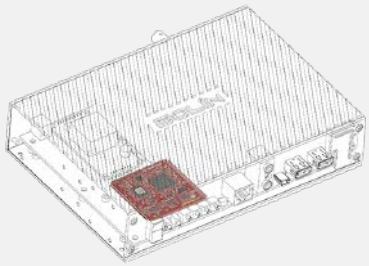
BOLIN

Dante AV™ Network AV Encoder/Decoder

Dante AV Transceiver
Joins the Dante Audio Family

D20 Series Dante AV™ Network AV Transceiver

Bolin's D20 Series device can be programmed as an encoder or a decoder. D20 Series is a single channel networked AV over IP transceiver that is fully compatible with Dante audio devices within a Dante ecosystem for HDMI sources up to 4K60Hz 4096 x 2160, with embedded audio and PTZ camera movement control via IP or IR pass-through. It provides audio and video streaming over a standard gigabit network and D20S/D20H models as decoders output baseband video, either HDMI or 12G SDI, to work in professional AV applications.



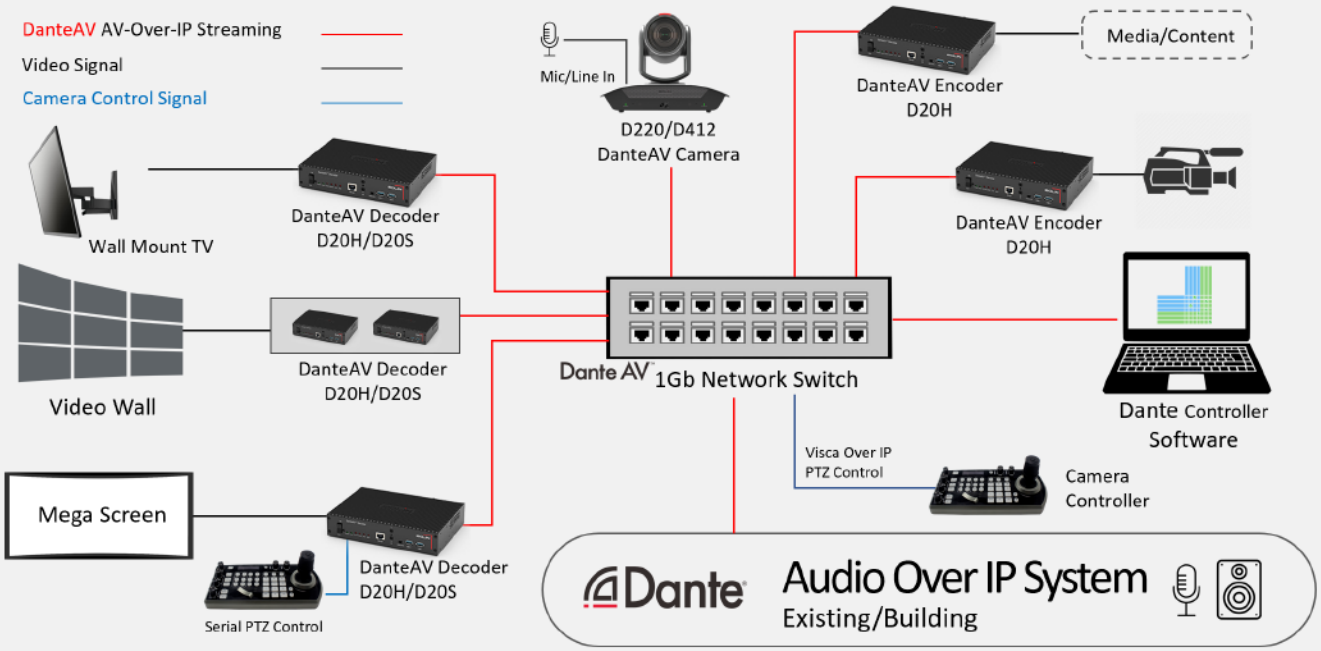
Powered by DanteAV module

It features advanced high-quality YUV4:4:4, ProAV optimized JPEG2000 lossless video compression technology and HDCP 2.2 compliant achieves ultra-low latency with 100% audio video synchronization when paired using Dante AV encoder and decoder.

