**i-PRO WV-S1536LNSA OUTDOOR BULLET NETWORK CAMERA**

**TECHNICAL SPECIFICATIONS**

**DIVISION 28 – ELECTRONIC SAFETY AND SECURITY**

**28 20 00 ELECTRONIC SURVEILLANCE**

**28 23 00 VIDEO SURVEILLANCE**

**28 23 29 VIDEO SURVEILLANCE REMOTE DEVICES AND SENSORS**

*This specification is intended for use by the design/construction professional and any user of i-PRO Security products to assist in developing project specifications for security and video surveillance systems.*

*Specifier Notes: This guide specification incorporates CSI MasterFormatTM 2014 Edition Numbers and Titles.*

*Notes in Italics, such as this one, are explanatory and intended to guide the design professional/specifier and user in the proper selection and use of materials. This specification should be modified where necessary to accommodate individual project conditions.*

**PART 1 GENERAL**

* 1. **SUMMARY**
	2. **WARRANTY**
1. Provide manufacturer's standard warranty.

**PART 2 PRODUCTS**

1. **MANUFACTURERS**
	1. i-PRO Co., Ltd.
	2. Provide Video Surveillance Camera from single source manufacturer
2. **i-PRO WV-S1536LNSA OUTDOOR BULLET NETWORK CAMERA**
	1. **GENERAL CHARACTERISTICS**
3. The Outdoor Bullet Camera shall deliver H.265 stream and H.264 stream.
4. The Outdoor Bullet Camera shall produce a resolution of 1920 x 1080 pixels at up to 60fps

with a 16:9 aspect ratio.

1. The Outdoor Bullet Camera shall utilize an approximate 1/2.8 type high sensitivity CMOS image sensor. The Outdoor Bullet Camera shall built-in AI engine to enable analytical applications on the network edge. Built-in AI engine supports the detecting suspicious changes in captured scenes, optimizing the image settings of the camera (based on captured scene analysis) for better image usability, and optimizing video compression through captured scenes to save bandwidth.
2. The Outdoor Bullet camera shall be enabled to install the optional analytics applications with including developed by third party companies using this camera's SDK.
3. The Outdoor Bullet Camera shall feature a 144dB wide dynamic range based on Enhanced Super Dynamic and built-in AI engine and Adaptive Black Stretch technology (ABS).
4. The Outdoor Bullet Camera shall produce a color image with a minimum illumination of 0.007 lux and a monochrome image with 0.005 lux at F1.3, shutter speed of 1/30s and AGC 11.
5. The Outdoor Bullet Camera shall offer a built-in IR illumination to produce a clear monochrome image in zero lux conditions with 40m (131feet) irradiation distance.
6. The Outdoor Bullet Camera shall be equipped with a special coated cover for increasing the operational utility of outdoor cameras in rainy weather.
7. The Outdoor Bullet Camera shall generate multiple simultaneous video streams of up to four (4) H.265 (Main profile) or H.264 (High profile) streams and JPEG streams.
8. The Outdoor Bullet Camera shall be equipped with AI intelligent auto mode which is the technology for shooting license plate and person’s face more clearly.
9. The Outdoor Bullet Camera shall be equipped with GOP controls including smart facial coding and frame control and it reduce bit rate by controlling the image quality of still areas, moving areas, and faces with AI ​​engine.
10. The Outdoor Bullet Camera shall be equipped with corridor mode enabling the capture of a more vertically oriented area than the normal format would allow.
11. The Outdoor Bullet Camera shall produce encrypted stream.
12. The Outdoor Bullet Camera shall realize SSL / TLS communication with CA certificate.
13. The Outdoor Bullet Camera shall be rated to IK10 vandal resistance.
14. The Outdoor Bullet Camera shall be rated to IP66 and NEMA 4X standard against water and dust ingress.
15. A user shall be able to view videos on a PC using a browser.
16. A user shall be able to view videos on a smartphone and tablet using viewer software for iPhone and Android.
17. The Outdoor Bullet Camera shall offer Video Motion Detection (VMD) with four (4) programmable detection areas, 15 steps sensitivity level and 10 steps detection size.
18. The Outdoor Bullet Camera shall offer Scene Change Detection (SCD) is possible to issue an alarm when a camera is covered with something, or the camera direction is changed to shoot a different subject.
19. The Outdoor Bullet Camera shall have Fog compensation function.
20. The Outdoor Bullet Camera shall have High light compensation (HLC) function.
21. The Outdoor Bullet Camera shall have Super Chroma Compensation (SCC) which realizes a better color reproducibility in the low illumination.
22. The Outdoor Bullet Camera shall provide up to eight (8) areas of electronic privacy masking.
23. The Outdoor Bullet Camera shall offer the prioritized stream control which transmits a video stream to a specified client PC or recorder preferentially.
24. The Outdoor Bullet Camera shall have an SD memory card slot that supports SD, SDHC and SDXC memory cards for local storage.
25. The Outdoor Bullet Camera shall offer full-duplex bi-directional audio communication capability between the camera and monitoring site.
26. The Outdoor Bullet Camera shall have three (3) alarm sources of terminal input, VMD, and command alarm that activate the processes such as SDXC/ SDHC/SD memory recording, E-mail notification, HTTP alarm notification, Indication on browser, FTP image transfer and TCP alarm notification output.
27. The Outdoor Bullet Camera shall conform to the ONVIF G / M / S / T.

