gone, it quickly switches over to the assigned back-up signal. These parameters can be configured through the DIP switches as well as through the Dashboard interface.

Total Control of your I/O

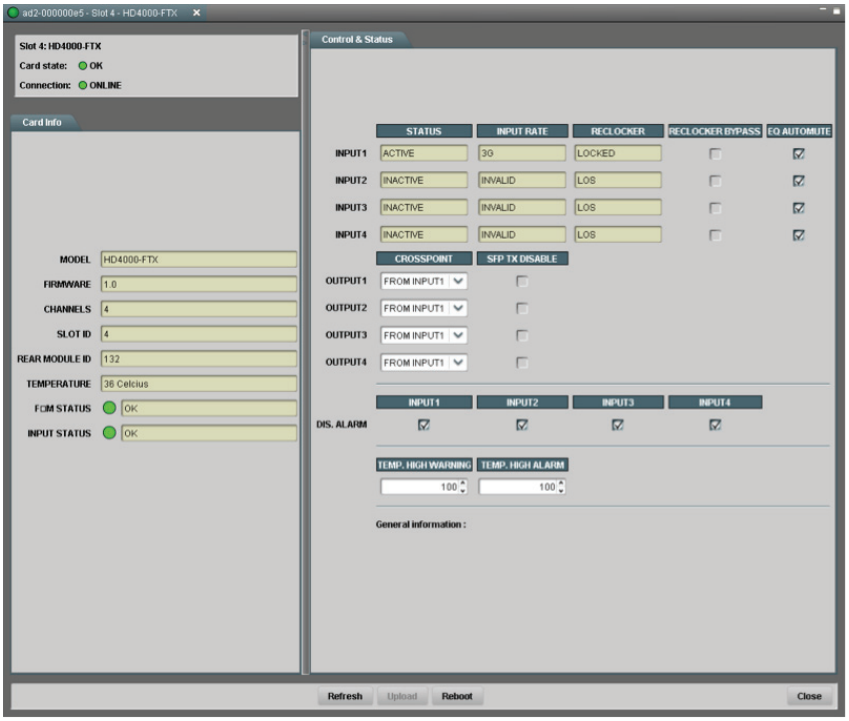
We understand the importance of being able to efficiently move and route HD signals throughout your facility. The HD-4000 Series provides the feature set to accomplish this while also providing the tools to enable you to recover from a signal failure or to quickly respond to changing signal needs.

Dashboard Monitoring and Control

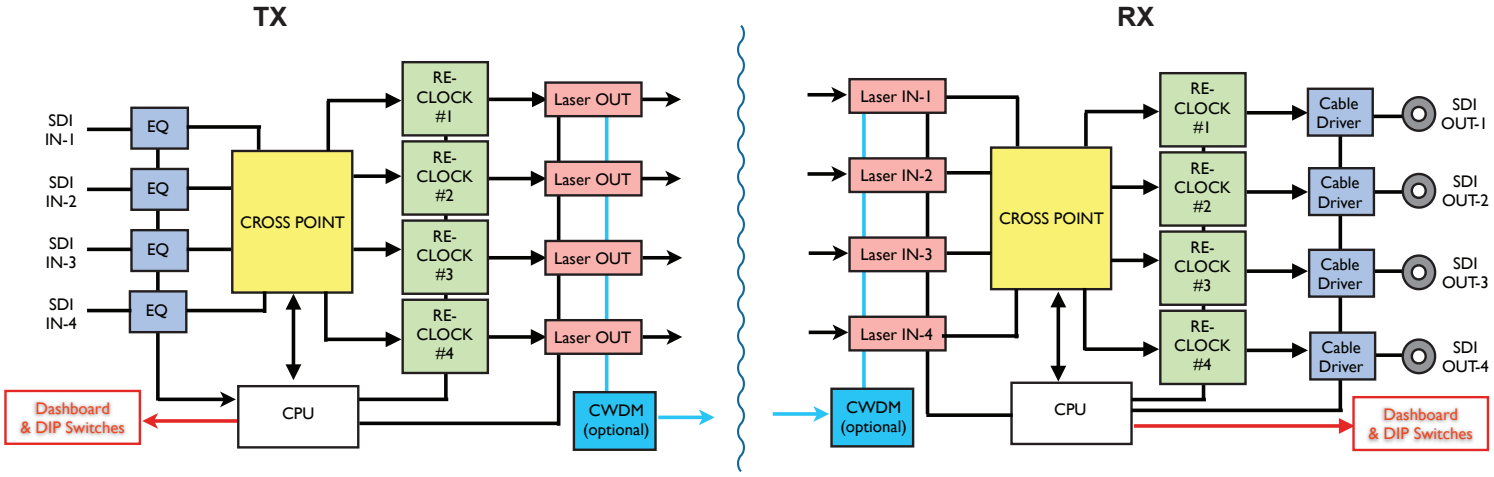
Of course, the best way to keep watch over your signals is to have access to a state-of-the-art monitoring platform like DashBoard. Once a card is inserted into an openGear frame, it is remotely monitorable through Dashboard. With the basic frame (-C) a single user can monitor at a time. With the -CN frame, multiple users can work simultaneously. And with the -CMS frame, your are SNMP enabled to integrate into your larger monitoring environment.

