

Available Models:

- Standard Definition Models
BUMA-SD18
BUMA-SD26
BUMA-SD40
- High Definition Models
BUMA-HD12
BUMA-HD20
BUMA-HD30
- Ultra High Definition Models
BUMA-UHD
- Low Light Models
BUMA-LL
BUMA-EMCCD



Maritime Mount



External Vehicle Mount



Smart Perimeter System Mount



Portable

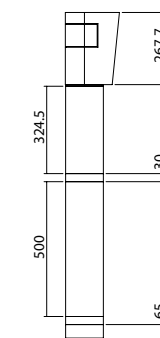
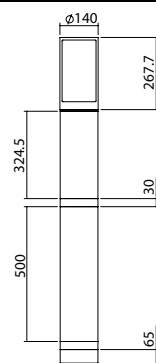


Outdoor

Head Module

Pan and Communication Module

Base Module



mm

Dimensions are in millimeters



Highlighted Features



Standard & High Definition



Ultra High Definition



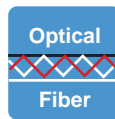
EMCCD



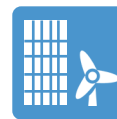
Image Stabilization



PTZ Capability



Integrated Optical Fiber



Renewable Energy Compatible



Ruggedized



Customizable Height

Description

The patent pending BUMA is a uniquely designed stand-alone camera, now featuring our all new Ultra High Definition camera core capable of delivering full 4k resolution of 3840 x 2160 pixels. Internal components are protected by vandal and weatherproof anodized aluminum housing and can easily be paired with our REKKS Smart Perimeter System for advanced capabilities and off-grid power solutions. An H.264 compression stream and advanced DSP technology secure 24 hour monitoring in remote areas and provide crystal clear images in nearly all lighting conditions. An optional DIS feature makes this camera ideal for tactical and heavy duty vehicle mounting.

Suggested Applications

- Bases, Outposts and Checkpoints
- Border and Port Facilities
- Construction Sites and Pipelines
- Educational and Research Facilities
- Energy Infrastructures and Drill Sites
- Governmental Facilities
- Nighttime Surveillance
- Parks and Recreational Facilities
- Remote and Undeveloped Areas
- Traffic and Transportation Infrastructures

