

Red Line Product

BOLIN

EDGE Series
FAST HEVC Decoder



FAST HEVC

Standard HEVC Only Faster


SDI/HDMI Paint-Point-Situation (Traditional AV System)

Planning an AV system structure or installation using SDI/HDMI video cables?

Do these issues sound familiar?

Go AV over IP! Oh..Bandwidth is too high...! No Power Over There...!?

Only 1G network not enough...! Lossing contact, Again?! Unstable...
cable, cable ...cable...! Amplifiers, Splitters, How Many?!

save me  No more space... cabling, rack mount, 1.2.3.4.5.6...
Signal Loss, Long Distances... Too many connected devices...!

SDI/HDMI Matrixes, AV Routers, Power, Mount...
Want more displays! Add... add... devices...
Do these issues sound familiar? Splitter? New cabling ...?!

If the answer is “Yes”,

FAST HEVC IP Streaming could easily replace traditional HDMI/SDI signals for your AV System. Simplify your setup while saving time and money with minimal compromise to the final video quality.

SDI/HDMI REPLACEMENT - FAST HEVC

|  | |  | |
|-------------------------------------------------------------------------------------|--------------------|---------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------|
| SDI (12G-SDI) | Key Words | Key Words | IP Streaming (4K60) - FAST HEVC Codec |
| Uncompressed video/Audio delivery | Analog/Traditional | IT/Future | Codec based format (AVC/HEVC) audio/video delivery |
| AV signal running around 12 Gigabits/per second | High bit rate | Adaptive bitrate | Fast adaptive bitrate AV encoding |
| Uncompressed up to 4K/60 delivery | High cost | Lower cost | Slightly compressed UHD 4K delivery |
| Negligeable latency AV delivery | No-Latency | Visually No-Latency | Ultra low latency - less than 2 frame/s (30ms, visually zero-latency) |
| High-quality AV delivery | Lossless | Visually Lossless | 4K60 (4:2:2 – 8/10/12bit, visually lossless) |
| One cable - One signal AV delivery | 1 to 1 | 1 to Many | 20-200Mbps bandwidth (45Mbps at streaming 4K60 4:2:2/12bit, visually lossless) |
| Robust, reliable BNC connector and costly coaxial cable | Expensive | More affordable | Ethernet connector (RJ45) and CAT6 network cable |
| Up to 260ft (80m) range cable run without signal loss | Limited | Flexible Build | Flexible network infrastructure up to 290ft (90m) |
| Hardware device based, high power consumption | High heat | Low heat | Hardware FPGA codec with low power consumption and software decode application applicable |
| Supports all ancillary data | Vintage | Modern | Support some ancillary and metadata |
| Point to point hardware connection | 1 To 1 | 1 To Many | Flexible one to many possibilities-Multicast |
| Costly solution for long distance broadcast | Expensive Build | Flexible Build | Highly flexible and lower cost IP streaming plus PoE |
| Predictable and very reliable | Rigid | Agile | Agile, flexible, and scalable |
| High quality audio | Hi-Fi | High Quality | Various high quality audio codecs |



FAST HEVC

STANDARD HEVC ONLY FASTER

FPGA hardware codec, utilizing AMD Zynq™ UltraScale+™ EV MPSoC

Only **45Mbps** bandwidth that streams **4K60 at 4:2:2 12bit** quality in less than **2 frames/30ms** latency

