

# WV-S8544

4 x 4MP (16MP) Outdoor Multi-Directional Network Camera with AI Engine

**Industry thinnest\* multi-directional cameras with AI Engine**



- 4 x 4MP(16MP) 2688x1520 up to 30fps
- 360° coverage with one IP address
- Intelligent Auto (with AI Engine)
- Super Dynamic 108dB
- Color night vision (0.21 to 0.3 lx)
- Smart Coding (with AI Engine)
- Remote zoom and focus
- Continuous view assistance
- Wide range tilt angle adjustment mechanism
- Built-in FIPS 140-2 Level 3 Compliant Secure Element  
(EdgeLock® SE050F NXP® Semiconductors)
- NDAA Compliant

\*As of February 2022, based on i-PRO own research



# SPECIFICATIONS

| Camera                                          |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
|-------------------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Image Sensor                                    | 4x 1/2.7 type CMOS image sensor                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Scanning Area                                   | 5.38 mm(H) x 3.02 mm(V)<br>{7/32 inches(H) x 1/8 inches(V)}                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Minimum Illumination                            | Color :<br>0.21 lx (30IRE, F2.0, 1/30s, AGC:11)*<br>0.3 lx (50IRE, F2.0, 1/30s, AGC:11)<br>0.019 lx (50IRE, F2.0, 16/30s, AGC:11)*<br><br>BW :<br>0.12 lx (50IRE, F2.0, 1/30s, AGC:11)<br>0.0075 lx (50IRE, F2.0, 16/30s, AGC:11)*<br>*Converted value                                                                                                                                                                                                                                                                                                                                                                                                                         |
| White Balance                                   | ATW1/ ATW2/ AWC                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Maximum shutter                                 | 30 fps mode: Max.1/10000s to Max.16/30s<br>25 fps mode: Max.1/10000s to Max.16/25s                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Intelligent Auto                                | On / Off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Super Dynamic                                   | On / Off,<br>The level can be set in the range of 0 to 31.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Dynamic Range                                   | Max. 108 dB(Super Dynamic: On, Level: 31)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Adaptive Black Stretch                          | The level can be set in the range of 0 to 255.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Back Light Compensation/High Light Compensation | BLC (Back light compensation)<br>HLC (High light compensation)<br>Off (only when Super dynamic / Intelligent Auto : Off)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| Fog Compensation                                | On / Off<br>(only when Intelligent auto / auto contrast adjust : Off)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |
| Maximum Gain (AGC)                              | The level can be set in the range of 0 to 11.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Color/BW (ICR)                                  | Off / On / Auto1(Normal) / Auto2(IR Light) / Auto3(SCC)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| IR LED Light                                    | —                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Digital Noise Reduction                         | The level can be set in the range of 0 to 255.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Panorama                                        | Panorama mode (H: 180 deg.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Video Motion Detection (VMD)                    | On / Off<br>4 areas available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Scene Change Detection (SCD)                    | On / Off<br>1 areas available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  |
| Audio Detection                                 | On / Off                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| AI Sound Classification                         | Selectable from Gunshot, Yell, Vehicle horn, Glass break                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |
| AI Analytics                                    | AI Video Motion Detection, AI Face Detection,<br>AI People Detection, AI Vehicle Detection, AI Non mask Detection (prior to V2.70), AI Occupancy Detection, AI Scene Change Detection<br><br>For details :<br><a href="https://i-pro.com/products_and_solutions/en/surveillance/products/analytics-software">https://i-pro.com/products_and_solutions/en/surveillance/products/analytics-software</a><br>3rd party applications are also available.<br><a href="https://i-pro.com/products_and_solutions/en/surveillance/solutions/edge-ai-platform/application-list">https://i-pro.com/products_and_solutions/en/surveillance/solutions/edge-ai-platform/application-list</a> |
| Privacy Zone                                    | On / Off, Up to 8 zones available                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |

|                    |                                                                                 |
|--------------------|---------------------------------------------------------------------------------|
| VIQS               | On / Off, Up to 8 zones available                                               |
| Image Rotation     | 0° (Off)/ 90°/ 180° (Upside-down)/ 270°                                         |
| Camera Title (OSD) | On / Off<br>Up to 40 characters, Up to 2 Lines (alphanumeric characters, marks) |
| Focus Adjustment   | Auto focus                                                                      |

| Lens                   |                                                                       |
|------------------------|-----------------------------------------------------------------------|
| Optical zoom           | 2.5x (Motorized zoom / Motorized focus)                               |
| Extra zoom             | max 10.5x (2.5x – 10.5x when resolution is 640x360)                   |
| Focal length           | 2.9 mm {1/8 inches} – 7.3 mm {1/4 inches}                             |
| Angular Field of View  | Horizontal: 43°(TELE) - 100°(WIDE)<br>Vertical: 24°(TELE) - 56°(WIDE) |
| Maximum Aperture Ratio | 1 : 2.0(WIDE) – 1 : 3.0(TELE)                                         |
| Focus range            | 1 m {3.28 ft} – ∞                                                     |

| DORI                       |                                                     |
|----------------------------|-----------------------------------------------------|
| Detect (25ppm / 8ppf)      | Wide : 45.1 m / 148.0 ft, Tele : 136.5 m / 447.8 ft |
| Observe (62.5ppm / 19ppf)  | Wide : 18.0 m / 59.2 ft, Tele : 54.6 m / 179.1 ft   |
| Recognize (125ppm / 38ppf) | Wide : 9.0 m / 29.6 ft, Tele : 27.3 m / 89.6 ft     |
| Identify (250ppm / 76ppf)  | Wide : 4.5 m / 14.8 ft, Tele : 13.6 m / 44.8 ft     |

| System on Chip (SoC) |               |
|----------------------|---------------|
| System on Chip (SoC) | Ambarella CV2 |

| Adjusting Angle |                                                                                                                                                                                                                                                                                                                                                                               |
|-----------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Adjusting Angle | Camera 1, 2, 3, 4 :<br>Horizontal : ±125° (Adjust by horizontal (PAN) angle)<br>Vertical : +10° to +105° (Adjust by vertical (TILT) angle)<br>Yaw : ±90° (Adjust by azimuth (YAW) angle)<br>Twist : ±30°<br>*The above is the adjustable range of a single camera.<br>The adjustable range of each camera varies according to the positional relationship with other cameras. |

| Browser GUI               |                                                                                                                                        |
|---------------------------|----------------------------------------------------------------------------------------------------------------------------------------|
| Camera Control            | Brightness, AUX On / Off                                                                                                               |
| Audio                     | Mic (Line) Input : On / Off Volume adjustment : Low / Middle / High<br>Audio Output : On / Off Volume adjustment : Low / Middle / High |
| GUI / Setup Menu Language | English, Italian, French, German, Spanish, Portuguese, Russian, Chinese, Japanese                                                      |
| Browser                   | Microsoft Edge, Firefox, Google Chrome                                                                                                 |

| Network                               |                                                                                                                                                             |
|---------------------------------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Network IF                            | 10Base-T / 100Base-TX / 1000Base-T, RJ45 connector                                                                                                          |
| Resolution H.265/ H.264/ JPEG (MJPEG) | [16 : 9 mode]<br>2688 x 1520 / 2560 x 1440 / 1920x1080 / 1280 x 720 / 640x360 / 320x180                                                                     |
| H.265/H.264                           | [Transmission Mode]<br>Constant bit rate / VBR / Frame rate / Best effort<br>[Transmission Type]<br>Unicast port (AUTO) / Unicast port (MANUAL) / Multicast |
| JPEG                                  | [Image Quality]<br>10 steps                                                                                                                                 |

