

# AI Solutions, COVID-19 and Beyond

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## Hanwha Techwin's AI based solution for COVID-19

- Real-time Face Mask Detection
- Occupancy Monitoring and Management
- Bi-spectrum camera with Visible and Thermal imaging
- Quickly screening high body temperature



## From surveillance to safety

While the COVID-19 pandemic is subsiding, its effects on daily life – social distancing, face coverings and limited public gatherings – are likely to remain. Now, surveillance technologies still need to monitor and protect, but also help ensure safety and health.

**Hanwha Techwin** is making it easier for businesses and managers of public spaces to easily and cost-effectively comply with federal and local guidelines – and keep their employees, customers and visitors safe. Our full suite of health and safety intelligent solutions can readily adapt to the requirements of any changing business environment.



## Temperature Detection Thermal Camera(TNM-3620TDY)

### Identification

Visible image 2MP 4mm fixed focal (H : 87.6°, V : 46.4°)

### Detection

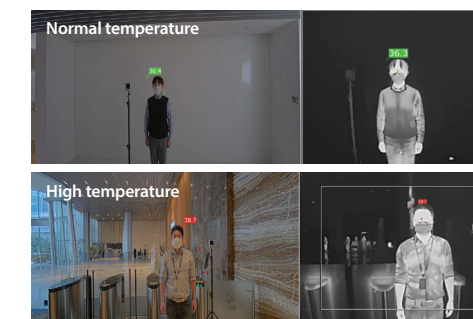
Thermal image QVGA 4.7mm fixed focal (H : 50.0°, V : 36.4°)



### Bi-spectrum camera with dual lens for visible and thermal imaging

TNM-3620TDY camera features both QVGA (320x240) thermal camera with 4.7mm fixed focal lens and 2MP (1920x1080) visible camera with 4MP fixed focal lens together. This camera can quickly screen high temperature and can recognize the object (who the person is) with visible camera.

#### EBT(Estimated Body Temperature) mode

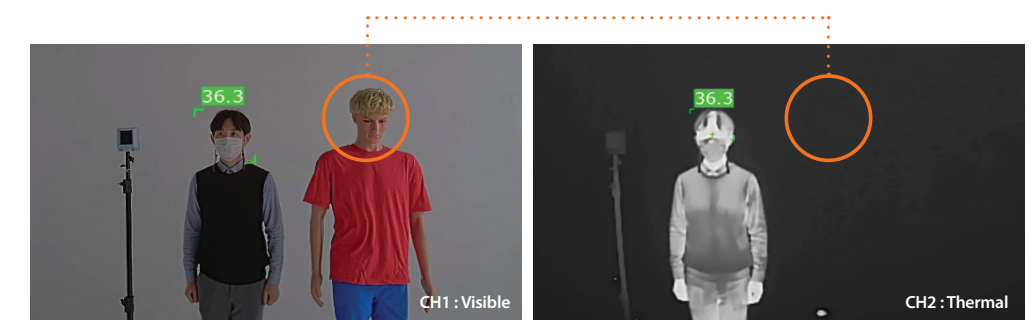


#### Normal radiometric mode



### High accuracy with AI deep-learning technology

TNM-3620TDY utilizes built-in AI deep-learning technology to detect the human faces and generates alarms for only humans, making the monitoring more precise and efficient. Users can choose a channel between visible camera and thermal camera to detect human faces. When the thermal camera is selected as a channel to detect human faces, it only detects faces with fever. And therefore, the faces of mannequins or faces in photographs are not detected as shown in the image below. In addition, users can synchronize images of two channels by calibrating the image grid, so that the camera can detect the exact location of objects' faces and measure body temperature.



