

 Approved by

 09.5.19

Technical Specification of Complete Video Surveillance System:

The Video surveillance system consists of CCTV camera unit, Network Video Recorder (NVR), Network Video Recorder (NVR), Network switch and necessary accessories. Detail technical specification of the Video Surveillance system is as below.

1. Technical specification of 2MP Network PTZ camera 50/60 fps	
Minimum or better specification	
Image sensor	1/2.8" CMOS sensor
Lens type	Min 30x optical zoom and 16x Digital Zoom
PTZ	≥Pan Range :0 ~ 360° endless ≥Pan speed :0.1 ~ 300°/sec ≥Tilt Range: -10 ~ 90° ≥Tilt speed :0.1 ~ 200°/sec
Video analytics	Human-oriented focal length/speed adaptation, auto tracking, face detection, Heat map, motion detection, video tempering, scene changing, network disconnect, IP conflict, illegal access, storage anomaly, intrusion detection, line crossing detection, region entrance detection or more
Min. Illumination	Color: 0.005lux@F1.6; B/W: 0.005lux@F1.6; 0Lux@F1.6(IR on)
IR distance	More than equal to 180m
Video and Audio	
Compression	H.265+/H.265/H.264+/H.264
Frame rate	50/60fps
Network	
User	≥ 32 users 3 levels: administrator, Operator, User
Protocol	IPv4/IPv6, HTTP, HTTPS, 802.1X, QoS, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE
Interface	RJ45 10/100M self-adaptive or more Ethernet ports
ONVIF	OEM must be full member of ONVIF
General	
Connectors	RJ45 for network
Power	24V AC and HI-PoE
Power consumption	≤ 60W
Protection level	IP 66 standard: vandol proof, IK10; 6KV lightning protection
Operating temperature	-40°C ~+70°C
Working humidity	≤ 90%
Certification	CE, UL must be submitted
2. Technical specification of panoramic outdoor bullet camera	
Minimum or better specification	
Image sensor	4*1/2.8" 2MP progressive scan CMOS
Effective pixel	4090(H) X1800(V)
Minimum Illumination	0.007Lux/F2.0(Color, 1/3s, 30 IRE), 0.005Lux/F2.0(color, 1/30s, 30IRS), 0Lux/F1.2(IR on)


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IR range	≥ 50m
Video analytics	Line crossing detection, intrusion detection, region entrance detection, region exiting detection, Tripwire, Intrusion, Object Abandoned/Missing, Heat Map, E-PTZ
Angle of view	H: 180° V: 80°
S/N ratio	More than 50dB
Video and Audio	
Video Compression	H.265/H.264+/H.264
Audio compression	G.711a/G.711Mu/AAC/ G.726
Frame rate	25fps@4096*1800
Video streaming	Adjustable Resolution, quality and bit rate, support More than 3 streams
Image setting	Rotate mode, saturation, brightness, contrast, sharpness, AGC, and white balance are adjustable by client software or web browser
Network	
User	Up to 30users or more 3 user levels: administrator, operator and user
Protocol	IPv4/IPv6, HTTP, HTTPS, 802.1X, QoS, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE and More
Interface	RJ45 10M/100M or More Speed Ethernet Port
ONVIF	OEM Must be Full Member of ONVIF
General	
Connectors	RJ-45 for Network/ PoE connection
Power input	IEEE 802.3atPoE
Operating condition	≥-30 °C to 60 °C
Protection level	IP67, Vandal proof and 6Kv lightning protection
Certification	CE, UL must be submitted
3. Technical specification of 4MP Motorized camera with AI features	
Minimum or better specification	
Image sensor	1/1.8" 4MP progressive scan CMOS
Effective pixel	2688(H)*1520(V)
Minimum illumination	0.003Lux@F1.8
IR distance	More than equal to 50m
Lens type	Motorized vari-focal
Field of view	Horizontal: 114°-47°, vertical 62°-26°
Video analytics	Support Face Detection, Face Attributes, Perimeter Protection, People Counting, Heat Map Line crossing detection, intrusion detection, region entrance detection
Video and audio	
Compression	H.265; H.264; H.264B; MJPEG
Frame rate	4MP@25/30Fps and 2MP@50/60Fps
Image setting	Rotate mode, saturation, brightness, contrast, sharpness, AGC, and white balance are adjustable by client software or web browser
Network	
User	Up to 30users or more 3 user levels: administrator, operator and user
Protocol	IPv4/IPv6, HTTP, HTTPS, 802.1X, QoS, FTP, SMTP, UPnP, SNMP, DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, ICMP, DHCP, PPPoE and More
Interface	RJ45 10M/100M or More Speed Ethernet Port