Housing and Mounts



Outdoor



Portable



Smart Perimeter System Mount



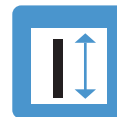
External Vehicle Mount



Maritime Mount



Wall Mount



Pole Height Extension

Materials and Finish



Aluminum



Camouflage



Housing Color



Glass Color

Certifications



ONVIF



CE Certified



FCC Certified



IP Rating



IK Rating

	BUMA-SD18	BUMA-SD26	BUMA-SD40
Lens			
Image sensor	1/4 Ex-view HAD CCD progressive scan	1/4-type Ex-view HAD CCD	1/4-type super HAD CCD II
Angle view	48° wide to 2.8° tele	54.2° wide to 2.2° tele	60.0° wide to 1.6° tele
Lens	18x optical zoom f=4.1mm wide to 73.8mm tele, f1.4 to f3.0	26x optical zoom f = 3.5 to 91mm (F1.6 to F3.8)	40x optical zoom f=3.06mm wide to 122.4mm tele, F1.6 to F4.6
Minimum illumination	0.7 lux at 1/50 s (f1.4, 50 IRE) 0.01 lux at 1/4 s ICR - on	0.7 lux (typical)	0.6 lux at 1/60 s 0.1 lux at 1/4 s ICR - on
Digital zoom	12x (216x with optical zoom)	12x (312x with optical zoom)	12x (480x with optical zoom)
Shutter	1/1 s ~ 1/10,000 s, 22 steps	1/1 s ~ 1/10,000 s, 22 steps	1/1 s ~ 1/10,000 s, 22 steps
TV lines	550 TVL	530 TVL	670 TVL
Video			
Compression	H.264 dual stream	H.264 dual stream	H.264 dual stream
Bit rate	16k to 1Mbps controllable	16k to 1Mbps controllable	16k to 1Mbps controllable
Video resolution	NTSC CIF (352x240), QCIF (176x120), full D1 (720x480) PAL CIF (352x288), QCIF (176x144), full D1 (720x576)	NTSC CIF (352x240), QCIF (176x120), full D1 (720x480) PAL CIF (352x288), QCIF (176x144), full D1 (720x576)	NTSC CIF (352x240), QCIF (176x120), full D1 (720x480) PAL CIF (352x288), QCIF (176x144), full D1 (720x576)
Frame rate	25 fps at full D1 (PAL) , 30 fps at full D1 (NTSC)	25 fps at full D1 (PAL) , 30 fps at full D1 (NTSC)	25 fps at full D1 (PAL) , 30 fps at full D1 (NTSC)
Image enhancement	auto white balance, AGC, backlight compensation, auto exposure	auto white balance, AGC, backlight compensation, auto exposure, 2D/3D noise reduction, auto WDR	auto white balance, AGC, backlight compensation, auto exposure, 2D/3D noise reduction, auto WDR, digital image stabilizer
Preset points	128	128	128
Audio			
Audio input	one channel MIC in or line input unbalanced 1.4 Vp-p	one channel MIC in or line input unbalanced 1.4 Vp-p	one channel MIC in or line input unbalanced 1.4 Vp-p
Audio output	one channel, RCA interface, linear output	one channel, RCA interface, linear output	one channel, RCA interface, linear output
Audio compression	G.726, G.711, ADPCM	G.726, G.711, ADPCM	G.726, G.711, ADPCM
Alarm System Integration			
Alarm input	one channel on/off input NO/NC	one channel on/off input NO/NC	one channel on/off input NO/NC
Alarm output	one channel on/off output 120 VAC 1A / 24 VDC 1A	one channel on/off output 120 VAC 1A / 24 VDC 1A	one channel on/off output 120 VAC 1A / 24 VDC 1A
Serial port	RS485 transparent protocol	RS485 transparent protocol	RS485 transparent protocol
Recording	motion trigger, alarm trigger, manual or schedule	motion trigger, alarm trigger, manual or schedule	motion trigger, alarm trigger, manual or schedule
Network and Storage			
Ethernet port	10/100M Base-t self-adapting Ethernet port	10/100M Base-t self-adapting Ethernet port	10/100M Base-t self-adapting Ethernet port
Protocol	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP
Web browser	Internet Explorer 9.0 or above	Internet Explorer 9.0 or above	Internet Explorer 9.0 or above
Wireless protocols	802.11b/g supports WEP, WPA, WPA2 (optional)	802.11b/g supports WEP, WPA, WPA2 (optional)	802.11b/g supports WEP, WPA, WPA2 (optional)
SD storage	up to 32GB	up to 32GB	up to 32GB
Operating Conditions			
Operating temp.	-10° C ~ +60° C	-10° C ~ +60° C	-10° C ~ +60° C
Storage temp.	-20° C ~ +80° C	-20° C ~ +80° C	-20° C ~ +80° C
Operating humidity	10% ~ 85%	10% ~ 85%	10% ~ 85%
Weight and Dimensions			
Input voltage	12 VDC	12 VDC	12 VDC
Power consumption	15W	15W	15W
Dimensions (cm)	20 x 14.1 x 26.7 (W x L x H)	20 x 14.1 x 26.7 (W x L x H)	20 x 14.1 x 26.7 (W x L x H)
Weight	11.5 Kg	11.5 Kg	11.5 Kg
Colors	white, black, camouflage wrap	white, black, camouflage wrap	white, black, camouflage wrap

	BUMA-HD12	BUMA-HD20	BUMA-HD30
Lens			
Image sensor	1/4-Type CMOS	1/2.8" Exmor CMOS	1/2.8" Exmor CMOS
Angle view	53.4° (wide end) to 2.9° (tele end)	55.4° (wide end) to 2.9° (tele end)	54.1° (wide end) to 2.9° (tele end)
Lens	12x optical zoom f=3.7mm wide to 44.4mm tele, f1.6 to f2.5	20x optical zoom f=4.7mm wide to 94.0mm tele, f1.6 to f3.5	30x optical zoom f=4.6 mm wide to 138.0mm tele, f1.8 to f4.7
Minimum illumination	0.3 lux (f1.6, ICR off) / 0.06 lux (f1.6, ICR on)	0.5 lux (f1.6, ICR off) / 0.095 lux (f1.6 ICR on)	0.5 lux (f1.6, ICR off) / 0.095 lux (f1.6, ICR – on)
Digital zoom	12x (144x with optical zoom)	12x (240x with optical zoom)	12x (360x with optical zoom)
Shutter	1/1 s ~ 1/10,000 s, 22 steps	1/1 s ~ 1/10,000 s, 22 steps	1/2 s ~ 1/10,000 s, 21 steps
Effective pixels	1.43 megapixels	3 megapixels	3 megapixels

