BOLIN

EX-ULTRA
Outdoor PTZ Camera

EXU230H

Redefining The Outdoor PTZ Camera Experience

Full HD Pan Tilt Zoom Camera

The EXU230H outdoor PTZ camera is equipped with Sony image block with 30x zoom range UHD lens to provide Full HD (1080P60) crystal high-quality color image in tough low light environment and stable image with super image stabilizer to output HDMI, 3G-SDI, Optical SDI, and IP video streaming for POV, broadcast, operational awareness, sport application in outdoor environment and even in extreme weather conditions.

EXU230H

- Sony 1/1.18 type CMOS sensor STARVIS II
- 30X zoom range
- Resolution 1080i59.94, 1080p60
- IP Video Resolution: Up to 1080p60
- Video Output: Simultaneous 3G-SDI, HDMI, IP
- SFP Optical SDI video output
- RTSP. RTMP, SRT Supported
- Visca Over IP, Onvif, FreeD, Serial Control Supported
- Extreme Low Light Performance
- Super Image Stabilizer
- Weatherproof IP67 rated

FHD 1080p60 1080i59.94 | ZOOM 30X | HDMI | 3G-SDI | OPTICAL | IP H.265 HEVC | Image Stabilizer | Low Light | VISCA over IP | RTSP RTMP | FreeD | SRT READY | Onvif | IP67

IMAGE MODULE

- The latest Sony new image block that achieves higher visibility by adopting the 8M ultra high resolution lens, 4M image sensor and ISP from Sony.
- 1/1.8 inch STARVIS II sensor
- Enhanced High Resolution image quality
- 30X 8M High Resolution optical zoom lens
- Advanced AF performance
- Wide Dynamic Range (Wide-D)
- Visibility Enhancer (VE)
- Super low light in color performance
- Super image stabilizer

SONY

FEATURES

Image Quality Upgraded in Day and Night

The 8M compatible lens, 4M image sensor (1/1.8 type), and ISP all use new devices from Japanese manufacturers. The combination of these three Core technologies provides an overwhelming sense of resolution, and the advanced AF/AE/AWB functions reproduce faithful images even in low-light environments.
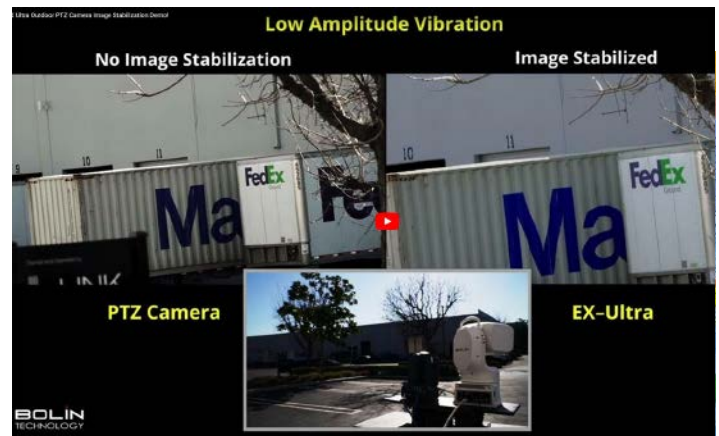

High Resolution-Day Light (Pre/New)

High Resolution-Night View (Pre/New)

Super Image Stabilizer

- The camera enables two levels of image stabilization capabilities, super, super+, which provides clear pricture/image in vibrating environment use.
- See EXU230H Stabilization Performance video on Bolin's website.

Low Light Performance

- Thanks to the new Sony 1/1.18 type CMOS sensor STARVIS II, the camera produces clear and clean image in extreme low light condition in color, and even with ICR on in color.
- See EXU230H image performance video on Bolin's website.

FEATURES

EXU230H Output Interface

Dual 3G-SDI	HDMI 1.4	SFP Optical SDI	Genlock
Full HD IP Streaming	AVC/HEVC	RTSP, RTMP, RTMPS, SRT	True Dual-Output
All Video with Audio Embedded	XLR Broadcast Audio Input/Output	On-screen Character Generator	Serial/IP Control
High-Quality	Low Latency	Low Bandwidth	Power Output

Full Broadcast SDI Format and Standard

Full Format
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

SDI Standard
SMPTE 292M
SMPTE 296M (1.5Gb/s)
SMPTE 424M
SMPTE 274M
SMPTE 425-A (3Gb/s)
With SMPTE352 SDI Metadata Supported

.