\* it doesn't detect face of mannequins



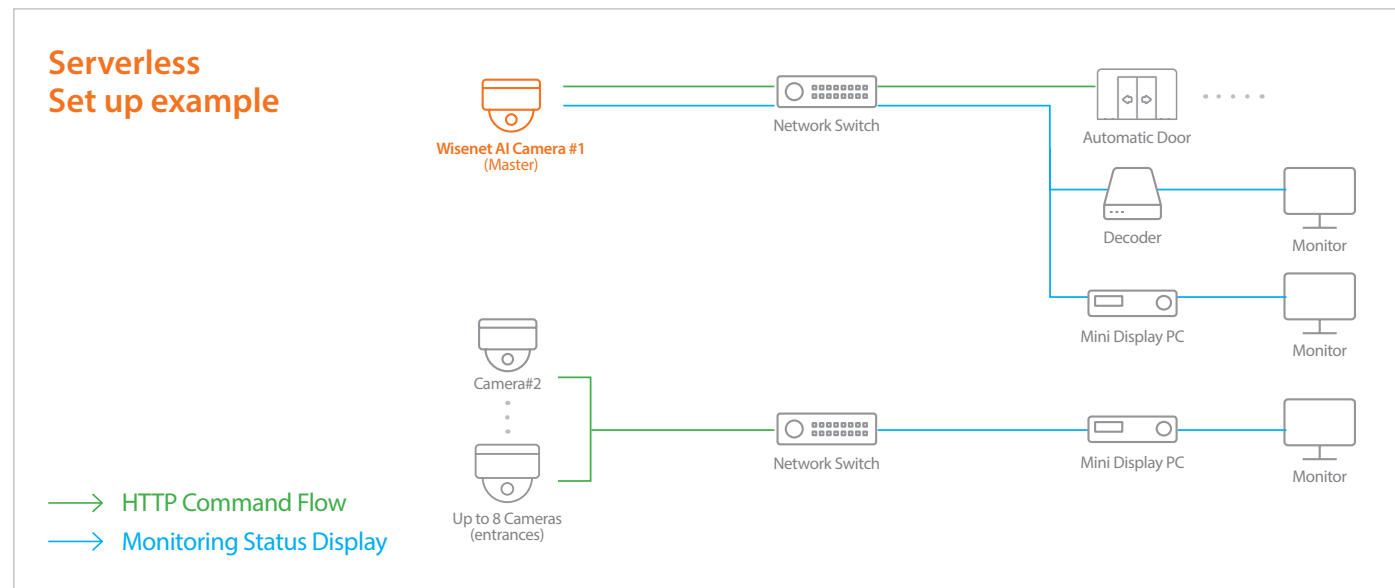
# Occupancy Monitoring Application

## Real-time Occupancy monitoring and control

Wisenet Occupancy Monitoring Application automatically displays a red 'Wait' message along with the number of people currently inside to help customers conform to social distancing policy when the maximum occupancy of an area is reached. When numbers are below the threshold, a green "Welcome" message is displayed. The public-facing display messages are customizable and can include the name of the business in addition to 'stop' or 'go' indicators. The system can also generate alarm outputs to control automatic doors and traffic beacons for additional control.



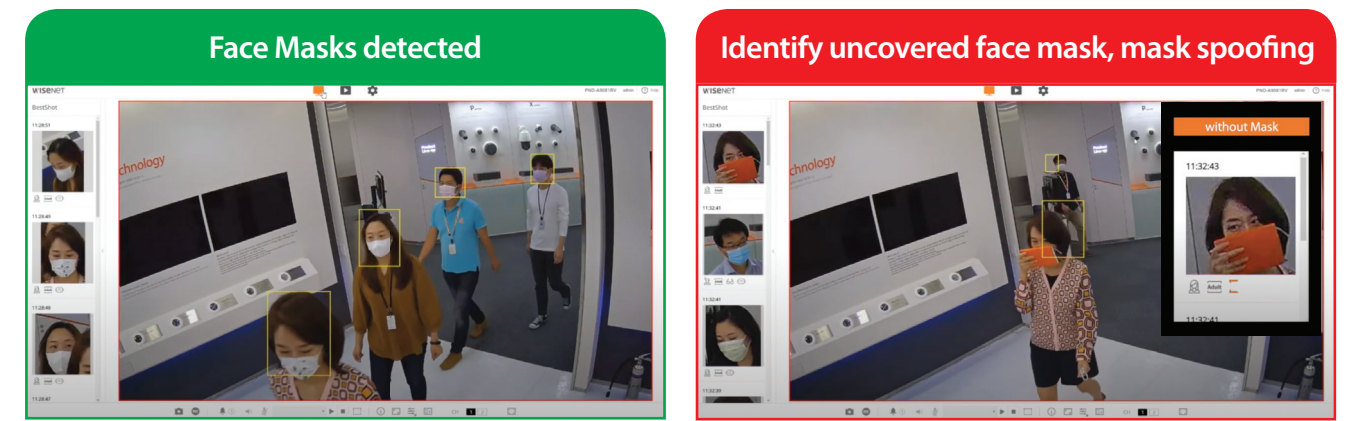
- License-free onboard AI Analytics of Wisenet P series AI cameras (Do not require a dedicated analytics server)
- No need for "top-view" mounting
- Precise edge-based analytics with Deep Learning AI
- Alarm output to automatic doors or traffic light beacons
- Customizable messages and scrolling text
- Aggregates occupancy data from up to 8 cameras at 8 entrances/exits simultaneously



