

INSTALLATION/COMMISSIONING OF CCTV SYSTEMS

IN THE

OFFICE OF THE ACCOUNTANT GENERAL (A&E), TAMIL NADU

361, ANNA SALAI, TEYNAMPET, CHENNAI -18

Website: www.aqae.tn.nic.in

Phone Nos. 044-24324665/528

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CHAPTER I

1.0 Objective

It is proposed to replace the existing analog cameras connected to DVR with digital cameras linked to NVR in the Office of the Accountant General (A&E), Tamil Nadu

1.1 System components

The proposed system consists of the following components:

1.1.1 IP based POE cameras (50nos) connected to Network Video Recorder (NVR) (32 channel 2nos)

1.1.2 Active and Passive network components

CHAPTER II

2.0 Scope of work

- 2.0 The scope of work covers the following components
- 2.1.1 Supply, installation, commissioning, conducting performance test run, training and providing documentation of the working of the CCTV system.
- 2.1.2 Laying of LAN cabling connecting the cameras with the NVR.
- 2.1.3 The Office has the right to buy only one or few or all components specified at 1.1 and to increase or decrease the quantity of the components

2.2 Supply

- 2.2.1 The supply shall include cameras, NVR, active and passive network components and inbuilt NVR software for recording and managing the cameras connected to the NVR and any other equipment required for installation of CCTV system.
- 2.2.2 Until such time the equipments are successfully taken over by the office, the responsibility for the equipments and system lies with the vendor.
- 2.2.3 The vendor shall supply the complete documentation i.e., technical catalogues for various components, power/signal diagrams, test certificates, warranty certificates, user manuals etc.
- 2.2.4 The vendor should furnish complete diagram of placement of cameras, racks and routing of connecting cables
- 2.2.5 The vendor should furnish warranty certificates from the OEM for the cameras, NVRs and active network components deployed.

2.3 INSTALLATION, COMMISSIONING AND PERFORMANCE TEST RUN

- 2.3.1 The vendor shall position and erect the cameras, NVR, racks and display at the locations identified by this office
- 2.3.2 The vendor shall do the inter connection cabling between cameras and NVR.
- 2.3.3 The vendor should provide all labour, cabling, tools, parts required to install the components and test to ensure functionality

2.4 Trial Run

- 2.4.1 The CCTV system will be under trial run for a period of one month from the date of successful commissioning. The representatives of the Office would declare successful commissioning of the system.

2.5 Training

- 2.5.1 The vendor shall provide required training to nominated officials of this office on maintenance and operational aspects of CCTV system
- 2.5.2 The vendor will provide training on any active parts and demonstrate setup/disassemble of the unit(s) described within the specification above
- 2.5.3 The vendor has to train a set of personnel of the Office for day to day management, extraction of selective period footage/complete footage from the NVR.

2.6 Documentation

- 2.6.1 The vendor shall provide technical literature for each component of CCTV system. Data sheet, wiring diagram, inter-connection block diagram, Operation and Maintenance manual etc. shall also be provided
- 2.6.2 The warranty certificate, test certificates indicating codes and standards shall also be provided

2.7 Inspection of materials before despatch

This office at its option may send their representative to inspect the materials/components/spares supplies against this order at vendor's works. Vendor to extend all necessary test facilities to carry out inspection at their works at no extra cost.

Chapter III - Terms and conditions

3.1 Acceptance / Rejection of bid

- 3.1.1 This office reserves the right to accept tender in whole or in part or, reject any or all tenders without assigning any reason whatsoever.
- 3.1.2 Further, this office shall not be bound to accept the lowest tender and acceptance of tender may also be based on components with technically sound features. The features of Cameras, NVR and NVR in-built video management software should be enclosed along with the bid. In this regard, the decision of this office shall be final.
- 3.1.3 Bid documents from the vendors should be for the entire scope of work covered under this tender. Tenders with quotes for selected items shall not be entertained.
- 3.1.4 Specifications mentioned in the tender document are minimum requirements for the proposed system, however vendor may offer higher configuration over and above the requirement. Offers not meeting the minimum requirement shall be liable for rejection
- 3.1.5 The vendors should enclose a rough CCTV system (cameras, Racks etc) placement diagram along with the tender documents

3.2 Delivery of Material

- 3.2.1 Equipments, materials shall be delivered at Office of the Accountant General (A&E),361, Anna salai, Teynampet, Chennai 18.
- 3.2.2 Packing & unpacking, Loading & unloading of material shall be in vendors scope

3.3 Work completion period

Entire supplies, installation and commissioning shall be completed within 45 days from the date of placement of Work order.

