



2024 —
PRODUCT BRIEF

COBALT

ENGINEERING
BEYOND
THE SIGNAL

COBALTDIGITAL.COM

BEYOND THE SIGNAL

ENGINEERING BEYOND THE SIGNAL STARTS WITH INNOVATION.

Cobalt Digital has proudly provided engineering solutions to meet customers' needs since 1997. By speaking and listening closely to end users, Cobalt has developed equipment offering the answer for many challenges. Our innovative products feature 24/7 service and support and many come with a five-year warranty, vital in today's broadcast industry. Our products are used extensively worldwide in production trucks, and by terrestrial, satellite and cable broadcasters, as well as many government facilities. As we navigate through our 27th year of innovation and service, we reflect on how far the industry has come, and look forward to engineering products for tomorrow's broadcast and beyond.

COBALT



A POWERFUL ON AND OFF RAMP TO AND FROM IP / SDI

INDIGO OG-2110-BIDI4-GATEWAY » SMPTE ST 2110 BI-DIRECTIONAL 4 CHANNEL GATEWAY

LEARN MORE AT COBALTDIGITAL.COM



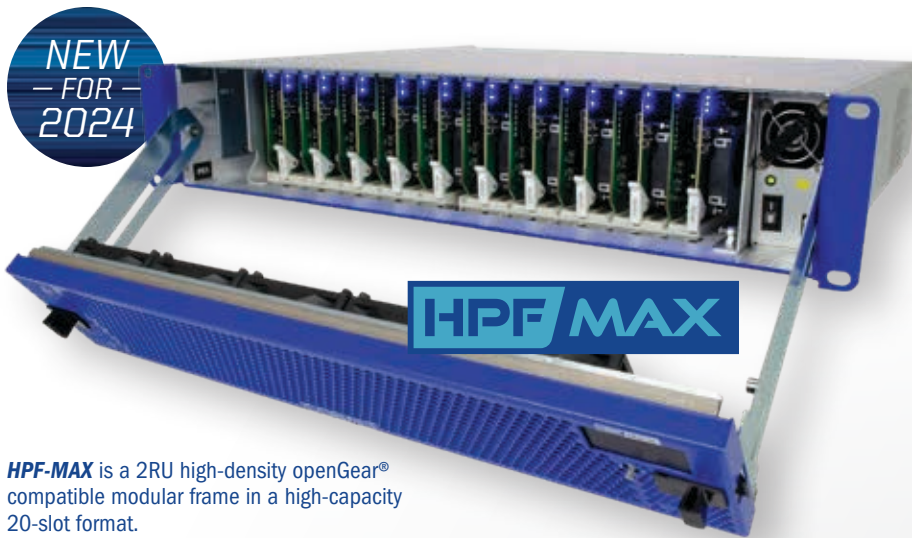
The INDIGO OG-2110-BIDI4-GATEWAY has native SMPTE ST 2110 support in an openGear® format card with dual 25G Ethernet interfaces for ST 2022-7 support. The INDIGO OG-2110-BIDI4-GATEWAY is a bi-directional quad channel native ST 2110 interface to SDI I/O.

The transmit and receive paths of the gateway can operate simultaneously. INDIGO OG-2110-BIDI4-GATEWAY also includes support for ST 2022-7 seamless redundancy switching, as well as IS-04/IS-05 NMOS for automatic discovery and configuration.

INDIGO ST 2110 is also supported on Cobalt's 9904-UDX-4K and 9905-MPx processing cards and on the PACIFIC 9992-ENC-INDIGO encoder.

KEY FEATURES

- Highly integrated 4 channel ST 2110 gateway openGear® card
- Offers dual 25G Ethernet interfaces for ST 2022-7 support of 4K signals without the need for any type of compression and to support ST 2022-7 seamless redundancy switching for improved network reliability
- Built-in NMOS support offers straightforward interface to an existing network, with auto-discovery by the network management
- High-density, compact openGear® card-based multi-channel transmit/receive solution, offering the standard features of redundant hot-swappable power supplies and hot-swappable cards
- Five year warranty



HPF-MAX

HPF-MAX is a 2RU high-density openGear® compatible modular frame in a high-capacity 20-slot format.

ORDERING INFORMATION

INDIGO OG-2110-BIDI4-GATEWAY openGear® card



HIGH DENSITY 12G DANTE EMBED/DE-EMBED

ARIA OG-AUD4-DANTE » 4 X 12G-SDI INPUTS/OUTPUTS
ARIA OG-AUD2-DANTE » 2 X 12G-SDI INPUTS/OUTPUTS

[LEARN MORE AT COBALTDIGITAL.COM](https://cobaltdigital.com)

The ARIA openGear® DANTE cards can simultaneously embed and de-embed audio between SDI, DANTE, AES and MADI, with flexible routing and mixing. The cards also include a built-in frame sync.

KEY FEATURES



DANTE is also supported on Cobalt's 9904-UDX-4K and 9905-MPx processing cards.

- Two or four SDI inputs and outputs, capable of up to 12G-SDI operation
- MADI input and output
- 8 AES inputs/outputs - each block of 4 ports is software-configurable as input or output
- Simultaneous embedding and de-embedding
- Full routing and mixing between SDI, DANTE, MADI and AES
- SDI output crosspoint - connect any output to any input
- Dual Gigabit Ethernet ports for redundant DANTE operation
- DANTE matrix size:
 - ARIA OG-AUD4-DANTE: 64x64
 - ARIA OG-AUD2-DANTE: 32x32
- Five year warranty



ORDERING INFORMATION

ARIA OG-AUD4-DANTE

4-Channel up to 12G-SDI DANTE/AES/MADI Embedder/De-embedder with Frame Sync

ARIA OG-AUD2-DANTE

2-Channel up to 12G-SDI DANTE/AES/MADI Embedder/De-embedder with Frame Sync





MOUNT BEHIND THE MONITOR WITH EASE.

SAPPHIRE BBG-2110-2H DUAL CHANNEL BASEBAND OR JPEG-XS MINI-CONVERTER WITH HDMI OUTPUTS

LEARN MORE AT COBALTDIGITAL.COM



The SAPPHIRE BBG-2110-2H 12G mini-converter addresses the need to display received Baseband or JPEG-XS (optional license) content on HDMI monitors in a simple and cost-effective way. The BBG-2110-2H features two independent HDMI outputs and can be mounted behind the monitor.

The converter includes dual SFP cages with support for 10Gb/s and 25Gb/s Ethernet ports, one additional 1Gb copper Ethernet port for out-of-band management, support for SMPTE ST 2022-7 Seamless Switching up to Class C operation for WAN environments, support for NMOS IS-04/IS-05 control and management (both in-band and out-of-band), and PTP support. Also included is a fan-less option for quiet environments and higher reliability. Uncompressed ST 2110-20 video is also supported.

SAPPHIRE BBG units are capable of fully asynchronous operation and are IPMX-compliant.