- **Ultra-Low Latency**
- **Up to 4K60 High-Quality Image**
- **Lip Sync Issue Free, 100% Synchronized Video and Audio**

Dante Ecosystem Friendly

- Instant compatibility with over 3000 existing Dante-enabled products.
- Unified control of camera audio and video using familiar tools - Dante Controller
- No need to replace network infrastructure. Dante AV works with already installed cost-effective 1Gbps network gear.
- Fully compatible with existing Dante ecosystem applications: House of Worship, Video Conferencing, Live Production, Broadcast, Live Performance, Hospitality, Stadium, Sports Bar, Corporate, Education.



D20H

Encoder - HDMI Input
Decoder - HDMI Output

D20S

Encoder - HDMI Input
Decoder - HDMI & SDI Output

Front Panel

OVERVIEW

- Can be configured to operate as an encoder or a decoder via firmware upgrade
- Ultra-low latency real-time video performance over IP network
- 4K60 4:4:4 video over standard Gigabit Ethernet
- Use as a decoder - provides HDMI 2.0 and/or 12G-SDI output
- Tunable audio delay to facilitate lip-sync control
- Supports unicast and multicast for 8 audio flow and 1 video flow
- Full support of Dante audio and video protocols
- Supported by Dante Controller
- Fully time-aligned and separately routable audio and video streams
- Visually perfect video using network efficient JPEG2000 codec
- Easy control of PTZ camera via Visca Over IP and serial/IR over IP
- Fully validated implementation of HDCP 2.2 (HDCP 2.3 network) encryption
- EDID support
- Works with installed 1Gbps network - no need to replace network infrastructure.
- Compact, surface/rack-mountable design

Bolin D20 Series DanteAV Transceiver

Transports 4K60 4:4:4 video over standard gigabit IP network with ultra-low latency and lossless quality. As part of the Dante family, using standard network switches and CAT5e UTP wiring, D20 Series transceiver delivers a high-performance virtual video matrix routing solution for Dante 4K video application (i.e., demanding conference room and classroom applications). D20 Series transceiver ensures real-time, full-motion 4K60 video performance for multimedia presentations, videoconferencing, and live camera streaming.

Seamlessly integrate with Dante Ecosystem

D20 series transceiver as a stand-alone Dante AV encoder/decoder endpoint seamlessly works with other Dante or Dante AV endpoints over the Dante audio over IP platform using a standard 1 Gbps network. With a rich set of Dante control interfaces, support for Dante Device Protocol, packet bridging, audio plus video and HDCP encryption, and professional onboard scaling, a D20 transceiver can easily connect a Dante AV product with network control into the growing ecosystem of Dante AV and Dante audio-enabled products.

KEY FEATURES

Back Panel (D20H)

Lossless image with extremely low codec latency

Bolin's D20 Series Dante AV encoder/decoder incorporates a ProAV optimized implementation of the popular JPEG2000 codec in FPGA, which delivers visually-perfect lossless image up to 4K60/UHD 4:4:4 with < 10ms codec latency.

100% Synchronized video and audio

D20 Dante AV transceiver support sub-microsecond video and audio synchronization by designating a single network clock that always keeps the video in sync with audio regardless of the number of endpoints in the ecosystem, fixing lip-sync problems.

Multi-screen video display routing

As a decoder with unicast/multicast capabilities, the D20 receives the signal from a DanteAV PTZ camera or an encoder and feeds it to a display device via the HDMI and/or 12G-SDI output. Using the Dante Controller software, the decoder can quickly and easily switch between multiple DanteAV endpoints including cameras or encoders on the network, with no need for breakouts or matrix switches to display the video on any number of screens and provide the video for the video router system to use.

HDMI and SDI output

When used as a decoder, the D20 Series transceiver has two models: D20H with HDMI output and D20S with HDMI and SDI outputs. D20S is designed an SDI video processor built-in to convert Dante AV decoded HDMI to SDI (Up to 12G-SDI) signal for ProAV and broadcast video workflow applications.

Encoder/Decoder Configurable

D20H and D20S Dante AV transceiver can be configured as an individual encoder or decoder via a firmware update. For a complete encode/decode solution, you will need separate two devices. Unique firmware to program as an encoder or decoder will be available on www.bolintechnology.com/downloadcenter.

HDMI Output with 4K60 4:4:4 built-in high-quality scaler

The D20 Series has decoded images to output via HDMI 2.0/12G-SDI. Integrated high-performance scaling engine provides downscaling to the encoded source for a wide array of 4K, UHD, HD resolutions to match the different capabilities and requirements of sources, displays, codecs, and other equipment.

