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# Solution



**Fire • Healthcare • Security**

Installation, Integration, Value Engineering, Maintenance, Testing and 24/7 Expert Service

## Perris Union High School District - PUHSD

**PVHS Bldg J3 & Concession Camera Project**

Proposal # RL-054350

version 3

**TRL** *Systems*  
When Reliability Counts



Prepared by:  
**TRL Systems, Inc.**

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Prepared for:  
**Perris Union High School District -  
PUHSD**

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Quote Information:  
**Quote #: RL-054350**

Version: 3  
Delivery Date: 10/16/2019  
Expiration Date: 12/22/2019

## Price Group 1

### ◇ Scope of Work

#### **TRL Scope of Work:**

TRL Systems shall provide and install nine (9) 5MP Dome cameras, four (4) 20MP multi-sensor cameras, one (1) 2MP dome camera and install at locations identified on attached diagrams.

TRL Systems shall furnish and program fourteen (14) camera licenses to existing NVR. TRL shall fine tune and final test cameras.

TRL shall add new buildings and camera locations to existing as-built drawings.

Please note: adding additional cameras to the existing NVR will reduce the storage retention. No additional storage is included in this proposal. Current existing storage is approx 4 1/2 weeks of retention. TRL shall evaluate existing NVR once the installation is complete and notify the district of the new retention.

#### **Intelinet Scope or Work:**

1. Furnish and install ONE (1) Category 6 Berk-Tek cable to (3) camera location in concessions area.
2. Cable shall be properly supported in the accessible ceiling and routed to each location per standards and codes.
3. Data cable shall terminate on existing patch panels in the IDF.
4. Data cable shall terminate on modular plug end at the camera location.
5. Test, label, and document all cable installed.
6. RE-TERM Camera RJ45 plugs/jacks as needed in Building J3.
7. Test and document jacks re-terminated.

◇ Materials

Qty	Item	Description	Price	Ext. Price
9	XNV-8080R	5MP IR Dome Camera	\$981.00	\$8,829.00
9	SBP-300HM6	Camera Cap	\$31.00	\$279.00
9	SBP-300WM1	Wall Mount	\$49.00	\$441.00
4	PNM-9081VQ	20Megapixel Multi-directional 360° Camera	\$2,279.00	\$9,116.00
4	SBP-329HM	Pendant Cap	\$52.00	\$208.00
4	SBP-300WM1	Wall Mount	\$53.00	\$212.00
1	SBP-300KM	Corner mount bracket	\$53.00	\$53.00
1	XNV-L6080R	2MP IR Outdoor Dome	\$629.00	\$629.00
14	GSC-Om-E-1C	1 Camera Connection	\$250.00	\$3,500.00
56	ADV-CAM-E-1M	SMA for 1 Omnicast Ent Camera -1M	\$4.04	\$226.24
1	LOT	misc materials	\$295.00	\$295.00
1	LOT	Sales Tax	\$1,755.43	\$1,755.43
			<b>Total:</b>	<b>\$25,543.67</b>

◇ Labor

Qty	Item	Description	Price	Ext. Price
1	Subcontractor	Subcontractor - Lowvoltage	\$2,452.00	\$2,452.00
1	Labor - Security installation	Labor - Security Installation	\$6,210.00	\$6,210.00
1	Labor - Project Management	Labor-Project Management / Programming	\$2,160.00	\$2,160.00
1	Labor - As-builts	Labor-As-built drawings	\$1,520.00	\$1,520.00
			<b>Total:</b>	<b>\$12,342.00</b>

## Quote Summary

### ◆ Detail Breakdown

Description	Amount
Price Group 1	
Materials	\$25,543.67
Labor	\$12,342.00
Section Subtotal:	\$37,885.67
Total:	<b>\$37,885.67</b>

## Clarifications and Exclusions

### ◆ Exclusions

- All 120 VAC, conduit, back boxes, Cat 6 cable drops other then listed in scope of work
  - Any material or labor not specifically listed as part of this proposal
  - IP/LAN Address
  - Preventative Maintenance
  - Premium Time
- Troubleshooting and repair of existing equipment
  - Painting and patching is excluded
  - Fiber optic cable/connectors/patch panel
  - After normal hours, weekends, or holidays
- POE Network Switches, NVR, Cat 6 Patch Panel in Local IDF
  - Any cost related to obtaining a "Waiver of Subrogation"

**Warranty:**

TRL Systems provides a standard one (1) year warranty on all parts.