# Face Mask Detection

## AI-based High accuracy with AI camera

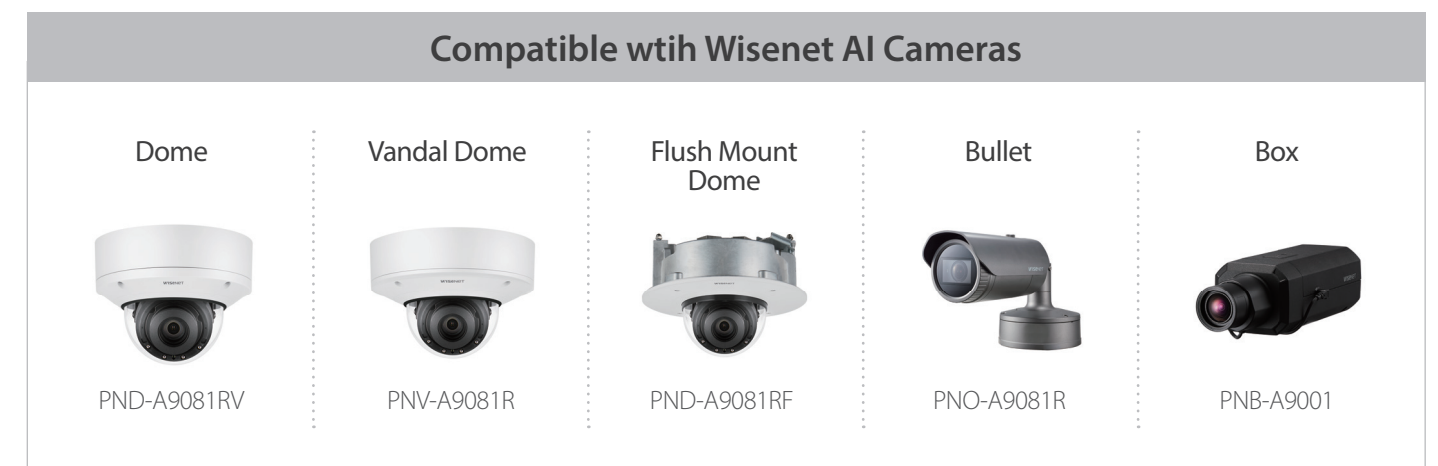
Wisenet AI cameras are ideal for object detection and classification using attribute analytics. Face Masks are now part of the attribute metadata for a forensic review. Wisenet Face Mask Detection can detect if people are wearing/not wearing a face mask in real-time. If a person enters an area without a face mask or improperly wearing a face mask and provide notification to compatible VMS/NVRs.



## License-free edge-based application

Hanwha Techwin's license-free AI analytics suite is included onboard with Wisenet P series AI cameras. Users don't need to purchase additional license or a dedicated analytics server. Face Mask Detection is available as a firmware update, summer 2020.

- Detection accuracy isn't affected by hats, glasses or head scarves.
- Detect multiple faces simultaneously
- Generate instant alarm (Customizable audio alarm)
- Compatible with VMS (Wisenet SSM/WAVE, Milestone, Genetec)