- Extremely Low Latency
- High-Quality Image
- Low Bandwidth



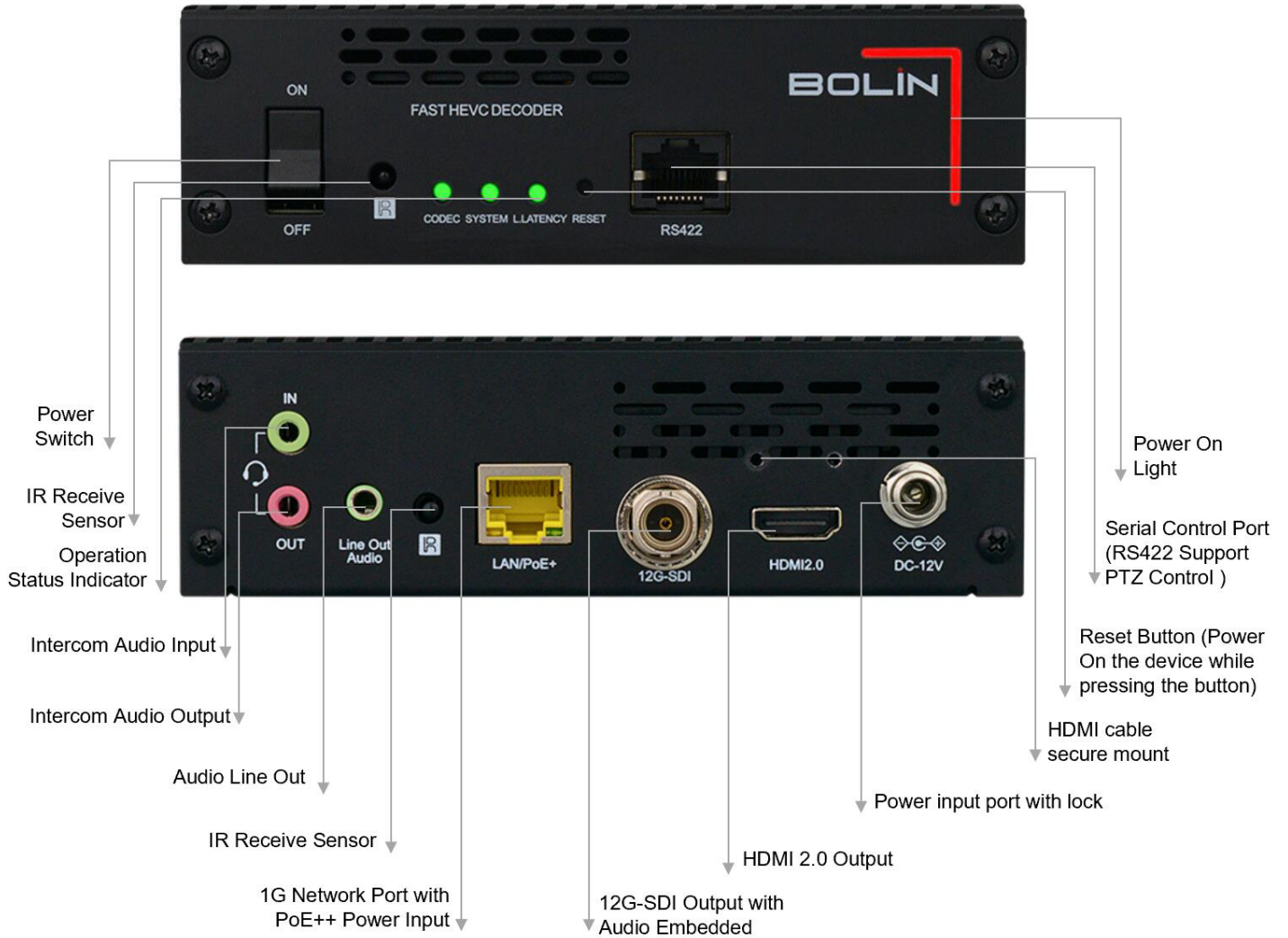
FAST HEVC IP Streaming could easily **replace** traditional **HDMI** signals for your AV System. Simplify your setup while saving time and money with minimal compromise to the final video quality.