3.4 Additional notes

- 3.4.1 The vendor must indicate the make and model item wise.
- 3.4.2 The vendor shall provide list of installations and customer references of similar access control systems in India, preferably from Government offices, Companies, Government bodies.
- 3.4.3 The vendor's entire staff shall follow the instructions of this office for taking up any job inside this office.

3.5 Earnest Money Deposit:

An earnest money deposit of Rs.100000/- has to be furnished by all the bidders. EMD should be in the form of a DD in favour of PAO/IAD. Bids without EMD will be rejected. Bid security (EMD) is exempted for Micro and Small Enterprises (MSEs) as defined in MSE procurement policy issued by the Department of Micro, Small and Medium Enterprises(MSME) or are registered with Central Purchase Organization or concerned Ministry or Department.

3.6 Composite Performance Bank Guarantee (CPBG)

- 3.6.1 The bidder (s) with whom the contract is finalized and intimation so given will have to submit either an Account Payee Demand Draft in favour of PAO/IAD, or Performance Bank Guarantee for an amount equivalent to 10 % of the Work order / Contract value, which shall be valid for a minimum period of 2 months beyond the expiry of the warranty / defects liability period.
- 3.6.2 The bank guarantee on stamp paper of requisite value shall be accepted only from Scheduled Indian Banks (other than co-operative banks). All Bank Guarantee shall be unconditional and en cashable on presentation to the issuing Bank.

3.7 Warranty obligations

The cameras and NVR should be supplied with a minimum of two year warranty, the hard disks with minimum 3 years warranty and active network components with a minimum of 5 year warranty. During the warranty period, the vendor shall attend trouble-shooting of any system malfunctioning /defective functioning/equipment failure etc. within 24 hours. Any part if found defective shall be replaced/repaired free of cost and the performance as guaranteed in the tender should be maintained.

3.8 Post-Warranty Annual Maintenance Contract(AMC)

- 3.8.1 It is mandatory for all the vendors to provide AMC support to this office for all supplied component & whole system for a period of 5 years, beyond the completion of regular warranty period in respect of each components from completion of trial run. Vendors shall therefore, must quote charges towards AMC as part of this offer (comprehensive and semi-comprehensive), without which the bid will be considered invalid & summarily rejected. The post-warranty AMC amount will be reckoned for evaluation of the bid. A separate PO will be placed for AMC after completion of defects liability period.
- 3.8.2 The Bidder will have to depute his engineer for preventive check of the system atleast once in a month during AMC/as and when required for attending defects/problems communicated.

3.9 Bank Guarantee for AMC

Vendor shall furnish separate Bank Guarantee (BG) equivalent to the rate quoted for 5 years Annual Maintenance Contract. This BG shall be submitted 2 months before the expiry of defects liability period failing which the Performance Bank Guarantee shall stand forfeited. BG for AMC shall be valid for 63 months from the date of expiry of Defects liability period.

3.10 Payment Terms:

Payment shall be made after the successful installation, Testing and Commissioning of the system.

3.11 Office Reserves the right to make any modifications in the scope and conditions of tender on or before 08/10/2018. Vendors are required to view our Web site viz., www.agae.tn.nic.in for any updation in this regard before site inspection.

3.12 Bids to be forwarded in sealed envelope superscribed as “TENDER FOR CCTV SYSTEM” and addressed to

SHRI. SURESH JAGTAP, IA &AS
Sr.Deputy Accountant General(Admn)
Office of the Accountant General(A&E), Tamilnadu
361 Anna Salai, Chennai – 600 018

3.13 **Site Inspection and meeting dates:** The vendors can inspect the site on 11/10/2018 – 11.00AM Thursday. The Office will arrange a meeting with the vendors at 11AM on 12/10/2018.