**Terms:**

All invoices are due and payable to TRL Systems within thirty (30) days of receipt.

All contracts and payment remittance should be addressed to the following location:

TRL Systems, Inc.  
9531 Milliken Avenue  
Rancho Cucamonga, CA 91730

Please reference this quote number when accepting this proposal.

## Acceptance

Signature: \_\_\_\_\_

Name: \_\_\_\_\_

Title: \_\_\_\_\_

Date: \_\_\_\_\_

PO Number: \_\_\_\_\_

Paloma Valley Highschool  
Building J3

TRL Systems Diagram

Legend

LEGEND

- Conduit
- 2nd floor Samsung 20MP Multi-Sensor
- 2nd floor Samsung 5MP Dome
- 1st floor Samsung 5MP Dome
- 1st floor Samsung 20MP Multi-Sensor

Google Earth

© 2018 Google

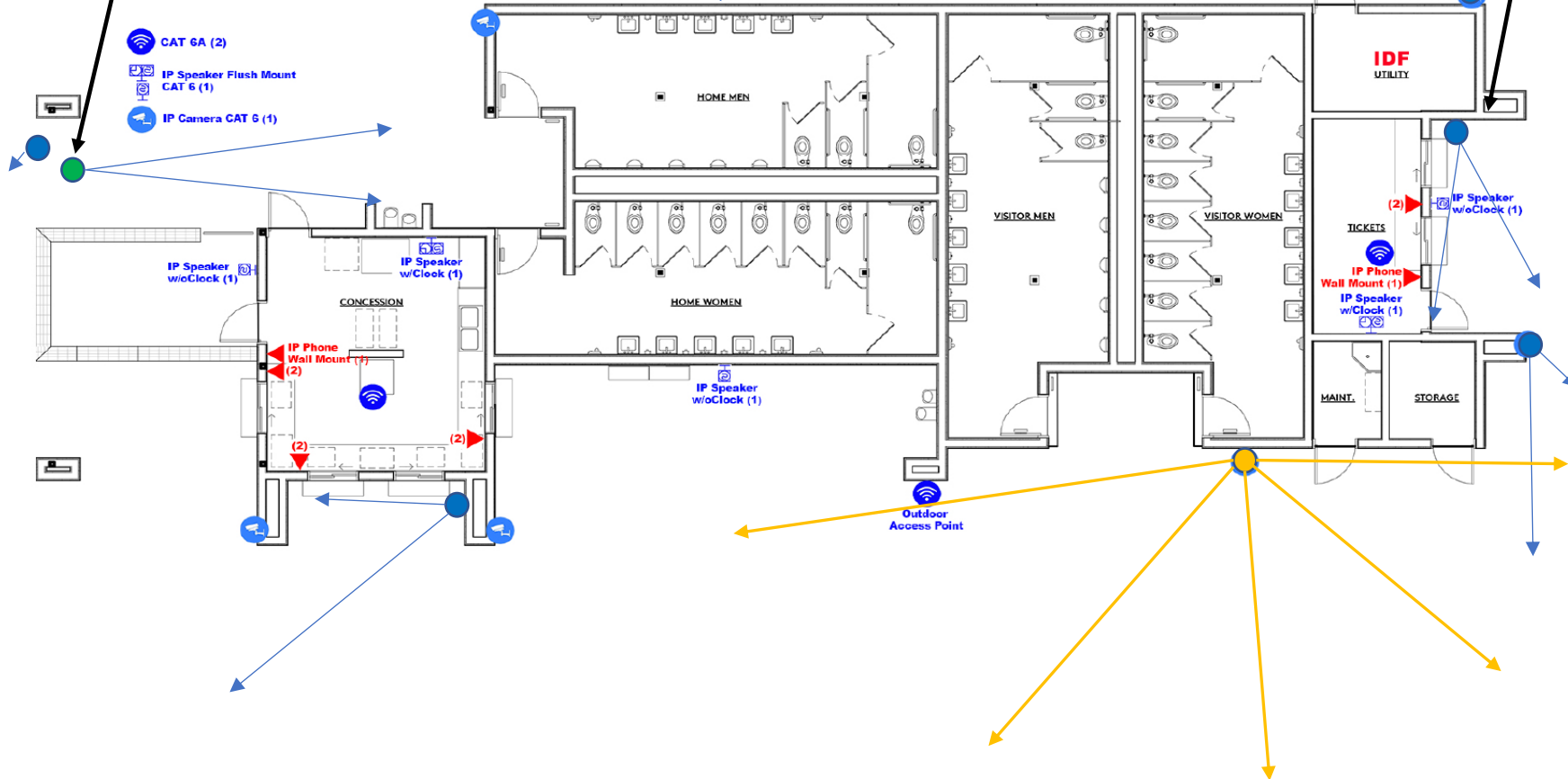
100 ft