*Comparison-The Facts of FAST HEVC Performance

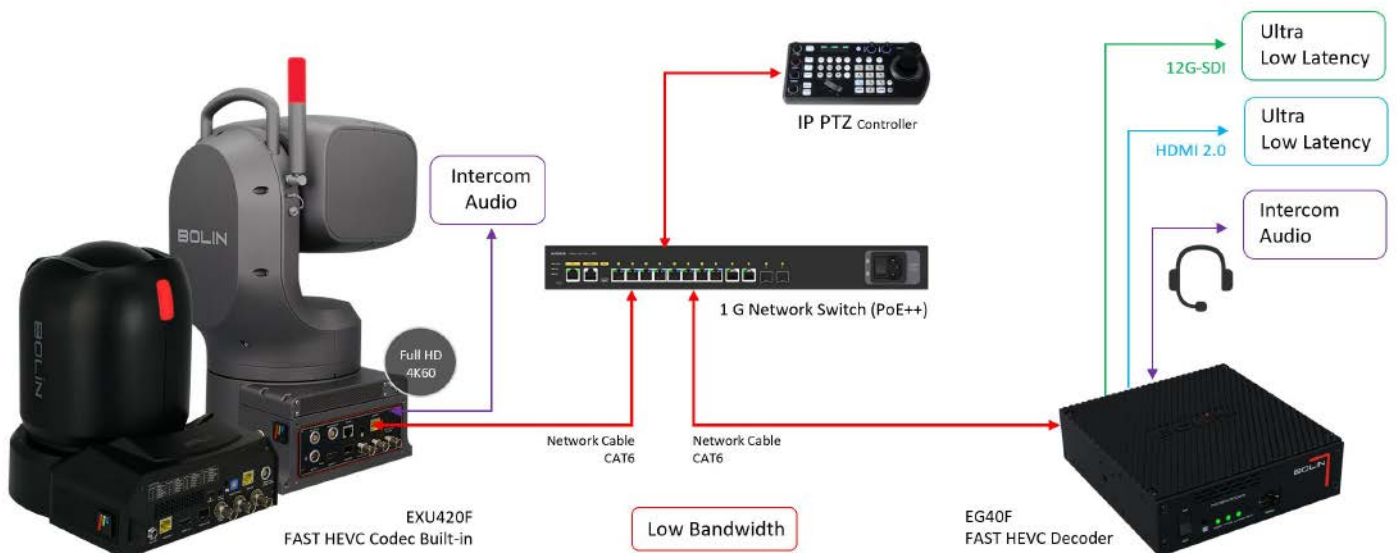
| Fundation | Platform | Codec | 1080p60 | | | 4K60 | | |
|--------------------|---------------|------------|-------------------|--------------------------|-----------|-------------------|--------------------------|-----------|
| | | | Quality (Up To) | Latency (Point-to Point) | Bandwidth | Quality (Up To) | Latency (Point-to Point) | Bandwidth |
| H.264/265 AVC/HEVC | Software SOC | Stand HEVC | 420SP(NV12) | 4 frame/70ms | 8Mbps | 420SP(NV12) | 25 frame/430ms | 16Mbps |
| | Hardware FPGA | FAST HEVC | 4:2:2/12bit(NV16) | 2 frame/20ms | 20Mbps | 4:2:2/12bit(NV16) | 2 frame/30ms | 45Mbps |