- External Synchronization Genlock
- Audio embedded with all video output
- XLR broadcast audio input/output
- On-screen character generator
- All firmware upgrade via IP
- Tally Light

- Power Output for 3rd device
- POE++ and 24VDC/AC
- Rain Wiper built-in
- Weatherproof IP67 rated with tail cable cover for permanent mount
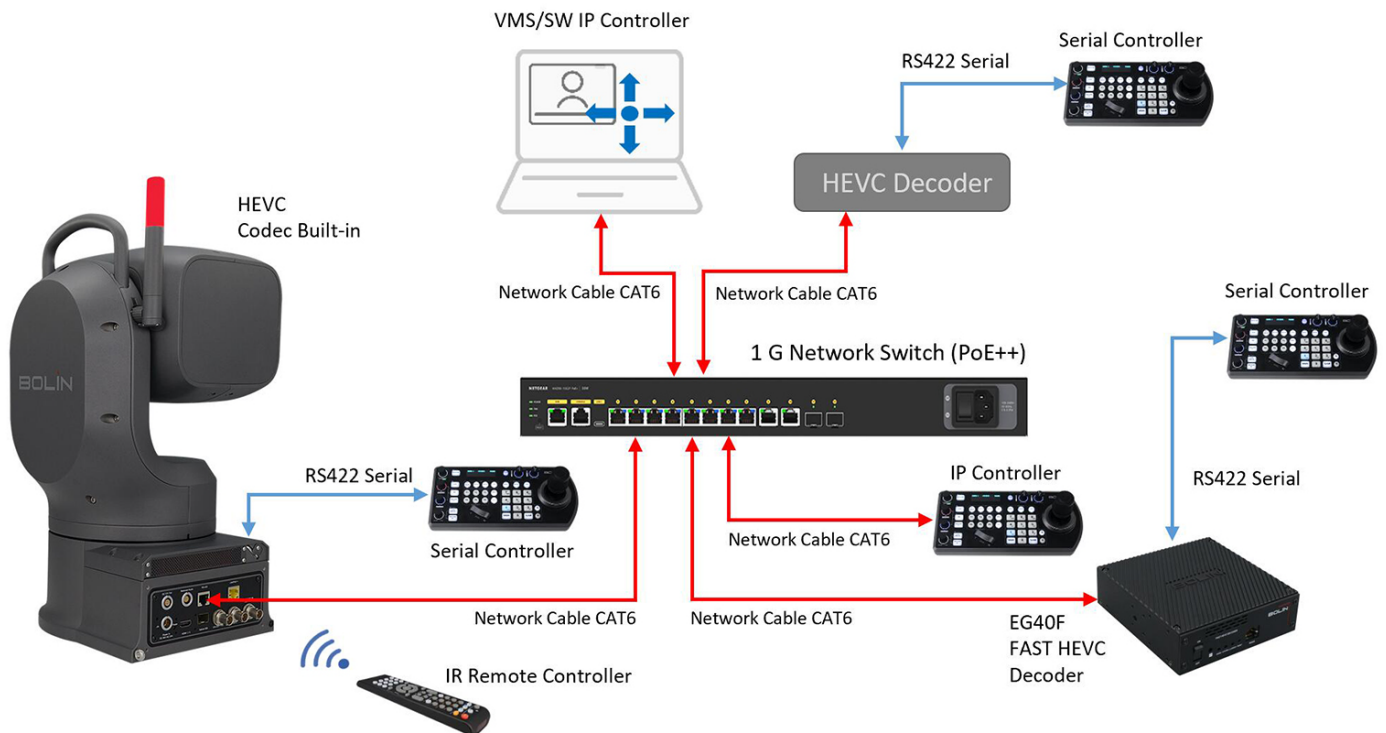- Rainwater protection cover with cable support for tripod mount use