Add 1 additino Camera and Data drop

Add 1 additino Camera and Data drop

- CAT 6A (2)
- IP Speaker Flush Mount CAT 6 (1)
- IP Camera CAT 6 (1)



LEGEND

- Samsung 5MP Dome
- Samsung 2MP Dome
- 1st floor Samsung 20MP Multi-Sensor

# PNM-9081VQ

20Megapixel Multi-directional 360° Camera

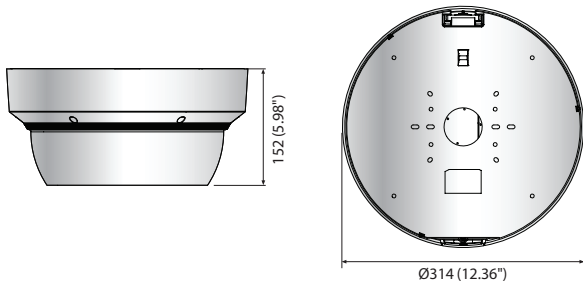


## Key Features

- 4ea x 2560 x 1920 resolution (Max. 20MP)
- 4ea x 3.6 ~ 9.4mm (2.6x) motorized varifocal lens
- 4ea x Max. 30fps@5M (H.265, H.264)
- Digital Image Stabilization with Built-in Gyro Sensor
- H.265, H.264, MJPEG Codec Support
- Day & Night (ICR), WDR (120dB)
- Motion detection, Tampering, Advanced Video Analytics
- SD / SDHC / SDXC Memory slot, WiseStreamII Support

## Dimensions

Unit : mm (inch)