| NDI | Hardware FPGA | Full NDI | 4:2:2/10bit | 3 frame/50ms | 150Mbps | 4:2:2/10bit | 4 frame/70ms | 300Mbps |
| Dante AV-Ultra | Hardware FPGA | JPEG 2K | 4:2:2/12bit | 1 frame/6ms | 250Mbps | 4:2:2/12bit | 1 frame/8ms | 550Mbps |

*Results may vary depending on network configuration and management settings.

OUTPUT



Bolin FAST HEVC Decoder Workflow



Full Broadcast SDI Format and Standard

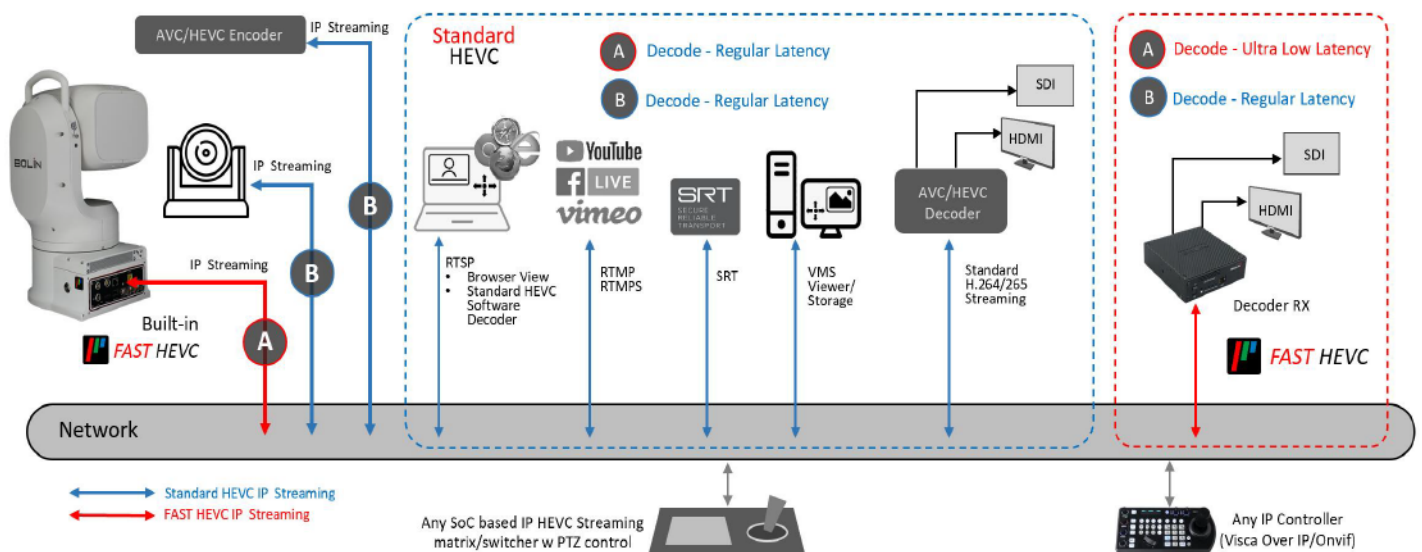
3840x2160/59.94p/60p
 3840x2160/50p
 3840x2160/29.97p/30p
 3840x2160/25p
 3840x2160/23.98p
 3840x2160/24p
 1920x1080/59.94p/60p
 1920x1080/59.94i/60i
 1920x1080/50p
 1920x1080/50i
 1920x1080/29.97p/30p
 1920x1080/25p
 1920x1080/23.98p/24p
 1280x720/59.94p/60p
 1280x720/50p

