

# HEVC Encoder/Decoder

## High Quality and Low Latency For Contribution and Sporting Events



HC32000E



HC32000D



HC10000E



HC10000DS



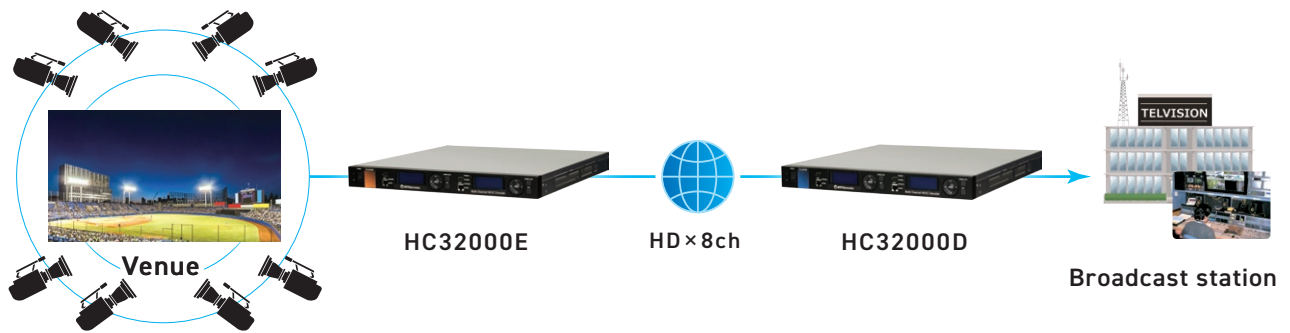
HC11000E



HC11000DS

## Remote Production

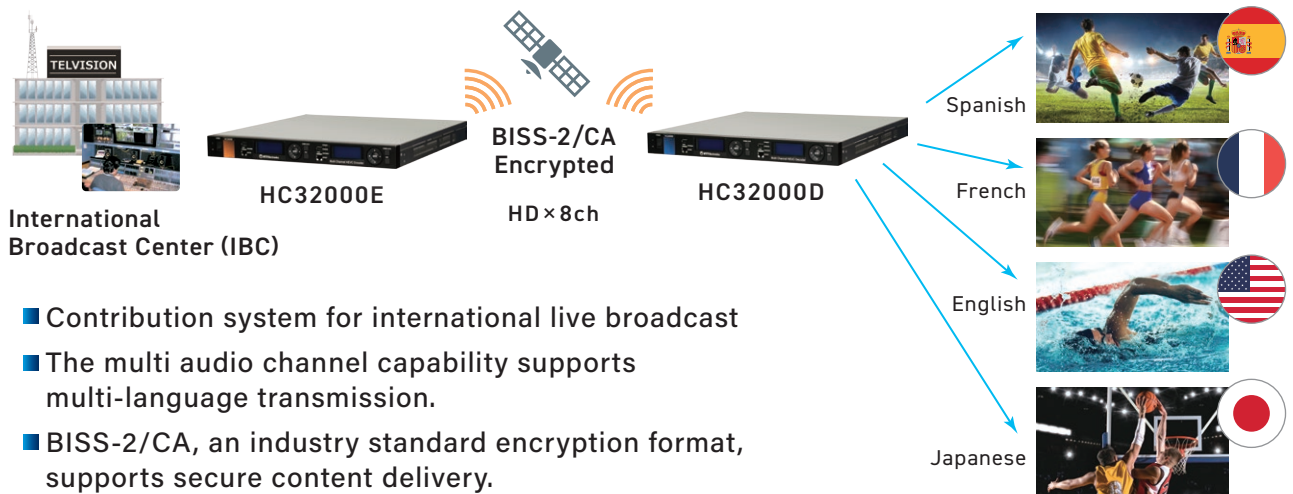
# Transmission of Multiple Signals with One Unit



- HC32000E/HC32000D create a multi-channel video transmission system for remote production. By sending multiple feeds from the station to the venue, almost all processes can be managed remotely in the broadcast station side.
- HC32000E/HC32000D have the capability of HD 8ch encoding/decoding in one box, realizing easy installment works and high space-efficiency.