The SAPPHIRE BBG units are the ideal choice for directly displaying incoming Baseband or JPEG-XS content on HDMI monitors, including content originating from a WAN connection. The units can be mounted directly behind the monitor, will not take up any rack space, and are incredibly quiet, which makes them ideal for control rooms. This unit can be available with active cooling (fan) or passive cooling (no fan).

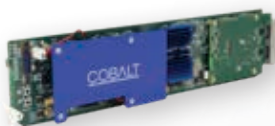
ALSO AVAILABLE

SAPPHIRE BBG-2110-H/S Single-Channel Baseband or JPEG-XS to HDMI/SDI

SAPPHIRE BBG-2110-4H/S Quad-Channel Baseband or JPEG-XS to HDMI/SDI

KEY FEATURES

- Converts two Baseband or JPEG-XS streams with associated audio and ancillary data essences to HDMI.
- JPEG-XS input is an optional license
- Supports SMPTE ST 2022-7 Seamless Redundancy up to Class C for WAN operation.
- Fan-less option for quiet operation.
- Can be mounted behind the monitor.
 - Active cooling unit (WxDxH): 4" x 5.5" x 1.5"
 - Passive cooling unit (WxDxH): 8" x 5.5" x 2.5"
- Supports NMOS IS-04/IS-05 control, both in-band and out-of-band.
- Web interface and DashBoard™ control.
- Dual power supplies for redundancy.
- Supports all popular formats: 720p, 1080i, 1080p and 4K



SAPPHIRE CONVERTERS ALSO AVAILABLE IN OPENGear®

SAPPHIRE 9926-2HtoS 12G/6G/3G/HD/SD Dual-Channel openGear® HDMI-to-SDI Converter with Per-Channel Frame Sync

SAPPHIRE 9926-4HtoS 3G/HD/SD Quad-Channel openGear® HDMI-to-SDI Converter with Per-Channel Frame Sync

SAPPHIRE 9927-2StoH 12G/6G/3G/HD/SD Dual-Channel openGear® SDI-to-HDMI Converter with Per-Channel Frame Sync

WAVE ROUTERS & CONTROL PANELS

MULTI-FORMAT WAVE ROUTER FROM SD TO 4K

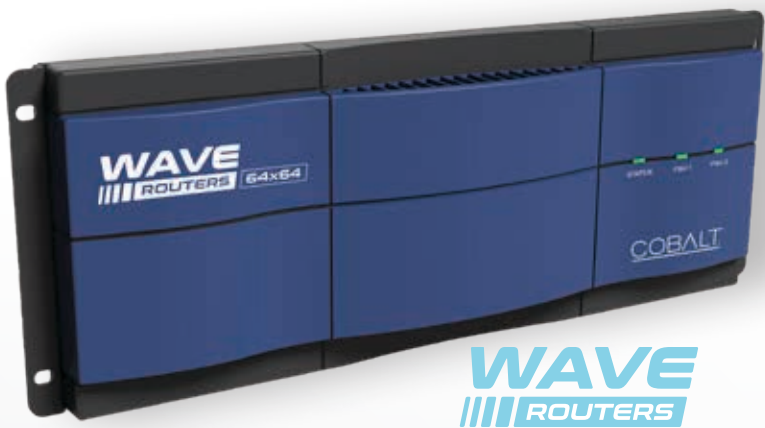
LEARN MORE AT COBALTDIGITAL.COM 

The WAVE RTR-64x64 and WAVE RTR-32x32 12G-SDI routers are midsize 64x64 or 32x32 crosspoint solutions contained within a compact 4U (7 inch) tall frame. They provide a high density solution that offers unprecedented flexibility, ease of use and integration. The frame is a thin 3.75 inch deep chassis.

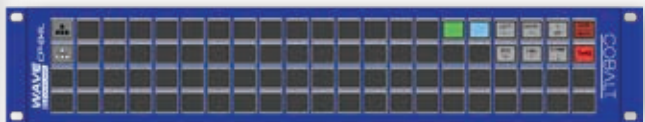
WAVE Routers feature a single 10/100/1000 Ethernet port for IP based controls such as Cobalt's Router Protocol, General Remote protocol SW-P-08, and PESA PNET. The integrated web server supports browser control and system setups which can be saved and recalled quickly. This compact design is specifically optimized for 12G SDI operation but handles lower SDI rates with ease.

KEY FEATURES

- 64x64 or 32x32 Crosspoint Solutions in a Compact 4U
- Single 10/100/1000 Ethernet port for IP based control
- Full size BNC connectors
- RP-168 Switching Support
- Compatible with WAVE Control Panels



WAVE
ROUTERS



WAVE CP-84 - 84 BACK-LIT LCD DISPLAY BUTTONS
ALSO AVAILABLE WITH 42 BUTTONS



WAVE CP-78 - 78 BACK-LIT BUTTONS
ALSO AVAILABLE WITH 44 BUTTONS

WAVE CONTROL PANEL SERIES

CUSTOMIZABLE API AVAILABLE

The WAVE CONTROL PANELS CP-42L and CP-84L feature 42 and 84 back-lit LCD dot matrix display buttons. The WAVE CONTROL PANELS CP-44 and CP-78 feature 44 and 78 back-lit buttons. All buttons are illuminated by RGB LEDs providing a wide array of background colors to choose from. Factory presets provide a solid starting point from which to customize each button color. Located on the rear of the unit is an Ethernet port with optional PoE++ capability for power and IP based communication. Built in SW-P-08 protocol comes standard as well 2 optically isolated General Purpose Outputs and 2 Inputs and the option to get up to 20 of each.

KEY FEATURES

- Ethernet with PoE++ compatibility (license-based)
- Redundant DC power connections
- Optically Isolated - 20 GPO & 20 GPI (license-based)
- Quiet fan-less design
- Optional 2nd DC power supply

WAVE 9942-RTR SERIES OPENGEAR CARDS ALSO AVAILABLE
WAVE 9942-RTR-12X12-12G 12G/3G/HD/SD-SDI / ASI / MADI 12x12 Router
WAVE 9942-RTR-24X24-12G 12G/3G/HD/SD-SDI / ASI / MADI 24x24 Router

MULTIVIEWERS

ULTRABLUE IP-MV

SCALABLE SOFTWARE-BASED MULTIVIEWER SOLUTION

Cobalt is expanding its line of multiviewers with the addition of the UltraBlue IP-MV series of IP multiviewers, a series that can grow with the customer's needs. UltraBlue IP-MV is being offered as both a software package and a cloud instance with a WebRTC output. These software-based multiviewers can handle a variety of compressed and uncompressed IP inputs and an arbitrary number of outputs (including individual rotation to portrait), with very flexible audio routing, and an intuitive web interface. UltraBlue also offers support for a comprehensive set of protocols (UDP, RTP, RTSP, RTMP, RIST, SRT).