## Accessories (Optional)



## PNM-9081VQ

<b>VIDEO</b>	
Imaging Device	1/1.8" 6M CMOS x 4
Total / Effective Pixels	3,096(H) x 2,094(V) 6M x 4 / 2,616(H) x 1,976(V) 5M x 4
Scanning System	Progressive Scan
Min. Illumination	Color : 0.07 Lux (F1.2, 1/30sec), B/W : 0.007 Lux (F1.2, 1/30sec)
S / N Ratio	50dB
Video Out	CVBS : 1.0 Vp-p / 75Ω composite, 720 x 480(N), 720 x 576(P), for installation (selectable CVBS per Channel)
<b>LENS</b>	
Focal Length (Zoom Ratio)	3.6 ~ 9.4mm (2.6x) motorized varifocal
Max. Aperture Ratio	F1.2
Angular Field of View	H : 102.5°(Wide) ~ 38.7°(Tele), V : 74.2°(Wide) ~ 29.0°(Tele), D : 135.5°(Wide) ~ 48.6°(Tele)
Min. Object Distance	0.5m (1.64ft)
Focus Control	Simple focus (Motorized V/F) / Manual, Remote control via network (Manual, Simple focus)
Lens / Mount Type	DC Auto Iris, P-Iris / Board-in Type
<b>PAN / TILT / ROTATE</b>	
Pan / Tilt / Rotate Range	Quad mode : ±30° / 10° ~ 41° / ±90°, Center mode : ±60° / 10° ~ 41°, 10° ~ 90°(CH2/Center) / ±90°
<b>OPERATIONAL</b>	
Camera Title	Off / On (Displayed up to 85 characters) : Each Ch - WW : 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	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	Off / BLC / HLC (Masking / Dimming), WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNRV (2D + 3D Noise Filter) (Off / On)
Digital Image Stabilization	Off / On (Built-in Gyro sensor)
Defog	Off / Auto / Manual
Motion Detection	Off / On (8ea, 8point Polygonal zones)
Privacy Masking	Off / On (32ea, polygonal zones) - Color : Grey / Green / Red / Blue / Black / White - Mosaic
Gain Control	Off / Low / Middle / High / Manual
White Balance	ATW / AWC / Manual / Indoor / Outdoor (included Mercury & Sodium)
Contrast	Level Adjustment
LDC	Off / On (5 Levels with Min / Max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital Zoom	24x
Flip / Mirror	Flip : Off / On, Mirror : Off / On, Hallway View : 90° / 270°
Intelligent Video Analytics	Tampering, Loitering, Directional Detection, Defocus Detection, Fog Detection, Virtual Line, Enter/Exit, (Dis) Appear, Motion Detection
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Alarm Input, Motion Detection, Video Analytics, Network Disconnect, SD card error
Alarm Events	File upload via FTP, E-Mail, Notification via E-Mail, Local Storage (SD/SDHC/SDXC) recording at Event Triggers, External output Support
Pixel Counter	Support
<b>NETWORK</b>	
Ethernet	RJ-45 (10/100/1000BASE-T)
Video Compression Format	H.265 / H.264 (MPEG-4 Part 10/AVC) : Main / Baseline / High, Motion JPEG
Resolution	2560 x 1920, 2560 x 1440, 1920 x 1080, 1600 x 1200, 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. Framerate	H.265 / H.264 : Max. 30fps at all resolutions, Motion JPEG : Max. 30fps
Smart Codec / WiseStreamII	Manual Mode (Area-Based : 5ea) / Support
Video Quality Adjustment	H.265 / H.264 : Target Bitrate Level Control, MJPEG : Quality Level Control
Bitrate Control Method	H.265 / H.264 : CBR or VBR, with WiseStream, MJPEG : VBR
Streaming Capability	Multiple Streaming (Up to 40 Profiles)
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, 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, QoS, PIM-SM, UPnP, Bonjour
Security	HTTPS (SSL) Login Authentication, Digest Login Authentication IP Address Filtering, User Access Log, 802.1X Authentication (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at Unicast Mode
Edge Storage	Micro SD / SDHC / SDXC 4slot (Each CH) - Motion Images recorded in the Micro SD / SDHC / SDXC memory card can be downloaded. Local PC for Instant Recording
Application Programming Interface	ONVIF profile S, SUNAPI (HTTP API)
Webpage Language	English, Korean, Chinese, French, Italian, Spanish, German, Japanese, Russian, Swedish, Portuguese, Czech, Polish, Turkish, Dutch, Hungary, Greek Supported OS : Windows 7, 8, 10, Mac OS X 10.10, 10.11, 10.12 Non-plugin WebViewer Supported Browser : Google Chrome 54, MS Edge 38, Mozilla Firefox 49 (Windows 64bit only), Apple Safari 9 (Mac OS X only)
Web Viewer	Plug-in WebViewer Supported Browser : MS Explore 11, Apple Safari 9 (Mac OS X only)
<b>ENVIRONMENTAL</b>	
Operating Temperature / Humidity	-40°C ~ +55°C (-40°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
Ingress Protection / Vandal Resistance	IP66 / IK10
<b>ELECTRICAL</b>	
Input Voltage / Current	12V DC, HPOE (Injector included)
Power Consumption	Max. 28.8W (12V DC), Max. 33.6W (HPOE)
<b>MECHANICAL</b>	
Color / Material	Ivory / Aluminum
Dimensions (WxH)	Ø314 x 152mm (Ø12.36" x 5.98")
Weight	4.89kg (10.78 lb)

