

From: Jack Shaffer <info@thunderboltelectronics.com>
Sent: Tuesday, February 14, 2017 9:55 PM
To: [REDACTED]
Subject: Re: Fax for Rob
Attachments: WV Div of Veterans Affairs Digital CamerasQND-7080R_Specifications.pdf; WV Div of Veterans Affairs Digital CamerasQND-6070R_Specifications.pdf; WV Div of Veterans Affairs Digital CamerasXRN-2011_Specifications.pdf; WV Div of Veterans Affairs Digital CamerasDW_DS_MEGApix1080p_DWC-MD421TIR_Rev0915.pdf; Thunderbolt Electronics Business Card.pdf; WV Div of Veterans Affairs DigitalWatchDog CameraSpecifications.txt; Veteran Owned Small Business Seal.pdf

Can you fax the attachments to the: Department of Administration Purchasing Division
 2019 Washington Street East
 Charleston, WV 25305-0130
 Atten: Crystal Rink CRFI VNF 1700000001

02/15/17 08:36:09
 WV Purchasing Division

Fax # 304 558 3970

Please let me know if you can do this for me, thank you
 Love You Your Brother
 Jack

From: Jack Shaffer
Sent: Thursday, January 26, 2017 9:34:03 PM
To: [REDACTED]
Subject: Fax for Rob

Can you fax the first sheet of the attachment. Not the one with the # I have highlighted. Actually it does not look like it is highlighted. The # is 859 66
 Thank you your brother Jack

WISENET X

CRFI VNF 1700000001

XRN-2011

32CH Network Video Recorder

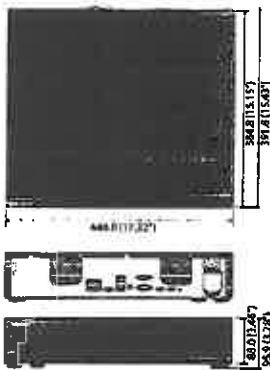


Key Features

- Up to 32CH, Max. 12megapixel camera supported
- 256Mbps network camera recording
- Support 4K video out on HDMI monitor
- Support Dual monitor video out
- Support H.265, H.264, MJPEG compression
- WiseStream support
- Max. 8 internal HDDs (48TB), e-SATA / iSCSI storage support
- Support RAID 5
- Easy installation with front swap hard disks
- ARB & Failover (N+1) support

Dimensions

Unit: mm (inch)