## International Video Transmission

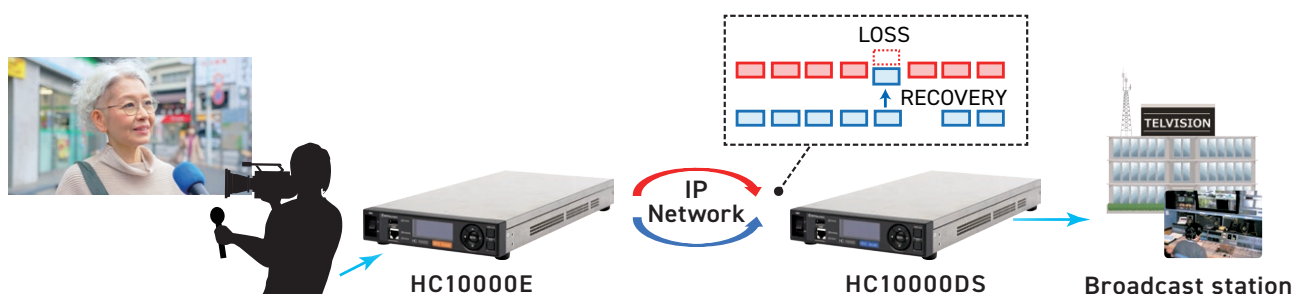
# Up to 64ch Audio Capability for Multi-Language Broadcast



- Contribution system for international live broadcast
- The multi audio channel capability supports multi-language transmission.
- BISS-2/CA, an industry standard encryption format, supports secure content delivery.

## Live Transmission

# Redundant System for IP Network



- HC10000E/HC10000DS offer high-quality live production system with great image quality and ultra low latency.
- Seamless protection functionality helps to minimize the impact of network failure.

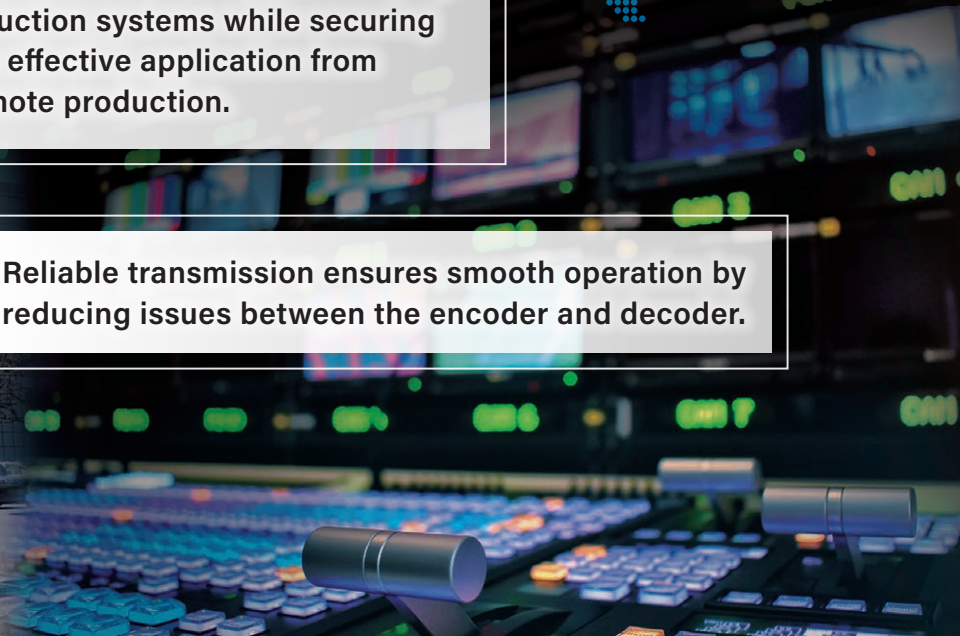
A world map composed of blue dots is centered behind the main text.

