

BOLiN

**NDI High Bandwidth
Indoor PTZ Camera**



R9-418N

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

The R9-418N indoor NDI High Bandwidth PTZ camera is equipped with Sony 1 Inch large 4K CMOS sensor image block with 18x zoom range Zeiss lens to provide 4K30/Full HD(1080P60) extreme 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.

R9-418N

KEY FEATURES

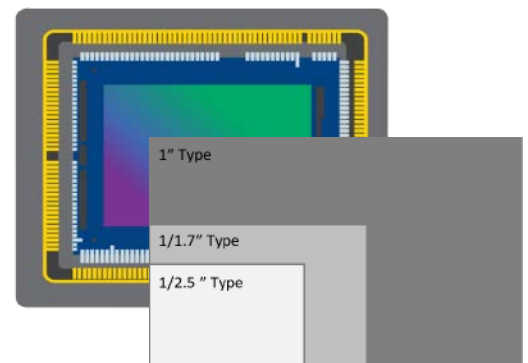


- NDI Certified, NDI 6 Ready, NDI HX3 Supported
- Sony image block with 1 Inch large 4K sensor
- Zeiss Vario-Sonnar T lens with 18X zoom range
- Resolution 4K 2160p29.97, 1080i59.94, 1080p60
- IP Video Resolution: Up to 2160p30, 1080p60
- Video Output: Simultaneous 6G-SDI, HDMI, NDI
- SFP Optical SDI video output
- Black Level, Color Matrix, Image Stabilizer
- Visca Ocer IP, Onvif, FreeD, Serial Control Supported



IMAGE MODULE

- R9-418N NDI 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, 14.4 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
- The camera can also be operated in 23.98p/24p mode for Cinematic video.
- Black Level
- Color Matrix
- ND Filter
- True WDR



FPGA Hardware Codec



NDI High Bandwidth (NDI 6 Ready)

Interoperability | Low Latency | High Quality

R9-418N Output Interface

| | | | |
|-----------------------------------|-------------------------------------|------------------------|-------------------|
| NDI High Bandwidth NDI 6 Ready | NDI HX3 | RTSP, RTMP, RTMPS, SRT | True Dual-Output |
| Dual 6G-SDI | HDMI 2.0 | SFP Optical SDI | Genlock |
| All Video with Audio Embedded | XLR Broadcast Audio Input/Output | FreeD | Serial/IP Control |

Full Broadcast SDI Format and Standard

Full Format

3840 x 2160P 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

SDI 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)
With SMPTE352 SDI Metadata Supported



FEATURES

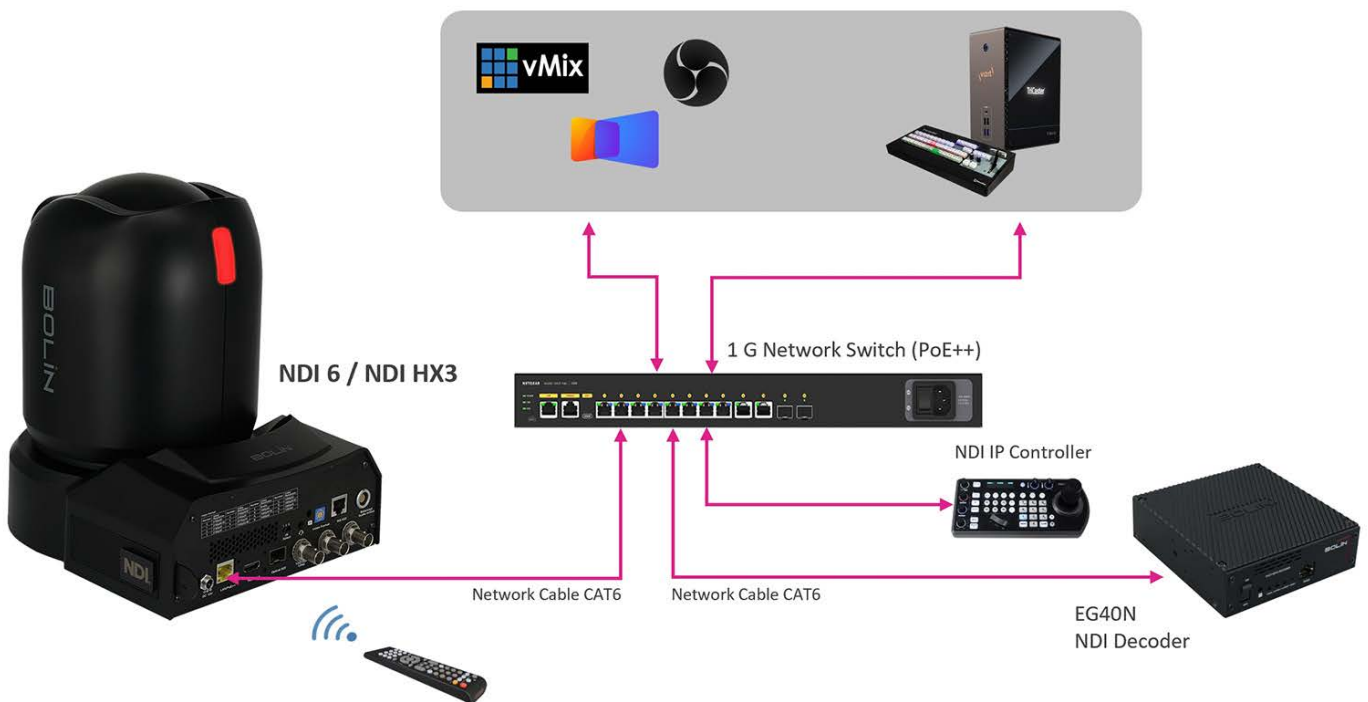
FreeD Protocol Integrated for VR/AR Video Production