All of the essential card and signal parameters can be seen and maniulated in an easy-to-use graphical interface including reclocking on/off, laser status, temperatures, input/output signal status, alarms and more.

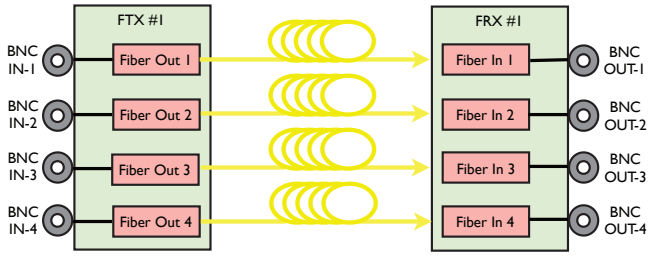
The Dashboard software is free and you can download it at www.opengear.tv.



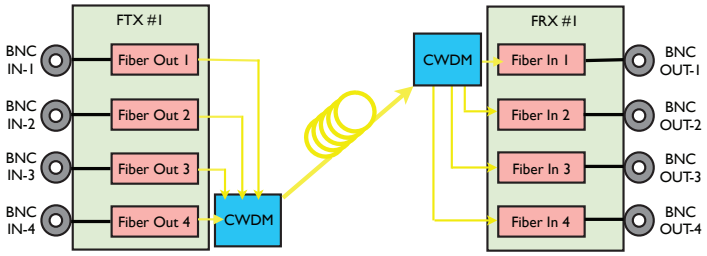
Block Diagram



CWDM Operation & Daisy-Chaining



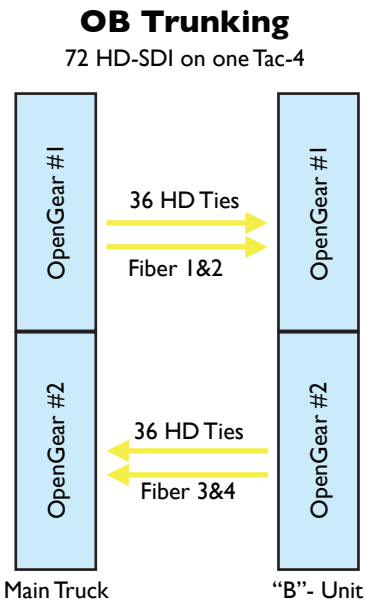
Basic 1:1 Signal Flow

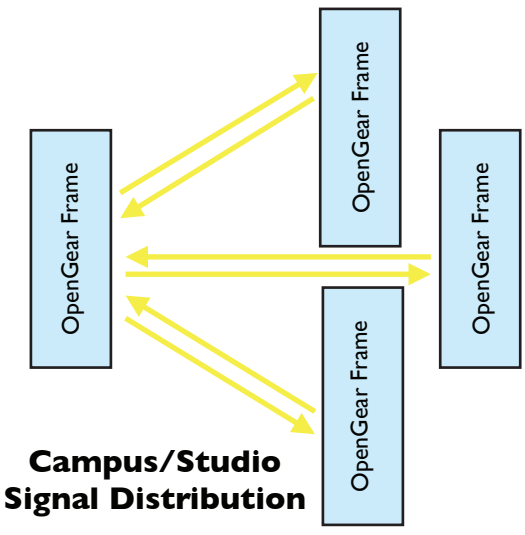


CWDM 4:1 Signal Flow

Five 440 cards can be daisy-chained together to make an 18 channel CWDM mux with 4 channels on the first 4 cards and two on the fifth card. The is facilitated by CWDM's that have an "express channel" that allows the 4 discreet signals to be added to the mux and then passed along to the next module for the next four channels. Please contact your local sales manager for configuring these systems.