Video

Compression	H.264 / M-JPEG support dual stream/ MPEG4/ ASP/ MxPEG	H.264 / M-JPEG support dual stream/ MPEG4/ ASP/ MxPEG	H.264 / M-JPEG support dual stream/ MPEG4/ ASP/ MxPEG
Bit rate	32Kbps to 8Mbps	32Kbps to 8Mbps	32Kbps to 8Mbps
Video resolution	1920 (H) x 1080 (V) / 1280 (H) x 720 (V) / 720 (H) x 576 (V) / 352 (H) x 288 (V)	1920 (H) x 1080 (V) / 1280 (H) x 720 (V) / 720 (H) x 480 (V) / 720 (H) x 576 (V)	1920 (H) x 1080 (V) / 1280 (H) x 720 (V) / 720 (H) x 576 (V) / 352 (H) x 288 (V)
Signal system	1080p/29.97, 1080p/25, 1080i/59.94, 1080i/50, 720p/50, 720p/29.97, 720p/25	1080p/29.97, 1080p/25, 1080i/59.94, 1080i/50, 720p/50, 720p/29.97, 720p/25	1080p/29.97, 1080p/25, 1080i/59.94, 1080i/50, 720p/50, 720p/29.97, 720p/25
Frame rate	25 fps at full D1 (PAL), 30 fps at full D1 (NTSC)	25 fps at full D1 (PAL), 30 fps at full D1 (NTSC)	25 fps at full D1 (PAL), 30 fps at full D1 (NTSC)
Image enhancement	auto white balance, AGC, backlight compensation, auto exposure, WDR, tour recording, guard tour, auto track, iris control, on-screen display	auto white balance, AGC, backlight compensation, auto exposure, WDR, tour recording, guard tour, auto track, iris control, on-screen display	auto white balance, AGC, backlight compensation, auto exposure, WDR, tour recording, guard tour, auto track, iris control, on-screen display
Preset points	128	128	128

Audio

Audio input	one channel MIC in or line input unbalanced 1.4 Vp-p	one channel MIC in or line input unbalanced 1.4 Vp-p	one channel MIC in or line input unbalanced 1.4 Vp-p
Audio output	one channel, RCA interface, linear output	one channel, RCA interface, linear output	one channel, RCA interface, linear output
Audio compression	G.726, G.711, ADPCM	G.726, G.711, ADPCM	G.726, G.711, ADPCM

Alarm System Integration

Alarm input	one channel on/off input NO/NC	one channel on/off input NO/NC	one channel on/off input NO/NC
Alarm output	one channel on/off output 120 VAC 1A / 24 VDC 1A	one channel on/off output 120 VAC 1A / 24 VDC 1A	one channel on/off output 120 VAC 1A / 24 VDC 1A
Serial port	RS485 transparent protocol	RS485 transparent protocol	RS485 transparent protocol
Recording	motion trigger, alarm trigger, manual or schedule	motion trigger, alarm trigger, manual or schedule	motion trigger, alarm trigger, manual or schedule

Network and Storage

Ethernet port	10/100M Base-t self-adapting Ethernet port	10/100M Base-t self-adapting Ethernet port	10/100M Base-t self-adapting Ethernet port
Protocol	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP
Web browser	Internet Explorer 9.0 or above	Internet Explorer 9.0 or above	Internet Explorer 9.0 or above
Wireless protocols	802.11b/g supports WEP, WPA, WPA2 (optional)	802.11b/g supports WEP, WPA, WPA2 (optional)	802.11b/g supports WEP, WPA, WPA2 (optional)
SD storage	up to 32GB	up to 32GB	up to 32GB

Operating Conditions

Operating temp.	-10° C ~ +60° C	-10° C ~ +60° C	-10° C ~ +60° C
Storage temp.	-20° C ~ +80° C	-20° C ~ +80° C	-20° C ~ +80° C
Operating humidity	10% ~ 85%	10% ~ 85%	10% ~ 85%

Weight and Dimensions

Input voltage	12 VDC / 6W, PoE (optional)	12 VDC / 6W, PoE (optional)	12 VDC / 6W, PoE (optional)
Power consumption	15W	15W	15W
Dimensions (cm)	20 x 14.1 x 26.7 (W x L x H)	20 x 14.1 x 26.7 (W x L x H)	20 x 14.1 x 26.7 (W x L x H)
Weight	11.5 Kg	11.5 Kg	11.5 Kg
Colors	white, black, camouflage wrappe	white, black, camouflage wrappe	white, black, camouflage wrappe

Lens

Image sensor	Global Shutter CMOS
Sensor Size	Super 35 (22.53 x 11.88mm)
Resolution	4096x2160 or 3840x2160 (4x full HD)
Dynamic Range	12 stops
Minimum illumination	0,3 lux

