

BOLIN

NDI High Bandwidth Outdoor PTZ Camera



EXU248N

4K Outdoor NDI PTZ Camera with 1.0-type Exmor R CMOS Sensor

The EXU248N outdoor NDI High Bandwidth FHD/4K NDI PTZ camera is equipped with Sony 1 Inch large 4K CMOS sensor image block with 48X zoom range Zeiss lens to provide Full HD(1080P60) and 4K30 high-quality Ultra High-Definition image to output HDMI, 6G-SDI, Optical SDI, and NDI video streaming for NDI® and are fully compatible with NDI-enabled hardware and software for Live production in outdoor environment and even in extreme weather conditions.

EXU248N

KEY FEATURES



- NDI Certified, NDI 6 Ready, NDI HX3 Supported
- Sony image block with 1 Inch large 4K sensor
- Zeiss Vario-Sonnar T lens with 48X zoom range
- Resolution 4K 2160p29.97, 1080i59.94, 1080p60
- IP Video Resolution: Up to 2160p30, 1080p60
- Video Output: Simultaneous 6G-SDI, HDMI, NDI 6
- SFP Optical SDI video output
- Black Level, Color Matrix, Image Stabilizer
- RTSP, RTMP, SRT Supported
- NDI Congtrol, Visca Over IP, Onvif, FreeD, Serial Control
- Weatherproof IP67 rated

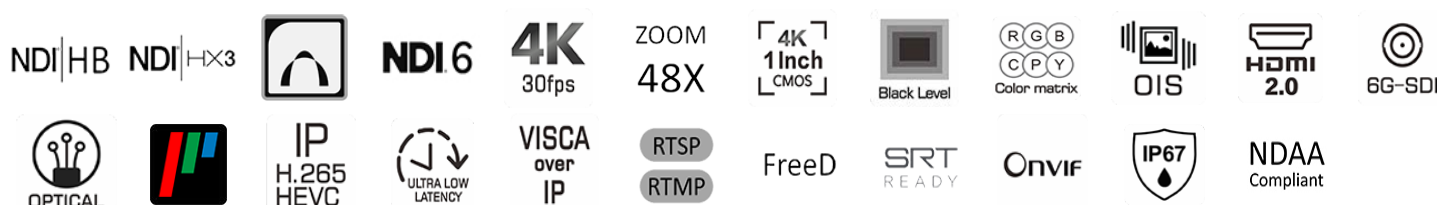
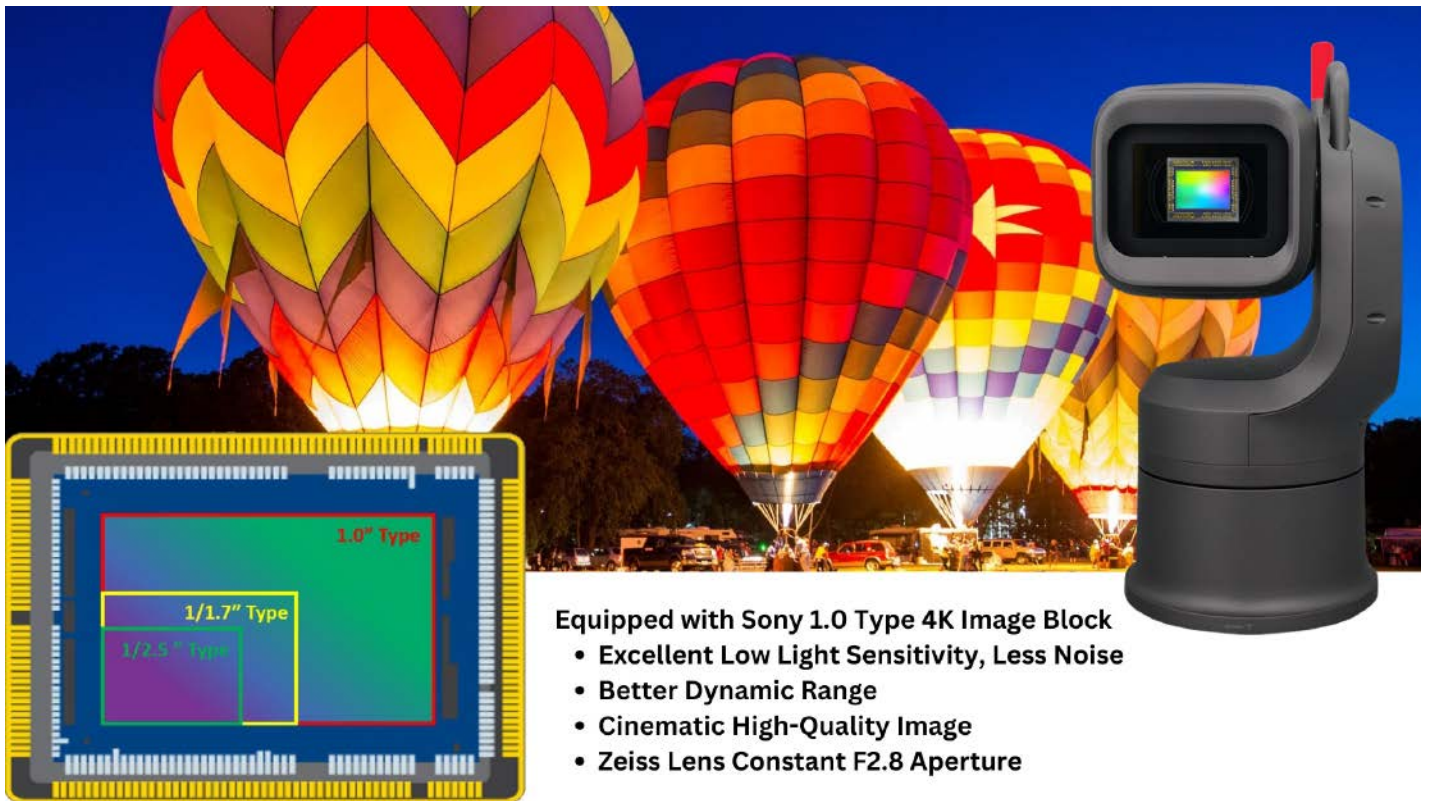