***NTT Innovative Devices codecs are widely adopted for live sporting events and production all over the world.***

**NTT Innovative Devices' in-house encoder LSI offers high quality, low latency and great performance.**

**HC32000 supports multi-channel video encoding/decoding, capable of delivering up to eight HD video feeds simultaneously. It expands the capability of production systems while securing high image quality, leading to an effective application from international transmission to remote production.**

**Reliable transmission ensures smooth operation by reducing issues between the encoder and decoder.**



Multi-Channel  
HEVC Encoder/Decoder

HC32000E

HC32000D

**The best answer to delivering sporting events with high density of 4K x 2ch/HD x 8ch in 1RU.**



HC32000E



HC32000D

- High-density, multi-channel video transmission H.265/HEVC support, up to 4K x 2ch or HD x 8ch capability
- BISS-1, BISS-2/CA support: industry standard encryption format
- Selectable audio formats and max 64ch discrete audio performance  
64ch (Enc) /32ch (Dec) audio capabilities suitable for global multi-language transmission
- Dual power supply, essential requirement for use in data centers

HEVC and H.264/AVC Encoder

HC11000E

HC10000E

**HEVC encoder with high-performance built-in encoder LSI**



HC11000E



HC10000E

- 4K/60p 4:2:2 10bit
- H.265/HEVC, H.264/MPEG-4 AVC
- Ultra Low Delay 33m@HD, 100ms@4K
- Embedded audio up to 16ch per video/8 PES combinations
- Ancillary data transmission
- BISS-1, BISS-2/CA support
- Dual power supply (HC11000E)

HEVC, H.264/AVC, and MPEG-2 Decoder

HC11000DS

HC10000DS

**High Performance and Reliable 10bit 4:2:2 HEVC, H.264/AVC, and MPEG-2 Decoder**



HC11000DS

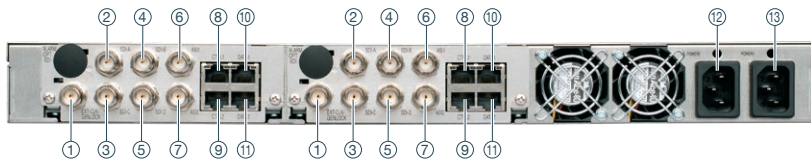


HC10000DS

- 10bit 4:2:2/4:2:0 for HD/SD, 4K
- H.265/HEVC, H.264/MPEG-4 AVC, and MPEG-2
- Ultra Low Delay 33m@HD, 100ms@4K
- Embedded audio up to 16ch per video/8 PES combinations
- Ancillary data transmission
- Seamless Protection Switching (Packet Recovery) support
- Dual power supply (HC11000DS)

# REAR PANEL

## HC32000E / HC32000D



- ① GENLOCK    ② SDI A    ④ SDI B    ⑥ ASI1    ⑧ CTRL1    ⑩ DATA1    ⑫ AC inlet1
- ③ SDI C    ⑤ SDI D    ⑦ ASI2    ⑨ CTRL2    ⑪ DATA2    ⑬ AC inlet2

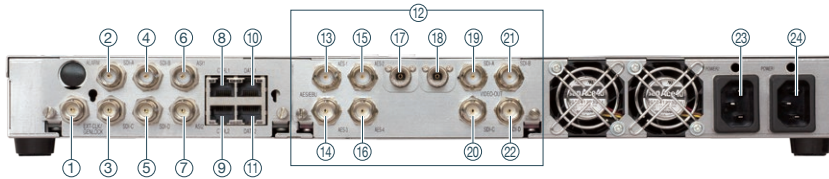


HC32000E  
Product HP



HC32000D  
Product HP

## HC11000E / HC11000DS



- ① \*1    ⑤ SDI-D    ⑨ CTRL2
- ② SDI-A    ⑥ ASI1    ⑩ DATA1
- ③ SDI-C    ⑦ ASI2    ⑪ DATA2
- ④ SDI-B    ⑧ CTRL1    ⑫ Option Slot
- ⑬ AC inlet2    ⑭ AC inlet1