FreeD helps provide all the axis data needed for a Bolin PTZ camera to intelligently and smoothly pan, tilt, and zoom while following designated 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

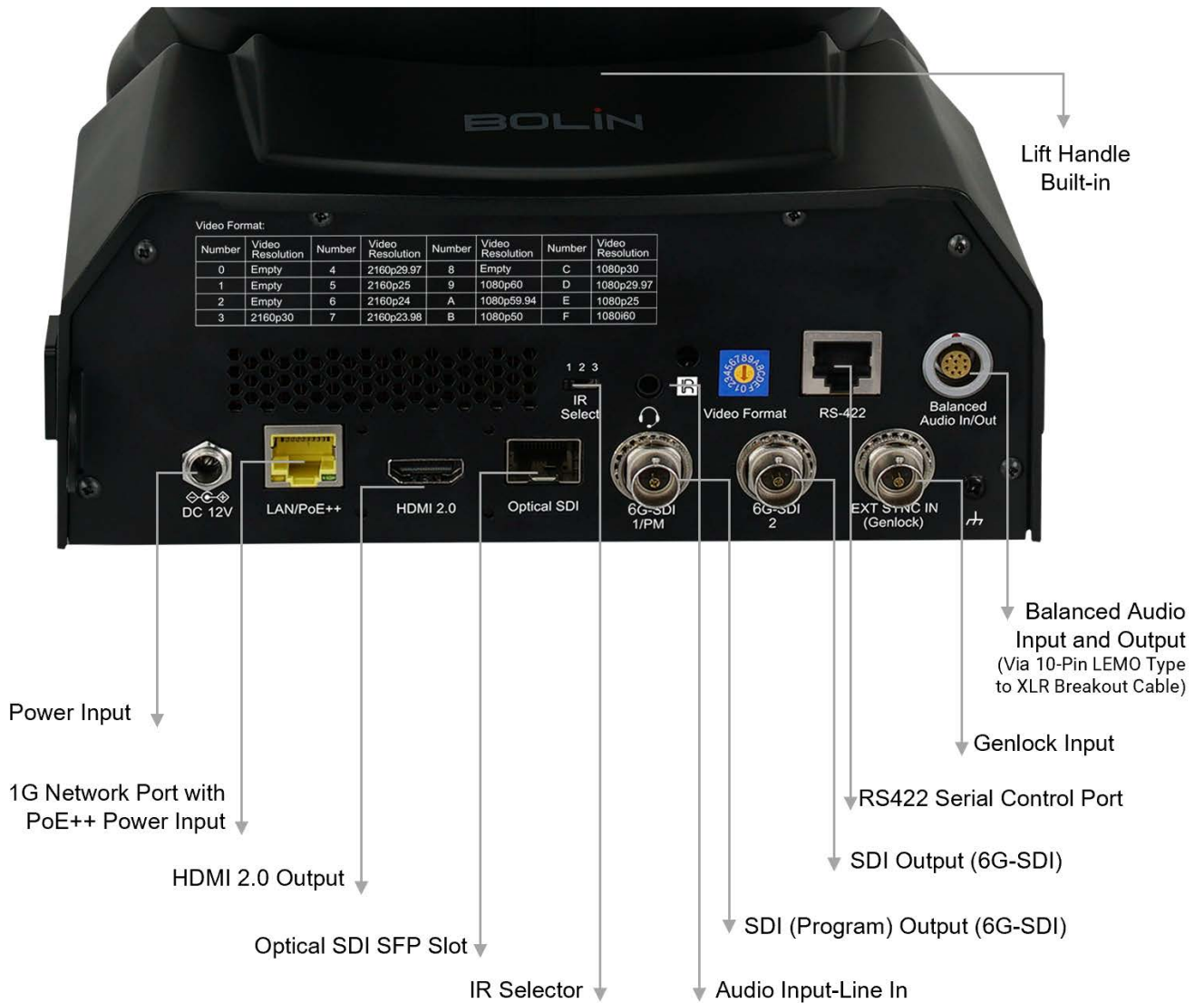


Various Control Methods

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



OUTPUT



- Dual 12G-SDI
- HDMI 2.0
- 4K IP Streaming - AVC/HEVC
- SFP Optical SDI
- External Synchronization Genlock
- Audio embedded with all video output
- XLR broadcast audio input/output
- On-screen character generator

True Tri-Output

Simultaneously output SDI, HDMI, and IP, which can be set to independent formats for different application use. (The image shows video format model specific)



MOVEMENT

Smooth and Accurate Movemen

- PAN: 340° (-170° to +170°); Fully proportional speed 0.01° to 100°/s
- TILT: 120° (-30° to +90°); Fully proportional speed 0.01° to 50°/s
- Preset: 255 positions, Speed 100°/s, 0~5 Level Adjustable, Accuracy: 0.03°
- Picture Profile Preset
- Motionless Preset
- PTZ Trace Memory
- Quiet - Less than NC35



FEATURES

- On-screen character generator
- All firmware upgrade via IP
- Front and Rear Tally Light
- POE++ and 12VDC/AC
- Built-in handle
- Genlock
- HDMI cable secure mount
- Available Color: Black, White



Move, with you

- Industry-First unique portable body design
- Facilitates your video production installation.

Move • With You



SPECIFICATIONS

| | |
|----------------------------|---|
| Model Number | R9-418N |
| Codec | FPGA Based NDI High Bandwidth |
| 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 | 3840 x 2160, 8.29 MP |
| Lens | Zeiss Vario-Sonnar T lens, Zoom Range 18X(4K)/24X(FHD) |
| Tele Convert Mode | - |
| Digital Zoom | - |
| 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 |