		XRN-2011
DISPLAY		
Video	Inputs	Up to 32CH
	Resolution	CIF ~ 12MP
	Protocols	Samsung, ONVIF
	Local Display	1x HDMI, 1x VGA dual monitor
	Local Display	(Local monitor) 1 / 2 / 3 / 4 / 5 / 6 / 7 / 8 / 9 / 16 / 25 / 36 / Sequence
Live	Multi Screen Display	(Web) 1 / 4 / 9 / 16 / 25 / 36 / Sequence
	Performance	(Local monitor) 12MP (30fps), 8.3MP (120fps), 1080p (480fps), 720P (60/60fps), D1 (960fps)
PERFORMANCE		
Operating System	Embedded	Linux
	Compression	H.265, H.264, MJPEG, WiseStream (H.265, H.264)
	Recording Bandwidth	Max. 256Mbps, Max. 100Mbps (RAID 5 mode)
Recording	Resolution	CIF ~ 12MP
	Mode	Normal, Schedule (Continuous / Event), Event (Pre / Post)
	Event Trigger	Alarm input, Video loss, Camera event (Sensor, MD, Video analysis)
	Event Action	E-mail, PTZ preset, Alarm out, Buzzer, Monitor out
	Playback Bandwidth	32Mbps (16CH simultaneous)
	Performance	Max. 4 users (Local 1, Remote 3)
Search & Playback	Mode	Date & Time (Calendar) / Event log list / Text search
	Simultaneous Playback	Max. 16C-1 (Local monitor, CMS)
	Resolution	CIF ~ 12MP
	Fish-eye Dewarping	WEB / CMS
	Playback Control	Fast/Slow Forward/Backward, Move, Stop, Step up/down
Storage	Built-in / Internal HDD	0TB ~ 6TB / 8 (Hot swap) - Max. 48TB (Non-RAID), Max. 36TB (RAID 5)
	External	iSCSI storage (Max. 384TB), Promise Vesa RAID R2600
	RAID	RAID 5 (Array size: 4 HDD x 2 array)
Backup	File Backup (Via Web)	BIU/Enc (GUI), iSCSI (Network)
	Function	Multi channel (Up to 16C) 8 users, Date-time filter display
Sensor	Input / Output	8 / 4 (NO/NC, selectable)
	Input	32CH (Network)
Audio	Compression	G.711, G.726, AAC (16/48KHz)
	Audio Communication	2-way
NETWORK		
Interface		1 RJ 45, Gigabit ethernet x 2
Protocol Support		TCP/IP, UDP/RTP (UDP, RTP (TCP), RTSP, NTP, HTTP, DHCP (Server, Client), PPPoE, SMTP, ICMP, IGMP, ARP, DNS, DDNS, UPnP, HTTPS, SNMP, ONVIF (Profile-S), MINAPI (Server, Client)
DONNS		iPOLIS DONNS
Transmission Bandwidth		512Mbps (iSCSI off), 256Mbps (iSCSI on)
Max. Remote Users		Search 3 / Live, unicast 10 / Live, multicast 20
IP		IPv4 / IPv6
Security		IP address filtering, User access log, 802.1x authentication, Encryption
Language		English, French, German, Italian, Spanish, Russian, Turkish, Polish, Dutch, Swedish, Czech, Portuguese, Danish, Rumanian, Serbian, Croatian, Hungarian, Greek, Norwegian, Finnish, Korean, Chinese, Japanese, Thai
OS		Windows 7, 8, 10, Mac OS X (10.8 or above)
Web browser		MS IE, Google Chrome, Mac Safari, Firefox
Viewer Software	Type	SSM, Webviewer, SmartViewer, iPOLIS mobile viewer
	CMS Support	SSM, CGI (SUN&E)
FUNCTIONS		
Register		Auto, Manual
Camera Setup	Setup Items	IP address, Add profile edit, Bitrate, Compression, GOP, Quality, Camera MD setup, Camera video setup (Simple focus, Brightness/Contrast, Flip/Mirror, IRIS, WDR, B&N, SSNR, Shutter, SSSR, DIS), Fish-eye dewarping mode, Halfway view setup, Camera webpage
PTZ	Control / Preset	Via GUI, Webviewer, SPC-2000 / 255 presets
	OS	Android, iOS
Smart Phone	Protocol Support	RTSP, RTSP, HTTP, CGI (SUN&E)
	Control	Live (16CH): Multi-profile support, Playback (1CH)
	Max. Remote Users	Search 3 / Live unicast 10
Redundancy		N, 1 / Yes
System Control	Failover / ARB	Mouse, Web, SPC-2000 (Controller)
INDICATOR / INTERFACE		
Front	Indicator	LED (status indicator): Sea
	HDD	HDD action 1, Alarm 1, Power 1, Record 1, RAID 1, Network
	HDMI	Main: 1 set (Both support Live / PB / Setup)
	VGA	Support up to 4K (3840 x 2160, Single monitor mode)
	Audio	Sub: 1 set (Support live screen up to 16 ch. mode)
Connections	Ethernet	Out: 1 set (RJ 45, 10G)
	Alarm	RI-45 2-in 1 (ANY/ANY), 1G120
	Storage	In: 1 set (Terminal block), Alarm reset 1 set
	Serial / Reset	Out: 4 set (Terminal block) - Relay out 1 (NO/NC/COM) - Relay out 2-4 (NO/COM)
	Power Cord	2ea (Front 1, Rear 1)
		1 e-SATA
		RS-232C / Switch, 1 ea
		1 ea AC Inlet
SYSTEM		
Log	Log List	Max. 20,000 (System log, Event log, each)
GENERAL		
Electrical	Input Voltage / Current	100 ~ 240V AC ±10%, 50/60Hz / 4 ~ 1.5A
	Power Consumption	Max. 95W (3388BTU), 6TB HDD x 6ea
	Operating Temperature	+0°C ~ +40°C (+32°F ~ +104°F)
Environmental	Operating Humidity	20% ~ 85% RH
	Color / Material	Black / Metal
Mechanical	Dimensions (WxDxD)	140.0 x 88.0 x 384.8mm (17.32" x 3.48" x 15.15") (2U)
	Weight	5.43kg (11.97 lb) (without HDD)