Audio transport formats: Dante Audio over IP

Supports standard Dante compatible networked audio streams from encoders and audio interfaces. The received Dante audio streaming can be combined with the video and then output via the HDMI/SDI output.

KEY FEATURES

Back Panel (D20S)

Implementation of HDCP 2.3 encryption

Adheres to the latest HDCP 2.2 specification for High-bandwidth Digital Content Protection. Allows protected content streams to pass between authenticated devices. HDCP 2.3 over network. (HDCP not with SDI workflow)

Device Control

Used as a decoder, D20 Series has built-in serial (RS-422), which can be used for serial port PTZ joystick controller via Dante Serial/IR Over IP control for connected display, PTZ camera or other devices.

Paired with Bolin D412/D220 Dante AV PTZ camera, IP PTZ camera control is available via Dante AV network.

Dante Controller supported

Full setup and control and monitoring of the device is enabled through Dante Controller that delivers standard Dante features such as automatic device discovery and system configuration, making network setup a simple plug and play experience.

Network Connectivity

The D20 Series transceiver includes two RJ-45 1000BASE-T ports that can be used to transport video over a Gigabit Ethernet network. Ports 1 for Dante network primary connection and Port 2 can be used to daisy-chain other endpoints. Port 1 is also capable of receiving power from POE++ IEEE 802.3bt compliant (POE+ IEEE 802.3at backwards compatible).

USB HID and USB OTG

USB control over IP that can be switched and routed alongside the AV signal or separately via a control system allows you to use a USB mouse and/or keyboard to control a remote computer via the Dante network. USB On The Go (OTG) for keyboard and mouse.

Easy Installation

The D20 Series compact enclosure with HDMI secure lock easily mounts onto a flat surface or rack rail (single or dual), Din rail and fits easily behind a wall-mounted or ceiling-mounted flat panel TV display, above a projector, beneath a tabletop, or inside a lectern, AV cart, or equipment cabinet.

SPECIFICATIONS

Model No.		D20H	D20S
Encoder: Video Input		HDMI	HDMI
Decoder: Video Output		HDMI	HDMI and SDI
Encoding/Decoding			
Encoder/Decoder		Device can be configured to operate as an encoder or a decoder via firmware/software upgrade. However, the device is not able to simultaneously operate as both an encoder and decoder.	
Video Codec		Optimized implementation of JPEG2000 codec in FPGA, Licensed by IntoPIX	
		Dante API management interface	
Video Resolutions		Up to 4096x2160@60Hz; RGB 4:4:4 @ 8 bit YCbCr 4:4:4 @ 8 bit YCbCr 4:2:2 @ 8/10/12 bit	
Color Depth		8-bit, 10-bit, 12-bit	
Audio Formats		Dante Audio over IP	
Bit Rates		200 to 800 Mbps	
Video Streaming		Unicast or Multicast	
Copy Protection		HDCP 2.2 input/output, HDCP 2.3 over network	