FEATURES

FreeD Protocol Integrated for VR/AR Video Production

FreeD helps provide all the axis data needed for a Bolin PTZ camera to intelligently and smoothly pan, tilt, and zoom while following targeted objects and people. Broadcasters can combine Bolin's FreeD-enabled PTZ cameras with available, sophisticated software to automate complex camera operations with spectacular results. It is especially useful for virtual live video productions with baseband video feeds and, with Bolin PTZ cameras, with ultra-low latency AV Over IP streaming
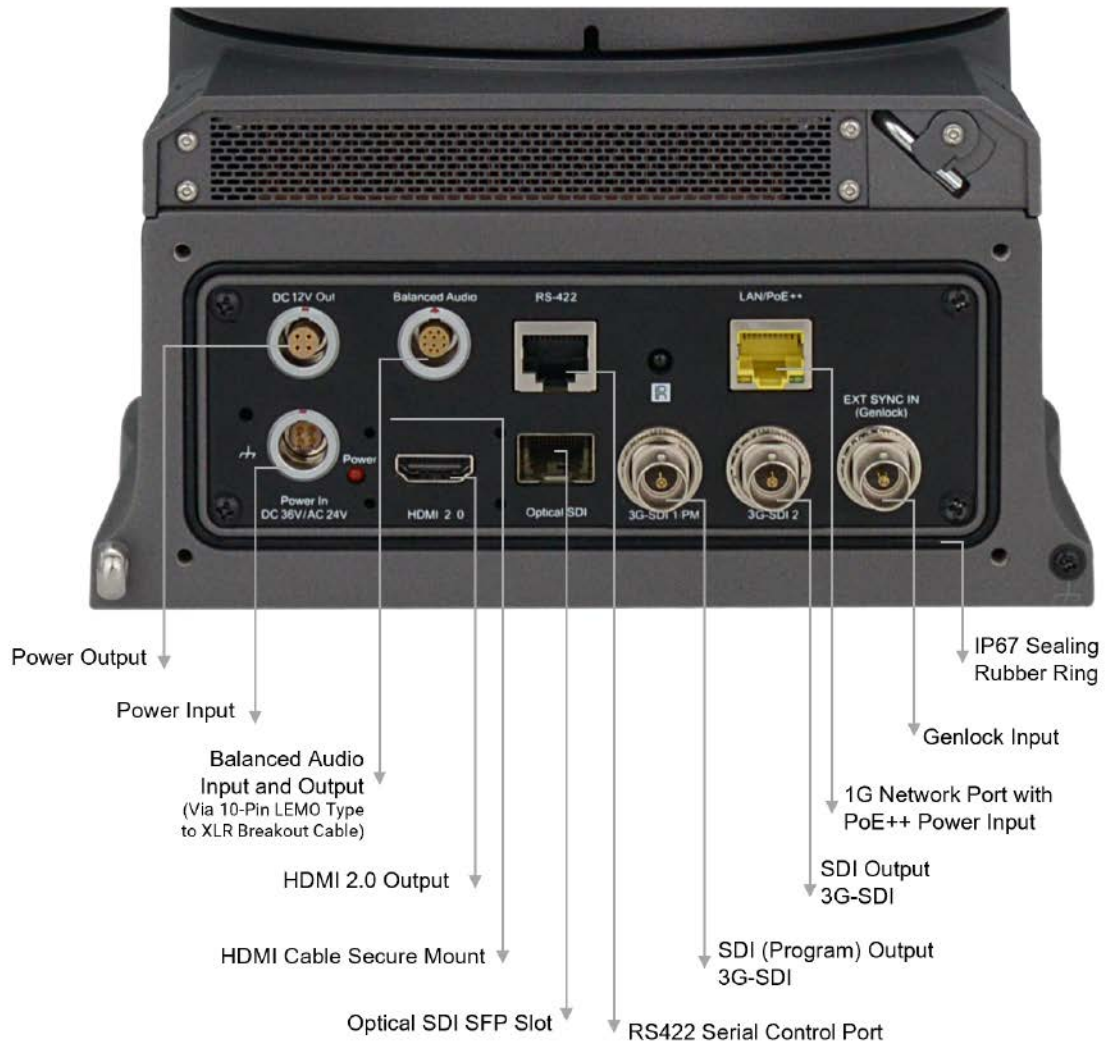

Various Control Methods

- ▪ IP Control, Serial Control, IR Remote Control, Rest API-Software Control
- ▪ Protocol Supported: VISCA Over IP, ONVIF, VISCA, PELCO P/D, FreeD

OUTPUT

Power Output

Power Input

Balanced Audio Input and Output
(Via 10-Pin LEMO Type to XLR Breakout Cable)

HDMI 2.0 Output

HDMI Cable Secure Mount

Optical SDI SFP Slot

RS422 Serial Control Port

SDI (Program) Output 3G-SDI

SDI Output 3G-SDI

1G Network Port with PoE++ Power Input

Genlock Input

IP67 Sealing Rubber Ring
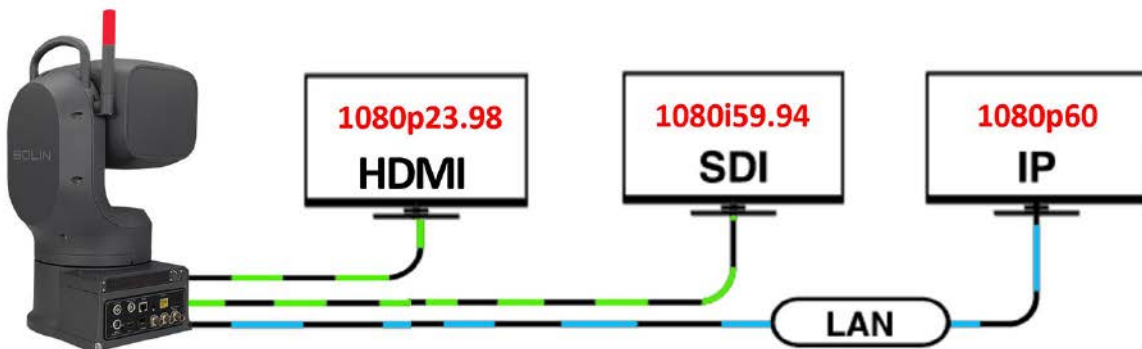
True Tri-Output
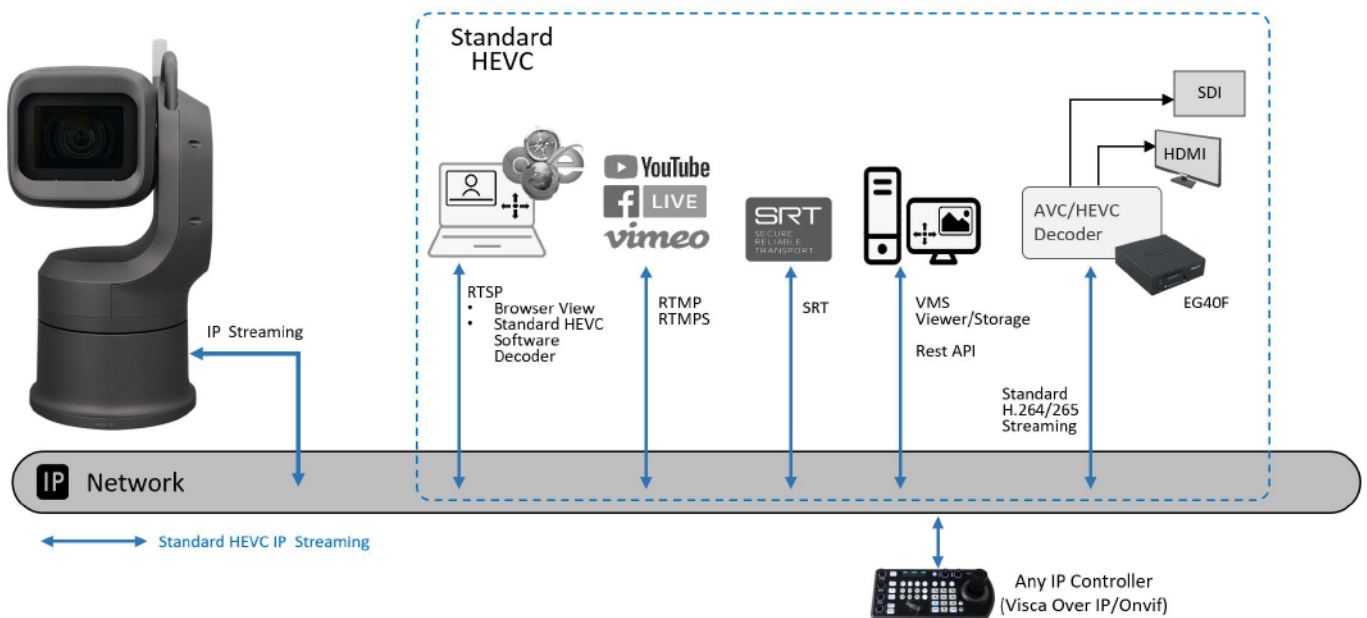IP, SDI, and HDMI can be set to independent formats for different application use

