BOLİN

R9 Series Indoor PTZ Line Flagship



R9-420F

Redefining The Indoor PTZ Camera Experience

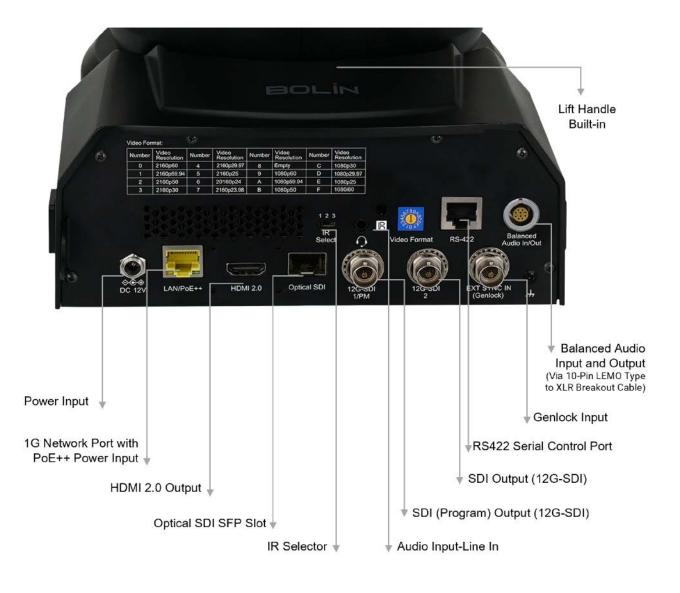
4K60 Pan Tilt Zoom Camera

The R9-420F indoor PTZ camera is equipped with Sony 4K sensor with 20x zoom range to provide 4K60 high-quality Ultra High-Definition image to output HDMI, 12G-SDI, Optical SDI, and 4K IP video streaming for ProAV and broadcast application.



IMAGE MODULE

- R9-420F 4K60 PTZ Camera is equipped with Sony image sensor IMX715, and 8M ultra high resolution 20X optical lens, integrated with AI based algorithm ISP this image module delivers high quality and clean noiseless high speed 60fps UHD color image.
- The camera produces brilliant broadcast-quality color images in 4K60 and Full HD with excellent low-light sensitivity.
- 1/2.8 Inch CMX715 High Class Sensor
- Cristal 20X High Resolution optical zooms
- AI Face Detection Auto Focus/Exposure
- Super WDR
- Gamma Level



R9-420F Output Interface

Dual 12G-SDI	HDMI 2.0	SFP Optical SDI	Genlock
4K60 IP Streaming(HEVC)	RTSP, RTMP, RTMPS, SRT	True Dual-Output	FreeD
All Video with Audio Embedded	XLR Broadcast Audio Input	On-screen Character Generator	Serial/IP Control
High-Quality	Low Latency	Low Bandwidth	Power Output

CODEC - IP STREAMING



High Quality Low Bandwidth Low Latency

- Up to 4K60
- Dual stream, Multicast Support
- RTSP, RTMP, RTMPS, SRT, ONVIF
- IP Control protocol: Visca Over IP, Onvif
- Compatible With Standard AVC/HEVC
- Software Decode and Hardware Decode
- H.264/265 open platform, codec from AMD MPSoC

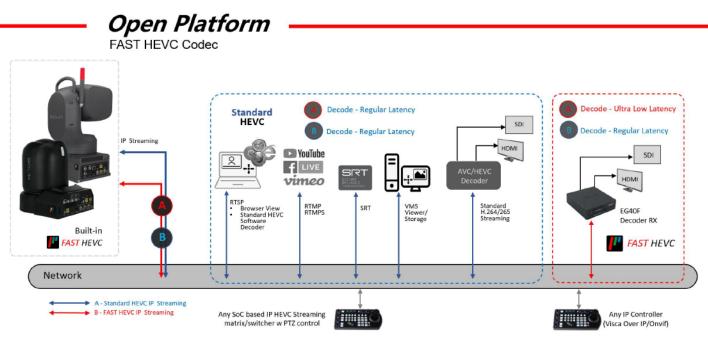
FAST AVC/HEVC, FPGA Hardware Codec, Utilizing AMD MPSoC to Deliver