Control Protocol		Visca serial control over IP, Visca-Over-IP	
Latency		0.5 frame (e.g. 2160p @ 60 Hz latency is < 8 ms between encoder and decoder), Note: Overall latency may increase depending on network configurations	
Bandwidth		4kp60 10 bit 4:2:2; 500-600Mbps, results may vary depending on network configuration and management settings.	
		1080p60 10 bit 4:2:2; 150-250Mbps, results may vary depending on network configuration and management settings.	
Dante Ecosystem Friendly		Instant Dante Ecosystem compatibility with existing Dante-enabled products; Unified control of audio and video using Dante tools - Dante Controller	
Video			
Video		Built-in HDCP encryption/decryption for video	
		800Mbps recommended maximum bit rate	
		Video transport formats: Dante Video over IP	
		HDR support	
		HDMI monitor output loop through	
HDMI IN (when using the device as an encoder)	HDMI 2.0		
	Supported Resolutions	4096x2160p, 3840x2160p, 1920x1080p, 1920x1200, 1600x1200, 1280x720p, 1280x1024, 1024x768, 800x600, 720x576p, 720x480p, 640x480	
	Frame Rates (Hz)	23.98, 24, 25, 29.97, 30, 50, 59.94, 60	
	Colour Space	RGB, YCbCr	
	Component Bit Width	8-bit, 10-bit, 12-bit	
	Colour Sub-Sampling	4:4:4, 4:2:2, 4:2:0	
MONITOR OUT (when using the device as an encoder)	HDMI 2.0		
	Supported Resolutions	4096x2160p, 3840x2160p, 1920x1080p, 1920x1200, 1600x1200, 1280x720p, 1280x1024, 1024x768, 800x600, 720x576p, 720x480p, 640x480	
	Frame Rates (Hz)	23.98, 24, 25, 29.97, 30, 50, 59.94, 60	
	Colour Space	RGB, YCbCr	
	Component Bit Width	8-bit, 10-bit, 12-bit	
	Colour Sub-Sampling	4:4:4, 4:2:2,4:2:0	
	Embedded Audio over HDMI	No	
HDMI OUT (when using the device as a decoder)	Format	HDMI 2.0	HDMI 2.0
	Supported Resolutions	4096x2160p, 3840x2160p, 1920x1080p, 1920x1200, 1600x1200, 1280x720p, 1280x1024, 1024x768, 800x600, 720x576p, 720x480p, 640x480	4096x2160p, 3840x2160p, 1920x1080p, 1920x1200, 1600x1200, 1280x720p, 1280x1024, 1024x768, 800x600, 720x576p, 720x480p, 640x480
	Frame Rates (Hz)	23.98, 24, 25, 29.97, 30, 50, 59.94, 60	23.98, 24, 25, 29.97, 30, 50, 59.94, 60
	Colour Space	RGB, YCbCr	RGB, YCbCr
	Component Bit Width	8-bit, 10-bit, 12-bit	8-bit, 10-bit, 12-bit
	Colour Sub-Sampling	4:4:4, 4:2:2, 4:2:0	4:4:4, 4:2:2, 4:2:0
SDI OUT (when using the device as a decoder)	Format	-	12G-SDI
	HDCP Protection		Does not have output when the source video is HDCP content protected
	Supported Resolutions	-	4096x2160p, 3840x2160p, 1920x1080p, 1920x1200, 1600x1200, 1280x720p, 1280x1024, 1024x768, 800x600, 720x576p, 720x480p, 640x480
	Frame Rates (Hz)	-	23.98,24, 25, 29.97,30, 50,59.97, 60
	Colour Space	-	YCbCr
	Component Bit Width	-	8-bit, 10-bit, 12-bit
	Colour Sub-Sampling	-	4:2:2, 4:2:0
	Standard	-	SMPTE 292(1.5Gb/s), SMPTE 424, SMPTE 425-A(3Gb/s), SMPTE 2081, SMPTE 2082 With SMPTE352 SDI Metadata Supported