IMAGE MODULE

- EXU248N 4K PTZ Camera produces brilliant broadcast-quality color images in 4K30 and Full HD with excellent low-light sensitivity.
- 1 inch type Exmor R CMOS large sensor, 14.2 Megapixels
- Zeiss Vario-Sonnar T lens, Zoom Range 18X at 4K, 24X at FHD
- Constant aperture of F2.8, excellent low light sensitivity
- Full HD footage can be captured at 1080p60 optimal for fast, spontaneous action events.
- Optical Image Stabilizer
- 23.98p/24p mode available for Cinematic video.
- Black Level
- Color Matrix
- ND Filter
- True WDR

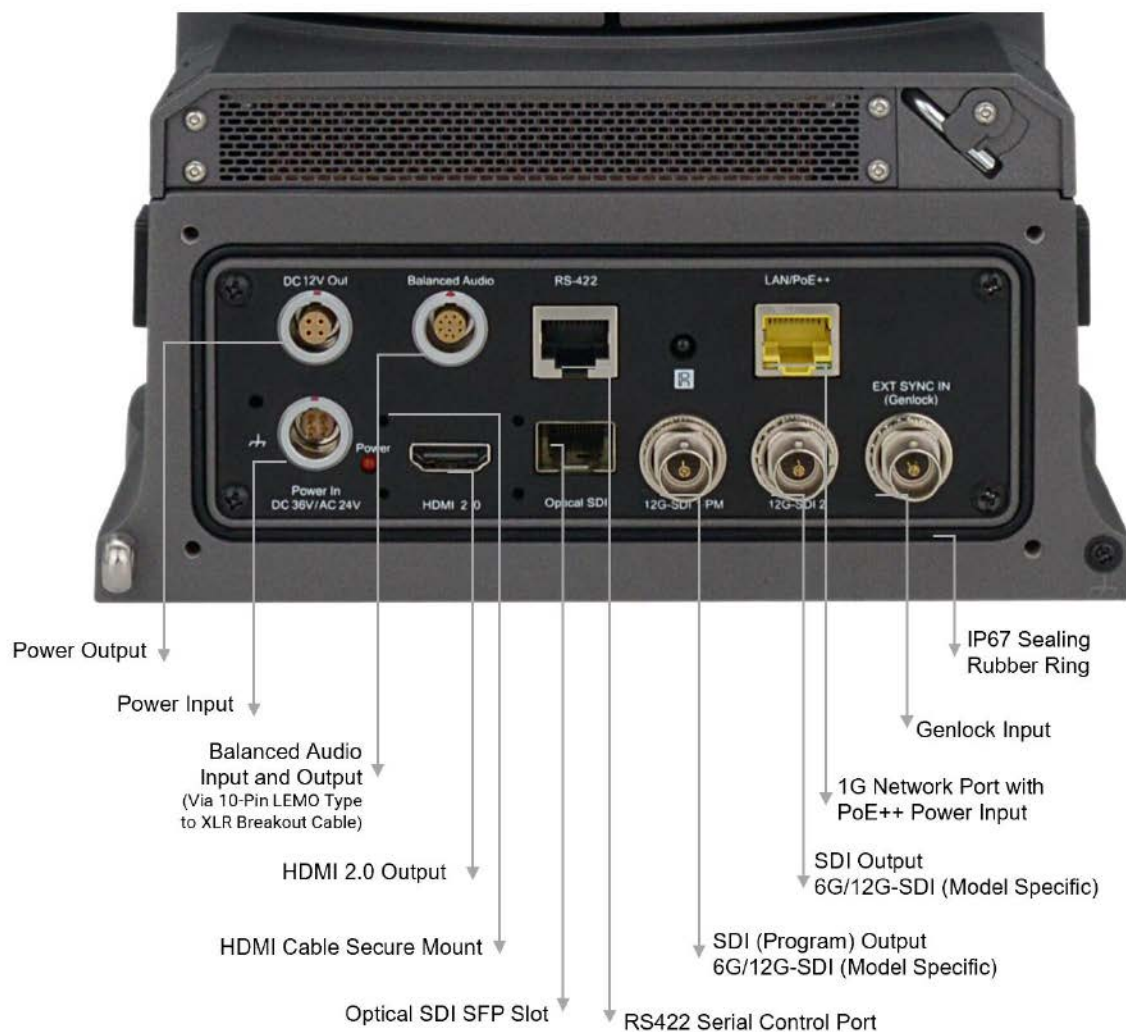
SONY





- Equipped with Sony 1.0 Type 4K Image Block
- Excellent Low Light Sensitivity, Less Noise
 - Better Dynamic Range
 - Cinematic High-Quality Image
 - Zeiss Lens Constant F2.8 Aperture

OUTPUT



FPGA Hardware Codec

Interoperability | Low Latency | High Quality



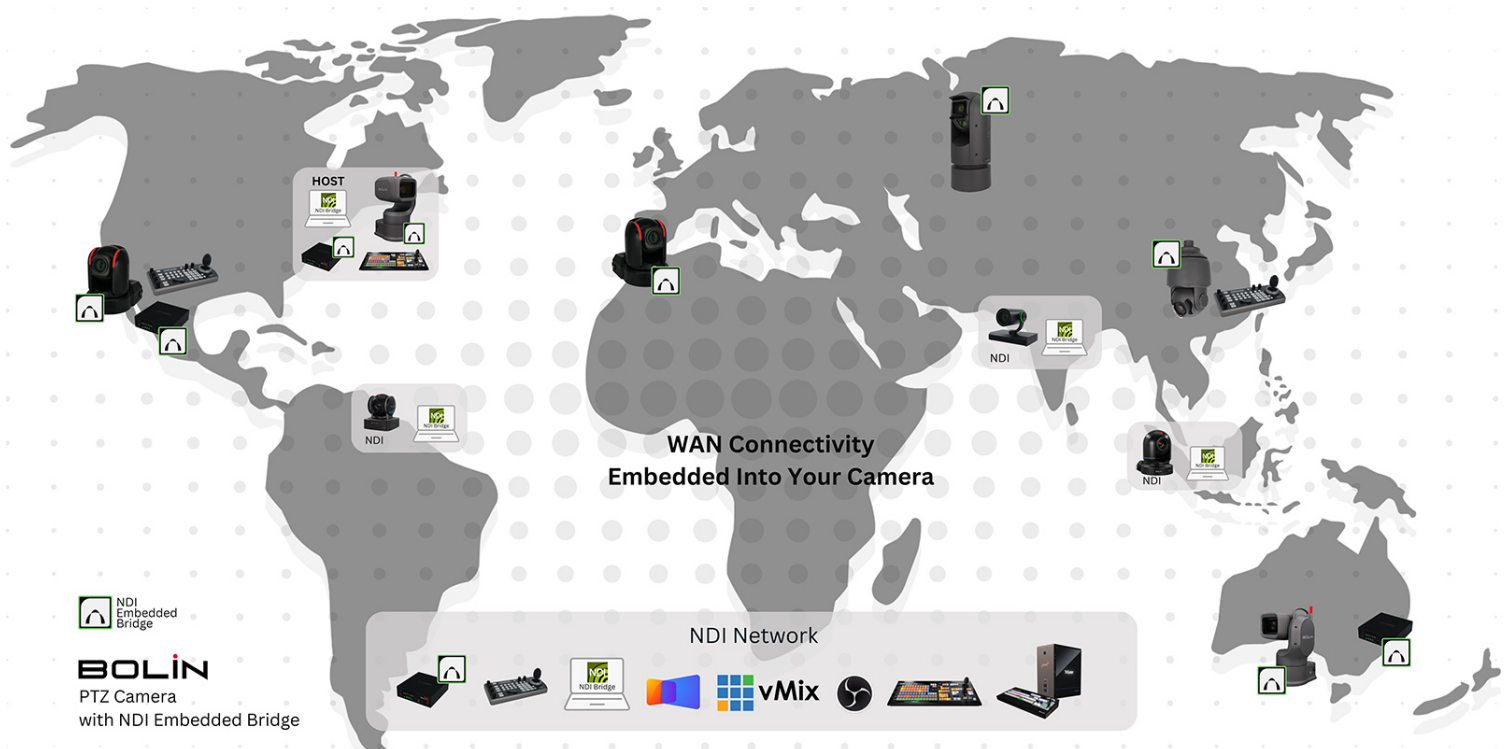
NDI High Bandwidth, NDI HX3 NDI Embedded Bridge (NDI 6 Ready)