Only **45Mbps** bandwidth that streaming **4K60** at 4:2:2 12bit in Less Than **2 frame/s** Latency

Comparison-The Facts of FAST HEVC Performance*

			1080p59.94/60			2160p59.94/60		
Fundation Platform	Platform	Codec	Quality (Up To)	Latency (Point-to Point)	Bandwidth	Quality (Up To)	Latency (Point-to Point)	Bandwidth
	Software SOC	Stand HEVC	420SP(NV12)	4 frame/70ms	8Mbps	420SP(NV12)	25 frame/430ms	16Mbps
H.264/265 AVC/HEVC Hardware SOC	Stand HEVC	4:2:2/12bit	2 frame/30ms	8Mbps	NA			
	Hardware FPGA	FAST HEVC	4:2:2/12bit(NV16)	2 frame/25ms	8-30Mbps	4:2:2/12bit(NV16)	2 frame/30ms	16-65Mbps
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.



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

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



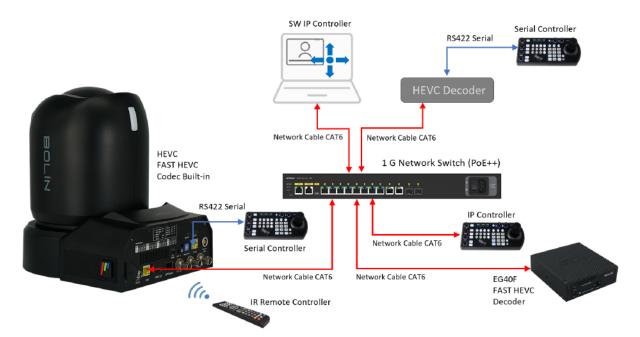
AI Powered Auto Focus and Auto Exposure

Built with Bolin's latest AI-powered facial analytics engine, which enables smart focus and smart exposure to provide faster, more precise focusing and improved auto exposure on faces in complex lighting environments.



Various Control Methods

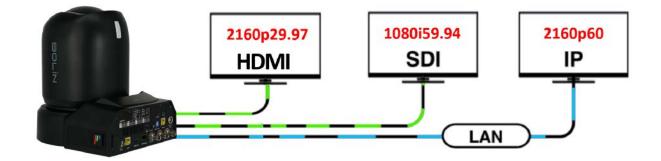
- IP Control, Serial Control, IR Remote Control, Bolin API-Software Control
- Protocol Supported: VISCA Over IP, ONVIF, VISCA, PELCO P/D, FreeD, API



FEATURES

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)



Full Format and Standard

HDMI, SDI, IP Full Format 3840x2160P 60/59.94/50/30/29.97/25/24/23.98 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) SMPTE 2082-1(12Gb/s) With SMPTE352 SDI Metadata Supported