* The latest product information / specification can be found at <http://security.hanwhatech.com>

WISENET Q

CRFI VNF 1700000001

QND-6070R

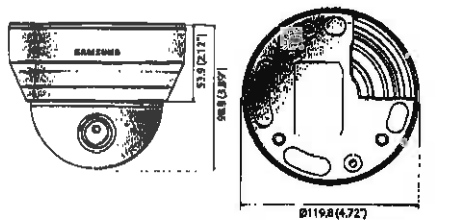
2M Network IR Dome Camera



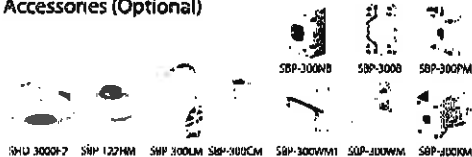
Key Features

- Max. 2megapixel (1920 x 1080) resolution
- 2.8 ~ 12mm (4.3x) varifocal lens
- Max. 30fps@2M all resolutions (H.265/H.264)
- H.265, H.264, MJPEG codec supported, Multiple streaming
- Motion detection, Tampering, Defocus detection
- micro SD/SDHC/SDXC memory slot (Max. 128GB), PoE / 12V DC
- IR viewable length 20m
- Hallway view support (Rotate 90°/270°)
- LDC support (Lens Distortion Correction)

BlueAlert™



Accessories (Optional)



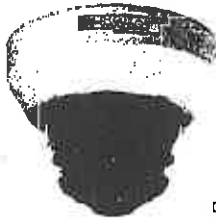
QND-6070R/P	
VIDEO	
Imaging Device	1/2.9" 2.19M CMOS
Total Pixels	2,000,000 (x1,121(V))
Effective Pixels	1,984,000 (x1,108(V))
Scanning System	Progressive
Min. Illumination	Color: 0.095Lux (f1.8, IR: 0Lux (IR LED on))
LENS	
Focal Length (Zoom Ratio)	2.8 ~ 12mm (4.3x) manual
Max. Aperture Ratio	F1.8
Angular Field of View	H: 103.8° ~ 32.4° / V: 53.1° ~ 18.4° / D: 121.9° ~ 37.1°
Focus Control	Manual
Lens Type	DC auto iris
Mount Type	Board type
PAN / TILT / ROTATE	
Pan / Tilt / Rotate Range	0° ~ 350° / 0° ~ 67° / 0° ~ 355°
OPERATIONAL	
IR Viewable Length	20m (65.62ft)
Camera Title	Off / On (Displayed up to 20 characters per line) - WW: English / Numeric / Special characters - China: English / Numeric / Special / Chinese characters - Common: Multi-line (Max. 3), Color (Gray / Green / Red / Blue / Black / White), Transparency, Auto scale by resolution
Day & Night	True Day & Night
Backlight Compensation	Off / BLC / WDR
Wide Dynamic Range	120dB
Digital Noise Reduction	SSNR (Off / On)
Motion Detection	Off / On (See polygonal zones)
Privacy Masking	Off / On (See rectangular zones)
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWB / Manual / Indoor / Outdoor
LDC (Lens Distortion Correction)	Off / On (5 levels with min / max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker
Flip / Mirror	Flip / Mirror / Halfway view
Intelligent Video Analytics	Motion detection with metadata, Tampering, Defocus detection
Alarm I/O	Input 1 / Output 1
Alarm Triggers	Motion detection, Tampering detection, SD card error, NAS error, Alarm input, Defocus detection
Alarm Events	File upload via FTP and Email, Local storage recording at event, Notification via E-mail, External output
Pixel Counter	Support (Plug-in viewer only)
NETWORK	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265, H.264, MJPEG
Resolution	1920 x 1080, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 768, 800 x 600, 720 x 576, 720 x 480, 640 x 480, 320 x 240
Max. Frame rate	H.265/H.264: Max. 30fps at 2M all resolutions, MJPEG: 15fps
Smart Codec	WebStream
Video Quality Adjustment	H.265/H.264: Target bitrate level control, MJPEG: Quality level control
Bitrates Control Method	H.265/H.264: CBR or VBR, MJPEG: VBR
Audio I/O	Built-in mic
Audio Compression Format	G.711 u-law / G.726 selectable
Audio Communication	G.726 (ADPCM) 8Kbps, G.711 8Kbps, G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
IP	Uni-directional audio
Protocol	IPV4, IPV6
Security	TTPP, UDP/TCP, RTP/RTCP, RTP/RTM, RTSP, RTSP/RTMP, HTTP, HTTPS, SSI, TLS, DHCP, PPPoE, FTP, SMTP, NNTP, ICMP, SNMPv1/v2c, SNMPv3, DNS, DNSSEC, DHCP, DHCPv6, LLNDS, Bonjour
Streaming Method	HTTP(S), RTSP
Max. User Access	6 users at UNKAM mode
Storage	micro SD/SDHC/SDXC (Max. 128GB), NAS - Motion images recorded in the SD memory card can be downloaded - Manual recording at local PC
Application Programming Interface	ONVIF Profile S/G, SUNAPI (HTTP API)
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungary, Greek
Web Viewer	Supported OS: Windows 7, 8.1, 10, Mac OS X 10.9, 10.10, 10.11 Plug-in free Webviewer - Supported Browser: Google Chrome 47, MS Edge 20 (Plug-in Webviewer) - Supported Browser: MS Explorer 11, Mozilla Firefox 43, Apple Safari 9 * Mac OS X only
Central Management Software	SmartViewer
ENVIRONMENTAL	
Operating Temperature / Humidity	-10°C ~ +55°C (-14°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-30°C ~ +80°C (-22°F ~ +176°F) / Less than 90% RH
ELECTRICAL	
Input Voltage / Current	PoE (IEEE802.3at, Class3) / 12V DC
Power Consumption	Max. 6.7W (PoE), Max. 5.5W (12V DC)
MECHANICAL	
Color / Material	Ivory / Plastic
Dimensions (WxH)	Ø119.8 x 98.8mm (Ø4.72" x 3.89")
Weight	725g (0.72 lb)