NDI Embedded Bridge

With Bolin's NDI Embedded Bridge PTZ cameras and decoders, the devices send and receive encrypted NDI streams over WAN from any location globally. With one device running the embedded bridge, all NDI streams on a network can be sent and received. With NDI embedded devices, no complex setups required and configurations can easily be done ahead of time for plug and play operation in the field.

Bolin's NDI PTZ cameras with NDI Embedded Bridge provide real-time collaboration, robust security, and a seamless user experience for remote production and broadcast, virtual events, and content creation.

"It essentially allows individuals or teams from multiple locations to share, send, and receive high-quality, low-latency video, audio, and metadata streams, and control across the globe."



EXU248N Output Interface

NDI High Bandwidth NDI HX3	NDI 6 Ready	NDI Embedded Bridge	RTSP, RTMP, RTMPS, SRT
Dual 6G-SDI	HDMI 2.0	SFP Optical SDI	Genlock
Ture Dual Output	XLR Broadcast Audio Input	FreeD	Serial/NDI Control

Full Format and Standard

HDMI, SDI, NDI Full Format

3840x2160P 30/29.97/25/24/23.98

1920x1080P 60/59.94/50/30/29.97/25/24/23.98

1920x1080i 60/59.94/50

1280x720P 60/59.94/50

SDI Standard

SMPTE 292M

SMPTE 296M (1.5Gb/s)

SMPTE 424M

SMPTE 274M

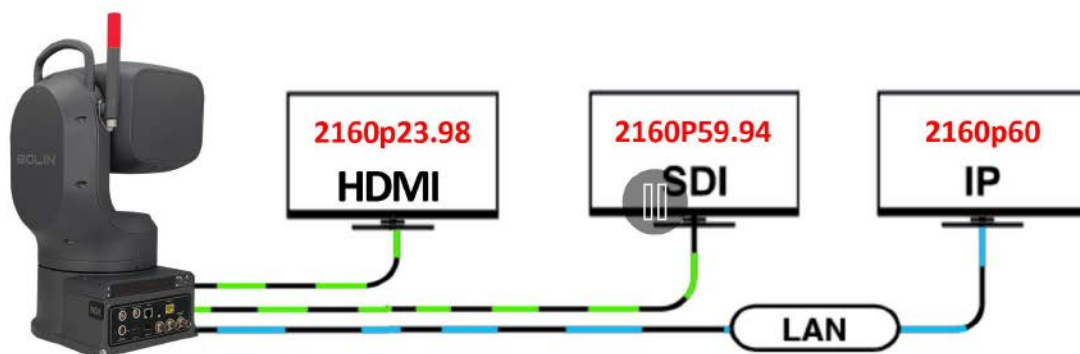
SMPTE 425-A (3Gb/s)

SMPTE 2081(6Gb/s)