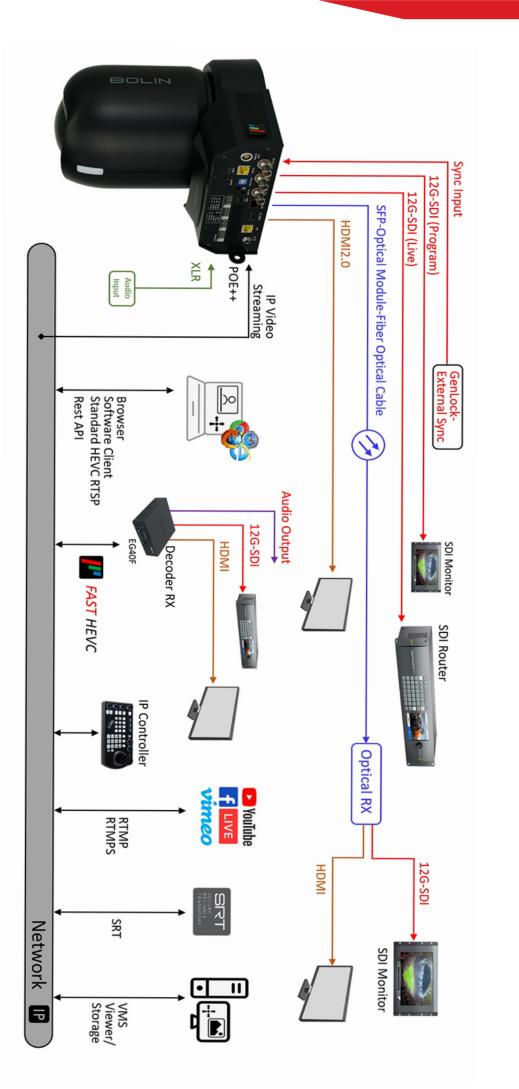
- Dual 12G-SDI
- HDMI 2.0
- 4K IP Streaming AVC/HEVC
- SFP Optical SDI
- FreeD
- NDAA Compliant

- External Synchronization Genlock
- Audio embedded with all video output
- XLR broadcast audio input/output
- On-screen character generator
- Lifting Handle built-in

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.





Smooth and Accurate Movement

- PAN: 340° (-170° to +170°); Fully proportional speed 0.01° to 70°/s
- TILT: 120° (-30° to +90°); Fully proportional speed 0.01° to 60°/s
- Preset: 255 positions, Speed 70°/s,
- 0~5 Level Adjustable, Accuracy: 0.1°
- 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 Image: Second secon