\*1 : HC11000E/ EXT-CL(OP9),  
HC11000DS/ GENLOCK

**Option Board**

⑬⑭⑮⑯⑰⑱⑲⑳㉑㉒ : Digital Audio Input Board \*2

⑬⑭⑮⑯⑰⑱⑲⑳㉑㉒ : 12G-SDI/AES Input Board \*3

⑬ AES/EBU1    ⑯ AES/EBU4    ⑲ SDI-A    ㉑ SDI-D

⑭ AES/EBU3    ⑰ 12G-SDI \*4    ⑳ SDI-C

⑮ AES/EBU2    ⑱ 12G-SDI-THRU \*5    ㉒ SDI-B

- \*2 : HC11000E (OP1), HC11000DS (OP1)
- \*3 : HC11000E (OP8), HC11000DS (OP5)
- \*4 : HC11000E/ 12G-SDI-IN, HC11000DS/ 12G-SDI-OUT
- \*5 : HC11000E

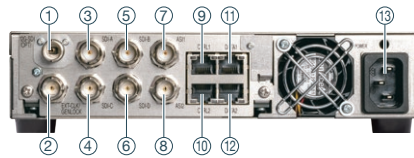


HC11000E /  
HC11000DS  
Product HP



HC11000DS/  
HC11000DS  
Product HP

## HC10000E / HC10000DS



- ① \*1    ⑥ SDI-D    ⑪ DATA1
- ② \*2    ⑦ ASI1    ⑫ DATA2
- ③ SDI-A    ⑧ ASI2    ⑬ AC inlet
- ④ SDI-C    ⑨ CTRL1
- ⑤ SDI-B    ⑩ CTRL2

- \*1 : HC10000E / 12G-SDI-IN (OP7), HC10000DS/ 12G-SDI-OUT (OP4)
- \*2 : HC10000E/ EXT-CLK (OP9), HC10000DS/ GENLOCK

# OPTION

## HC32000E

	Suffix	Option Name	Description
Software	OP1	HC3x000E_OP_BISS2	BISS-2/-1 Encryption
	OP2	HC3x000E_OP_AVC10	H.264/MPEG-4 AVC 10bit Encoding
	OP3	HC3x000E_OP_ULDELAY	Super Low Delay Mode
	OP4	HC3x000E_OP_B37	ARIB STD-B37 Subtitle
	OP5	HC3x000E_OP_B39	ARIB STD-B39 Audio Control

## HC32000D

	Suffix	Option Name	Description
Software	OP1	HC3x000D_OP_BISS	BISS-2/-1 Decryption
	OP2	HC3x000D_OP_SEAMLESS	Seamless Protection

## HC11000E / HC10000E

	Suffix	Option Name	Description
Hardware	OP1	HC11000_OP_AES	Digital Audio Input Board (Factory Option)
	OP7	HC10000E_OP_12G	12G-SDI Input (Factory Option)
	OP8	HC11000E_OP_AES-12G	12G-SDI/AES Input Board (Factory Option)
	OP9	HC1x000E_OP_EXTCLK	External TS Clock Input (Factory Option)

## HC11000DS / HC10000DS

	Suffix	Option Name	Description
Hardware	OP1	HC11000_OP_AES	Digital Audio Output Board (Factory Option)
	OP4	HC10000D_OP_12G	12G-SDI Output (Factory Option)
	OP5	HC11000D_OP_AES-12G	12G-SDI/AES Output Board (Factory Option)