With SMPTE352 SDI Metadata Supported

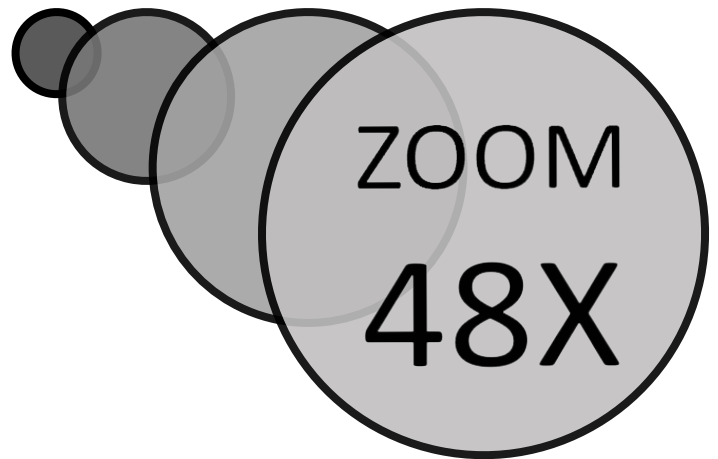
True Tri-Output

IP, SDI, and HDMI can be set to independent formats for different application use



FEATURES

- External Synchronization Genlock
- Audio embedded with all video output
- XLR broadcast audio input/output
- On-screen character generator
- FreeD Supported
- All firmware upgrade via IP
- Tally Light
- Power Output for 3rd device
- POE++ and 36VDC/24VAC
- Rain Wiper built-in
- Weatherproof IP67 rated with tail cable cover for permanent mount
- Rainwater protection cover with cable support for tripod mount use
- NDAA Compliant



Zoom Range

48X Zoom Range

- The high-quality 4K lens offers a bright F2.8 maximum aperture and up to 48X zoom range when FHD resolution is used.
- See EXU248F 48X Zoom Range Performance video on Bolin's website.



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



NDAA COMPLIANT

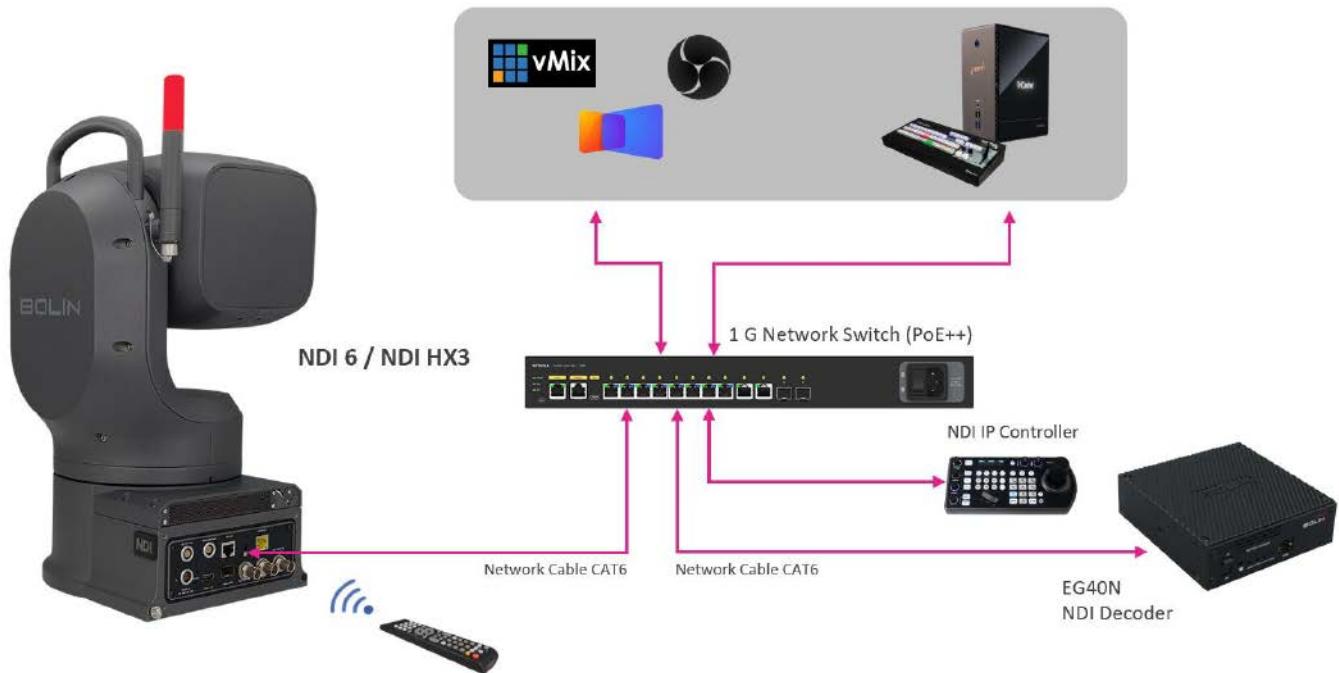


NDAA Section 889 Statement of Compliance: Bolin certifies it does not and will not provide "covered telecommunications equipment or services" or products containing "covered telecommunications equipment or services" complying with Section 889(a)(1)(B) of the National Defense Authorization Act (NDAA) for the Fiscal Year 2019 as a part of its offered products or services to customers.