[LEARN MORE AT COBALTDIGITAL.COM](https://cobaltdigital.com)



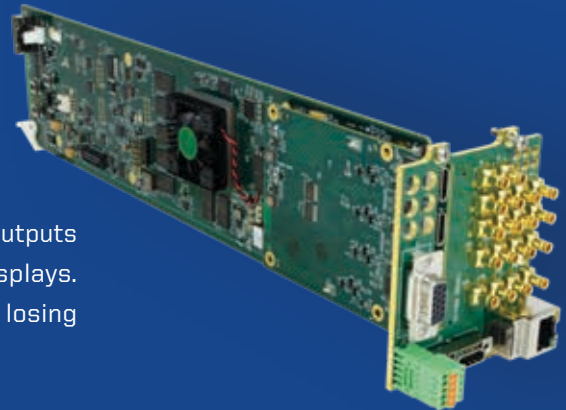
KEY FEATURES

- Control via an intuitive web interface.
- Cloud instance available with WebRTC output
- Turnkey hardware option available
- Compressed and uncompressed IP inputs and multiple outputs
- Receive audio/video over IP over a variety of protocols and formats
- Multiple screens with arbitrary sizes and orientation
- Graphic overlays, ancillary data and tally
- Flexible audio routing
- Configurable alarms

HARDWARE-BASED MULTIVIEWERS

FULL 4K MULTIVIEWERS WITH 12G-SDI, HDMI 2.0

Cobalt's line of 4K openGear® multiviewers support 3840x2160 inputs and outputs via 12G-SDI & HDMI 2.0 so you can use cost-effective consumer 4K displays. Also, for 1080p input applications you can drive a 4K quad split without losing a pixel of resolution. They also feature multi-language capability.



	9970-QS	9970-QS-MC	9971-MV6-4K	9971-MV6-4H-4K	9971-MV18-4K
SDI Inputs	5	5	6	6	18
SDI Outputs	2	2	4	4	4
4K			●	●	●
HDMI 2.0 Inputs				4	
HDMI 2.0 Outputs			●	●	●
DUAL Output Capable			●	●	●
Feed Consumer or Professional Monitors	●	●	●	●	●
External Alarming		●			

9904-UDX-4K

UHD & HDR UP/DOWN/CROSS CONVERTER WITH FRAME SYNC & AUDIO SUPPORT

The award-winning Cobalt® 9904-UDX-4K 12G/6G/3G/HD/SD UHD Up/Down/Cross Converter/Frame Sync/Embed/De-Embed Audio Processor is Cobalt's next generation of advanced scaler/frame synchronizers for the openGear® platform.

The 9904-UDX-4K upconverts 12G/6G/3G/HD/SD to either UHD 3840x2160 Square Division Multiplex (SDM) or Two-Sample Interleave (2SI) quad 3G-SDI based formats, or can output ST 2082 12G-SDI for single-wire 4K transport. With both 12G-SDI and quad 3G-SDI inputs, the 9904-UDX-4K can downconvert 12G and quad UHD. The 9904-UDX-4K provides an HDMI 2.0 output for economical 4K video monitoring. The 9904-UDX-4K offers numerous options, including SDR-to-HDR conversion and color correction.

Next-generation scaler/frame sync featuring a 12G-SDI bridge to DANTE™ Audio

+UDX-DANTE-16x16

LICENSE-BASED 12G-SDI BRIDGE TO DANTE AUDIO.
HIGH-DENSITY, CONVENIENT AND COST-EFFECTIVE.



ALSO AVAILABLE

9904-UDX-4K-DSP 12G/6G/3G/HD/SD UHD Up/Down/Cross Converter/Frame Sync
with DSP Advanced Audio Processing

LEARN MORE AT COBALTDIGITAL.COM



KEY FEATURES

- Supports INDIIGO 2110-DC-01 (see page 7)
- High-density openGear comprehensive UDX solution
- Supports all popular formats: 480i, 576i, 720p, 1080i, 1080PsF, 1080p. Can support/accept 3G Level A or Level B-DL input with output as Level A or B-DL (via UI control) and also support RGB 4:4:4 / YCbCr 4:4:4 (see Ordering Info for details).
- Full up/down conversion between HD/3G, ST 2082 12G-SDI single-wire, and SDM/2SI quad 3G-SDI based formats, with ST 2082 12G-SDI single-wire and quad 3G UHD available at both input and output
- Supports Square Division Multiplex (SDM) and Two-Sample Interleave (2SI) quad UHD formats
- Frame sync and user delay
- Supports Cobalt's Reflex (JSON) Protocols
- Full embedded audio processing with user delay offset and AES I/O
- Noise Reduction and Detail Enhancement provide image quality optimization
- Remote control/monitoring via Dashboard™ software, OGCP-9000 remote control panels, or Cobalt's RESTful-based Reflex protocol
- Supports options for 3D LUTs and BBC 3D LUTs and includes NBCU LUTs as standard
- **Five year warranty**

9905-MPx

3G/HD/SD QUAD-PATH UP/DOWN/CROSS CONVERTER/FRAME SYNC/ EMBED/DE-EMBED AUDIO PROCESSOR

The Multi-Path 9905-MPx 3G/HD/SD Up/Down/Cross Converter/Frame Sync/Embed/De-Embed Audio Processor is a Cobalt® next-generation advanced scaler/frame synchronizer for the openGear® platform. The 9905-MPx provides four independent signal paths of UDX / frame sync / audio embedding and de-embedding on a single open-Gear® card. Using Cobalt's HPF-9500 or HPF-MAX 20-slot frame, the density with 10 cards can go up to 40 channels of processing in a single frame. The 9905-MPx represents a new level of openGear® packaging density!

Multi-Path & Multi-Function. A new level of openGear® Packaging density.

The 9905-MPx provides high-density that offers unprecedented multi-input support and flexibility. Independent up/down/cross convert scalers are specifically designed for broadcast video formats, with full ARC control suitable for conversions to or from 4:3 and 16:9 aspect ratios. Discrete AES and MADI audio embedding/routing/mixing/de-embedding to any of four processing paths is supported. Standard 3D LUTs, NBCU LUTs and color correction provide support for SDR and HDR workflows.

Card control/monitoring is available via DashBoard user interface or Cobalt's RESTful-based Reflex protocol. The 9905-MPx can be software-converted to a 4K Quad-Link Input SDM/2SI 4K UDX/Frame Sync card with an optional software license.