\* The latest product information / specification can be found at hanwha-security.com  
\* Design and specifications are subject to change without notice.



# XNV-8080R

5M Vandal-Resistant Network IR Dome Camera

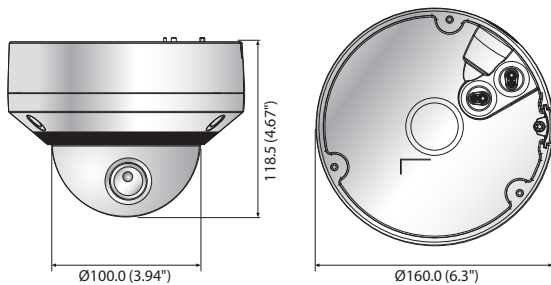


## Key Features

- Max. 5 megapixel (2560 x 1920) resolution
- 3.9 ~ 9.4mm (2.4x) motorized varifocal lens
- Max. 30fps@all resolutions (H.265/H.264)
- H.265, H.264, MJPEG codec supported, Multiple streaming
- Day & Night (ICR), WDR (120dB), Defog
- Loitering, Directional detection, Fog detection, Audio detection, Digital auto tracking, Sound classification, Tampering
- Motion detection, Handover
- SD/SDHC/SDXC memory slot (Max. 512GB)
- Hallway view, WiseStream II support
- IR viewable length 50m, IP67/IP66, NEMA 4X, IK10
- LDC support (Lens Distortion Correction)
- PoE / 24V AC, 12V DC, Bi-directional audio support

## Dimensions

Unit : mm (inch)