MOVEMENT

Various Control Methods

- IP Control, Serial Control, IR Remote Control, Rest API-Software Control
- Protocol Supported: NDI Control, VISCA Over IP, ONVIF, VISCA, PELCO P/D, FreeD
- NDI Control is fully compatible with NDI Ecosystem, Tricaster, vMix, OBS, ProPresenter, etc.



Smooth and Accurate Movement

- PAN: 340° (-170° to +170°); Fully proportional speed 0.08° to 60°/s
- TILT: 205° (-35° to +170°); Fully proportional speed 0.08° to 60°/s
- Preset: 255 positions, Speed 60°/s, 0~5 Level Adjustable, Accuracy: 0.1°
- Picture Profile Preset
- Motionless Preset
- PTZ Trace Memory
- Noise Criterion less than NC55
- ZDP (Zero Deviation Positioning), Position Deviation Self-Correction



Tally Light

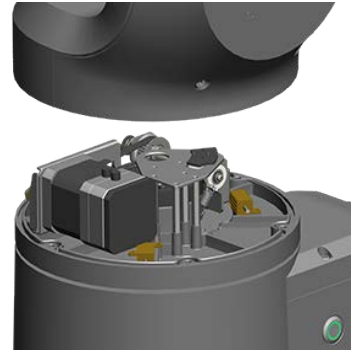
- 360 degree viewable tally light
- Removable when tally light is not needed



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, steady operational and Non-destructive at up to 30-60 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)



Base Mount (QR-BM)

- For flat surface upright mount
- Quick release docking system



- **Live Production**
- Tripod mount
- Tripod mount rain water-proof rear panel cover
- Cable support
- 1/4", 3/8" tripod threads



SPECIFICATIONS

Model	EXU248N
Codec	Hardware FPGA Based, NDI High Bandwidth, NDI HX3
Camera Image	18X 4K30/FHD
Image Maker	Sony Image Block
Image Sensor	1.0-type back-illuminated Exmor R CMOS sensor
Number of effective pixels	14.2 MP
Picture elements	3840x2160, 8.29 MP
Lens	Zeiss Vario-Sonnar T lens, Zoom Range 48X(FHD)/18X(4K)
Horizontal Angle of View	64.6° (Wide) - 6.1° (Tele),
Vertical Angle of View	39.2° (Wide) - 3.4° (Tele),
Focal Length	f=9.3 to 111.6mm, F2.8(Wide) ,F4.5(Tele)
Min. object distance	80mm (Wide), 1000mm (Tele)
Aperture	F2.8 Constant (W)~F4.5(T), 16 Steps
Min. Illumination	0.5 lx (1/30 sec, 50%, High Sensitivity On) 2.0 lx (1/30 sec, 50%, High Sensitivity Off)
Shutter Speed	1/1 sec to 1/10000 sec (28 steps)
Focus	Spot Focus, Auto Focus(Trigger/Interval), Manual Focus(Variable Speed), One Push Trigger, Near Limit,
White Balance	AUTO, ATW, Indoor, Outdoor, One Push WB, Manual WB, Outdoor Auto, Sodium Vapor Lamp (Fix/Auto/Outdoor Auto)
Exposure	Full Auto, Gain, Shutter Priority, Iris Priority, Manual, Bright
Features	High Sensitivity, Backlight Compensation, HLC, E-FLIP, Mirror, Day/Night
WDR	YES(130dB), Shown as VISIBILITY ENHANCER in OSD
ND Filter	Yes
Image Stabilizer	YES, Optical Image Stabilizer
Color Gain	Yes (15 step)
Color Hue	Yes (15 step)
Gamma	Standard/Straight/Pattern
Gamma Level	Yes (15 step)
Black Level	Yes (97 step)
Black Gamma	Yes (15 step)
Color Matrix	Off/Standard/High Saturation/FL light
Noise Reduction	On/Off (level 5 to 1 / Off, 6 steps), 2D/3D
S/N Ratio	≥50db
HLC	Yes
E-Flip	Yes
Defog	Yes, (off, low, mid, high)
High Sensitivity	Yes
Slow AE Response	Yes
Day/Night	Yes
Backlight Compensation	Yes
Mechanical	
Pan Movement	PAN: 340° (-170° to +170°); Fully proportional 0.08° to 60°/s
Tilt Movement	TILT: 205° (-35° to +170°); Fully proportional 0.08° to 60°/s
Speed Proportional	Pan/Tilt Speed proportional to zoom range
Preset Position	255 positions, Speed 60°/s, 0~5 Level Adjustable, Accuracy: 0.1°
Preset Memory	Picture Profile Preset-Preset Memory for image parameters: Backlight Compensation, White Balance, 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, 4
Cruise	YES, 12
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 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	0-15m/s Operation Normal 15-30m/s Pan/Tilt Operational Non-Destructive and steady operation at 60m/s or less
Wiper	Yes
Heater	Yes
Defroster	Yes
Interface	
HDMI Video Output	HDMI 2.0 Type A
SDI Video Output	6G-SDI, 75Ω BNC x 2, SDI Clean / SDI PM for output having OSD display
SDI Optical Fiber Output	Optical SDI SFP module support up to 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, IP video output, IP 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 output (Mini XLR - Hirose Connector) (preserve); Embedded with main HDMI, 24bit Stereo, Embedded with SDI, 24bit Stereo superimposed over SDI & HDMI output, Sampling frequency: 48 kHz (synchronized to video) • Quantization bit rate: 24-bit (LPCM) • Audio compression format (IP): AAC-LC (High quality)
Tally Light	Red, Green Color, Front
System Firmware Upgrade	Upgrade via IP for camera system MCU, FPGA and Encoder
Power Connector Type	INPUT: DC36V/AC24A, 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, API, NDI Control