+MPx-DANTE-64x64

**A LICENSE-BASED 3G-SDI BRIDGE TO DANTE AUDIO SUPPORTING
64X64 DANTE CHANNELS IN ONE OPENGear® CARD.**



LEARN MORE AT COBALTDIGITAL.COM



KEY FEATURES

- Supports INDIGO 2110-DC-01 (see page 7)
- Multi-Path design offers four independent UDX / frame sync paths (channels) per card
- Flexible AES and MADI embed/de-embed for each path
- Multi-input RP168 clean switch, with manual selection or GPI controlled input selection
- Up/Down/Cross Conversion with user ARC control. 3D-LUT is standard feature for all paths.
- Supports all popular formats: 480i, 576i, 720p, 1080i, 1080PsF, 1080p
- Independent four-path ANC bridging, including timecode and closed-captioning processing
- Noise Reduction and Detail Enhancement provide image quality optimization
- Remote control/monitoring via Dashboard™ software, OGCP-9000 remote control panels or Cobalt's RESTful-based Reflex protocol
- Five year warranty



SAPPHIRE BIDI-2H2S

3G/HD/SD BIDIRECTIONAL DUAL CHANNEL CONVERTER

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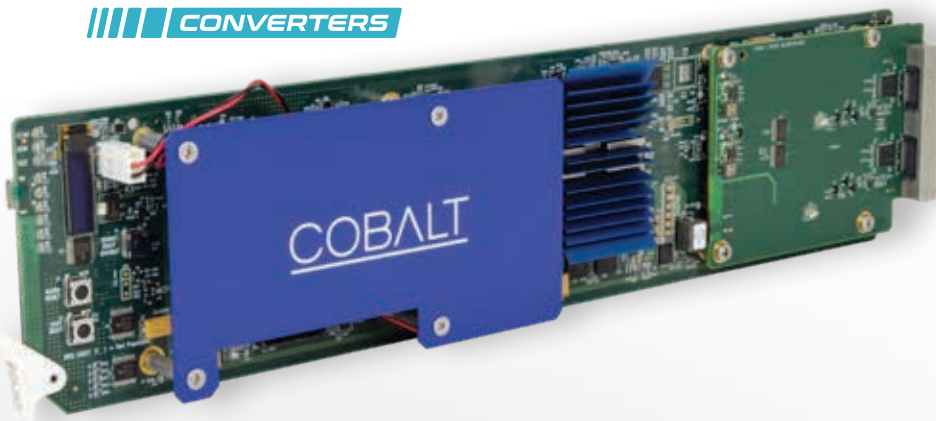


The SAPPHIRE BIDI-2H2S is a dual channel bidirectional HDMI to SDI and SDI to HDMI Converter. Each channel can be independently configured to have either SDI or HDMI inputs and each channel has simultaneous SDI and HDMI outputs. This provides input and output options with independent paths of true 3G and HD conversions to and from all the SD-SDI, HD-SDI and 3G-SDI formats and HDMI. With both SDI and HDMI inputs and outputs (2 each), each path is equipped with frame sync as well as full input and output audio cross-points and optional per-path color correction. Input and output SDI and HDMI cross-points allow bidirectional program sourcing and distribution across the both sets of inputs and outputs.

Input and output options with independent paths of true 3G and HD conversions to and from all the SD-SDI, HD-SDI and 3G-SDI formats and HDMI.

In existing openGear® installations, the bidirectional capacity can save space and lend to installation integrity. Preset save/load allows saving custom card settings and instant revert to factory settings. Layered presets allow invoking changes related only to a specific area of concern (audio routing, for example) while not changing any other processing settings or aspects. Full user DashBoard™ or Remote Control Panel remote control allows full status and control access locally or across a standard Ethernet network.

SAPPHIRE
CONVERTERS



SAPPHIRE CONVERTERS ALSO AVAILABLE IN OPENGear®

SAPPHIRE 9926-2HtoS 12G/6G/3G/HD/SD Dual-Channel openGear® HDMI-to-SDI Converter with Per-Channel Frame Sync

SAPPHIRE 9926-4HtoS 3G/HD/SD Quad-Channel openGear® HDMI-to-SDI Converter with Per-Channel Frame Sync

SAPPHIRE 9927-2StoH 12G/6G/3G/HD/SD Dual-Channel openGear® SDI-to-HDMI Converter with Per-Channel Frame Sync

KEY FEATURES

- Supports all popular formats: 480i, 576i, 720p, 1080i, 1080p and 1080PsF
- Independent processing paths on a single card provides high capacity in openGear® environments
- Each path equipped with frame sync with configurable manual or LOS-detect insertion of frozen frame or selectable-color flat-field. Optional per-path color correction.
- Full input and output audio cross-points, including independent flex mix, stereo downmixers, and audio delay functions
- EDID Capture and Management
- Remote control/monitoring via DashBoard™ software or OGCP-9000 Remote Control Panel
- Hot-swappable
- Make SAPPHIRE BIDI-2H2S a standalone unit with our BBG-1300-FR 1RU Enclosure for openGear® Cards
- Five year warranty



INDIGO 2110-DC-01

SMPTE ST 2110 INTEGRATED SUPPORT DAUGHTERCARD OPTION FOR 9904-UDX-4K AND 9905-MPx CARDS

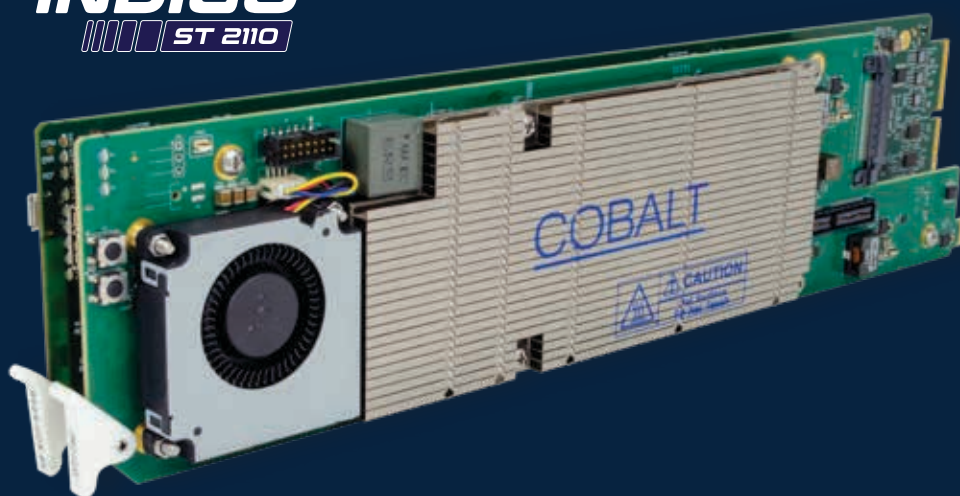
The INDIGO 2110-DC-01 is a factory add-on option to Cobalt 9904-UDX-4K and 9905-MPx models. This option adds native SMPTE ST 2110 support for these cards, with dual 25G Ethernet interfaces.

The INDIGO 2110-DC-01 avoids the cumbersome, error-prone, and expensive prior solutions of deploying multiple devices in the data path. Adding native ST 2110 interfaces to the audio/video processing elements, Cobalt is providing a cost-effective, easily manageable, integrated solution to this problem. Multiple boxes or processing elements are no longer needed in the data path, going back and forth between IP and SDI. By natively doing all the processing directly over IP, unnecessary complexity and cost is avoided.