*The latest product information / specification can be found at www.securety.com

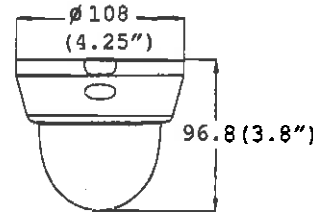


1080p SnapIt™ Indoor Dome IP Camera
DWC-MD421TR

Dimensions (unit : mm [inch])



DWC-MD421TR



SnapIt Easy Installation



Summary

MEGAPIX® IP cameras provide real-time 2.1MP (1080p, 30fps) resolution. Advanced technologies include True Day/Night, Smart DNR™ 3D Digital Noise Reduction, Wide Dynamic Range (WDR) and Smart IR™ to deliver the best images in any type of environment. Power over Ethernet (PoE) simplifies installation by connecting both power and network through a single cable. All MEGAPIX® cameras are ONVIF conformant, assuring their successful integration with any open platform solution on the market.

Features

- 2.1 Megapixel Image Sensor (1080p, 30fps)
- Wide Dynamic Range (WDR)
- Triple Codecs (H.264, MJPEG, MPEG4) with Simultaneous Dual-Stream
- 2.8-12mm Auto Focus P-Iris Lens
- SnapIt™ Easy Installation Housing
- Smart IR™ with Intelligent Camera Sync, 70ft Range
- True Day/Night with Mechanical IR Cut Filter
- Smart DNR™ 3D Digital Noise Reduction
- Manual IR Activation
- Auto Gain Control (AGC)
- Backlight Compensation (BLC)
- Auto White Balance (AWB)
- Programmable Privacy Zones
- Motion Detection
- Micro SD/SDHC Class 10 Card Slot for Emergency Backup (card not included)
- Alarm Sensor Input
- Relay Output
- Web Server Built-In
- PoE and DC12V
- OnVIF Conformant, Profile S

Accessories (Optional)