CODEC - IP STREAMING

- Stand AVC/HEVC, H.264/265
- Up to Full HD 1080p60
- Dual stream, Multicast Support
- RTSP, RTMP, RTMPS, SRT, ONVIF
- IP Control protocol: Visca Over IP, Onvif
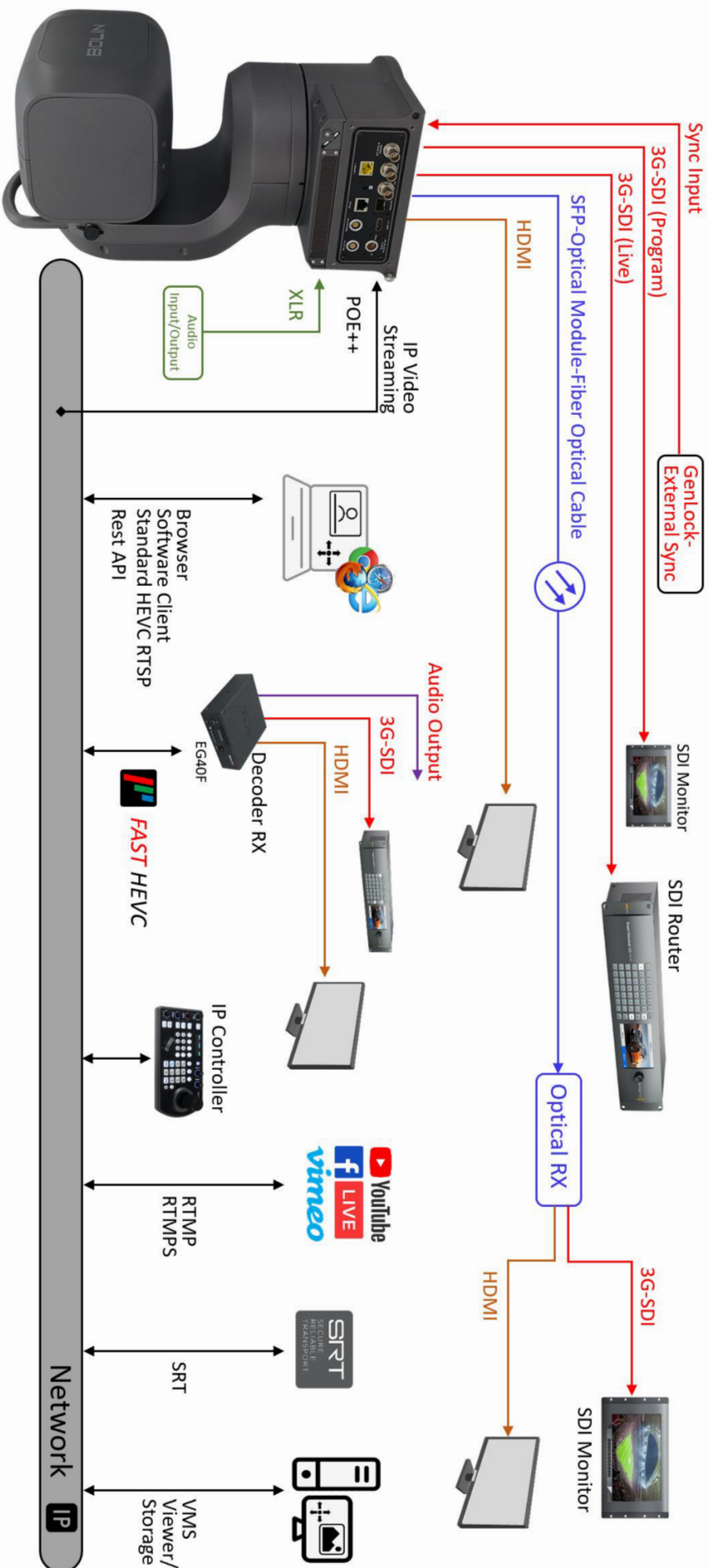- Software Decode and Hardware Decode