SMPTE 292(1.5Gb/s)
 SMPTE 424
 SMPTE 425-A(3Gb/s)
 SMPTE 2081(6Gb/s)
 SMPTE 2082-0/1(12Gb/s)
 with SMPTE 352 SDI Metadata

FEATURES

- Support up to 4K60
- FAST HEVC FPGA codec back compatible with standard HEVC codec without having Ultra-Low-Latency
- HDMI 2.0 + 12G-SDI video output
- True Dual-Output
- All video with audio embedded
- Support PTZ control
- Audio intercom with frontend device
- On-screen character generator
- All firmware upgrade via IP
- POE++ and 12VDC power input

Open Platform



Bolin FAST HEVC codec camera can be decoded by standard HEVC decoder but not having Ultra Low Latency HEVC codec camera/device can be decoded by Bolin FAST HEVC decoder but not having Ultra Low Latency

SPECIFICATIONS

| Model No. | | EG40F |
|--------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Decoder (Video Output) | | HDMI & SDI |
| Codec | | |
| Encoder/Decoder | Decoder only | |
| Video Codec | AVC-H.264 / HEVC-H.265 selectable | |
| Codec Platform | Hardware FPGA FAST HEVC codec | |
| Video Resolutions | 3840 x 2160P @60/59.94/50/30/29.97/25/24/23.98 1920 x 1080P @60/59.94/50/30/29.97/25/24/23.98 1920 x 1080i @60/59.94/50 1280 x 720P @60/59.94/50/30/29.97/25 | |
| Color Space(HDMI) | 4K60: RGB 8bit, YUV444 8bit, YUV422 12bit, YUV420 8bit/10bit 4K30 & below: RGB 8bit/10bit, YUV444 8bit/10bit, YUV422 12bit | |
| Audio Formats | 3.5mm Jack, analog audio, stereo (unbalanced); Line in/out - audio intercom, Line out - HDMI audio output | |
| Video Streaming | 1 stream | |
| Control Protocol | Visca serial control (RS422), Visca over IP | |
| Latency (Results may vary depending on network configuration and management settings) | <2 frame (e.g. 2160p60 latency is < 30 ms between encoder and decoder) <1.5 frame (e.g. 1080p60 latency is < 15 ms between encoder and decoder) | |
| Bandwidth (Results may vary depending on network configuration and management settings) | 4kp60 4:2:2/12bit; 20-50Mbps 1080p60 4:2:2/12bit; 10-25Mbps | |
| Ecosystem Friendly | AVC-H.264/HEVC-H.265 Open Platform, compatible with standard AVC/HEVC software/hardware decoder Video codec is compatible with decoding standard AVC/HEVC, H.264/265 to output video without having low latency; Pair up with Fast HEVC encoder to decode output extremely low latency video. | |
| Video | | |
| Video | Highest Resolution | Up to 4K (3840x2160) |
| | Highest Frame Rate | Up to 60 |
| IP IN | Video Codec | AVC-H.264 / HEVC-H.265 |
| | Video Format | 3840 x 2160P @60/59.94/50/30/29.97/25/24/23.98 1920 x 1080P @120/60/59.94/50/30/29.97/25/24/23.98 1280 x 720P @60/59.94/50/30/29.97/25 |
| | Frame Rates (Hz) | 23.98, 24, 25, 30, 29.97, 50, 59.94, 60 |
| | Application Protocols | RTP, RTSP, MP2TS over UDP, TS over RTP, TS over SRT, HTTP, IGMP v1/v2, DHCP, SSH, 802.1X Authentication |
| | Multi-stream | 1 stream |
| HDMI OUT | Format | HDMI 2.0 |
| | Supported Resolutions | 3840 x 2160P @60/59.94/50/30/29.97/25/24/23.98 1920 x 1080P @60/59.94/50/30/29.97/25/24/23.98 1920 x 1080i @60/59.94/50 1280 x 720P @60/59.94/50/30/29.97/25 |
| | Frame Rates (Hz) | 23.98, 24, 25, 29.97, 30, 50, 59.94, 60 |
| | Color Space | 4K60: RGB 8bit, YUV444 8bit, YUV422 12bit, YUV420 8bit/10bit 4K30 & below: RGB 8bit/10bit, YUV444 8bit/10bit, YUV422 12bit |
| | Standard | SMPTE 292(1.5Gb/s), SMPTE 424, SMPTE 425-A(3Gb/s), SMPTE 2081, SMPTE 2082-0/1 With SMPTE352 SDI Metadata Supported |
| SDI OUT | Format | 12G-SDI |
| | Supported Resolutions | 3840 x 2160P @60/59.94/50/30/29.97/25/24/23.98 1920 x 1080P @60/59.94/50/30/29.97/25/24/23.98 1920 x 1080i @60/59.94/50 1280 x 720P @60/59.94/50/30/29.97/25 |
| | Frame Rates (Hz) | 23.98, 24, 25, 29.97, 30, 50, 59.97, 60 |
| | Color Space | YUV422 10bit |
| | Standard | SMPTE 292(1.5Gb/s), SMPTE 424, SMPTE 425-A(3Gb/s), SMPTE 2081, SMPTE 2082-0/1 With SMPTE352 SDI Metadata Supported |
| Audio | | |
| Audio Transport Formats | Audio Compression | AAC-LC, MPEG-2 |
| | Audio S/N Ratio | ≥85dB |
| | Audio THD+N | ≤0.05% |
| | Audio Noise (RMS) | ≤-90dB |
| | Line-in/Line-out | Support audio intercom |
| | Bit Depths | AAC-LC, MPEG-2 (sampling rate: 48KHz/44.1KHz, 24bit, 64-256Kbps selectable) |
| Input Signal Types | Embedded Audio over IP | 1* audio(stereo) |
| | Line-in | 3.5mm Jack, analog Line-in |
| | Channel | Stereo (Unbalanced) |
| | Format | AAC-LC, MPEG-2 |
| Output Signal Types | Embedded Audio over HDMI | 1 *audio |
| | Embedded Audio over SDI | 1 *audio |
| | Format | AAC-LC, MPEG-2 |
| | Line-out | 3.5mm Jack, analog Line-out |