SPECIFICATIONS

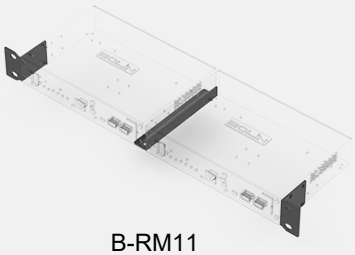
Model No.		D20H	D20S
Encoder: Video Intput		HDMI	HDMI
Decoder: Video Output		HDMI	HDMI and SDI
Audio			
Audio Transport Formats		Up to eight channels at 44.1, 48, 88.2 or 96kHz. HDCP sourced audio channels limited to 48kHz	
		Dante Audio over IP	
		HDMI 7.1 embedded audio	
		High-quality, low jitter with on-board clock generator for audio	
Bit Depths		24, 16 and 32 bits per audio sample	
Input Signal Types (when using the device as an encoder)	Embedded Audio over HDMI	Up to 8 channels to Dante	
	Sample Rate	32k to 192k, PCM24	
	ASRC Conversion Range	1:8 to 8:1	
	ASRC Latency	80 samples (1.6ms @ 48kHz)	
Output Signal Types (when using the device as a decoder)	Embedded Audio over HDMI	2 channels from DANTE	
	Sample Rate	48K and 96K, PCM24(24, 16 and 32 bits)	
		Built-in 8-channel asynchronous sample rate converter	
Communication/Connector			
Ethernet	Ethernet General	Standard 1Gbps Ethernet	
		Auto-switching, auto-negotiating, auto discovery, full/half duplex, Dante Controller setup and	
	ETHERNET 1 POE	IEEE 802.3ab compliant 1000BASE-T Ethernet port	
		IEEE 802.3bt Type 3 compliant, PoE++ Class 6 (60W)	
	ETHERNET 2	IEEE 802.3ab compliant 1000BASE-T Ethernet port	
HDMI INPUT (Encoder only)		HDMI 2.0 Type A connector, female; HDMI digital video/audio input	
HDMI MONITOR OUTPUT (Encoder only)		HDMI 2.0 Type A connector, female; HDMI digital video/audio output	
HDMI OUTPUT (Decoder only)		HDMI 2.0 Type A connector, female; HDMI digital video/audio output	
SDI OUTPUT		-	BNC, 75Ω,
USB 1, USB 2 (Decoder only)		USB Type-A connector, female;	
		USB signal extender port for connection to a mouse, keyboard	
		Available Power: 100 mA at 5 VDC	
USB OTG	USB OTG Compliant	Host computer Mouse (Dante AV transmitter)	
Serial Control	RS422	RS-422 compatible with Visca control PTZ camera	
		RJ45	
	Control Protocol	VISCA	
IR TX, IR RX	Connector	2-pin 3.5 mm	
	Carrier Frequency	38 kHz	
	Supply Voltage	3.3V to 5V	
PTZ Camera IR Receiver		Front and Back	
LED Indicator	Power	Board Powered and Active	
	Codec	Video Codec Active	
	System	System Status	
	Error	Software running status	
	Sync	Dante Clock Slave, synchronization status	
	HDCP	HDCP status	
HDMI		HDCP 2.3, EDID	
Power		IEC60130-10 (JEITA standard RC-5320A) TYPE4 DC power connector; 12VDC 4A power input	
Network-DanteAV			
Network		Powered By DanteAV Module	
		Standard 1Gbps Ethernet	
		Audio Flow x 15 Flows / 8 Channels per Flow (unicast or multicast)	
		Video Flow x 1 Flow / 1 Channel per Flow (unicast or multicast)	
		Hardware time-stamping, supporting sample-accurate playback	
General			
Power	Power Consumption	Power input @ 4K60: 28W	Power input @ 4K60: 40W
	PoE	PoE++, IEEE 802.3bt Type 3 class 6 compliant	PoE++, IEEE 802.3at Type 3 class 6 compliant
	Power Adaptor	Input: 1.5 A maximum @ 100-240 VAC, 50/60 Hz, Output: 4A @ 12 VDC	
	12V DC IN has priority over Ethernet 1 POE. Ethernet 1 POE will become active a fraction of a second after 12V DC IN is disconnected.		
Storage Temperature		-40 to 100	
Operating Temperature		32° to 104° F (0° to 40° C)	
Humidity		10% to 90% (non-condensing)	
Heat Dissipation		Cooling fan speed adjustable, 3 Level	
Acoustic Noise		NC35 or less, variable with cooling fan speed adjustment	
Regulatory Compliance		CE, FCC Part 15 Class B digital device	
Dimension		216.5x148.35x44mm (LxWxH)	
Weight		2.5 lbs (1.3 kg)	
Enclosure			
Chassis		Metal, black finish, heat dissipation surface, fan cooled; vented rear and sides	
Mounting	Included	HDMI cable secure mount, surface mount for TV display, base mount.	
	Optional	19 inch single rack mount, 19 inch dual rack mount, Din rail mount	

ACCESSORIES

BL-PP97
97W High Power POE Injector

VCC-P12-4
12VDC 4A Power Adapter

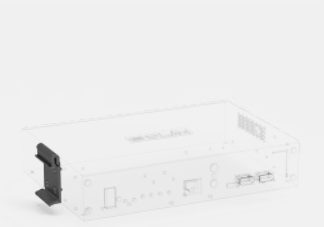
VCC-CC45RS
RJ45 To RS232/RS422/485 Adapter



B-RM11
Dual Rack Mount Kit

B-RM10
Single Rack Mount Kit

B-BM10
Base Mount Kit



B-DR10
Din Rail Mount Kit

B-SM10
Surface Mount Kit

ORDER INFORMATION

• D10H (HDMI)	Decoder	Included: • B-BM10 (Base Mount)	• B-SM10 (Surface Mount)
• D20H (HDMI)	Transceiver	Included: • B-BM10 (Base Mount)	• B-SM10 (Surface Mount)
• D20S (HDMI, SDI)	Transceiver	Included: • B-BM10 (Base Mount)	• B-SM10 (Surface Mount)

Optional

- B-RM11 (Double Rack Mount)
- B-RM10 (Single Rack Mount)
- B-DR10 (Din Rail Mount)
- BL-PP97 97W High Power POE Injector

DIMENSION

Unit: mm