NDAA Compliant

IP Workflow

BOLIN

Sync Input

3G-SDI (Program)

3G-SDI (Live)

SFP-Optical Module-Fiber Optical Cable

HDMI

Genlock-
External Sync

Audio
Input/Output

XLR

POE++

IP Video
Streaming

Browser
Software Client
Standard HEVC RTSP
Rest API

SDI Monitor

SDI Router

EG40F

Decoder RX

FAST HEVC

Audio Output

HDMI

3G-SDI

IP Controller

RTMP
RTMPS

vimeo
LIVE
YouTube

Optical RX
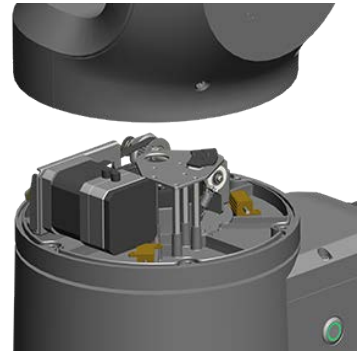
HDMI

3G-SDI

SDI Monitor

SRT
SECURE
RELIABLE
TRANSPORT

SRT

VMS
Viewer/
Storage

Network

IP

RUGGED and DURABLE

Sun Shield and
Hidden-Type Rain Wiper

All stainless Steel/brass/metal
interior mechanical parts

Rainwater protection cover
with cable support
for tripod mount use

Weatherproof IP67 rated
with tail cable cover
for permanent mount use

- Wind Load Durability, Non-Destructive and steady operation at up to 60 m/s
- Heater, Defroster built-in
- –40 °C to 60 °C (-40°F to 140°F) operational

INSTALLATION

Permanent Installation
- IP67 wall mount bracket (ES-WM)
- Quick Release docking system
- Wiring conduit/pipe interface
- Upright/Pendant Mount
- Waterproof compartment for accessories
- Ceiling pendent mount (C-PMBA)

Live Production
- Tripod mount
- Tripod mount rain waterproof rear panel cover
- Cable support
- ¼", 3/8" tripod threads

Vibration Absorption Platform (VAP-10)
- Use on Stage, Vehicle, Moving Platform, Vibration Prone Environments

Base Mount (QR-BM)
- For flat surface upright mount
- Quick release docking system

MOVEMENT

Smooth and Accurate Movement

- PAN: 340° (-170° to +170°); Fully proportional speed 0.01° to 60°/s
- TILT: 210° (-90° to +120°); Fully proportional speed 0.01° to 60°/s
- Preset: 255 positions, Speed 100°/s, 0~5 Level Adjustable, Accuracy: 0.03°
- Picture Profile Preset
- Motionless Preset
- PTZ Trace Memory
- Noise Criterion less than NC55
- ZDP (Zero Deviation Positioning), Position Deviation Self-Correction

340°

210°

Tally Light
- 360 degree viewable tally light
- Removable when tally light is not needed