SPECIFICATIONS

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Pan Movement PAN: 340° (-170° to +170°); Fully proportional 0.05° to 70°/s Tilk Movement TILT: 120° (-30° to +20°); Fully proportional 0.05° to 60°/s Speed Proportional Pan/Tilk Speed proportional 0.05° to 60°/s Preset Position 255 positions, Speed 70°/s, 0-5 evel 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, ON/OFF Outseness NC35 Complant Home Position Yes, FreeD Environmental Indoor Interface Indoor Hold Video Output Optical SDI SFP module support up to 12G-SDI (Modul). Detachable sot, Connector: Duplex LC (optional via ST, LC or SMPTE) SDI Odical Fiber Output Optical SDI SFP module support up to 12G-SDI (Modul). Detachable sot, Connector: Duplex LC (optional via ST, LC or SMPTE) Laser Unit: Single-mode 1, 310mn DFB-LD transmitter and PIN receiver Complaint with MAS SFP+ Specification SFF-402. Network LAN Port RJ45X1, Standard 10M/1000M Base-TX Ethernet, LAN connector for IP control/video output/system FW Synchronization System		· · · · · · · · · · · · · · · · · · ·	
Tilt Neverent TILT: 120° (-30° to +90°); tely proportional 0.05° to 60°/s Speed Proportional Pan/Tilt Speed proportional to 200m range Preset Position 255 positions, Speed 70°/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, Miror, Garma, Ex-COMP, Color Hue, Contrast etc.) Motionless Preset YES, ONOFF PTZ Trace Memory YES, 12 Quietness NC35 Compliant Home Position Yes, FreeD protocol for AR/NR camera tracking, via IP Environmental Indoor Interface HDMI 1.4 Type A SDI Vdeo Output 12G-SDI, 750 BNC x.2. SDI Chean / SDI PM for output having OSD display SDI Vdeo Output Optical SDI SFP module support up to 12G-SDI (Module Excluded). Detachable slot, Connector: Duplex LC (optional via ST, LC or SMPTE) SDI Optical Fiber Output Quictarest Unit: Single-mode 1, 310m DFFE > Detachable slot, Connector: Duplex LC (optional via ST, LC or SMPTE) Sprichronization System RJ45X1, Standard 10M/100M Mase=TX Ethernet, LAN connector for IP control/vide output/System FW Synchronization System Genlock, BNC connector, BBS (Back Burst Sync), In-level sync A	Pan Movement	PAN: 340° (-170° to +170°); Fully proportional 0.05° to 70°/s	
Preset Position 255 positions, Speed 70%, 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, Miror, Gamma, Ex-COMP, Color Hue, Contrast etc.) Motionless Preset YES, ON/OFF PTZ Trace Memory YES, 4 Cruise YES, 12 Quietness NC35 Compliant Home Position Yes, FreeD FreeD Yes, FreeD protocol for ARVR camera tracking, via IP Environmental Indoor Interface Indoor SDI Vdeo Output Optical SDI SFP module support up to 12G-SDI (Module Excuded). Detachable slot, Connector: Duplex LC (optional via ST, LC or SMPTE) SDI Optical Fiber Output Optical SDI SFP module support up to 12G-SDI (Module Excuded). Detachable slot, Connector: Duplex LC (optional via ST, LC or SMPTE) Network LAN Port RJ45X1, Standard 10M/100M/100MB asse-TX Ethernet, LAN connector for IP control/video output/System FW Synchronization System IntermateXtenal synchronization (BBS)Tri-level sync. Audio Input Genlock, BNC connector, BS (Black Burst Sync), tri-level sync. Audio Input Balanced XLR (Hirose Connectorins Abrownization (BBS)Tri-level sync)	Tilt Movement	TILT: 120° (-30° to +90°); Fully proportional 0.05° to 60°/s	
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, Garma, Ex-COMP, Color Hue, Contrast etc.) Motionless Preset YES, ONOFF PTZ Trace Memory YES, 12 Quietness NC33 Compliant Home Position Yes FreeD Yes, FreeD protocol for AR/VR camera tracking, via IP Environmental Indoor Interface Indoor HDMI Video Output Optical SDI SFP module support up to 12G-SDI (Module Excluded). Detachable slot, Connector: Duplex LC (optional via ST, LC or SMPTE) 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) Network LAN Port RJ45X1, Standard 10M/100M/100M Base-TX Ethernet, LAN connector for IP control/video output/System FW Synchronization System Intermal/External synchronization (BBS/Tri-level sync) Audio Input Genlock, BNC connector: BS (Black Burst Sync), tri-level sync supported Audio Input Balanced XLR (via 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom power 3.5mm TRRS for bidirection audio intercom (Preserve) Audio Luput Balanced XLR (via 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom power 3.5mm TRRS for bi			