SPECIFICATIONS

| Communication/Connector | | |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------|
| Ethernet | Ethernet General | Standard 1Gbps Ethernet Auto-switching, auto-negotiating, auto discovery, full/half duplex |
| | ETHERNET with POE | IEEE 802.3at compliant 1000BASE-T Ethernet port IEEE 802.3at Type 3 compliant, PoE+ Class 4 |
| HDMI INPUT (Encoder only) | | – |
| HDMI MONITOR OUTPUT (Encoder only) | | – |
| HDMI OUTPUT (Decoder only) | | HDMI 2.0 Type A connector, female; HDMI digital video/audio output |
| SDI OUTPUT | BNC | 75Ω |
| | Optical SDI SFP Slot | – |
| | SFP | – |
| USB 1, USB 2 (Decoder only) | | – – – |
| USB OTG | USB OTG Compliant | – |
| Serial Control | RS422 | RJ45, compatible with Visca control PTZ camera |
| | Control Protocol | VISCA |
| PTZ Camera IR Receiver | | Front and Back, bidirectional |
| LED Indicator | Power | Yes, board powered and active (Bolin Logo corner) |
| | Codec | Yes, video codec active |
| | Low latency | Yes, light up for low latency mode |
| | System | Yes, system status |
| | Error | – |
| | SYNC | – |
| | HDCP | – |
| Control | Interface | RJ45*1-RS422, RJ45*1-IP Control |
| | Protocol | Visca, Visca over IP |
| External Sync. Input | | – |
| Edge Storage | | – |
| Tally Light | | – |
| System Firmware Upgrade | | Upgrade via IP web interface |
| Reset | | Yes, long press for 5 seconds to reset |
| Menu | Content | – |
| | Display | – |
| | Navigation | – |
| Power | Power Input | 12V DC, 2A |
| | Power butoon | Yes |
| | Connector Type | 5.5mm×2.1mm Male DC Power Plug Connector & Screw Lock Female Panel Socket Mount Adapter |
| Interface | HDMI*1, SDI*1, 12V DC power port*1, Power switch*1, Reset button*1, RJ45*1 (LAN/PoE+), RJ45*1 (RS422), Infrared receiver*2 (front & back), 3.5mm Line in*1 / Line out*2, LED indicator*3 | |
| General | | |
| Power | Power Consumption | 18W |
| | PoE | PoE+, IEEE 802.3at Type 3 class 4 compliant |
| | Power Adaptor | 12V DC, 2A 12V DC IN has priority over Ethernet POE. Ethernet POE will become active a fraction of a second after 12V DC IN is disconnected. |
| Storage Temperature | | -40° to 60° C |
| Operating Temperature | | 0° to 50° C |
| Humidity | | 10% to 90% (non-condensing) |
| Heat Dissipation | | Cooling fan, 3 Level - Automatically adjust the fan speed according to the temperature |
| Acoustic Noise | | NC35 or less, variable with cooling fan speed adjustment |
| Dimension | | 142*150*44mm (LxDxH), 142*150*50.5mm(with feet mats) |
| Net Weight | | 1.05kg (2.31lb) |
| Enclosure | | |
| Chassis | | Metal, black finish, heat dissipation surface, fan cooled; vented front and rear |
| Mounting | Included | HDMI cable secure mount, Base mount |
| | Optional | 19" Single-rack mount, 19" Tri-rack mount, Din rail mount, Surface mount |
| Size of Screw Hole for Tripod | | 1/4" |
| What's Included | | Decoder*1, Power Adapter *1 & Power Cord *3 (US, EU, UK), RJ45 to RS422 Extension Cable *1, Thank You Card *1 |

INSTALLATION MOUNT



- Rack Mount
- Base Mount
- Surface Mount
- Pole Mount
- Din Rail Mount
- Tripod Mount

ACCESSORY

Items marked * are optional to purchase



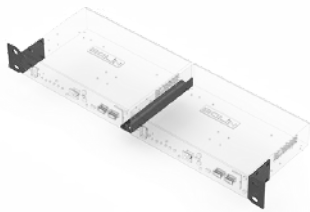
VCC-RC-2
IR Remote Controller



VCC-P12-4
12VDC 4A Power Adapter



VCC-CC45RS
RJ45 To RS232/RS422/485 Adaptor



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



BL-PP97
*97W POE POWER INJECTOR

ORDER INFORMATION

• EG40F (HDMI 2.0+12G-SDI)

Decoder

Included: • B-BM10 (Base Mount)

Optional

• B-RM12 (Tri-Rack Mount)

• B-RM10 (Single Rack Mount)