SPECIFICATIONS

Model Number	**EXU230H**
Codec	**Standard AVC/HEVC**
Camera Image	**30X Full HD**
Image Maker	Sony Image Black
Image Sensor	CMOS image sensor 1/1.8 type STARVIS II sensor
Number of effective pixels	2712 x 1538, 4.17M [pixels]
Picture elements	2688 x 1520, 4.09M [pixels]
Lens	Enhanced optical zoom 30X
Tele Convert Mode	-
Digital Zoom	12X
Horizontal Angle of View	58.1˚ (Wide) - 2.3˚ (Tele),
Vertical Angle of View	34.9˚ (Wide) - 1.7˚ (Tele),
Focal Length	f= 6.5 mm (WIDE) to 162.5 mm (TELE)
Min. object distance	100mm (Wide), 1200mm (Tele)
Aperture	F1.6 (Wide) to F4.8 (Tele), 16 steps
Min. Illumination	ICR-Off, 0.009 lx (1/30 sec, 50%, High Sensitivity On); ICR-On, 0.00008 lx (1/30 sec, 50%, High Sensitivity On)
Shutter Speed	1/1 sec to 1/10000 sec (22 steps)
Focus	Spot Focus, Auto / Manual / One Push Trigger /Full Scan one push trigger / Near Limit / Spot Light Avoidance
White Balance	Auto / ATW / Indoor / Outdoor / One Push WB / Manual / One push Triger / Outdoor Auto / Sodium Vapor Lamp Auto / Sodium Vapor Lamp / Sodium Vapor Lamp Outdoor Auto
Exposure	Full Auto / Gain Limit Setting / Shutter Priority / Iris Priority / Manual / EV compensation
Features	High Sensitivity, Backlight Compensation, HLC, E-FLIP, Mirror, Day/Night
WDR	Yes
Image Stabilizer	Yes, Super, Super+
Color Gain	Yes (15 step)
Color Hue	Yes (15 step)
Gamma	Standard / Straight gamma
Color Matrix	Yes
Noise Reduction	On/Off (level 5 to 1 / Off, 6 steps), 3D / 2D
S/N Ratio	≥50db
HLC	Yes
E-Flip	Yes
Privacy Zone Masking	Yes
Defog	Yes, (off, low, mid, high)
High Sensitivity	Yes
Slow AE Response	Yes
Day/Night	Yes
Backlight Compensation	Yes
Low Latency Mode	Yes
Mechanical	
Pan Movement	PAN: 340° (-170° to +170°); Fully proportional 0.01° to 60°/s
Tilt Movement	TILT: 210° (-90° to +120°); Fully proportional 0.01° to 60°/s
Speed Proportional	Pan/Tilt Speed proportional to zoom range
Preset Position	255 positions, Speed 100°/s, 0~5 Level Adjustable, Accuracy: 0.03°
Preset Memory	Picture Profile Preset-Preset Memory for image parameters: Backlight Compensation, White Balance, R-Gain/B-Gain, Auto Exposure, Bright, Iris, Shutter, Gain, Aperture, Effect, Noise Reduction, Mirror, Gamma, Ex-COMP, Color Hue, Contrast etc.)
Motionless Preset	YES, ON/OFF
PTZ Trace Memory	YES, 12
Cruise	YES, 4
Quietness	NC55(45/35) or less when operating speed is 60°/30°/15°/sec or less
Home Position	Yes
FreeD	Yes, FreeD protocol for AR/VR camera tracking via serial control/IP
Position Deviation Correction	Optical
Turning Radius	PAN: Φ 400 mm TILT: Φ 480 mm
Environmental	Outdoor, IP67 compliant for Waterproof and Dust Proof
Body Finishing	C5 Corrosion Resistant Power Coating
Wind Load Durability	Wind Load Durability, Non-Destructive and steady operation at 60 m/s or less
Wiper	Yes
Heater	Yes
Defroster	Yes
Interface	
HDMI Video Output	HDMI 2.0 Type A
SDI Video Output	3G-SDI, SMPTE424M /SMPTE292M /SMPTE 296M standards, 75Ω BNC x 2，SDI/PM for output to has OSD display
SDI Optical Fiber Output	Optical 12G-SDI (Module Excluded). Detachable slot, Connector: Duplex LC (optional via ST, LC or SMPTE) Laser Unit: Single-mode 1,310nm DFB-LD transmitter and PIN receiver Complaint with MSA SFP+ Specification SFF-8402.
Network LAN Port	RJ45X1, Standard 10M/100M/1000M Base-TX Ethernet, LAN connector for IP control/video output/audio output/System FW Upgrade
Synchronization System	Internal/External synchronization (BBS/Tri-level sync)
External Sync Input	Genlock, BNC connector, BBS (Black Burst Sync), tri-level sync supported
Audio Input	• 2 channels, XLR balanced input (Mini XLR - Hirose Connector) • Input signal level: 0 dBu, • Volume variable range: –40 dB to +12 dB (can be changed in 1 dB steps in the menu)
Audio Output*	• 2 channels, XLR balanced input (Mini XLR - Hirose Connector); Embedded with main HDMI, 24bit Stereo, Embedded with SDI, 24bit Stereo • 4 channels, superimposed over SDI & HDMI output, Sampling frequency: 48 kHz (synchronized to video) • Quantization bit rate: 24-bit (LPCM) • Audio compression format (IP): G.726, AAC-LC (High quality)
Tally Light	Red, Green Color, Front
System Firmware Upgrade	Upgrade via IP for camera system MCU, Driver, FPGA and Encoder
Power Connector Type	INPUT: DC24V,Pin connector INPUT: RJ45, PoE++ (IEEE802.3bt) OUTPUT: 12VDC, Pin connector
Control Interface	RJ45X1-RS422, RJ45X1-IP Control, IR Remote Control
Control Protocol	Serial: VISCA, PELCO P/D, FreeD; IP: VISCA Over IP, ONVIF