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 NC35 Compliant Home Position Yes, FreeD protocol for AR/VR camera tracking, via IP Environmental Indoor Interface Indoor INDI Video Output Optical SDI SFP module support up to 12G-SDI (Module Excluded). Detachable slot, Connector: Duplex LC (optional via ST, LC or SDI Video Output 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 1,310m DFE-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/system FW Synchronization System External Sync Input Genlock, BNC Connector, BBS (Black Burst Sync), It-level sync Audio Input Genlock, BNC Connector, BBS (Black Burst Sync), It-level sync Audio Output Balanced XLR (Hirose Connectorvia Atoms 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom power Audio Output Balanced XLR (via 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom power <td></td> <td></td>			
PTZ Trace Memory YES, 4 Cruise YES, 12 Quietness NC35 Compliant Home Position Yes FreeD Yes, FreeD protocol for AR/VR camera tracking, via IP Environmental Indoor Interface Indoor HDMI Video Output HDMI 1.4 Type A SDI Video Output Optical SDI SPP module support up to 12G-SDI (Module Excluded). Detachable slot, Connector: Duplex LC (optional via ST, LC or SWPTE) SDI Optical Fiber Output Optical SDI SPP module support up to 12G-SDI (Module Excluded). Detachable slot, Connector: Duplex LC (optional via ST, LC or SWPTE) Laser Unit: Single-mode 1,310nm DFB-LD transmitter and PIN receiver Complaint with MSA SPP + Specification SFF-8402. Network LAN Port RJ45S1, Standard 10M/100M/100M Base-TX Ethernet, LAN connector for IP control/video output/System FW Synchronization System Intermal/External synchinorization (BBS/Tri-level sync) External Sync Input Balanced XLR (Hirose Connectoria Atomos 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom power Audio Input Balanced XLR (via 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom power 3.5mm TRRS for bidirection audio intercom (Preserve) Audio Output Balanced XLR (via 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom	Freset Methory		
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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 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 Connectorvia Atomos 10-Pin LEMO Type to XLR Breakout Cable) with 48V Phantom power Audio Output Balanced XLR (via 10-Pin LEMO Type to XLR Breakout Cable) (Preserve) Audio Output Balanced XLR (via 10-Pin LEMO Type to XLR Breakout Cable) (Preserve), embedded with HDMI, SDI, and IP 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, FPGA and Encoder Power Connector Type INPUT: DC12V, connect with screw secure (Type - 5.5mm×2.1mm Male DC Power Plug Connector & Screw Lock Female Panel INPUT: RJ45, PoE++ (IEEE802.3bt) Control Interface		Optical SDI SFP module support up to 12G-SDI (Module Excluded). Detachable slot, Connector: Duplex LC (optional via ST, LC or	
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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, FPGA and Encoder Power Connector Type INPUT: DC12V, connect with screw secure (Type - 5.5mm×2.1mm Male DC Power Plug Connector & Screw Lock Female Panel INPUT: RJ45, PoE++ (IEEE802.3bt) Control Interface RJ45X1-RS422, RJ45X1-IP Control, IR Remote Control	Audio Output	Balanced XLR (via 10-Pin LEMO Type to XLR Breakout Cable)(Preserve), embedded with HDMI, SDI, and IP	
Dip Switch Video Resolution Dip Switch x1 System Firmware Upgrade Upgrade via IP for camera system MCU, FPGA and Encoder Power Connector Type INPUT: DC12V, connect with screw secure (Type - 5.5mm×2.1mm Male DC Power Plug Connector & Screw Lock Female Panel INPUT: RJ45, PoE++ (IEEE802.3bt) Control Interface RJ45X1-RS422, RJ45X1-IP Control, IR Remote Control	Tally Light		
System Firmware Upgrade Upgrade via IP for camera system MCU, FPGA and Encoder Power Connector Type INPUT: DC12V, connect with screw secure (Type - 5.5mm×2.1mm Male DC Power Plug Connector & Screw Lock Female Panel INPUT: RJ45, PoE++ (IEEE802.3bt) Control Interface RJ45X1-RS422, RJ45X1-IP Control, IR Remote Control	Dip Switch		
INPUT: RJ45, PoE++ (IEEE802.3bt) Control Interface RJ45X1-RS422, RJ45X1-IP Control, IR Remote Control	System Firmware Upgrade	Upgrade via IP for camera system MCU, FPGA and Encoder	
Control Interface RJ45X1-RS422, RJ45X1-IP Control, IR Remote Control	Power Connector Type		
Control Protocol Serial: VISCA, PELCO P/D; IP: VISCA Over IP. ONVIF: FreeD, API	Control Interface	RJ45X1-RS422, RJ45X1-IP Control, IR Remote Control	
	Control Protocol	Serial: VISCA, PELCO P/D; IP: VISCA Over IP, ONVIF; FreeD, API	