|                               |                                                                                                                                                                                                                                                                                                                                                                                        |
|-------------------------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Smart Coding                  | GOP (Group of pictures) control :<br>On (Frame rate control)* / On (Advanced)* / On (Mid) / On (Low) / Off<br>*On (Frame rate control) and On (Advanced) are only available with H.265.<br>Smart VIQS: On(High)/On(Low)/Off, Smart P-picture control: On/Off                                                                                                                           |
| Audio Compression             | G.726 (ADPCM) : 16 kbps / 32 kbps<br>G.711 : 64 kbps<br>AAC-LC : 64 kbps / 96 kbps / 128 kbps                                                                                                                                                                                                                                                                                          |
| Audio Transmission Mode       | Off / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex)                                                                                                                                                                                                                                                                                          |
| Supported Protocol            | IPv6 : TCP/IP, UDP/IP, HTTP, HTTPS, SSL/TLS, SMTP, DNS, NTP, SNMPv1/v2/v3,<br>DHCPv6, RTP, MLD, ICMP, ARP, IEEE 802.1X, DiffServ, LLDP, MQTT<br>IPv4 : TCP/IP, UDP/IP, HTTP, HTTPS, SSL/TLS, RTSP, RTP, RTP/RTCP, SMTP, DHCP, DNS, DDNS,<br>NTP, SNMPv1/v2/v3, UPnP, IGMP, ICMP, ARP, IEEE 802.1X, DiffServ, SRTP, LLDP, MQTT                                                          |
| No. of Simultaneous Users     | Up to 24 users (Depends on network conditions)                                                                                                                                                                                                                                                                                                                                         |
| Secure                        | FIPS 140-2 level 3 (NXP® EdgeLock® SE050F), Device Certificate GlobalSign® pre-installed,<br>HTTPS, User authentication, Digest authentication, Host authentication,<br>IEEE802.1X, System log, Image transmission log, Brute-force protection, Alteration detection, Signed<br>Firmware                                                                                               |
| SDXC/SDHC/SD Memory Card      | H.265 / H.264 recording :<br>Manual REC / Alarm REC (Pre/Post) / Schedule REC / Backup upon network failure<br>JPEG recording :<br>Manual REC / Alarm REC (Pre/Post) / Backup upon network failure<br>Compatible SDXC/SDHC/SD Memory Card :<br>microSDXC memory card : 64 GB, 128 GB, 256 GB, 512 GB<br>microSDHC memory card : 4 GB, 8 GB, 16 GB, 32 GB<br>microSD memory card : 2 GB |
| Mobile Terminal Compatibility | iPad, iPhone, Android™ terminals                                                                                                                                                                                                                                                                                                                                                       |
| ONVIF® Profile                | G / M / S / T                                                                                                                                                                                                                                                                                                                                                                          |

## Alarm

|               |                                                                                                                                     |
|---------------|-------------------------------------------------------------------------------------------------------------------------------------|
| Alarm Source  | 3 terminals input, VMD alarm, SCD alarm, Command alarm, Audio detection alarm                                                       |
| Alarm Actions | SDXC/SDHC/SD memory recording, E-mail notification,<br>HTTP alarm notification Indication on browser, TCP alarm notification output |

## Input/Output

|                        |                                                                                                                                                                                                                                                                                                              |
|------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Audio input            | ø3.5 mm stereo mini jack<br>For microphone input : Recommended applicable microphone : Plug-in power type<br>(Sensitivity of microphone : -48 dB±3 dB (0 dB=1 V/Pa, 1 kHz))<br>Input impedance : Approx. 2 kΩ (unbalanced)<br>Supply voltage : 2.4 V ±0.5 V<br>For line input : Input level: Approx. -10 dBV |
| Audio Output           | ø3.5 mm stereo mini jack (monaural output)<br>Output impedance : Approx. 600 Ω (unbalanced)<br>Output level : -20 dBV                                                                                                                                                                                        |
| External I/O Terminals | ALARM IN 1 (Alarm input 1/ Black & white input/ Auto time adjustment input) (x1)<br>ALARM IN 2 (Alarm input 2/ ALARM OUT) (x1), ALARM IN 3 (Alarm input 3/ ALARM OUT/ AUX OUT)<br>(x1)                                                                                                                       |
| Monitor Output         | -                                                                                                                                                                                                                                                                                                            |
| Wi-Fi USB Adapter      | Yes (for adjustment)                                                                                                                                                                                                                                                                                         |