## Accessories (Optional)



XNV-8080R	
<b>VIDEO</b>	
Imaging Device	1/1.8" 6M CMOS
Total Pixels	3,096(H) x 2,094(V)
Effective Pixels	2,616(H) x 1,976(V)
Scanning System	Progressive Scan
Min. Illumination	Color : 0.07Lux (F1.3, 1/30sec), B/W : 0Lux (IR LED on)
S / N Ratio	50dB
Video Out	CVBS : 1.0Vpp / 75Ω composite, 720 x 480(N), 720 x 576(P), for installation USB : micro USB type B, 1280 x 720 for installation
<b>LENS</b>	
Focal Length (Zoom Ratio)	3.9 ~ 9.4mm (2.4x) motorized varifocal
Max. Aperture Ratio	F1.3
Angular Field of View	H : 92.1° ~ 38.7° / V : 67.2° ~ 29.0° / D : 119.9° ~ 48.6°
Min. Object Distance	0.5m (1.64ft)
Focus Control	Simple focus (Motorized V/F) / Manual, Remote control via network (Manual, Simple focus)
Lens / Mount Type	DC auto iris, P-Iris / Board-in type
<b>PAN / TILT / ROTATE</b>	
Pan / Tilt / Rotate Range	0° ~ 354° / 0° ~ 67° / 0° ~ 355°
<b>OPERATIONAL</b>	
IR Viewable Length	50m (164.04ft)
Camera Title	Off / On (Displayed up to 85 characters) - W/W : 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	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	Off / BLC / HLC (Masking / Dimming), WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNRV (2D+3D noise filter) (Off / On)
Digital Image Stabilization	Off / On
Defog	Off / Auto (Input from fog detection) / Manual
Motion Detection	Off / On (8ea, 8point polygonal zones), Handover
Privacy Masking	Off / On (32ea, Polygonal) - Color : Grey / Green / Red / Blue / Black / White, Mosaic
Gain Control	Off / Low / Middle / High / Manual
White Balance	ATW / AWC / Manual / Indoor / Outdoor (Included mercury & Sodium)
Contrast	Level adjustment
LDC (Lens Distortion Correction)	Off / On (5 levels with min / max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital PTZ	24x, Digital PTZ (Preset, Group)
Flip / Mirror	Off / On, Hallway view : 90°/270°
Video & Audio Analytics	Tampering, Loitering, Directional detection, Defocus detection, Fog detection, Virtual line, Enter / Exit, (Dis)Appear, Audio detection, Face detection, Motion detection, Digital auto tracking, Sound classification
Alarm I/O	Input 1ea / Output 1ea
Alarm Triggers	Alarm input, Motion detection, Video & Audio analytics, Network disconnect
Alarm Events	File upload via FTP, E-mail, Notification via E-mail, Local storage (SD/SDHC/SDXC) or NAS recording at event triggers, External output, DPTZ preset Support
Pixel Counter	Support
<b>NETWORK</b>	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265 / H.264 (MPEG-4 part 10/AVC) : Main / Baseline / High, MJPEG
Resolution	2560 x 1920, 2560 x 1440, 1920 x 1080, 1600 x 1200, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 768, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x 240
Max. Frame Rate	H.265 / H.264 : Max. 30fps at all resolutions, MJPEG : Max. 30fps
Smart Codec	Manual mode (Area-based : 5ea)
WiseStream II	Support
Video Quality Adjustment	H.265 / H.264 : Target bitrate level control, MJPEG : Target bitrate level control
Bitrate Control Method	H.265 / H.264 : CBR or VBR, MJPEG : VBR
Streaming Capability	Multiple streaming (Up to 10 profiles)
Audio In	Selectable (Mic in / Line in), Supply voltage : 2.5V DC (4mA), Input impedance : approx. 2KΩhm
Audio Out	Line out, Max output level : 1Vrms
Audio Compression Format	G.711 u-law/G.726 selectable, G.726 (ADPCM) 8KHz, G.711 8KHz G.726 : 16Kbps, 24Kbps, 32Kbps, 40Kbps, AAC-LC : 48Kbps at 8/16/32/48KHz
Audio Communication	Bi-directional (2-way)
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, 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, QoS, PIM-SM, UPnP, Bonjour
Security	HTTPS(SSL) login authentication, Digest login authentication IP address filtering, User access log, 802.1X authentication (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at unicast mode
Edge Storage	SD/SDHC/SDXC 2slot (Up to 512GB) - Continuous recording (1st slot to 2nd slot) NAS (Network Attached Storage), Local PC for instant recording
Application Programming Interface	ONVIF profile S/G, SUNAPI (HTTP API), Wisenet Open Platform
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, 8.1, 10, Mac OS X 10.10, 10.11, 10.12 Non-plugin Webviewer - Supported Browser : Google Chrome 54, MS Edge 38, Mozilla Firefox 49( Window 64bit only), Apple Safari 9 * Mac OS X only Plug-in Webviewer - Supported Browser : MS Explore 11, Apple Safari 9 * Mac OS X only
Central Management Software	SmartViewer, SSM
<b>ENVIRONMENTAL</b>	
Operating Temperature / Humidity	-40°C ~ +55°C (-40°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
Ingress Protection / Vandal Resistance	IP67, IP66, NEMA 4X / IK10
<b>ELECTRICAL</b>	
Input Voltage / Current	24V AC ±10%, 12V DC ±10%, PoE (IEEE802.3af)
Power Consumption	Max. 11.5W (12VDC), Max. 12.95W (PoE), Max. 14W (24VAC)
<b>MECHANICAL</b>	
Color / Material	Ivory / Aluminum
Dimensions (WxH)	Ø160.0 x 118.5mm (Ø6.3" x 4.67")
Weight	1.01Kg (2.23lb)

\* The latest product information / specification can be found at hanwha-security.com  
\* Design and specifications are subject to change without notice.