High Density Native 2110 Solution - Native SMPTE ST 2110 Interface Option

With this option, all the advanced processing in these cards is now available with IP inputs and outputs, without the need for an external gateway. INDIGO 2110-DC-01 includes support for ST 2022-7 seamless redundancy switching, as well as IS-04/IS-05 NMOS for automatic discovery and configuration. Mated with the host card, this creates a powerful and processing-dense product that is capable of natively processing HD, 3G and 4K IP streams with no quality compromises. No other solution currently in the market can achieve the density provided by the combination of functionality offered by the INDIGO 2110-DC-01 and the 9904-UDX-4K/9905-MPx combination.

INDIGO
ST 2110



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KEY FEATURES

- Highly integrated ST 2110 companion for the Cobalt 9904-UDX-4K and 9905-MPx audio/video processors
- Offers dual 25G Ethernet interfaces to support 4K signals without the need for any type of compression and to support ST 2022-7 seamless redundancy switching for improved network reliability
- Built-in NMOS support offers straightforward interface to an existing network, with auto-discovery by the network management
- High-density, compact openGear card-based solution, with multiple devices able to be combined into a single frame for multi-channel operation, as well as offering the standard features of redundant hot-swappable power supplies and hot-swappable cards
- Five year warranty


openGear

PACIFIC COMPRESSION LINE

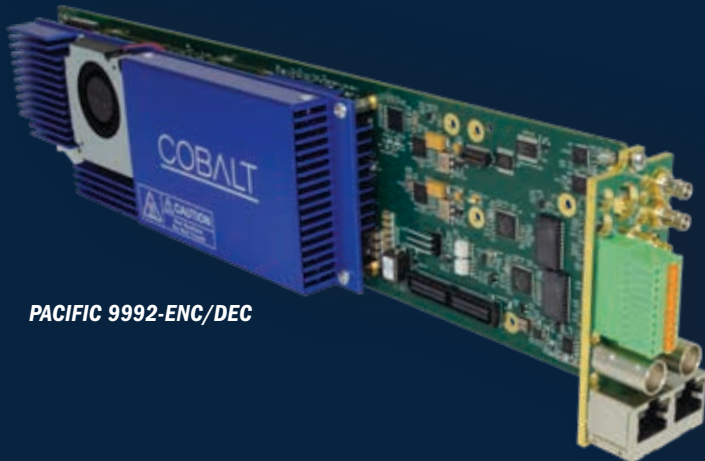
TRADITIONAL BROADCAST FEATURES WITH ADVANCED NETWORK OPTIONS

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Cobalt Digital has an extensive set of products with professional-grade support for compressed audio and video, suitable for almost any application. Cobalt products are unique in their blend of traditional broadcast features with advanced networking options. If you have a signal “over here” and want to send it “over there”, we have you covered with support for protocols such as RIST, RTP/UDP/FEC, RTMP, RTSP and SRT, as well as sub-frame end-to-end latency with our new PACIFIC ULL decoder. Our products support MPEG-2 (H.262), AVC (H.264) and HEVC (H.265), with comprehensive audio CODEC options.



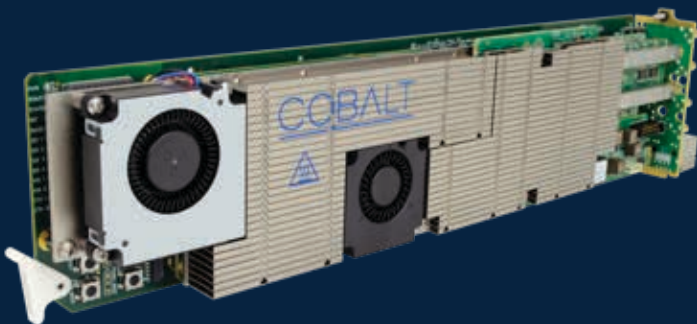
All of our products are offered both as openGear® cards for high density, as well as standalone units if you need just a few channels and are space-constrained.



PACIFIC 9992-ENC/DEC



PACIFIC ULL-DEC



PACIFIC 9992-ENC-INDIGO

The INDIGO 2110-DC-02 option card (factory-installed) adds ST 2110 inputs to the PACIFIC 9992-ENC. It supports up to 4 inputs at 3G and lower resolutions, or one input at 4K resolution, with full NMOS support. Each encoder channel can be individually configured for SDI or ST 2110 operation.

IN ADDITION TO ENCODERS AND DECODERS, COBALT OFFERS THE FOLLOWING PRODUCTS:

- 9220 ASI/IP GATEWAY:** Converts between ASI and IP for legacy products
- 9990-RTR:** Unicast/Multicast IP stream conditioner and distribution amplifier
- 9990-TRX:** 4-channel MPEG-2/H.264 transcoder with IP and ASI inputs and outputs



PACIFIC ENCODER LINE OF COMPRESSION PRODUCTS

Cobalt offers a comprehensive broadcast-grade encoder line that can address virtually any application. All of our encoders and decoders are designed for reliable 24x7x365 operation, and have extensive frame-accurate support for ancillary data, which includes EIA-608 and 708 closed captions, AFD, SCTE-104/35 for ad insertion, SMPTE 2038 for generic ANC transport, SMPTE 2108 for HDR transport and now OP-47. Additionally, the 9992-ENC includes a built-in frame sync at no additional cost. Cobalt encoders offer unparalleled flexibility, where most advanced features are enabled by field-installed license keys. This creates a pay-as-you-go structure, where there is a relatively low entry cost, and features such as audio support, HEVC, 4:2:2, can be added at a later time in an as-needed basis. On the networking side, the encoders support ASI, UDP, RTP, FEC, HLS and RTMP. The encoders also support SRT and RIST (Reliable Internet Stream Transport), both Simple Profile and Main Profile (which includes encryption and authentication).

ENCODER - VIDEO FEATURES

	MPEG-2	H.264	H.265	4:2:0	4:2:2	8-bit	10-bit	ASI	Max Resolution	Max HD Channels
9223		●		●		●		●	1080p60	2
9990-ENC		●		●		●			1080p60	2
PACIFIC 9992-ENC	●	●	●	●	●	●	●	●	4Kp60	4

ENCODER - AUDIO FEATURES

	MPEG-1 Layer II	AAC-LC Stereo	AAC-LC 5.1	HE-AAC Stereo/5.1	Dolby AC-3 Stereo/5.1	Dolby EAC-3 Stereo/5.1	LPCM	Max Stereo Channels
9223	●	●						4
9990-ENC	●	●						2
PACIFIC 9992-ENC	●	●	●	●	●	●	●	16

All Cobalt Encoders support Dolby Pass-Through.

PACIFIC DECODER LINE COMPRESSION PRODUCTS

Cobalt offers a similar broadcast-grade decoder line to match our encoders. This includes ASI input support, as well as the same set of networking protocols, including UDP, RTP, FEC, HLS, RTMP, SRT and RIST (Simple and Main Profiles). Cobalt decoders also support RTSP, which allows the signal from surveillance cameras to be ingested into your workflow in a professional manner. The decoders include independent full up/down/cross converters per channel, capable of converting any input signal to any resolution/frame rate up to 1920x1080p60 (9992-DEC) or 1920x1080i60 (9990-DEC). Cobalt is introducing the new PACIFIC ULL Decoder, capable of sub-frame latency.