## General

|                                    |                                                                                                                                                                  |
|------------------------------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Safety                             | UL (UL62368-1), c-UL (CSA C22.2 No.62368-1), CE, IEC62368-1                                                                                                      |
| EMC                                | FCC (Part15 ClassA), ICES-003 ClassA, EN55032 ClassA, EN55035                                                                                                    |
| Power Source and Power Consumption | PoE+ (IEEE802.3at compliant):<br>DC 54 V : 320 mA/Approx. 17.3 W (Class 4 device)                                                                                |
| Ambient Operating Temperature      | -40 °C to +60 °C {-40 °F to 140 °F}<br>(Power On range: -20 °C to +60 °C {-4 °F to 140 °F})<br>Maximum temperature according to NEMA TS 2 (2.2.7): 74 °C(165 °F) |
| Ambient Operating Humidity         | 10 to 100 % (no condensation)                                                                                                                                    |

|                           |                                                                                                                                                     |
|---------------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------|
| Anti-Condensation System  | Temish element + Heater + moisture absorption gel                                                                                                   |
| Water and Dust Resistance | IP67/IP66 (IEC 60529), Type 4X (UL50E), NEMA 4X compliant                                                                                           |
| Shock Resistance          | IK10 (IEC 62262)                                                                                                                                    |
| Wind Resistance           | Up to 40 m/s {approx. 89 mph}                                                                                                                       |
| Other standard support    | NEMA TS 2 (2.2.7-2.2.9)                                                                                                                             |
| Dimensions                | When using the attachment plate only : ø300 mm × 90 mm (H) {ø11-13/16 inches ×3-17/32 inches (H)}                                                   |
| Mass (approx.)            | When using the attachment plate only : Approx. 3.3 kg {7.28 lbs}                                                                                    |
| Finish                    | Main body : Aluminum die cast, i-PRO white<br>Outer fixing screws : Stainless steel (Corrosion-resistant treatment)<br>Dome cover : PC resin, Clear |

## NOTES

### Important

– Safety Precautions : Carefully read the Basic Information, Installation Guide and Operating Instructions before using this product.

– i-PRO Co., Ltd. cannot be held responsible for the performance of the network and/or other manufacturers' products used on the network.

– Masses and dimensions are approximate. Specifications are subject to change without notice.

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## OPTIONAL ACCESSORIES

Select a compatible accessory

[Accessory Selector \(i-pro.com\)](http://i-pro.com)



WV-QWL506-W  
4-screw Wall Mount  
Bracket



WV-QWL506M1-W  
ANSI Male Wall Mount  
Bracket (1.5"NPT)



WV-QWL501-W  
Mount Bracket



WV-QSR503M1-W  
Mount Bracket



WV-QSR503F1-W  
Mount Bracket



WV-QSR503-W  
Mount Bracket



WV-QPL500-W  
Mount Bracket



WV-QJB503-W  
Base Bracket



WV-QCN500-W  
Mount Bracket



WV-QCL501-W  
Mount Bracket



WV-QCL101-W  
Mount Bracket



WV-QSR503F-W  
Mount Bracket



WV-QCL100-W  
Mount Bracket



WV-QSR503M-W  
Mount Bracket



WV-Q105A  
Mount Bracket



WV-SDB256G  
i-PRO SD Memory  
Card



WV-SDB128G  
i-PRO SD Memory  
Card



WV-SDB064G  
i-PRO SD Memory  
Card



WV-SDB032G  
i-PRO SD Memory  
Card



WV-QDC501G  
Dome Cover



WV-QDC501C  
Dome Cover



WV-QCA501A  
I/O Cable



WV-PM500  
Compact microphone  
unit

APPEARANCE