DWC-D1WM
Wall Mount for D1 & D4 Housing

Specifications



IMAGE	
Image Sensor	1/2.8" CMOS Sensor
Total Pixels	2076 (H) X 1088 (V)
Minimum Scene Illumination	F1.6 (30IRE) 0.5 Lux (Color)
	F1.6 (30IRE) 0.01 Lux (RAW)
LENS	
Focal Length	2.8-12mm
Lens Type	Auto Focus P-Iris
IR Distance	70ft Range
Digital zoom / Optical zoom	8X / 4.5X
OPERATIONAL	
Shutter Mode	AUTO, MANUAL
Digital Slow Shutter	OFF, 2X, 3X, 4X
Shutter Speed	1/20, 1/60, 1/120
Auto Gain Control	ON/OFF
Back Light Compensation	ON/OFF
Day and Night	Auto, Day (Color), Night (B/W)
Stirrer & Flip	ON/OFF
Smart DNR™ 3D Digital Noise Reduction	OFF, Low, Middle, High
Privacy Zone	30 Programmable Privacy Masks
Alarm Notifications	Notifications Via Email
NETWORK	
LAN	802.3 Compliance 10/100 LAN
Video Compression Type	H.264, MPEG4, MJPEG (Super Fine™/Low)
Resolution	1920X1080 (16:9) / 1280X720 (4:3)
Frame Rate	Up to 30fps at All Resolutions
Streaming Capability	Dual-Stream at Different Rates and Resolutions
IP	IPv4, IPv6
Protocol	TCP/IP, HTTP, DHCP, PPPoE, ICMP, ARP, RARP, RTSP, RTP, UDP, Multicast
Maximum User Access	20 Users
ONVIF Conformance	Yes
Web Viewer	OS: Windows XP / Vista / 7, MAC OS
	Browser: Internet Explorer, Chrome, Firefox, Safari
Video Management Software	DW Spectrum™ / PMS
Memory Slot	Micro SDHC Card (4GB-32GB) Recording on Network Loss, Card Not Included*
ENVIRONMENTAL	
Operating Temperature/Humidity	-10°C ~ 55°C (14°F ~ 131°F)
Operating Humidity	Less than 90% (Non-Condensing)
Storage Temperature	-20°C ~ 70°C (-4°F ~ 158°F)
Other Certifications	CE, FCC, RoHS
ELECTRICAL	
Power Requirement	DC 12V, PoE (IEEE 802.3af Class 3)
Power Consumption	7.3W, 600mA / LED ON 8.64W, 720mA
Mechanical	
Material	Plastic
Dimensions	108 X 96.8 mm (4.25 X 3.8 in)
Weight	0.128 lbs

*Specifications subject to change without notice.

866.446.3595

sales@dwc.com

digital-watchdog.com

Rev Date: 8/15

Copyright © Digital Watchdog 2015. All rights reserved. Specifications and pricing are subject to change without notice.

WISENET Q

CRF1 VNF 170000001

QND-7080R

4M Network IR Dome Camera

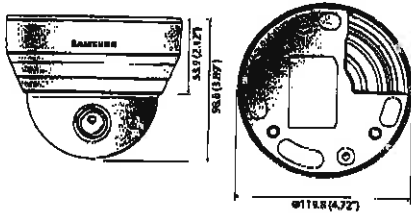


Key Features

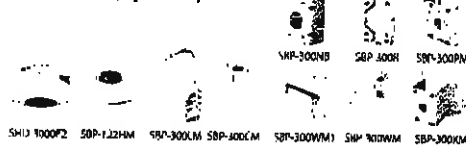
- Max. 4 megapixel resolution
- 2.8 – 12mm (4.3x) motorized varifocal lens
- Max. 20fps@4M, Max.30fps@2M all resolutions
- H.265, H.264, MJPEG codec supported
- Day & Night (ICR), WDR (120dB)
- Motion detection, Tampering, Defocus detection
- micro SD/SDHC/SDXC memory slot (Max. 128GB), PoE / 12V DC
- IR viewable length 20m
- Hallway view support
- LDC support (Lens Distortion Correction)

Dimensions

Unit: mm (inch)



Accessories (Optional)