| Privacy Zone Masking | 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 0.05° to 100°/s |
| Tilt Movement | TILT: 120° (-30° to +90°); Fully proportional 0.05° to 75°/s |
| Speed Proportional | Pan/Tilt Speed proportional to zoom range |
| Preset Position | 255 positions, Speed 100°/s, 0-5 Level Adjustable, Accuracy: 0.1° |
| 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 | NC35 Compliant |
| Home Position | Yes |
| FreeD | Yes, FreeD protocol for AR/VR camera tracking, via serial control/IP (Via fw upgrade) |
| Environmental | Indoor, IP50 |
| Interface | |
| HDMI Video Output | HDMI 2.0 Type A |
| SDI Video Output | 6G-SDI, SMPTE424M /SMPTE292M /SMPTE 296M / SMPTE 274M /SMPTE ST-2081 standards, 75Ω BNC x 2 SDI/PM for output with 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 Compliant 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 | Balanced XLR (Hirose Connector via Atomos 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom power 3.5mm TRRS for bidirection audio intercom |
| Audio Output | Balanced XLR (via Atomos 10-Pin LEMO Type to XLR Breakout Cable), embedded with HDMI, SDI, USB and IP 3.5mm TRRS for bidirection audio intercom |
| Tally Light | Red, Green Color/Front and Rear |
| Dip Switch | Video Resolution Dip Switch x1 |
| System Firmware Upgrade | Upgrade via IP for camera system MCU, Driver, FPGA and Encoder |
| Power Connector Type | INPUT: DC12V, connect with screw secure (Type - 5.5mmx2.1mm Male DC Power Plug Connector & Screw Lock Female Panel Socket Mount INPUT: RJ45, PoE++ (IEEE802.3bt) |
| Control Interface | RJ45X1-RS422, RJ45X1-IP Control, IR Remote Control |
| Control Protocol | Serial: VISCA, PELCO P/D; IP: VISCA Over IP, ONVIF; FreeD (via Hw Upgrade) |