SPECIFICATIONS

Model	EXU248N
Codec	Hardware FPGA Based, NDI High Bandwidth, NDI HX3
HDMI Video Signal System	
HDMI Video Format	3840x2160P 30/29.97/25/24/23.98 1920x1080P 60/59.94/50/30/29.97/25/24/23.98 1920x1080i 60/59.94/50 1280x720P 60/59.94/50
Color Precision	12bit(HDMI), YUV4:2:2
Color Space	YUV, RGB
OSD Menu Display	Yes
On-Screen Title	Yes, video embedded On-Screen title character generator; Image/Logo Insert Screen Display with IP Image Stream
SDI Signal Format	
SDI Video Output	6G-SDI
SDI Video Format	3840x2160P 30/29.97/25/24/23.98 1920x1080P 60/59.94/50/30/29.97/25/24/23.98 1920x1080i 60/59.94/50 1280x720P 60/59.94/50
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), with SMPTE352 SDI Metadata Supported
True Dual Output	HDMI and SDI signal can be output with different format
OSD Menu Display	Yes
On-Screen Title	Yes, video embedded On-Screen title character generator
Network	
Video Compression	NDI High Bandwidth, NDI HX3, AVC-H.264/HEVC-H.265/MJPEG by FPGA
IP Resolution/Frame Rate	3840x2160P 30/29.97/25/24/23.98 1920x1080P 60/59.94/50/30/29.97/25/24/23.98 1920x1080i 60/59.94/50 1280x720P 60/59.94/50
True Dual Output	IP, HDMI, and SDI signal can be set with different format
IP Protocols	TCP/IP, IGMP, ICMP, ARP, QoS, SNMP, UDP, HTTP, DNS, DHCP, FTP, NTP, UPNP, SRT, NDI
Application Protocols	RTMP(S), RTSP, RTSP Encryption, RTP Streaming (Unicast, Multicast), SRT, MPEG-TS over UDP, MPEG-TS over RTP, NDI, NDI 6
NDI Bridge	Yes, embedded
Color Format	YUV4:2:0 8bit, YUV4:2:2 8bit, YUV4:2:2 10bit
Multi-stream	2 stream
Audio Compression	32-128Kbps(AAC-LC) Selectable
OSD	Customized OSD
Compatible Integration	ONVIF2.4 (Profile S), VISCA Over IP
Bandwidth (results may vary depending on network configuration and management settings.)	NDI High Bandwidth: 5Mbps-360Mbps; @4K60 NDI HX3: 128Kbps-100Mbps; @4K60
Latency (Overall latency may increase depending on network configurations)	NDI certified, <100ms
Browser Support	Cross Browser Compatibility - 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 is at environment -10°C (-14°F) or less)
Operating Humidity	100% Suitable for Use (no condensation)
Power Input	DC 36V / AC24V, PoE++(Compatible with IEEE802.3bt, Type 4 Class8) Suggest that not to use POE when environment temperature is -0°C or lower
Power Consumption	Min: 35W(Static state with no movement); Max: 85W (Fully loaded operation with heater on, PoE power is not suggested)
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
Certificate	CE, FCC, IC, UKCA, ROHS, WEEE