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ONVIF	OEM Must be Full Member of ONVIF
Certification	CE, UL must be submitted
General	
Connectors	RJ-45 (10/100 Base-T)
Power	IEEE 802.3atPoE
Operating condition	-30°C - +60°C
Protection level	IP67, IK10, 6KV lightning protection
3. Technical specification of 4MP IP Network Fix Lens Camera full color with AI features 50/60FPS	
Minimum or better specification	
Image sensor	1/1.8" 4MP progressive scan CMOS
Effective pixel	2688(H)*1520(V)
Minimum Illumination	0.002Lux@F1.6
Angle of view	H: 113°, V:60° / H: 89°, V:48° / H: 56°, V:31°
IR range	Greater than equal to 50m
Video analytics	Face Detection, Perimeter Protection, People Counting, Starlight, warm supplemental LED lights, Line crossing detection, intrusion detection, region entrance detection
Lens type	Fixed-focal
Resolution	2688 × 1520/2560 × 1440/2304 × 1296/1080P (1920 × 1080)/1.3M (1280 × 960)/720P (1280 × 720)/D1 (704 × 576/704 × 480)/VGA (640 × 480)/CIF (352 × 288/352 × 240)
Day/Night	Day/Night: electronic, Auto/color/B/W
Audio and video	
Compression	H.265/H.264/H.264H
Audio compression	G.711a, G.711Mu, G.726, AAC, G.723
Frame rate	50/60fps (1920*1080)
Network	
Stream	3 streams
Protocol	IPv4; IPv6; HTTP; HTTPS; TCP; UDP; ARP; RTP; RTSP; RTCP; RTMP; SMTP; FTP; SFTP; DHCP; DNS; DDNS; QoS; UPnP; NTP; Multicast; ICMP; IGMP; NFS; PPPoE
Interface	RJ45 10M/100M or More Speed Ethernet Port
ONVIF	OEM Must be Full Member of ONVIF
General	
Connector	RJ-45 (10/100 Base-T)
Power supply	DC 12V, PoE(802.3af)
Operating condition	-30°C - +60°C
Protection level	IP67, vandal proof, 6KV lightning protection
Certification	CE, UL must be submitted
Technical specification of 32 channel AI Network video recorder	
Minimum or better specification	
Storage	
HDD min. capacity	At least 8TB each
HDD included	Min. 2 Psc
Interface	2 SATA, 1eSATA interface
Video and Audio	



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Video output	HDMI X 1, VGA*1
Resolution	HDMI: 3200*2000 VGA: 2650*1440
Decoding capacity	Smart H.265+/H.265/Smart H.264+/H.264/MJPEG
Live/playback resolution	16MP,12MP, 8MP, 6MP, 5MP, 4MP, 3MP, 1080P, 1.3MP, 720P, D1
External interface	
USB interface	4 USB Ports (2 USB 3.0, 2 USB 2.0)
Audio	1 Channel Input, 2 Channel Output, RCA
Network	
network interface	2 RJ-45 Ports (10/100/1000Mbps)
Protocols	HTTP, HTTPS, TCP/IP, IPv4/IPv6, UPnP, SNMP, RTSP, UDP, SMTP, NTP, DHCP, DNS, IP Filter, PPPoE, DDNS, FTP, Alarm Server, IP Search (Support IP camera, DVR, NVS, etc.), P2P
ONVIF	Must be member of ONVIF
Record	
Channel	32
Record throughput	Minimum 320Mbps
Video input	Up to 32 channels
Full channel recording capacity	4K
Others	<ul style="list-style-type: none"> - Support Multiple Video Content Analytics - AI Smart Search option - Connectable to the Third-Party Network Camera - Technology support: Perimeter Protection, Real Time Face Recognition, Face Database Management, ANPR, Point of Sale (POS) - Meta data: Face: Gender, age, glasses, beard, mask. Vehicle: Vehicle color, vehicle model, vehicle logo, plate color, vehicle decorations, call, seatbelt, Human Body: Tops style, tops color, bottom style, bottom color, hat, bag. - Non-Motor vehicle: Type, color, people number. AI search target video by metadata. - Object classification: Human/Vehicle secondary recognition for tripwire and intrusion
Technical specification of surveillance hard disk drive (HDD)	
Minimum or better specification	
Series	Surveillance
Capacity	8TB
R/W speed	6Gbps
RPM	5400 or more
Technical specification of 24 port L2 switch	
Minimum or better specification	
Interface	24* fiber ports with 100/1000 Mbps base X 8*RJ45 ports base-T and 4* fiber ports with 1/10 Gbps SFP+ 1*console port
Switching capacity	221Gbps
Working condition	-30°C - +60°C
Packet forwarding rate	More than 100 Mbps