# XNV-L6080R

2M Vandal-Resistant Network IR Dome Camera

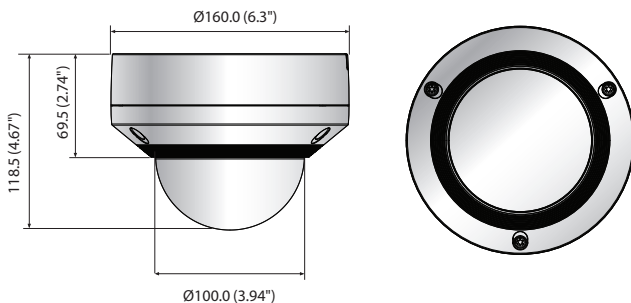


## Key Features

- Max. 2megapixel (1920 x 1080) resolution
- 3.2 ~ 10mm (3.1x) motorized varifocal lens
- Max. 60fps@all resolutions (H.265 / H.264)
- H.265, H.264, MJPEG codec supported, Multiple streaming
- Day & Night (ICR), WDR (120dB), Defog
- Tampering, Defocus detection
- Motion Detection, Handover
- SD/SDHC/SDXC memory slot (Max. 256GB)
- Hallway view, WiseStreamII support
- IR viewable length 30m
- IP66, IK10, PoE support

## Dimensions

Unit : mm (inch)