QND-7080R	
VIDEO	
Imaging Device	1/3" 4M CMOS
Total Pixels	2,720(H) x 1,516(V)
Effective Pixels	2,688(H) x 1,520(V)
Scanning System	Progressive
Min. Illumination	Color: 0.15 lux (0.006 f.lux) (1/1.1 F1.4)
LENS	
Focal Length (Zoom Ratio)	2.8 - 12mm (4.3x) motorized varifocal
Max. Aperture Ratio	F1.14
Angular Field of View	H: 109.7° - 26.0° / V: 60.8° - 15.2° / D: 131.3° - 30.1°
Focus Control	Simple focus (Motorized V/F) / Manual, Remote control, via network
Lens Type	DC auto iris
Mount Type	Bracket type
PAN/TILT/ROTATE	
Pan/Tilt/Rotate Range	0° - 360° / 0° - 67° / 0° - 350°
OPERATIONAL	
IR Viewable Length	20m (65.62ft)
Camera Title	Off / On (Displayed up to 20 characters per line) - WAN: English / Numeric / Special characters - China: English / Numeric / Special / Chinese characters - Common: Multi-line (Max. 5), Color (Grey / Green / Red / Blue / Black / White), Transparency, Auto scale by resolution
Day & Night	True Day & Night
Backlight Compensation	Off / On / WDR
Wide Dynamic Range	120dB
Digital Noise Reduction	55NR (On / Off)
Motion Detection	Off / On (4 polygonal zones)
Privacy Masking	Off / On (6 rectangular zones)
Gain Control	Off / Low / Middle / High
White Balance	Auto / AWB / Manual / Indoor / Outdoor
LDC (Lens Distortion Correction)	Off / On (2 levels with min / max)
Electronic Shutter Speed	Minimum / Maximum / Anti-flicker
Flip / Mirror	Flip / Mirror / Hallway view
Intelligent Video Analytics	Motion detection with metadata, Tampering, Defocus detection
Alarm I/O	Input 1 / Output 1
Alarm Triggers	Motion detection, Tampering detection, SD card error, NAS error, Alarm input, Defocus detection
Alarm Events	File upload via FTP and E-mail, Local storage recording at event, Notification via E-mail, External output
Pixel Counter	Support (Plug-in viewer only)
NETWORK	
Ethernet	10/100BASE-T
Video Compression Format	H.265, H.264, MJPEG
Resolution	2592 x 1520, 2560 x 1440 (16:9), 2304 x 1296, 1920 x 1080, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 688, 800 x 600, 800 x 480, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x 240
Max. Frame Rate	11.25fps@768 - Max. 20fps@4M, Max. 30fps@2M all resolutions, MJPEG; Max. 1.5fps@1080p
Smart Codec	Wave Stream
Video Quality Adjustment	H.265/H.264: Target bitrate level control, MJPEG: Quality level control
Berate Control Method	H.265/H.264: CBR or VBR, MJPEG: VBR
Streaming Capability	Multiple streaming (Up to 7 profiles)
Audio I/O	Built-in mic
Audio Compression Format	G.711 u-law / G.726 selectable
Audio Communication	G.726 (ADPCM) 8KHz, G.711 8KHz, G.726: 16Kbps, 24Kbps, 32Kbps, 40Kbps
IP	Uni-directional audio
Protocol	IPv4, IPv6
Security	TCP/R, UDP/R, RTP/UDP, RTP/TCP, RTCP, RTSP, NTP, HTTP, HTTPS, SSL/TLS, DHCP, PPPoE, FTP, SMTP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, DNS, DDNS, OoS, PIM-SM, UPnP, Bonjour, HTTPS(SSL) login authentication, Digest login authentication
Streaming Method	IP address filtering, User access log, 802.1x authentication
Max. User Access	6 users at unicast mode
Storage	micro SD/SDHC/SDXC (Max. 128GB), NAS - Motion images recorded in the SD memory card can be downloaded - Manual recording at local PC
Application Programming Interface	ONVIF Profile S/G, SUNAPI (HTTP API)
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungarian, Greek
Web Viewer	Supported OS: Windows 7, 8, 10, Mac OS X 10.9, 10.10, 10.11 Plug-in free WebViewer - Supported Browser: Google Chrome 47, MS Edge 20 Plug-in WebViewer - Supported Browser: MS Internet Explorer 11, Mozilla Firefox 43, Apple Safari 9 * Mac OS X only
Central Management Software	Smart Viewer
ENVIRONMENTAL	
Operating Temperature / Humidity	-10°C ~ 130°C (14°F ~ 266°F) / Less than 90% RH
Storage Temperature / Humidity	-20°C ~ +60°C (2°F ~ 140°F) / Less than 90% RH
ELECTRICAL	
Input Voltage / Current	PoE (IEEE 802.3af, Class3) / 12V DC
Power Consumption	Max. 7.2W (PoE), Max. 6.4W (12V DC)
MECHANICAL	
Color / Material	Ivory / Plastic
Dimensions (WxH)	118.8 x 98.8mm (4.72" x 3.89")
Weight	355g (10.77oz)

*The latest product information / specification can be found at hannhwi-security.com