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Technical specification of 10 port managed industrial switch	
Minimum or better specification	
Interface	6*10/100/1000 base-T (PoE power supply) 4*100/1000 Base-X, RS232, RS485X2, 1*input and 1*output
Switching capacity	28Gbps or better
PoE power	Minimum 120W
Working condition	-20°C - +70°C
Protection level	6KV lightning protection
Technical specification of 4 ports managed PoE switch	
Minimum or better specification	
Interface	2*1000 Base-X(SFP), 1*10/100/1000 Base-T(Hi-PoE/PoE/PoE+) 3*10/100 Base-T(PoE+/PoE)
PoE power	Minimum 96W
Switching capacity	6.8Mbps or more
PoE protocol	PoE(802.3af), PoE+(802.3at), Hi-PoE
Protection	6KV of lightning protection
Working condition	-30°C - +60°C
Technical specification of SFP	
Minimum or better specification	
Model no. should be specified by vendor
Brand must be recognized worldwide.
Item	100/1000 media transceiver SFP
Technical specification of 4 ports surveillance 50" monitor	
Minimum or better specification	
Screen size	50" with WIFI
Resolution	4K (3840*2160)
Refresh rate	60Hz
Ports	2*HDMI2.0 1*USB3.0 1*USB2.0 1*audio, 1*RJ45(RS232), 1*LAN, 1*Headphone jack, 2*speaker 8w
Technical specification of 6 core fiber	
Minimum or better specification	
Structure	Details: Min 1.4*7 mm Sheath: Min 1.2mm
Loose tube	Material: PBT Out diameter Min 3mm
Wrap tape	Material: Waterproof tape Thickness: Min 0.2mm
Armoring	Material: PE coated corrugated steel tape Armor steel: Min 10 unit
Outer sheath	Material: PE Thickness: Min 2 mm
Maximum attenuation	Wavelength (nm): Min (1310=0.35, 1383 ± 3** 1490=0.20, 1550&1625=0.23)