Wisenet AI cameras



PNO-A9081R  
4K AI IR Bullet Camera



PNV-A9081R  
4K AI IR Vandal Dome Camera



PND-A9081RV  
4K AI IR Dome Camera

Imaging Device	1/18" CMOS	1/18" CMOS	1/18" CMOS
Min. Illumination	Color: 0.05Lux(F1.6) BW: 0Lux(IR LED on)	Color: 0.05Lux(F1.6) BW: 0Lux(IR LED on)	Color: 0.05Lux(F1.6) BW: 0Lux(IR LED on)
Video Output	CVBS: 1.0Vp-p	CVBS: 1.0Vp-p	CVBS: 1.0Vp-p
Focal Length	4.5~10mm (2.2x) motorized varifocal	4.5~10mm (2.2x) motorized varifocal	4.5~10mm (2.2x) motorized varifocal
Angular Field of View	H: 101.4 °(Wide)~45.5 °(Tele) / V: 53.6 °(Wide)~25.5 °(Tele) / D: 120.7 °(Wide)~52.3 °(Tele)	H: 101.4 °(Wide)~45.5 °(Tele) / V: 53.6 °(Wide)~25.5 °(Tele) / D: 120.7 °(Wide)~52.3 °(Tele)	H: 101.4 °(Wide)~45.5 °(Tele) / V: 53.6 °(Wide)~25.5 °(Tele) / D: 120.7 °(Wide)~52.3 °(Tele)
Pan / Tilt / Rotate	-	0°~360° / -45°~85° / 0°~355°	0°~360° / -45°~85° / 0°~355°
IR Viewable Length	30m (98.42ft)	30m (98.42ft)	30m (98.42ft)
Day & Night	Auto (ICR)	Auto (ICR)	Auto (ICR)
Wide Dynamic Range	120dB	120dB	120dB
Digital Noise Reduction	SSNR V	SSNR V	SSNR V
Digital Image Stabilization	Support (built-in gyro sensor)	Support (built-in gyro sensor)	Support (built-in gyro sensor)
Analytics	Object detection(Person/Vehicle/Face/ License plate), Audio detection, Sound classification	Object detection(Person/Vehicle/Face/ License plate), Audio detection, Sound classification	Object detection(Person/Vehicle/Face/ License plate), Audio detection, Sound classification
Business Intelligence	People counting, Queue management, Heatmap	People counting, Queue management, Heatmap	People counting, Queue management, Heatmap
Alarm I/O	1/1	1/1	1/1
Audio I/O	Line in / Line out	Line in / Line out	Line in / Line out
Video Compression	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG
Resolution / Max. Frame Rate	8MP/30fps	8MP/30fps	8MP/30fps
WiseStream	WiseStream II	WiseStream II	WiseStream II
Streaming	Up to 3 profiles	Up to 3 profiles	Up to 3 profiles
Edge Storage	Micro SD/SDHC/SDXC	Micro SD/SDHC/SDXC	Micro SD/SDHC/SDXC
Application Programming Interface	ONVIF Profile S/G/T SUNAPI (HTTP API) Wisenet open platform	ONVIF Profile S/G/T SUNAPI (HTTP API) Wisenet open platform	ONVIF Profile S/G/T SUNAPI (HTTP API) Wisenet open platform
Operating Temperature	-40°C ~ +55°C (-40°F ~ +131°F) * Start up above -10°C	-40°C ~ +55°C (-40°F ~ +131°F) * Start up above -10°C	-25°C ~ +50°C (-13°F ~ +122°F)
Certification	IP66/IP67, IK10, NEMA4X	IP66/IP67/IP6K9K, IK10+, NEMA4X	IP52, IK10
Power Consumption	PoE+: Max 20.00W, typical 17.00W 12VDC: Max 18.00W, typical 16.00W	PoE+: Max 20.00W, typical 17.00W 12VDC: Max 18.70W, typical 15.00W	PoE+: Max 20.00W, typical 16.00W 12VDC: Max 17.70W, typical 14.00W
Dimensions (WxHxD) /Weight	Ø91 x 368.6mm (3.58" x 14.51") (Without sunshield), 2.48kg (5.47lb)	Ø180 x 125mm (7.09" x 4.92") 1.90kg (4.19lb)	Ø160 x 125mm (6.30" x 4.92") 1.60kg (3.53lb)
Additional Features	AI : BestShot, Attributes (Person, Vehicle, Face, License plate)	AI : BestShot, Attributes (Person, Vehicle, Face, License plate)	AI : BestShot, Attributes (Person, Vehicle, Face, License plate)