	Suffix	Option Name	Description
Software	OP2	HC1x000E_OP_4K	4K Encoding
	OP3	HC1x000E_OP_AVC10	H.264/MPEG-4 AVC 10bit Encoding
	OP4	HC1x000E_OP_ULDELAY	Super Low Delay Mode
	OP5	HC1x000E_OP_BISS	BISS Encryption
	OP6	HC1x000E_OP_B39	ARIB STD B39 (Audio mode automatic switching)
	OP11	HC1x000E_OP_B39-4KVIDEO	ARIB STD B39 (4K video dynamic range and colorimetry automatic switching)
	OP12	HC1x000E_OP_BISS2UG	BISS-2 Upgrade for the kit installed BISS-1
	OP13	HC1x000E_OP_BISS1+2	BISS-1 and BISS-2 Encryption
	OP14	HC1x000E_OP_SBRC	Seamless Bitrate Change

	Suffix	Option Name	Description
Software	OP2	HC1x000D_OP_BISS	BISS Decryption
	OP3	HC1x000D_OP_SEAMLESS	Seamless Protection
	OP7	HC1x000D_OP_BISS2UG	BISS-2 Upgrade for the kit installed BISS-1
	OP8	HC1x000D_OP_BISS1+2	BISS-1 and BISS-2 Decryption