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| CAMERA |
| Minimum Image Sensor | Approx. 1/2.8 type CMOS image sensor |
| Minimum Illumination* + - 1. Color
			2. BW
 | Color: 0.007 lx (30IRE, F1.3, 1/30s) Color: 0.009 lx (50IRE, F1.3, 1/30s) BW: 0.005 lx (50IRE, F1.3, 1/30s)BW: 0 lx (50IRE, F1.3,1/30s with IR LED) |
| Color/BW (ICR) | Off / On (IR Light Off) / On (IR Light On) / Auto1 (IR Light Off) / Auto2 (IR Light On) / Auto3 (SCC) |
| White Balance | ATW1/ ATW2/ AWC |
| Dynamic Range | Max.144 dB (Super Dynamic: On, Level 31) |
| Image Rotation | 0 ° / 90 ° / 180 ° / 270 ° |
| IR LED Light | High / Middle / Low / OffMaximum irradiation distance: 70 m {Approx. 230 ft} (30IRE) 50 m {Approx. 164 ft} (50IRE) |
| AI Analytics | AI Video Motion Detection, AI Privacy Guard, AI Face Detection, AI People Detection, AI Vehicle Detection, AI Non mask Detection, AI Occupancy Detection, AI Scene Change DetectionFor details [AI Surveillance](https://i-pro.com/global/en/surveillance/products/i-pro-ai-application) 3rd party applications are also available.[AI Surveillance List](https://i-pro.com/global/en/surveillance/i-pro-application-platform/application-list) |
| AI Sound Classification | Gunshot, Yell, Vehicle horn, Glass break |

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| LENS |
| Optical zoom | 3.1x (Motorized zoom / Motorized Focus) |
| Focal Length | 2.9 - 9 mm {1/8 inches - 11/32 inches} |
| Extra zoom | 3.1x - 9.3x (when resolution is 640 x 360) |
| Angular Field of View1. 16:9 mode
2. 4:3 mode
 | Horizontal: 37° (TELE) – 117° (WIDE), Vertical: 21° (TELE) – 62° (WIDE)Horizontal: 27° (TELE) – 82° (WIDE), Vertical: 21° (TELE) – 62° (WIDE) |
| Maximum Aperture Ratio | 1: 1.3 (WIDE) – 1: 2.5 (TELE) |
| Focus Range | 0.3 m {11-13/16 inches} – ∞ |
| Focus Adjustment | Auto focus |
| Adjusting Angle1. Ceiling Mounting
2. Wall Mounting
 | Horizontal: ±180 ° (PAN rotation part) Vertical: 0 ° to 100 ° (TILT rotation part)Yaw: –190 ° to +100 ° (YAW rotation part)Horizontal: ±100 ° (TILT rotation part) \* Vertical: ±100 ° (TILT rotation part) \*Yaw: –190 ° to +100 ° (YAW rotation part)\* You can change between horizontal and vertical angels by adjusting the PAN rotation part. |