SPECIFICATIONS

| | |
|---|--|
| Model Number | R9-418N |
| Codec | FPGA Based NDI High Bandwidth |
| HDMI Video Signal System | |
| HDMI Video Format | 3840 x 2160p/29.97/30/25/23.98/24 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 | 3840 x 2160p/29.97/30/25/23.98/24 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 output with different format |
| OSD Menu Display | Yes |
| On-Screen Title | Yes, video embedded On-Screen title character generator |
| Network | |
| Video Compression (Codec) | NDI High Bandwidth, NDI 6 ready, AVC-H.264/HEVC-H.265/MJPEG/MP4 by FPGA |
| IP Resolution/Frame Rate | 3840x2160p30/25, 1920x1080p60/50/30/25, 1280x720p60/50 |
| 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、RTSP、RTP Streaming (Unicast, Multicast)、MP2TS over UDP (Unicast, Multicast)、TS over RTP、TS over SRT、WebRTC、RTSP Encryption, NDI |
| Color Format | 10bit, YUV 4:2:2 |
| Multi-stream | 2 stream |
| Audio Compression | 64Kbps(G.711) / 16Kbps(G.722.1) / 16Kbps(G.726) / 32-128Kbps(MP2L2) / 32-128Kbps(AAC-LC) Selectable |
| OSD | Customized OSD |
| Compatible Integration | ONVIF2.4 (Profile S/G/T), VISCA Over IP |
| Bandwidth (results may vary depending on network configuration and management settings.) | 160-180Mbps, 4kp30 10 bit 4:2:2 50-60Mbps, 1080p60 10 bit 4:2:2 |
| 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 | -10 °C to 50 °C (14°F to 122°F) |
| Operating Humidity | ≤80% Suitable for Use (no condensation) |
| Power Input | DC12V, PoE++(Compatible with IEEE802.3bt, Type 4 Class8) |
| Power Consumption | Min: 29W (Static state with no movement) Max: 50W (Fully loaded operation) |
| Installation Method | Stand-alone (Upright) or suspended (Pendent) or Tripod |
| Mount | Ceiling mount, Wall mount, Tripod |
| Handle | Built-in for portable use application |
| Size of Tripod Screw Hole | 1 x 1/4" safety bond point |
| Body Color | Black, White |
| Dimension-Camera | 201*253*249mm(W*D*H), 201*253*256(with feet mats) |
| Net Weight | 3.8kg (8.36lb) |
| Accessories Included | IR Remote controller x1, Power adapter and power cord (US, EU, UK), Mounting screws x3, RJ45 to RS422 Extension cable, Thanks card x1 |