SPECIFICATIONS

Model Number	EXU230H
Codec	Standard AVC/HEVC
HDMI Video Signal System	
HDMI Video Format	1920 x 1080p/59.94/60/50/29.97/30/25/23.98/24 1920 x 1080i/59.94/60/50 1280 x 720p/59.94/60/50
Color Precision	12bit(HDMI), YUV4:2:2, YUV4:2:0
Color Space	YUV、RGB
OSD Menu Display	Yes, with image insert
On-Screen Title	Yes, video embedded On-Screen title character generator
SDI Signal Format	
SDI Video Format	1920 x 1080p/59.94/60/50/29.97/30/25/23.98/24 1920 x 1080i/59.94/60/50 1280 x 720p/59.94/60/50
Color Precision	10bit(SDI), YUV 4:2:2
Color Space	YUV
Standard	SMPTE 292M，SMPTE 296M (1.5Gb/s), SMPTE 424M, SMPTE 274M，SMPTE 425-A (3Gb/s), SMPTE 2081(6Gb/s), SMPTE 2082-1（12Gb/s）standard / 75 Ω (BNC x 1), With SMPTE352 SDI Metadata Supported
True Dual Output	HDMI and SDI signal can be set to independent resolution formats
OSD Menu Display	Yes
On-Screen Title	Yes, video embedded On-Screen title character generator
Network	
Video Compression (Codec)	MJPEG,H.264/H.265 by SoC
IP Resolution/Frame Rate	1920x1080p60/50/30/25, 1280x720p60/50
True Dual Output	IP, HDMI, and SDI signal can be set to independent resolution formats
IP Protocols	TCP/IP, ICMP, ARP, RTP，UDP，HTTP，DNS, DHCP，FTP，NTP，SRT
Application Protocols	RTMP(S)、RTSP、RTSP Encryption、SRT、MP2TS over UDP (Unicast, Multicast)
Multi-stream	3 stream
Audio Compression	AAC-LC,G.711A/G.711U Broadband Audio Encoding(Duplex Communicate Supported, Audio/Video synchronization)
OSD	Customized OSD
Compatible Integration	ONVIF2.4 (Profile S), VISCA Over IP
Bandwidth (results may vary depending on network configuration	8Mbps, 1080p60
Latency (Overall latency may increase depending on network configurations)	8 frame (e.g. 1080p60 latency is < 150ms glass to glass
Browser Support	HTML5 support for Microsoft Edge, Google Chrome, Firefox, and Safari
General	
Operating Temperature	–40 °C to 60 °C (-40°F to 140°F), (PoE is not suggested to be used and camera preheating automatically will be processed when -15°C (5°F) or less)
Operating Humidity	100% Suitable for Use (no condensation)
Power Input	DC24V, PoE++(Compatible with IEEE802.3bt, Type 4 Class8) Suggest that not to use POE when environment temperature is -10°C lower
Power Consumption	Min: 30W(Static state with no movement); Max: 60W（Fully loaded operation with heater on）
Installation Method	Stand-alone (Upright) or suspended (Pendent), • To ensure safety, the unit must be secured using the mount bracket supplied.
Mount	Ceiling Mount, Wall Mount, Heavy duty tripod
Handle	Built-in for portable use application
Wiper	Yes, hidden type
Size of Tripod Screw Hole	1 x 3/8", 1 x 1/4" + secure lock point
Body Color	Dark Gray
Dimension-Camera	PAN: Φ 400 mm TILT: Φ 480 mm
Weight	10kg（22lb)
Accessories Included	IR Controllerx1, Secure Chain Lock and screwx1, Power Adaptor x1, Seal ringx12, Quick install panel bolt x4, IP67 Tail Cover x1, Rainwater Cover x1

ORDER INFORMATION

• EXU230H   (Full HD, 30X, HEVC, Dark Grey)