Applications





Specifications

SDI Video In

Input Type	BNC
Input Impedance	75 Ohms
Input Return Loss	>15dB up to 1.5GHz >10dB up to 3 GHz
Wavelength	1310nm Std CWDM 1271-1611 DFB
Optical Power	–5 dBm to 0 dBm
Laser Strength	Laser Class 1
Added Jitter:	<0.03UI under 1MHz
Standards:	SMPTE 259M-C, 292M, 425M, 297M & DVB/ASI

SDI Video In

Input Type	BNC
Input Impedance	75 Ohms
Optical Sensitivity (w/HD-SDI Signal)	-20 dBm
Output Return loss	>15 dB up to 1.5GHz >10dB up to 3 GHz
Added Jitter:	<0.03UI under 1MHz

General

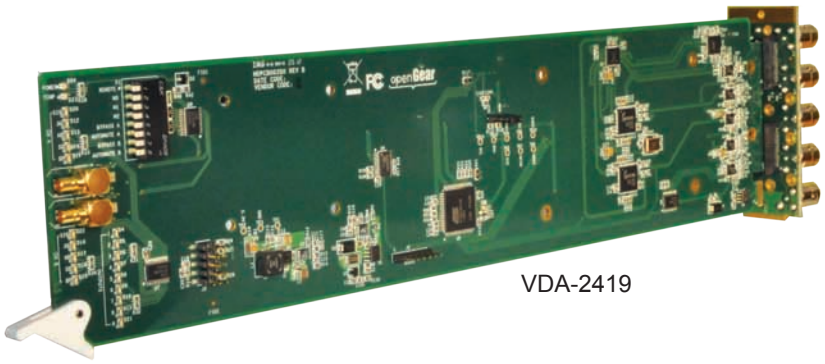
Fiber Compatibility	singlemode
Optical Connector	ST, LC, SC or FC
Distance limit	Up to 40 km @ SD Up to 24 km @ HD
Dimensions (LxWxH)	13” x 3”
Weight	6 oz
Temperature Range	-0° to +70°C
Humidity Range	0 to 95% RH Noncondensing
Power Requirement	12 VDC @ 10w