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| VIDEO |
| Image Resolution H.265/ H.264/JPEG(MJPEG)1. 16:9 aspect ratio
2. 4:3 aspect ratio
 | [16: 9 mode (60 fps mode)], [16: 9 mode (30 fps mode)], [16: 9 mode (50 fps mode)], [16: 9 mode (25 fps mode)], 1920x1080, 1280x720, 640x360, 320x180[4: 3 mode (30 fps mode)], [4: 3 mode (25 fps mode)], 1280x960, VGA, QVGA, [4: 3 mode (15 fps mode)], [4: 3 mode (12.5 fps mode)], 2048x1536, 1280x960, VGA, QVGA |
| H.265/ H.2641. Transmission Mode
2. Transmissions Type
 | Constant bit rate / VBR / Frame rate / Best effortUnicast port (AUTO) / Unicast port (MANUAL) / Multicast |
| JPEG Image quality | 10 steps |
| Smart Coding1. GOP (Group of Picture) control
2. Frame Rate Control
3. Smart VIQS
4. Smart P-picture control
 | Off/ Low (Variable GOP 1s-8s)/ Mid (Variable GOP 4s-16s)/ Advanced (Outdoor Bullet GOP 60s w/1s key-frame)(Variable GOP 4s-16s with frame rate control)\*Advanced and Frame rate control are only available with H.265.On (High)/On (Low)/Off, Up to 8 zones availableOn/Off |

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| AUDIO |
| Audio Compression | G.726 (ADPCM): 16 kbps / 32 kbps G.71: 64 kbpsAAC-LC: 64 kbps / 96 kbps / 128 kbps |
| Audio Transmission Mode | Off / Mic (Line) input / Audio output / Interactive (Half duplex) / Interactive (Full duplex) |
| Audio Detection | On / Off |
| Audio Input/Output | Mic (Line) Input: On / Off Volume adjustment: Low / Middle / HighAudio Output: On / Off Volume adjustment: Low / Middle / High |

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| DORI |
| Detect (25ppm / 8ppf) | Wide: 23.5 m / 77.2 ft, Tele: 114.8 m / 376.5 ft |
| Observe (62.5ppm / 19ppf) | Wide: 9.4 m / 30.9 ft, Tele: 45.9 m / 150.6 ft |
| Recognize (125ppm / 38ppf) | Wide: 4.7 m / 15.4 ft, Tele: 23.0 m / 75.3 ft |
| Identify (250ppm / 76ppf) | Wide: 2.4 m / 7.7 ft, Tele: 11.5 m / 37.7 ft |

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| SYSTEM ON CHIP (SoC) |
| System on CHIP (SoC) | Ambarella CV25M |

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| OPERATION |
| Super Dynamic | On / Off, The level can be set in the range of 0 to 31. |
| Intelligent Auto | On / Off |
| Adaptive Black Stretch | The level can be set in the range of 0 to 255 |
| Fog compensation | On / Off (only when Intelligent auto / auto contrast adjust: Off) |
| Back light compensation /High light compensation | BLC (Back light compensation) / HLC (High light compensation) / Off (only when Super dynamic / Intelligent Auto: Off) |
| Maximum gain (AGC) | The level can be set in the range of 0 to 11. |
| Shutter Speed | [60 fps Mode] 1/60 Fix to 1/10000 Fix[30 fps/15 fps mode] 1/30 Fix to 1/10000 Fix [50 fps Mode] 1/50 Fix to 1/10000 Fix[25 fps/12.5 fps mode] 1/25 Fix to 1/10000 Fix |
| Digital Noise Reduction | The level can be set in the range of 0 to 255. |
| Video Motion Detection (VMD) | On / Off, 4 areas available |
| Scene Change Detection (SCD) | On / Off, 1 area available |
| Privacy Zone | On / Off, Up to 8 zones available |
| Camera Title (OSD) | On / Off, Up to 40 characters (alphanumeric characters, marks) |

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| BROWSER GUI |
| Camera Control | Brightness, AUX On / Off |
| GUI/ Setup Menu Language | English, Italian, French, German, Spanish, Portuguese, Russian, Chinese, Japanese |
| Browser | Microsoft Edge, Firefox, Google Chrome |