ACCESSORIES

Items marked * are optional to purchase

VCC-RC-2
IR Remote Controller

P36-4
36VDC 4A Power Adapter

EG40F
*FAST HEVC Decoder

C-PMSB
*Pendant Mount for Drop Ceiling
/Hard Surface Ceiling

ES-WM
*Wall Mount Bracket

C-PMBA
*Pendant Mount Base Mount Adaptor

QR-BM
*Base Mount

VAP-10
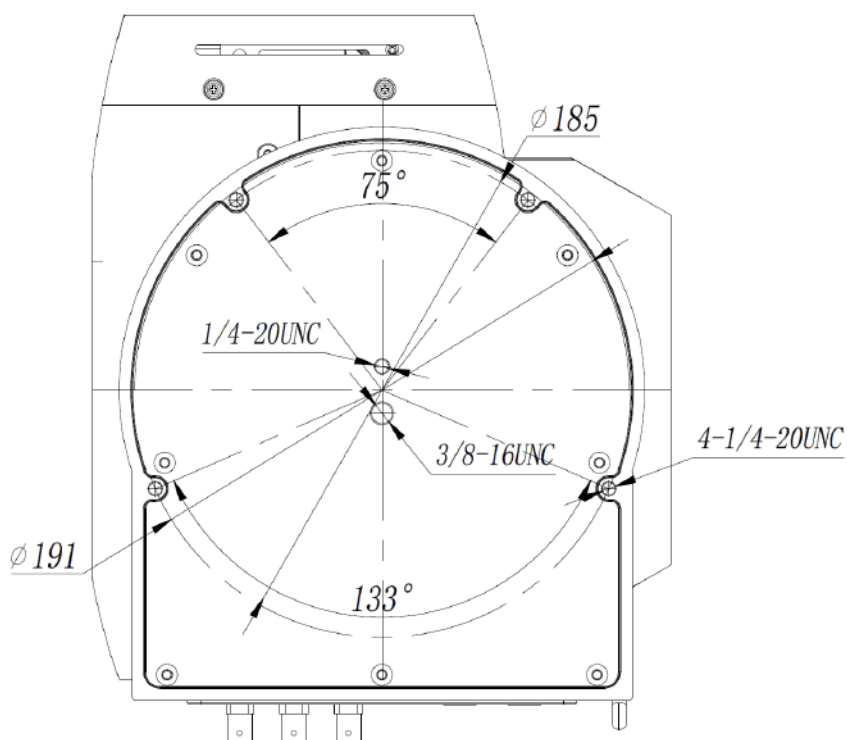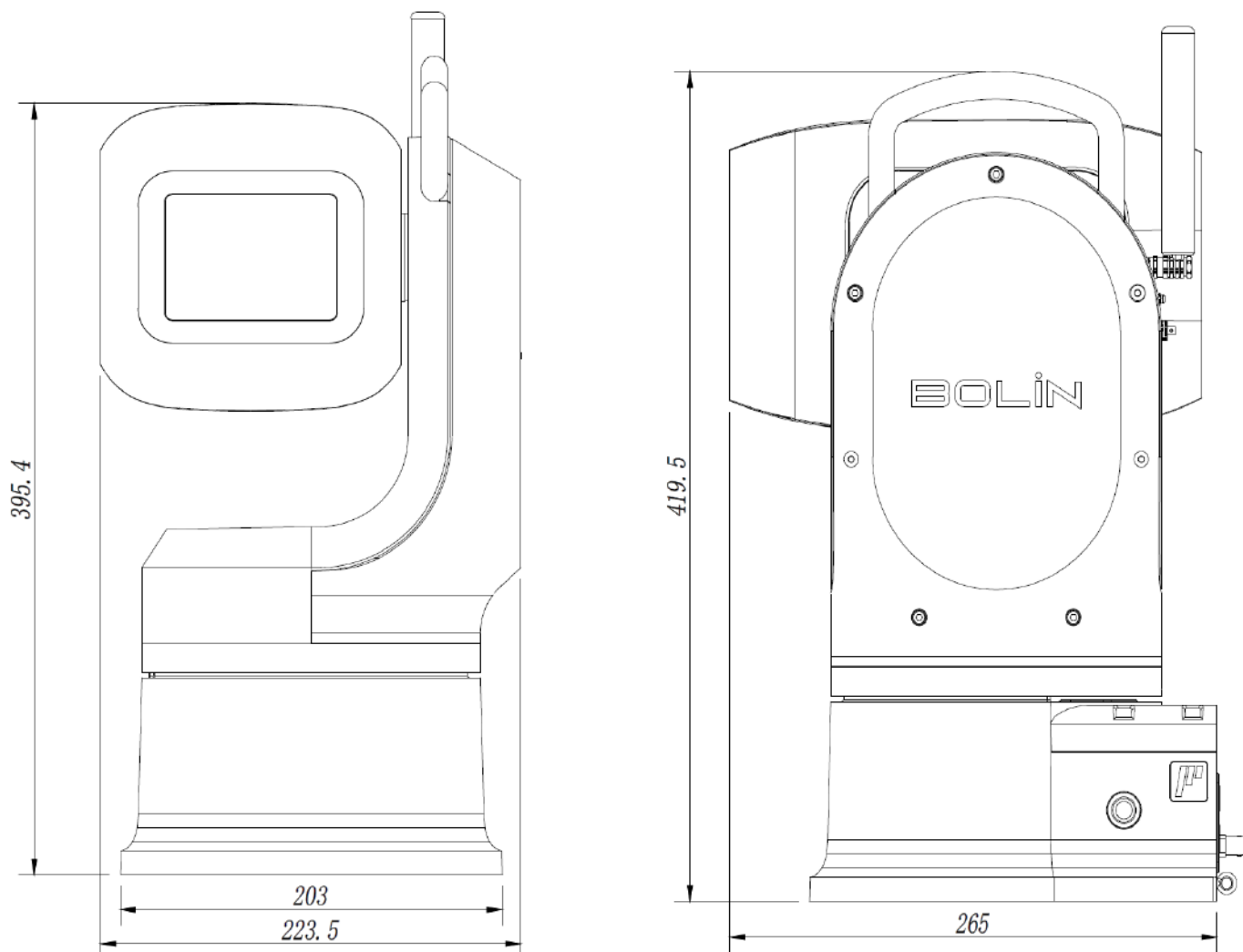*Vibration Absorb Plate Kits

BL-PP97
*97W POE POWER INJECTOR

BLA-10
*LEMO connector
10Pin Mini to XLR L/R In/Out

B-OSM-12
*Optical SFP Module Transceiver
12G-SDI

DIMENSIONS

Unit: mm

395.4

203
223.5

419.5

265

Ø185

75°

1/4-20UNC

3/8-16UNC

4-1/4-20UNC

Ø191

133°

BOLIN

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