Ordering Information

Cards	
HD-4100OG-FTX-50	1 Ch. 3.0 Gbps Multi-rate HD-SDI TX over 1 fiber, supports 5 - 2970 Mb/s, EQ & Reclocker; 1310nm Singlemode, -2 dBm
HD-4100OG-FTX-Wxxxx	1 Ch. 3.0 Gbps Multi-rate HD-SDI TX over 1 fiber, supports 5 - 2970 Mb/s, EQ & Reclocker; CWDM. Singlemode, 0 dBm
HD-4100OG-FRX-50	1 Ch. 3.0 Gbps Multi-rate HD-SDI RX over 1 fiber, supports 5 - 2970 Mb/s, EQ & Reclocker; 1310nm Singlemode, -20 dBm Sensitivity
HD-4200OG-FTX-50	2 Ch. 3.0 Gbps Multi-rate HD-SDI TX over 2 fibers, supports 5 - 2970 Mb/s, EQ & Reclocker; 1310nm Singlemode, -2 dBm
HD-4200OG-FRX-50	2 Ch. 3.0 Gbps Multi-rate HD-SDI RX over 2 fibers, supports 5 - 2970 Mb/s, EQ & Reclocker; 1310nm Singlemode, -20 dBm Sensitivity
HD-4300OG-FTX-50	3 Ch. 3.0 Gbps Multi-rate HD-SDI TX over 3 fibers, supports 5 - 2970 Mb/s, EQ & Reclocker; 1310nm Singlemode, -2 dBm
HD-4300OG-FRX-50	3 Ch. 3.0 Gbps Multi-rate HD-SDI RX over 1 fibers, supports 5 - 2970 Mb/s, EQ & Reclocker; 1310nm Singlemode, -20 dBm Sensitivity
HD-4400OG-FTX-50	4 Ch. 3.0 Gbps Multi-rate HD-SDI TX over 4 fibers, supports 5 - 2970 Mb/s, EQ & Reclocker; 1310nm Singlemode, -2 dBm
HD-4400OG-FRX-50	4 Ch. 3.0 Gbps Multi-rate HD-SDI RX over 4 fibers supports 5 - 2970 Mb/s, EQ & Reclocker; 1310nm Singlemode, -20 dBm Sensitivity
HD-4400OG-FTX-CWDM	4 Ch. 3.0 Gbps Multi-rate HD-SDI TX over 1 fiber, supports 5 - 2970 Mb/s, EQ & Reclocker; CWDM, Singlemode, -2 dBm
HD-4400OG-FRX-CWDM	4 Ch. 3.0 Gbps Multi-rate HD-SDI RX over 1 fiber, supports 5 - 2970 Mb/s, EQ & Reclocker; CWDM, Singlemode, -20 dBm Sensitivity
Rear Panels	
R2-4400-CWDM-xx	HD-4000 Series of Fiber Rear Entry Module with 4 BNCs and 1 Fiber Ports, Double Slot for OG-8321-x (Specify - ST, LC, SC or FC)
R2-4400-xx	HD-4000 Series of Fiber Rear Entry Module with 4 BNCs and 4 Fiber Ports, Double Slot for OG-8321-x (Specify - ST, LC, SC or FC)
Accessories	
OG-8321-C	20-slot openGear Frame - 2 Rack Units with Fans and Metal Plates on Rear I/O - Includes one PS-8300 Power Supply and MFC-8320-S Simple Network Controller Card. Only one user at a time.
OG-8321-CN	20-slot openGear Frame - 2 Rack Units with Fans and Metal Plates on Rear I/O - Includes one PS-8300 Power Supply and MFC-8320-N Network Controller Card. Permits multiple simultaneous users.
OG-8321-CNS	20-slot openGear Frame - 2 Rack Units with Fans and Metal Plates on Rear I/O - Includes one PS-8300 Power Supply and MFC-8320-N Network Controller Card with SNMP Software Option
PS-8300	150 Watt Universal Power Supply (90-264VAC) for OG-8321 frames
SNMP-8310	Software option for MFC-8320-N: Provides SNMP (v1 & v2) control and monitoring to -C and -CN Framed
R2-Blank	openGear 20 Slot Frame Rear Module Blank Plate

*More information for openGear frames and accessories is available at www.opengear.tv

And have a look at our VDA-2419’s for even more control over your HD video distribution!



VDA-2419

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Transmit • Route • Receive

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 Specifications subject to change without notice Made in USA