Video

Compression	H.264 / M_JPEG support dual stream/ MPEG4/ ASP/ MxPEG
Bit rate	32Kbps to 8Mbps
Video output	4x 3G/HD-SDI (4x BNC)
Quad Link Output Formats	10-bit 4:4:4 quad link (UHD and 4K:23.98, 24, 25, 29.97, 30) 10-bit 4:2:2 or RAW quad link (UHD: 23.98, 24, 25, 29.97, 30, 50, 59.94, 60), (4K: UHD and 4K:23.98, 24, 25, 29.97, 30, 47.95, 48, 50, 59.94, 60) progressive scan
Frame rate	NTSC / PAL
Image enhancement	manual and auto white balance, 1-Shot auto, matrix adjustment and saturation correction, backlight compensation, auto exposure, WDR, integrated IR-cut filter and OLPF, iris control, on-screen display
Preset points	128
Sensitivity Adjustment	ISO control; up to 4x digital gain

Audio

Audio input	one channel MIC in or line input unbalanced 1.4 Vp-p
Audio output	one channel, RCA interface, linear output
Audio compression	G.726, G.711, ADPCM

Alarm System Integration

Alarm input	one channel on/off input NO/NC
Alarm output	one channel on/off output 120 VAC 1A / 24 VDC 1A
Serial port	RS485 transparent protocol
Recording	motion trigger, alarm trigger, manual or schedule

Network and Storage

Ethernet port	10/100M Base-t self-adapting Ethernet port
Protocol	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP
Web browser	Internet Explorer 9.0 or above
Wireless protocols	802.11b/g supports WEP, WPA, WPA2 (optional)
SD storage	up to 32GB

Operating Conditions

Operating temp.	-10° C ~ +60° C
Storage temp.	-20° C ~ +80° C
Operating humidity	10% ~ 85%

Weight and Dimensions

Input voltage	12 VDC
Power consumption	15W
Dimensions (cm)	20 x 14.1 x 26.7 (W x L x H)
Weight	5 Kg
Colors	white, black, camouflage wrap

BUMA-Low Light



BUMA-LL

BUMA-EMCCD

Core

Sensor type	1/2" Exview HAD CCD II	1/2" Frame Interline Transfer (FIT) impactron
Active pixel	752 x 582	658 x 496
Pixel size	8.6µm x 8.3µm	10µm x 10µm
Active area	6.47mm x 6.83mm	6.58mm x 4.96mm
Dynamic range	>60dB	55dB
Spectral response	350-1100nm	350-1100nm
Minimum illumination	< 1µlux	< 200µlux
Resolution	480 TV lines	450 TV lines
Cooling	active, no fan	active, no fan
Antiblooming protection	-	yes (>500:1)
Exposure time	-	500µs to 1/50s (CCIR) or 1/60 (EIA)
Frame rate	25Hz (CCIR), 30Hz (EIA/NTSC)	25Hz (CCIR), 30Hz (EIA)
Readout mode	progressive scan	progressive scan

Alarm System Integration

Alarm input	one channel on/off input NO/NC	one channel on/off input NO/NC
Alarm output	one channel on/off output 120 VAC 1A / 24 VDC 1A	one channel on/off output 120 VAC 1A / 24 VDC 1A
Serial port	RS485 transparent protocol	RS485 transparent protocol
Recording	manual or schedule	manual or schedule

Network and Storage

Ethernet port	10/100M Base-t self- adapting Ethernet port	10/100M Base-t self- adapting Ethernet port
Protocol	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP	TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, DNS, DDNS, DHCP, FTP, NTP, PPPOE, SMTP, UPNP
Web browser	Internet Explorer 9.0 or above	Internet Explorer 9.0 or above
Wireless protocols	802.11b/g supports WEP, WPA, WPA2 (optional)	802.11b/g supports WEP, WPA, WPA2 (optional)

Operating Conditions

Operating temp.	-10° C ~ +60° C	-10° C ~ +60° C
Storage temp.	-20° C ~ +80° C	-20° C ~ +80° C
Operating humidity	10% ~ 85%	10% ~ 85%

Weight and Dimensions

Input voltage	12 VDC	12 VDC
Power consumption	14W	15W
Dimensions (cm)	20 x 14.1 x 26.7 (W x L x H)	20 x 14.1 x 26.7 (W x L x H)
Weight	11.5 Kg	11.5 Kg
Colors	white, black, camouflage wrap	white, black, camouflage wrap