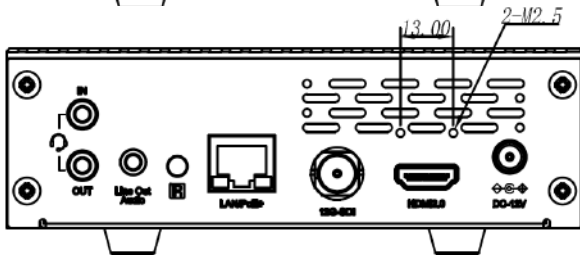
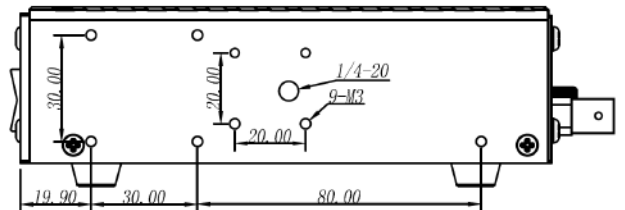
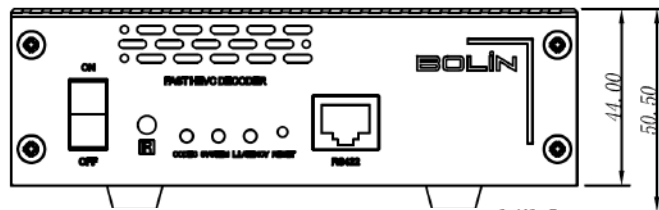
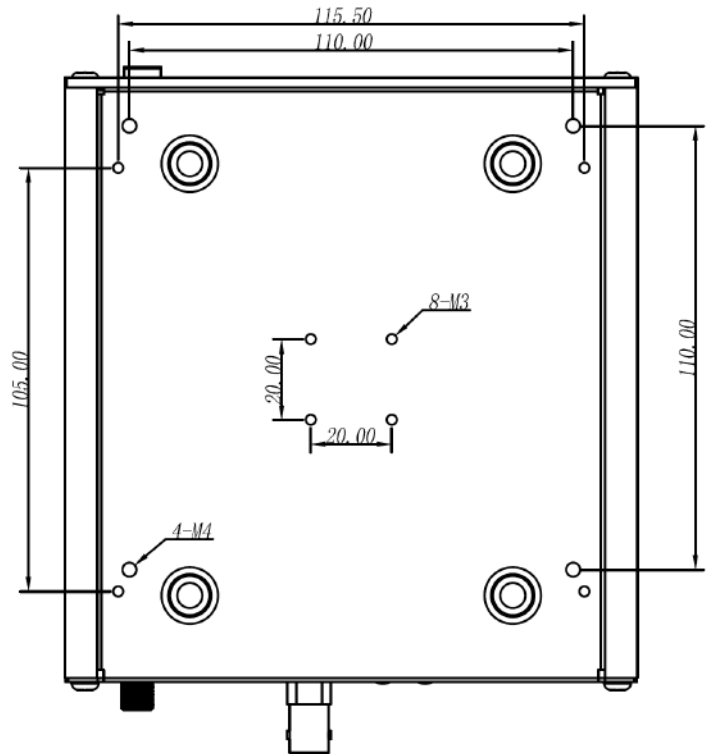
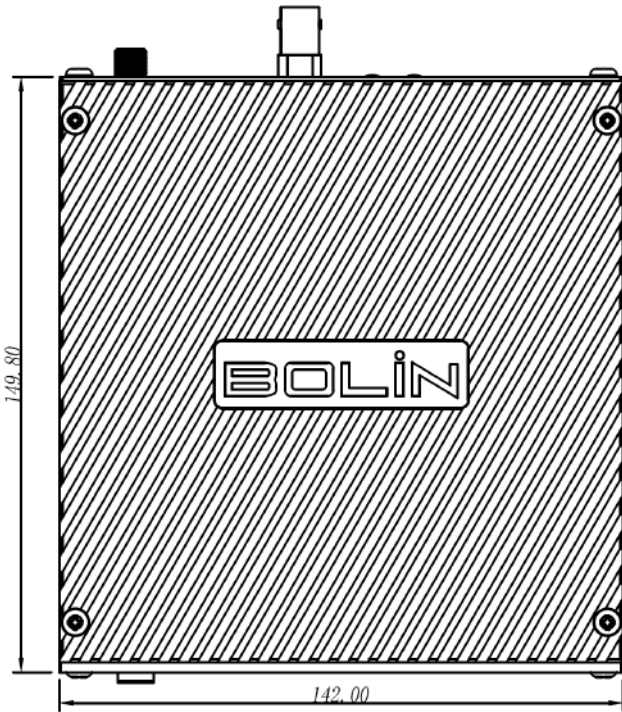
• B-DR10 (Din Rail Mount)

• B-SM10 (Surface Mount)

DIMENSIONS

DIMENSIONS

Unit: mm



All models and specifications are subject to change without notice.
All brand names and registered trademarks are the property of their respective owners.