DECODER - VIDEO FEATURES

	MPEG-2	H.264	H.265	4:2:0	4:2:2	8-bit	10-bit	ASI	Max Resolution	Max HD Channels
9990-DEC	●	●		●		●		●	1080i60	1
PACIFIC 9992-DEC	●	●	●	●	●	●	●	●	4Kp60	2
PACIFIC ULL-DEC	●	●	●	●	●	●	●	●	4Kp60	2

DECODER - AUDIO FEATURES

	MPEG-1 Layer II	AAC-LC Stereo/5.1	HE-AAC Stereo/5.1	Dolby AC-3 Stereo/5.1	Dolby EAC-3 Stereo/5.1	Dolby AC-4 Stereo/5.1	ST 302M LPCM	Dolby E	Max Stereo Channels
9990-DEC	●	●*	●*	●*	●*				2
PACIFIC 9992-DEC	●	●	●	●	●	●	●	●	16
PACIFIC ULL-DEC	●	●	●	●	●	●	●	●	16

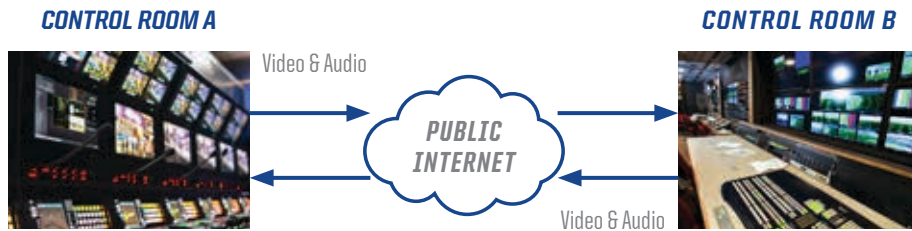
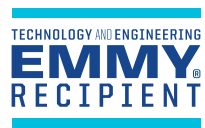
All Cobalt Decoders support Dolby Pass-Through. *5.1 down-mixed to stereo in this product.

RELIABLE INTERNET STREAM TRANSPORT (RIST)

LOW COST INTERNET CONTRIBUTION

RIST is an Internet contribution protocol created by the VSF with participation from Cobalt Digital. The multi-vendor support behind RIST makes it an important part of the technology stack for any video workflow. With less required bandwidth than FEC in most cases, RIST uses the Emmy winning ARQ technology that Cobalt Digital has helped pioneer.

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Use the Internet as a Low Cost Contribution Network with RELIABLE INTERNET STREAM TRANSPORT (RIST) – the Interoperable, Multivendor Open Protocol Developed by the VSF for Video Transport Over Unmanaged Networks.

RIST SUPPORT IN COBALT PRODUCTS

The compression products have full built-in support for RIST, including Bonding (combining multiple links for increased bandwidth) and Seamless Switching (operating links in parallel for increased reliability), as well as TR-06-2 tunneling, with encryption and authentication. The PACIFIC 9992-ENC/9992-DEC line supports RIST Source Adaptation (VSF TR-06-4 Part 1) which allows the encoder to adapt its output data rate to match instantaneous network conditions, based on feedback from the decoder. The SafeLink gateway can be used to add RIST support for legacy third-party devices.

	RIST Simple Profile	RIST Main Profile		
		Tunneling	Encryption	Authentication
9990-ENC				
9223	●	●		
9990-DEC	●	●	●	●
PACIFIC ULL-DEC	●	●	●	●
PACIFIC 9992-ENC	●	●	●	●
PACIFIC 9992-DEC	●	●	●	●
SafeLink	●	●	●	●

SAFELINK GATEWAY

PROTECTING TRANSPORT STREAMS WITH RIST

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SafeLink Gateway protects live video and audio data over unsecured networks, thereby avoiding video hits or glitches. SafeLink Gateway includes support for UDP, RTP, FEC, and Reliable Internet Stream Transport (RIST) Simple and Main Profile, with encryption and authentication. By using RIST as a low latency protocol, SafeLink provides reliable video transport in live production environments.

SafeLink Control is handled with DashBoard™, a free application that handles control and monitoring for all openGear® broadcast products. Extensive link quality statistics are provided for fine-tuning. The SafeLink Gateway is also available as a cloud instance, in addition to the openGear form factor. This product is ideal for cloud redundancy switching, as well as Ground-to-Cloud and Cloud-to-Ground transmission using RIST.

SafeLink is compression-agnostic and can protect any type of transport stream. With up to 8 streaming sessions each session offering up to 8 discrete transmit and 8 receive redundant (or aggregated) paths for a potential of transporting content to 64 destinations, SafeLink is ideal for providing link protection to existing encoding/decoding infrastructure. SafeLink can also support up to 8 RIST Main Profile tunnels each of which can support any arbitrary number of streams.

Cobalt offers 1+1 redundancy for the SafeLink Gateway for high availability applications. A backup SafeLink can be commissioned to automatically mirror the configuration of the primary and take over if it fails.

KEY FEATURES

- Easily implemented software solution providing RIST with robust status monitoring and configurable setup
- Supports transport streams using any compression standards
- Obtains operating power from frame - no added or external power connections needed
- Ruggedized openGear-compliant design. Plugs directly into frame with user ports exposed on rear of unit
- Hardware control features such as power on/off, reset, and sleep are accessible via DashBoard™ remote control - no need for physical collocation with the frame PC
- Full complement of user ports, including dual GigE and USB
- Low power consumption with minimal effect on overall frame power budget
- Five year warranty



ORDERING INFORMATION

SAFELINK-8TS (SOFTWARE/HARDWARE): Supports 8 transport streams for receive and transmit paths, includes OG-PC openGear card.

SAFELINK 8TS-SW (SOFTWARE ONLY): Software package is available to run on off-the-shelf x86 64-bit Linux PCs.

SAFELINK 8TS-VM (SOFTWARE ONLY): VM images are available to run in the cloud.

PATH TO ATSC 3.0

WITH THE 9905-MPx AND 9904-UDX-4K

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9905-MPx

The simplest way to get started with ATSC 3.0 using your existing workflow is to upconvert 1080i or 720p SDR signal to 1080p HDR and to take in SDR and output HDR using HLG like NBC's free LUT. The Cobalt 9905-MPx will feed in the 720p or 1080i SDR signal and get a 1080p HDR HLG on the output. The NBCU LUT license is free and already pre-loaded on the product. The 9905-MPx is a 4-path device and can process four independent signals at the same time (and it has some very nice audio mixing and color correction features). If the input signal becomes 1080p HLG the 9905-MPx will automatically and dynamically (if the proper VPID information is present in the signal) drop the processing and pass the signal through.