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Temperature	-60 to 85 °C, Attenuation =0.05db/Km
Technical specification of 27U server rack	
Minimum or better specification	
Racks manufactured out of steel sheet punched, formed welded and Powder coated, side panel and vented top cover or better	
Rack should have Adjustable mounting depth, Numbered U positions, Proper Grounding & Bonding, have Proper Cooling Mechanism & Power Distribution Unit.	
Technical specification of 600VA/360W line-interactive UPS	
Minimum or better specification	
Rated voltage	220Vac-240Vac
Voltage range	140Vac-240Vac
Rated frequency	50Hz
Power factor	0.6
Output voltage	220/230/240VAC
AC voltage regulation (Batt. Mode)	±10%
Frequency range (Batt. mode)	50Hz
Transfer time	2-6ms
Alarm	Low battery, overload, fault
Waveform (Batt. Mode)	Simulated sinewave
Features	Boost and buck AVR for voltage stabilization, Off-mode charging, cold start function and full protection, compact size
Technical specification of 2 zone fire alarm system	
Minimum or better specification	
Standby power	24V D.C (2 Nos of 12v, 7Ah Sealed Lead acid battery), Quiescent current: 55mA
Environment conditions	0 – 49° C/32-120° F, 18 Gauge (1.22mm) CRCA sheet with powder-coated Finish, IP50
Common relays	Type: Form C, No of Relays: 3 Relay Contact Rating: 2Amps @ 30 VDC, 0.5Amps @125VAC. Power Factor: 1.0
Initiating device circuits (zone circuit)	All zones are Class B wiring, Normal Operating Voltage: 14- 21 VDC, Alarm Current: 15 – 30mA, Short Circuit Current: 42mA Maximum Loop resistance: 50 ohms Maximum
Charging circuit	Charging Voltage 28.2V, ±2%, Charging Current 0.5 A
Special features	Boost and buck AVR for voltage stabilization, Off-mode charging, cold start function and full protection, compact size
Technical specification of integrated solar power system	
Minimum or better specification	
Brand Must be recognized worldwide.
Model Should be specified by vendor.
Output voltage/ current	Over-discharge Protection Voltage:11.1V DC, Over-temperature and overvoltage protection of battery; overload and short circuit protection of load.
Solar panel	Monocrystalline silicon, Maximum Power :120W, Solar Cell Efficiency: 21%, Maximum Mechanical Load 5400Pa
Battery	Lithium iron phosphate battery, Rated Capacity:576Wh (12.8V/45Ah).

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Protection	Over-discharge Protection Voltage: 11.1V DC, Over-temperature and overvoltage protection of battery; overload and short circuit protection of load.
Ports	Power Output: $\Phi 5.5\text{mm} \times \Phi 2.1\text{mm} \times 12\text{mm}$ ($\Phi 0.22'' \times \Phi 0.08'' \times 0.47''$), 2* RJ-45
Environment conditions	IP66, Casing Material: Aluminum
Technology supports	Remote monitoring with App, Maximum Power Point Tracking (MPPT) charging controller, RS-485 communication function
Documents	<ul style="list-style-type: none"> ➤ All the datasheets and technical specification must be submitted which should be reflected on OEM global website for cross checking. ➤ MAF should be submitted.

Terms and conditions:

1. Bidder should be in the business of Surveillance or Electronic Security and Vendor must have minimum 3 years of working experience in optical fiber, Networking, city Surveillance and CCTV installation.
2. Brochure, Technical Specification Detail, Manufacturing Certificate, Authorization Letter ISO Certificate and customer satisfaction letter is essential.
3. Two years of warranty for CCTV equipment (camera's & AINVR), Three Years of warranty for Network equipment, three years of warranty for media converter must be provide in OEM letter head duly signed and original copy of document must be e mailed by OEM for cross check verification, emailed document is only treated as valid in tender process.
4. In case of problems occurred within warranty period must be solved within 24 hours especially in mega events and prompt support at any time on call in normal condition as well.
5. Bidder must have experience and well qualified technical manpower (Engineers, Overseers & technician) so that they could able to provide technical support and must submit bio-data of their technical manpower.
6. Optical cable must be cabled at maximum height and standard size of pole bracket must be used for proper camera angles alignment.
7. Detail documents of optical fiber network, CCTV camera, Routing & Switching, power cable with color code/core and detail route map showing all block diagram of the network connection must be provided before receiving first payment and works on those documents within the installation period.
8. Florescent sticker with plastic lamination tag must be attached in every 80-100m optical fiber and color spray must be used for fiber identification in spliced fibers, U-knot should be used in every pole.
9. Must be incorporate all necessary software & accessories including tiffin box, AC power cable, cat 6 cable, concentric cable, steel belt, patch cord, MCB (min6A), DB boxes, power socket or multi plug (min 5 port, 2500W), and consists of necessary equipment in case of missing in BOQ in order to complete whole installation.
10. All cameras and AI NVR must be same brand.
11. All necessary and related catalogues must be supplied by vendor.
12. Bidder should have turnover of at least equivalent to the bid amount.
13. If warranty unspecified above each item must have minimum 1 year service warranty and letter of warranty commitment of each items must be attached by vendor.
14. Bidder should have an experience of similar project (i.e. ANPR Camera installation, Fiber and Fiber Network Component included project in Nepal Government Organization.
(Note: Bidder should submit contract Paper or Work Order/PO or project completion letter of government organization)

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