SPECIFICATIONS

Model	R9-420F		
Codec	Hardware FPGA Based FAST HEVC		
HDMI Video Signal System			
HDMI Video Format	3840x2160P 60/59.94/50/30/29.97/25/24/23.98		
	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 On-Screen Title	Yes Yes, video embedded On-Screen title character generator; Image/Logo Insert Screen Display with IP Image Stream		
	res, video embedded on-screen due character generator, image/Logo insent Screen Display with Primage Sueam		
SDI Signal Format	400.001		
SDI Video Output			
SDI Video Format	3840x2160P 60/59.94/50/29.97/30/25/24/23.98		
	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), SMPTE		
	2082 1(12Gb/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	AVC-H.264/HEVC-H.265/MJPEG by FPGA		
IP Resolution/Frame Rate	3840x2160P 60/59.94/50/29.97/30/25/24/23.98		
	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		
Application Protocols Color Format	RTMP(S), RTSP, RTSP Encryption, RTP Streaming (Unicast, Multicast), SRT, MPEG-TS over UDP, MPEG-TS over RTP 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	128Kbps-60Mbps, 4kp60 12 bit 4:2:2		
depending on network configuration			
and management settings.)	10-20Mbps, 1080p60 12 bit 4:2:2		
Latency (Overall latency may increase	2-3 frame (e.g. 2160p60 latency is < 120ms glass to glass		
depending on network configurations) Browser Support	Cross Browser Compatibility - HTML5 support for Microsoft Edge, Google Chrome, Firefox, and Safari		
General	Gross browser companying - mails support or wild uson Euge, Google Chrome, Firelox, and Salah		
Operating Temperature	−10 °C to 50 °C (14°F to 122°F)		
Operating Temperature Operating Humidity			
Power Input	DC12V, POE++ (IEEE802.3 bt Type 4 Calss 7)		
Power Consumption	Min: 51W (Static state with no movement)		
	Max: 57W (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		

ACCESSORIES

Items marked * are optional to purchase



VCC-RC-2 IR Remote Controller



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



C-WPLB *Wall Mount Plate



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



P12-4L 12VDC 4A Power Adapter



C-WM3B *Wall Mount Bracket-Size 3



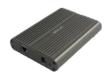
BL-CM-01 *Ceiling Mount Bracket



EG40N *NDI Decoder



C-WM3B-CV *Wall Mount Cover-Size 3



BL-PP97 *97W POE POWER INJECTOR





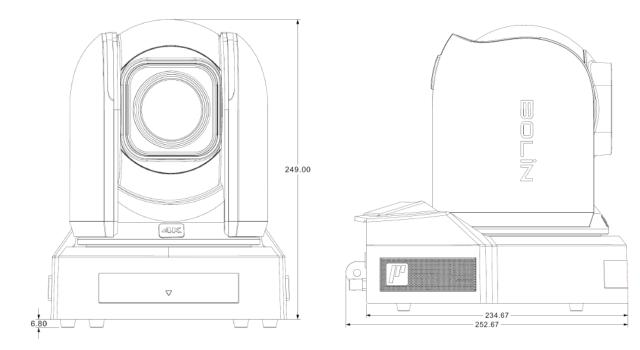
B-OSM-12 *Optical SFP Module Transceiver 12G-SDI

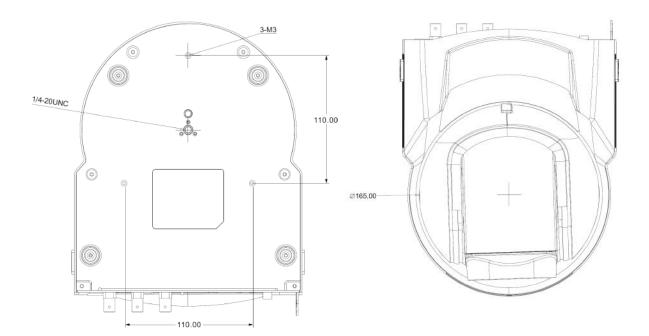
ORDER INFORMATION

Visit Bolin Technology Website

DIMENSIONS

Unit: mm





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