9904-UDX-4K

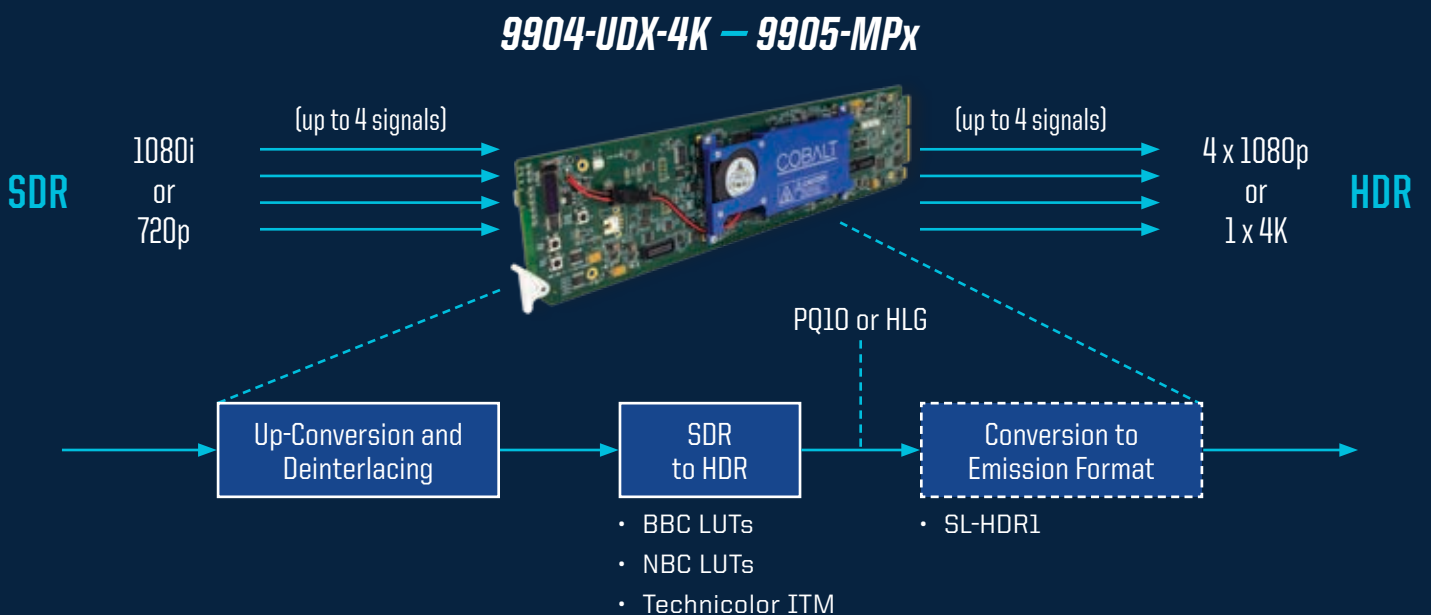
If 4K quality is required in the SDR to HDR conversion you can use Cobalt's 9904-UDX-4K openGear® card.

The 9904-UDX-4K card offers two additional options:

- Upconvert the signal to 4K and/or
- Access Advanced by Technicolor's ITM technology, which provides a dynamic (content-aware) conversion from SDR to HDR with the output in HLG, if required.

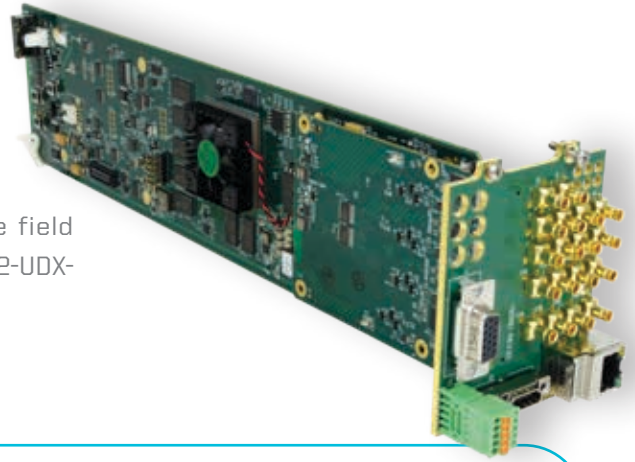
The 9904-UDX-4K, like the 9905-MPx openGear® card, can switch the video processing in and out depending on the input. When there is a requirement to do HDR with dynamic metadata, the 9904-UDX-4K card also supports the SL-HDR1 technology, which is also part of ATSC 3.0, to achieve full HDR quality.

With the Cobalt 9905-MPx and the Cobalt 9904-UDX-4K products, broadcasters can gradually start producing ATSC 3.0 before having all the programming in HDR and 1080p.



SOFTWARE DEFINED PROCESSING FOR 2K & 4K

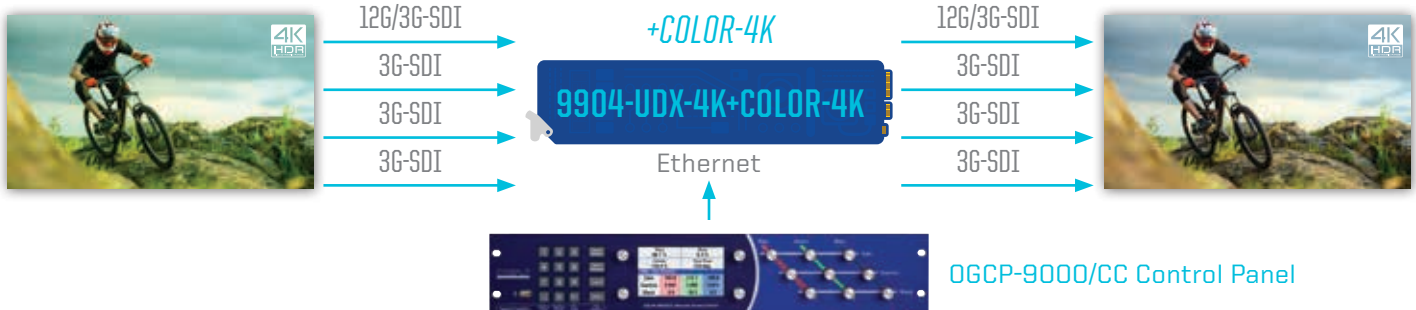
Cobalt products support licensable feature upgrades that are field installable - you can add functionality when you need it. The 9902-UDX-DSP-CI and 9904-UDX-4K have an extensive library of options.