ORDER INFORMATION

- Visit Bolin Technology Website

ACCESSORIES

Items marked * are optional to purchase



VCC-RC-2
IR Remote Controller



P36-4L
36VDC 4A Power Adapter



EG40N
*NDI 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



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



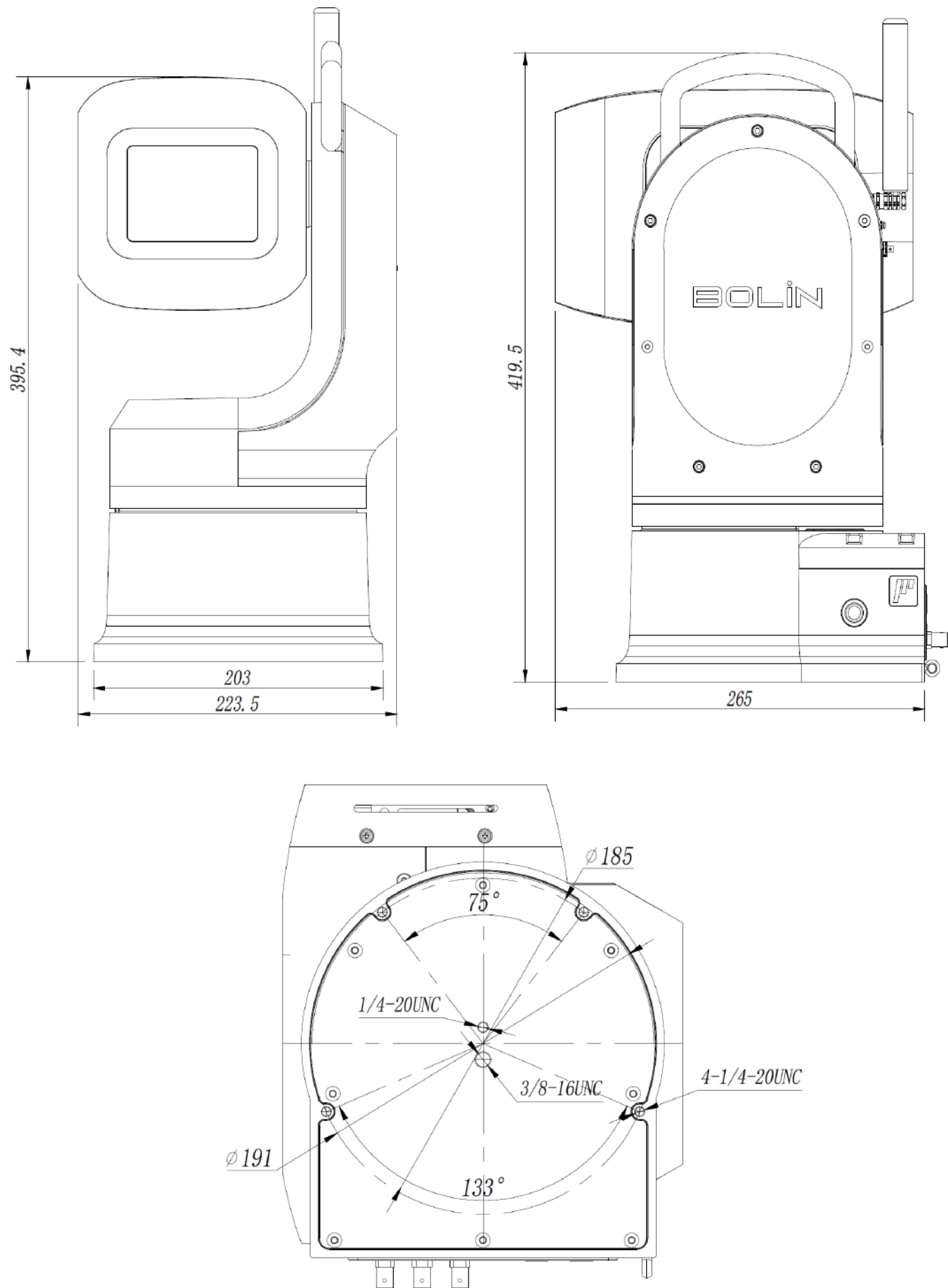
BL-PP97
*97W POE POWER INJECTOR



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

DIMENSIONS

Unit: mm



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