ACCESSORIES

Items marked * are optional to purchase



VCC-RC-2
IR Remote Controller



VCC-P12-4
12VDC 4A Power Adapter



EG40N
*NDI Decoder



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



C-WM3B
*Wall Mount Bracket-Size 3



C-WM2B-CV
*Wall Mount Cover-Size 3



C-WPLB
*Wall Mount Plate



BL-CM-01
*Ceiling Mount Bracket



BL-PP97
*97W POE POWER INJECTOR



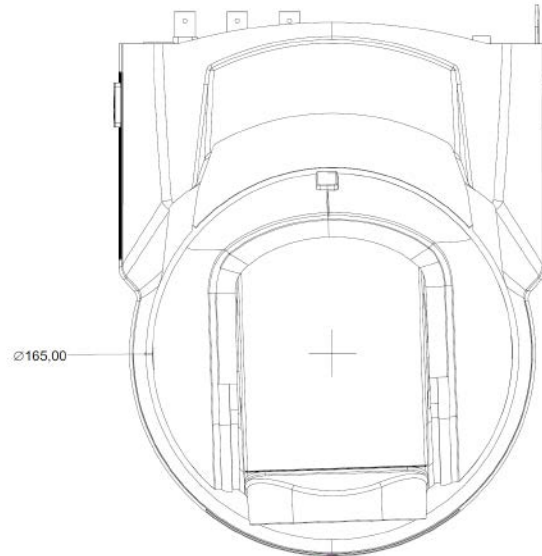
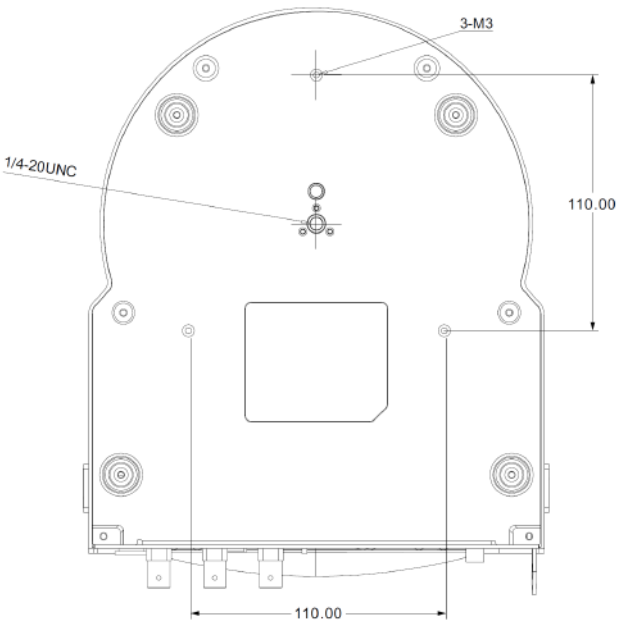
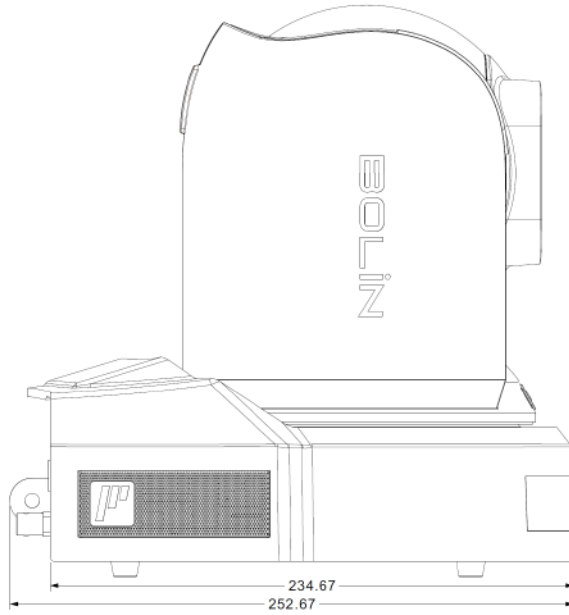
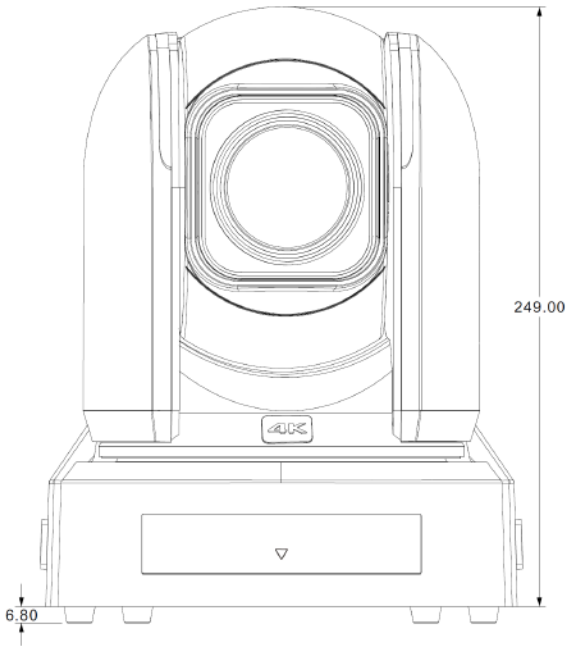
BLA-10
*LEMO connector
10Pin Mini to XLR L/R In/Out

ORDER INFORMATION

- R9-418N (4K30/FHD, 18X/24X, NDI, Black)
- R9-418N/W (4K30/FHD, 18X/24X, NDI, White)

DIMENSIONS

Unit: mm



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