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SMPTE-2110 FRAME SYNC & CONVERSION



	9902-UDX-DSP-CI	9904-UDX-4K	9904-UDX-4K-DSP
Software Defined Processing	●	●	●
4K 3840x2160		●	●
HD 1080p/1080i/720p	●	●	●
12G I/O		●	●
HDMI 2.0 I/O		●	●
HDMI 1.4 I/O	●	●	●
PAL/NTSC Composite Analog	●		
AES I/O	●	●	●
Format/Standards Conversion	●	●	●
IP Formats	●		
Advanced Audio Processing	●		●
Native SMPTE ST 2110*		●	

*With option INDIGO 2110-DC-01

ROYAL 9915DA-4X16-XPT-12G

12G/6G/3G/HD/SD QUAD-CHANNEL MULTI-RATE RECLOCKING DA WITH X4 OUTPUT CROSSPOINT

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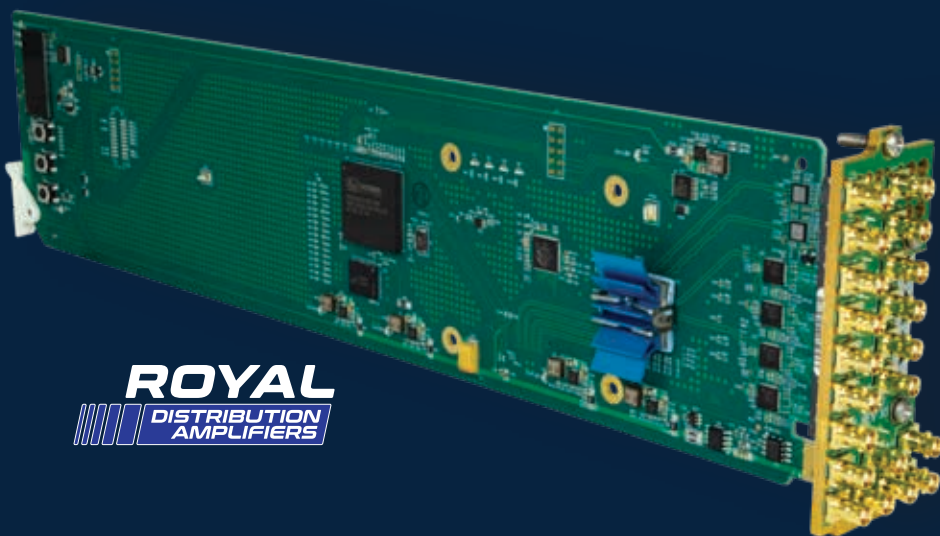
The ROYAL 9915DA-4x16-XPT-12G 12G/6G/3G/HD/SD Quad-Channel Multi-Rate Reclocking DA with x4 Output Crosspoint supports four input channels which can be crosspoint-routed to up to 16 DA outputs. As demand for 4K continues to rise, distribution of 12G-SDI signals within a rackspace becomes increasingly important. The ROYAL 9915DA allows for copper runs of up to 45 meters, reaching most equipment within a rack room or truck. For longer runs, the optional optical inputs and outputs allow the 9915DA to connect distribution from zones of much greater distances.

The extremely flexible crosspoint (which is user-configurable via DashBoard™ GUI remote control) allows quad 1x4, dual 1x8, single 1x16 and other routing possibilities. Any of the four input channels can be distributed or duplicated across four groups of 1x4 DAs. The quad-input capacity provides a one-card solution for distribution of 8K quad-link content over 12G-SDI interfaces. A failover function allows going to secondary backup inputs should the primary input lose lock.

Up to 10 of the 9915DA-4x16-XPT-12G cards can be installed in a frame to provide 40 channels of input, with distribution to up to 160 outputs. Full user DashBoard™ or Remote Control Panel remote control allows full status and control access locally or across a standard Ethernet network.

KEY FEATURES

- Supports all popular formats: 480i, 576i, 720p, 1080i, 1080PsF, 1080p and 4K
- Flexible output crosspoint allows card to function as quad-channel 1x4, dual-channel 1x8, single-channel 1x16, or other numerous routings with reclocking DA
- Full support of 12G/6G/3G/HD/SD-SDI and ASI/DVB
- Input data rate auto-detection for all industry-standard data rates
- Fiber inputs/outputs can be added via optional SFPs
- One-card solution for distribution of 4K/8K content over 12G-SDI interfaces
- Failover provides backup to selected secondary inputs if primary input loses lock, available for both coax and (optional) fiber inputs.
- Card display and DashBoard status input lock indicators
- Hot-swappable
- Five year warranty



ROYAL
DISTRIBUTION
AMPLIFIERS

ALSO AVAILABLE

ROYAL 9915DA-2X16-XPT-12G 12G/6G/3G/HD/SD Dual-Channel Multi-Rate Reclocking Distribution Amplifier with x4 Output Crosspoint

ROYAL 9915DA-1X16-12G 12G/6G/3G/HD/SD-SDI 1x16 Reclocking Distribution Amplifier


openGear



BBG-1300-FR *1RU ENCLOSURE FOR OPENGear® CARDS*

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The Cobalt BBG-1300-FR is a 1/3 rack width 1RU openGear® compatible frame capable of housing two cards in a split width or 1 card in a standard width rear I/O module. A built in network card allows any openGear® capable card to show up and be controlled or monitored in DashBoard™. Looping reference on the unit provides black burst or tri-level timing to both cards slots within the chassis.



The BBG-1300-FR 1RU Enclosure Holds up to Two openGear® Cards with Standard Size Rear I/O Modules, a Built In Network Card and 60 W of Available Power.

Any card within the Cobalt Product lineup (or any third-party openGear card) with a compatible I/O panel can be housed in the BBG-1300-FR, with a total available power of 60 W. Three BBG-1300-FR units can fit onto a single 1 RU tray for maximum density when a 2RU frame is not feasible. The unit can also be employed in remote locations where a full size 2RU 22 slot openGear® frame is not required.

A front control panel makes status monitoring and network connectivity straightforward with an LCD display screen. The front rotary knob makes navigation simple and easy to use. SNMP control available.

ACCESSORIES FOR THE BBG-1300-FR

BBG-1300 TRAY Rack Mounting Surface for Mounting three BBG-1300-FR units

BBG-TRAY-RSB Rear Support Bars and Brackets

KEY FEATURES

- High power for 4K and IP solutions
- Full openGear® compatibility supporting openGear-compatible cards as well as latest and legacy openGear® rear modules
- One looping reference internally routed to all user card slots
- Two power supplies for power redundancy
- Network Controller Card enables DashBoard™ for seamless remote setup, monitoring, and control.
- Front display with rotary knob and buttons for simple and quick control
- Pull-away front door panel allows quick, easy card insertion
- Optional Frame Support Bracket kit provides frame rear support for mobile applications
- Remote control/monitoring via DashBoard™ or SNMP
- Built-in Gigabit Ethernet backplane
- **Five year warranty**



Cobalt Digital Inc. designs and manufactures award-winning IP, ST 2110, and 12G/6G/3G/HD/SD conversion, throwdown, and multiviewer technology for the production and broadcast television environment. As a founding member in the openGear® initiative, Cobalt offers a full range of openGear-compliant solutions as well as video and audio processing products for closed caption compliance, production trucks, master control, HD news, signal transport, audio loudness processing, and color correction. Cobalt's Blue Box Group™ line of interface converter throwdown boxes streamlines and simplifies a wide range of IP and 12G/6G/3G/HD/SD conversion and processing tasks. In addition, the company's multi-image display processors enable multiviewer capabilities in the most demanding studio and remote production/broadcasting environments. Cobalt Digital products are distributed through a worldwide network of dealers, system integrators, and other partnerships.

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