# SPECIFICATIONS

		HC32000E	HC32000D	HC11000E/HC10000E	HC11000DS/HC10000DS	
Video	Interface	3G-SDI/HD-SDI		12G-SDI ※ HC11000E(OP8) /HC10000E(OP7) /HC11000DS(OP5) /HC10000DS(OP4) /3G-SDI/HD-SDI/SD-SDI		
	Encode(Decode) Method	H.265/HEVC, H.264/MPEG-4 AVC			H.265/HEVC, H.264/MPEG-4 AVC, MPEG-2 Video	
	Profile ; Level	H.265/HEVC	Profile: Main 4:2:2 10, Main 10, Main; Level: 5.1, 4.1, 4			
		H.264/MPEG-4 AVC	Profile: High 4:2:2, High 10, High, Main; Level: 4.1 ※ HC32000E(OP2)			Profile: High4:2:2, High10, High, Main; Level: 4.2, 4.1, 4.0, 3.2, 3.0 ※ HC11000E/HC10000E(OP3)
Video Format @Frame Rate ; Max. PES	MPEG-2 Video	-			Profile: 422P, Main; Level: High, Main	
	H.265/HEVC	2160P(3840×2160)@50Hz, 59.94Hz; max.2PES 1080P(1920×1080)@50Hz, 59.94Hz; max.6PES 1080I(1920×1080)@25Hz, 29.97Hz; max.8PES		2160P(3840×2160)@23.98Hz, 24Hz, 29.97Hz, 50Hz, 59.94Hz; 1PES ※HC11000E/HC10000E(OP2)		
	H.264/MPEG-4 AVC	1080I(1920/1440×1080) @25Hz, 29.97Hz ; max.8PES (OP2)	1080I (1920/1440×1080) @25Hz, 29.97Hz ; max.2PES	1080P(1920/1440×1080) @50Hz, 59.94Hz ; 1PE (OP3)	-	
MPEG-2Video	-			1080P(1920/1440×1080) @23.98Hz, 24Hz, 29.97Hz; 1PES 1080I(1920/1440×1080)@25Hz, 29.97Hz; 1PES 720P(1280×720)@50Hz, 59.94Hz; 1PES 576I(720×576)@25Hz; 1PES 480I(720×480)@29.97Hz; 1PES		
Audio	Interface	Embedded Audio 16ch		Embedded Audio 16ch, AES/EBU 8ch(OP1)		
	Encode(Decode) Method	MPEG-1 L2: 1ch(Mono), 2ch(DualMono), 2ch(Stereo) SMPTE302M: 2ch, 4ch, 6ch, 8ch MPEG-2 AAC-LC: 1ch(1/0), 2ch(1+1), 2ch(2/0), 4ch(3/1), 5.1ch(3/2/1), 6ch(2/2/2) MPEG-4 AAC-LC: 2ch(2/0), 4ch(3/1), 5.1ch(3/2/1) MPEG-4 HE-AACv1: 2ch(2/0), 5.1ch(3/2/1) MPEG-4 AAC-ELD: 2ch(2/0), 4ch(3/1), 5.1ch(3/2/1)				
	Max. PES in MPEG-1 L2	32PES	16PES	Dolby Digital Pass Through		
Ancillary	Data Type	TIMECODE ARIB TR B23, SMPTE ST 2038(Max 8PES/TS) ARIB STD-B37/B39(OP4/OP5)	TIMECODE ARIB TR B23, SMPTE ST 2038	TIMECODE, ARIB TR-B22/TR-B23, SMPTE ST 2038, ARIB STD-B39(OP6) (OP11)	TIMECODE, ARIB TR-B22/TR-B23, SMPTE ST 2038	
Transport Stream (TS)	Interface	DVB-ASI: BNC×4(0.8Vp-p75Ω) ; IP: 100BASE-TX/1000BASE-T(RJ-45) ×4		DVB-ASI: BNC×2(0.8Vp-p75Ω) ; IP: 100BASE-TX/1000BASE-T(RJ-45) ×2		
	Stream Format	MPEG-2 TS(188/204byte) For IP: Time-stamped TS(TTS)(192byte), Advanced TS(192byte)				
	Maximum Number of TS	4TS * When 8 video PES encoded in 2TS, each TS has 4x video PES(in case of 1080i) * When 4 video PES encoded, each TS has 2x video PES(in case of 1080i/1080p)	2TS	1TS		
	Maximum Number of PES per TS	Video: 4PES, Audio: 16PES		-		
	Maximum Number of TS rate per TS	2TS: 200Mbps, 4TS: 100Mbps	200Mbps	200Mbps		
	TS Encryption	BISS-2 1/E/CA, BISS-1 1/E(OP1)		BISS-2 1/E/CA (OP12)(OP13), BISS-1/E(OP5)(OP13)		
	TSoverIP	Output Interface	100BASE-TX/1000BASE-T(RJ-45) ×4		100BASE-TX/1000BASE-T(RJ-45) ×2	
Network Features		IPv4: IGMPv2/v3 ; IPv6: MLDv2		IPv4: IGMPv2/v3, PPPoE; IPv6: MLDv2, IPoE		
Transmission		RTP/UDP/IP(SMPTE ST 2022-2: 2007, RFC2250, RFC3550, RFC1889), Unicast/Multicast				
Error Correction		FEC(SMPTE ST 2022-1:2007/Pro-MPEG COP#3 R2), ARQ				
Others	-		Seamless Protection(OP2)	-		
Test Signal	Video: Color-bar Signal Audio: 1kHz sine wave(-18/-20dBFS)		-	Video: Color-bar Signal Audio: 1kHz sine wave(-18/-20dBFS)		
Control	Local Control	LCD (20digits×4/brightness control available) + Front Switch (7 buttons) ×2		LCD (20digits×4/brightness control available) + Front Switch (7 buttons)		
	Network Interface	100BASE-TX/1000BASE-T(RJ-45) ×4		100BASE-TX/1000BASE-T(RJ-45) ×2		
	Remote Control	WEB GUI, SNMP v1, Ping, Syslog, NTP				
Others	Dimensions	W: 433 x H: 44xD: 430 (mm) (w/o Connector, Foot, Rack mount bracket)		HC10000E/HC10000DS: W:209 x H:44 x D:430(mm) (w/o Connector, Foot, Rack mount bracket) HC11000E/HC11000DS: W:432 x H:44 x D:430(mm) (w/o Connector, Foot, Rack mount bracket)		
	Weight	8kg typ.		HC10000E/HC10000DS: 5kg typ. HC11000E/HC11000DS: 8kg typ.(w/o option card)		
	Supply Voltage	100 ~ 240VAC(50/60Hz)		100 ~ 240VAC (50/60Hz)		
	Power Consumption	Dual Power Supply/300W max.		HC10000E : Single Power Supply/100W max. HC11000E : Dual Power Supply/150W max.		
	Operating Environment	0 to 45°C, 30 to 90% (non condensing)				
Compliance	RoHS, VCCI, FCC, ICES, CE, UL, CSA					

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