Wisenet Thermal Camera



PND-A9081RF  
4K AI IR Dome Camera



PNB-A9001  
4K AI Box Camera



TNM-3620TDY  
Temperature Detection Thermal Camera

Imaging Device	1/18" CMOS	1/18" CMOS	Thermal	Visible
			Uncooled micro bolometer	1/2.8" CMOS
Min. Illumination	Color: 0.05Lux(F1.6) BW: 0Lux(IR LED on)	Color: 0.03Lux(F1.2, 1/30sec)	-	Color : 0.05 lux (F1.6, 1/30sec) B/W : 0.005 lux (F1.6, 1/30sec)
Video Output	CVBS: 1.0Vp-p	CVBS: 1.0Vp-p	CVBS : 1.0Vp-p, Micro USB Type B	
Focal Length	4.5~10mm (2.2x) motorized varifocal	-	4.7mm fixed focal	4mm fixed focal
Angular Field of View	H: 101.4 °(Wide)~45.5 °(Tele) / V: 53.6 °(Wide)~25.5 °(Tele) / D: 120.7 °(Wide)~52.3 °(Tele)	-	H : 50.0°, V : 36.4°, D : 65.3°	H : 87.6, V : 46.4°, D : 104.5°
Pan / Tilt / Rotate	0°~360° / -45°~85° / 0°~355°	-	-	
IR Viewable Length	30m (98.42ft)	-	-	
Day & Night	Auto (ICR)	Auto (ICR)	-	Auto (ICR)
Wide Dynamic Range	120dB	120dB	-	extreme WDR (150dB)
Digital Noise Reduction	SSNR V	SSNR V	-	SSNR V
Digital Image Stabilization	Support (built-in gyro sensor)	Support (built-in gyro sensor)	Support (built-in gyro sensor)	
Analytics	Object detection(Person/Vehicle/Face/ License plate), Audio detection, Sound classification	Object detection(Person/Vehicle/Face/ License plate), Audio detection, Sound classification	Normal mode : Directional detection, Motion detection, Enter/Exit, Tampering,Virtual line, Audio detection, Temperature detection EBT mode : Temperature detection, Blackbody abnormality	
Business Intelligence	People counting, Queue management, Heatmap	People counting, Queue management, Heatmap	-	
Alarm I/O	1/1	1/1	1 / 2	
Audio I/O	Line in / Line out	Line in / Line out	Selectable (mic in/line in) / Line out	
Video Compression	H.265, H.264, MJPEG	H.265, H.264, MJPEG	H.265, H.264, MJPEG	
Resolution / Max. Frame Rate	8MP/30fps	8MP/30fps	1280 x 960 / 30fps	1920 x 1080 / 30fps
WiseStream	WiseStream II	WiseStream II	WiseStream II	
Streaming	Up to 3 profiles	Up to 3 profiles	Up to 6 Profiles	
Edge Storage	Micro SD/SDHC/SDXC	Micro SD/SDHC/SDXC	Micro SD/SDHC/SDXC	
Application Programming Interface	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform	ONVIF Profile S/G/T SUNAPI(HTTP API) Wisenet open platform	ONVIF Profile S/T, SUNAPI	
Operating Temperature	-25°C ~ +50°C (-13°F ~ +122°F)	-10°C ~ +55°C (+14°F ~ +131°F)	EBT mode : +10°C~+35°C (+50°F~+95°F) / Less than 95% RH Normal mode : -10°C~+55°C (+14°F~+131°F) / Less than 95% RH	
Certification	IP52, Plenum rate	-	-	
Power Consumption	PoE+: Max 20.00W, typical 16.00W 12VDC: Max 17.70W, typical 14.00W	PoE+: Max 16.50W, typical 12.50W 12VDC: Max 13.50W, typical 10.80W	PoE+: Max. 17.0W, typical 12.5W 12VDC: Max. 14.5W, typical 11.0W	
Dimensions (WxHxD) /Weight	Ø205 x 163mm (8.07" x 6.42") 1.95kg (4.30lb)	W73.1 x H66.6 x D147.8mm 0.70kg (1.54lb)	W135 x H75 x D188.5mm (5.31" x 2.95" x 7.42") 1712g (3.77lb)	
Additional Features	AI : BestShot, Attributes (Person, Vehicle, Face, License plate)	AI : BestShot, Attributes (Person, Vehicle, Face, License plate)	Bi-spectrum camera, Two temperature detection mode, Face detection Blackbody (SPI-35B) is optional	