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| NETWORK |
| Network IF | 10Base-T / 100Base-TX, RJ45 connector |
| Supported Protocol1. IPv6
2. IPv4
 | TCP/IP, UDP/IP, HTTP, HTTPS, SSL/TLS, SMTP, DNS, NTP, SNMPv1/v2/v3, DHCPv6, RTP, MLD, ICMP, ARP, IEEE 802.1X, DiffServ, FTP, SFTP, MQTT, LLDPTCP/IP, UDP/IP, HTTP, HTTPS, SSL/TLS, RTSP, RTP, RTP/RTCP, SMTP, DHCP, DNS, DDNS, NTP, SNMPv1/v2/v3, UPnP, IGMP, ICMP, ARP, IEEE 802.1X, DiffServ, SRTP, FTP, SFTP, MQTT, LLDP |
| No. of Simultaneous Users | Up to 14 users (Depends on network conditions) |
| Secure | FIPS 140-2 level 3 (NXP® EdgeLock® SE050F), Device Certificate GlobalSign® pre-installed, HTTPS, User authentication, Digest authentication, Host authentication, IEEE802.1X, System log, Image transmission log, Brute-force protection, Alteration detection |
| Mobile Terminal Compatibility | iPad, iPhone, Android™ terminals |
| ONVIF® Profile | G / M / S / T |

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

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| INTERFACE |
| Monitor Output (for Adjustment) | VBS: 1.0 V [p-p] / 75 Ω, composite, Pin jackAn NTSC or PAL signal can be outputted from camera. |
| Audio Input | ø3.5 mm stereo mini jackFor microphone input: Recommended applicable microphone: Plug-in power type (Sensitivity of microphone: -48 dB±3 dB (0 dB=1 V/Pa, 1 kHz)) Input impedance: Approx. 2 kΩ (unbalanced)Supply voltage: 2.5 V ±0.5 VFor line input: Input level: Approx. –10 dBV |
| Audio Output | ø3.5 mm stereo mini jack (monaural output) Output impedance: Approx. 600 Ω (unbalanced) Output level: –20 dBV |
| External I/O Terminals | ALARM IN 1 (Alarm input 1/ Black & white input/ Auto time adjustment input) (x1)ALARM IN 2 (Alarm input 2/ ALARM OUT) (x1) ALARM IN 3 (Alarm input 3/ AUX OUT) (x1) |
| SDXC/SDHC/SD Memory Card1. H.265 / H.264 recording
2. JPEG recording
3. Compatible SDXC/SDHC/SD Memory Card
 | Manual REC / Alarm REC (Pre/Post) / Schedule REC / Backup upon network failureManual REC / Alarm REC (Pre/Post) / Backup upon network failure microSDXC memory card: 64 GB, 128 GB, 256 GB, 512 GBmicroSDHC memory card: 4 GB, 8 GB, 16 GB, 32 GB microSD memory card: 2 GB |

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| ELECTRICAL |
| Power Source  | DC power supply |
| Power Consumption | DC12 V 710 mA, Approx. 8.5 W |

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| SAFETY/EMC |
| 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 |

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| MECHANICAL |
| Dimensions | ø133 mm (W) x 133 mm (H) x 383 mm (D) {ø5-1/4 inches (W) x 5-1/4 inches (H) x 15-3/32 inches (D)} |
| Weight  | Approx. 2.4 kg {5.3 lbs.} |
| Constructional material1. Main body
2. Front cover
 | Aluminum die cast and resinPolycarbonate resin |
| Finish1. Main body
2. Outer fixing screws
3. Front cover
 | i-PRO WhiteStainless steel (Corrosion-resistant treatment)Clear (with ClearSight coating) |

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| ENVIRONMENTAL |
| Ambient Operating Temperature | -40 °C to +60 °C (-40 °F to 140 °F)(Power On range: –30 °C to +60 °C {–22 °F to +140 °F}) |
| Ambient Operating Humidity | 10 to 100 % (no condensation) |
| Anti-Condensation System | Temish element + Heater + moisture absorption gel |
| Water and Dust Resistance | IP66, IEC60529 measuring standard compatible, Type 4X(UL50E), NEMA 4X compliant |
| Shock Resistance | IK10 (IEC 62262) |

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| GENERAL |
| Other | WV-S1536LNS: Heavy salt damage resistance specifications (ISO14993 compliant) |