## Accessories (Optional)



## XNV-L6080R

<b>VIDEO</b>	
Imaging Device	1/2.8" 2M CMOS
Total Pixels	1,945(H) x 1,109(V) 2.16M
Effective Pixels	1,945(H) x 1,097(V) 2.13M
Scanning System	Progressive Scan
Min. Illumination	Color : 0.1Lux@F1.6, B/W : 0Lux (IR LED on)
S / N Ratio	50dB
Video Out	CVBS : 1.0Vpp / 75Ω composite, 720 x 480(N), 720 x 576(P), for installation USB : micro USB type B, 1280 x 720 for installation
<b>LENS</b>	
Focal Length (Zoom Ratio)	3.2~10mm (3.1x) motorized varifocal
Max. Aperture Ratio	F1.6(Wide) ~ F2.9(Tele)
Angular Field of View	H : 109.0°(Wide) ~ 33.2°(Tele) / V : 57.4°(Wide) ~ 18.7°(Tele) / D : 132.0°(Wide) ~ 38.0°(Tele)
Min. Object Distance	0.5m (1.64ft)
Focus Control	Simple focus (Motorized V/F) / Manual, Remote control via network (Manual, Simple focus)
Lens / Mount Type	DC auto iris / Board-in type
<b>PAN / TILT / ROTATE</b>	
Pan / Tilt / Rotate Range	0° ~ 354° / 0° ~ 67° / 0° ~ 355°
<b>OPERATIONAL</b>	
IR Viewable Length	30m (98.43ft)
Camera Title	Off / On (Displayed up to 85 characters) - W/W : English / Numeric / Special characters - China : English / Numeric / Special / Chinese characters - Common : Multi-line (Max. 5), Color (Gray / Green / Red / Blue / Black / White), Transparency, Auto scale by resolution
Day & Night	Auto (ICR) / Color / B/W / External / Schedule
Backlight Compensation	Off / BLC / HLC (Masking / Dimming), WDR
Wide Dynamic Range	120dB
Contrast Enhancement	SSDR (Off / On)
Digital Noise Reduction	SSNRV (2D + 3D noise filter) (Off / On)
Digital Image Stabilization	Off / On
Defog	Off / Auto (Input from fog detection) / Manual
Motion Detection	Off / On (8ea, 8point polygonal zones), Handover
Privacy Masking	Off / On (32ea, polygonal zones) - Color : Gray / Green / Red / Blue / Black / White - Mosaic
Gain Control	Off / Low / Middle / High
White Balance	ATW / AWC / Manual / Indoor / Outdoor (Included mercury & Sodium)
Contrast	Level adjustment
LDC (Lens Distortion Correction)	Off / On (5 levels with min / max)
Electronic Shutter Speed	Minimum / Maximum / Anti flicker (2 ~ 1/12,000sec)
Digital PTZ	24x, Digital PTZ (Preset, Group)
Flip / Mirror	Off / On, Hallway view : 90°/270°
Video Analytics	Tampering, Defocus detection, Motion detection
Alarm Triggers	Motion detection, Video analytics, Network disconnect
Alarm Events	File upload via FTP, E-mail, Notification via E-mail, Local storage (SD/SDHC/SDXC) or NAS recording at event triggers
Pixel Counter	Support
<b>NETWORK</b>	
Ethernet	RJ-45 (10/100BASE-T)
Video Compression Format	H.265 / H.264 (MPEG-4 part 10/AVC) : Main / Baseline / High, MJPEG
Resolution	1920 x 1080, 1280 x 1024, 1280 x 960, 1280 x 720, 1024 x 768, 800 x 600, 800 x 448, 720 x 576, 720 x 480, 640 x 480, 640 x 360, 320 x 240
Max. Framerate	H.265 / H.264 : Max. 60fps at all resolutions, MJPEG : Max. 30fps
Smart Codec	Manual mode (Area-based : 5ea)
WiseStream II	Support
Video Quality Adjustment	H.265 / H.264, MJPEG : Target Bitrate Level Control
Bitrate Control Method	H.265 / H.264 : CBR or VBR, MJPEG : VBR
Streaming Capability	Multiple streaming (Up to 5 profiles)
IP	IPv4, IPv6
Protocol	TCP/IP, UDP/IP, 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, QoS, UPnP, Bonjour
Security	HTTPS(SSL) login authentication, Digest login authentication, IP address filtering, User access log, 802.1X authentication (EAP-TLS, EAP-LEAP)
Streaming Method	Unicast / Multicast
Max. User Access	20 users at unicast mode
Edge Storage	SD/SDHC/SDXC 1slot (up to 256GB) - Motion images recorded in the SD/SDHC/SDXC memory card can be downloaded. NAS (Network Attached Storage), Local PC for instant recording
Application Programming Interface	ONVIF profile S/G, SUNAPI (HTTP API), Wisenet Open Platform
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, 8.1, 10, Mac OS X 10.10, 10.11, 10.12 Supported Browser : Google Chrome 63, MS Edge 41, MS Internet Explorer 11, Mozilla Firefox 57 (Window 64bit only), Apple Safari 11 (Mac OS X only)
Central Management Software	SmartViewer, SSM
<b>ENVIRONMENTAL</b>	
Operating Temperature / Humidity	-40°C ~ +55°C (-40°F ~ +131°F) / Less than 90% RH
Storage Temperature / Humidity	-50°C ~ +60°C (-58°F ~ +140°F) / Less than 90% RH
Ingress Protection / Vandal Resistance	IP66 / IK10
<b>ELECTRICAL</b>	
Input Voltage / Current	PoE (IEEE802.3af, Class3)
Power Consumption	Max. 11W, Typical 5W
<b>MECHANICAL</b>	
Color / Material	Ivory(NCS S 0502-Y) / Aluminum
Dimensions (WxH)	Ø160.0 x 118.5mm (Ø6.3" x 4.67")
Weight	940g (2.07 lb)

\* The latest product information / specification can be found at [hanwha-security.com](http://hanwha-security.com)

\* Design and specifications are subject to change without notice.

\* Wisenet is the proprietary brand of Hanwha Techwin, formerly known as Samsung Techwin.