3.15 **Late date for submission of bids :** 26/10/2018 by 5.30pm

Chapter IV – Specifications & Allied Technical details

32 CHANNEL NVR – Makes : HONEYWELL/BOSCH/AXIS/PELCO/PANASONIC/SONY

S.No	MINIMUM SPECIFICATIONS OR BETTER		Compliance
1	Main Processor	Quad core or above	
2	No. of HDD SATA BAY	8nos (3.5" HDD) with support for upto 8TB hdd per bay	
3	Connector	Ethernet RJ-45, 10 / 100 / 1000 Mbps	
4	RAID	RAID 0/1/5/6/10	
5	Recording compression	H.265/H.264/MJPEG/MPEG4	
6	Live view, preview and playback	Upto 12MP	
7	Operating System	Windows / Linux	
8	Video Input	32 Channels IP	
9	Record Bit Rate	320 Mbps or above	
10	Number of users	128 or above	
11	NVR Software for management	In-built or pre-loaded with free license for 32 channels	
12	Resolution	12 MP (4000 × 3000); 8 MP (3840 × 2160); 6 MP (3072 × 2048); 5 MP (2560 × 1920); 4 MP (2560 × 1440); 3 MP (2048 × 1520); 1080p (1920 × 1080); 720p (1280 × 720); D1 (704 × 576 / 704 × 480); CIF (352 × 288 / 352 × 240)	
13	Protocols supported	HTTP, TCP/IP, IPv4/IPv6, UPnP, RTSP, UDP, SMTP, NTP, DHCP, DNS, IP Filter, PPPoE, DDNS, FTP, Alarm Server, IP Search, P2P,	

SURVEILANCE HARD DISK

Makes : Seagate / Western Digital – Should be suitable for the NVR MODEL

S.No	MINIMUM SPECIFICATIONS OR BETTER		Compliance
1	Connectivity	SATA	
2	Form Factor	3.5 inch	
3	Format Capacity	8 TB	
4	RPM	5400 or above	
5	Interface transfer rate	6 Gb/s or above	

Core Switch - Makes: HP, ALLIED TELESIS, CISCO

S. No	PARAMETER	REQUIRMENT	COMPLIANCE (YES / NO)
1	No of ports	i) 24 x 10/100/1000 Base -X port with additional 4 x 1/10 G SFP+ ports, 4x 10G SFP+ ports should also support for 1G SFP based on network requirements.	
		ii) Should support for active/active clustering, VSS or equivalent technology for higher availability of Layer 2 and Layer 3 including video applications with clustering bandwidth of 40Gbps	
		iii) Should come with Internal redundant power supplies for providing better reliability and continual delivery of essential services	
2	L2 Features	i) Supports for IEEE 802.3ac, IEEE 802.3az, IEEE 802.1ab, IEEE 802.3ad IEEE 802.1Q, IEEE 802.1s, IEEE 802.1w, IEEE 802.1D	
		ii) Switch must support G.8032 or equivalent ring protection technology for sub 50ms (or lower) for seamless recovery	
3	L3 Features	Static routing, RIP, RIPng, OSPF, OSPFv3, PIM v4 SM, DM, SSM, DHCP & DNS client and relay for both IPv4 and IPv6 (dual stack) based on network requirements	
4	Performance	Should support for following parameters	
		i) MAC address 16K entries	
		ii) Jumbo frames 10KB	
		iii) Priority Queues 8	
5	Multicast	iv) Simultaneous VLANs 4K	
		IGMP snooping v1 , v2 and v3, MLD snooping (v1 and v2)	

6	Security Features	Should support for ACLs based on L3 and L4 headers, DHCP snooping, DHCPv4 (Snooping, server/ client), Dynamic ARP Inspection (DIP), RADIUS, TACACS+, SSL, SSH, SSL v2 and v3, SFTP, SNMP, NTP, Port Mirroring, Denial of Service (DoS) protection and Tri-authentication such as MAC-based , web-based and IEEE 802.1x port based authentications	
7	Management	i) SNMPv1, v2c and v3, TFTP, Web GUI, CLI, USB or equivalent memory card, IPv4 and IPv6 management features.	
		ii) Switch should support for simplified management features such as auto backup, auto upgrade, auto-provisioning and auto recovery enabling plug-and-play networking and easy centralized management solutions	
8	Monitoring	i) sFlow or an equal industry standard technology for monitoring high speed switched networks.	
		ii) Switch should support for in built Layer 1 monitoring capability for end to end security monitoring to avoid any drops or security breach on the Fiber uplink links	
9	Quality of Services	i) low latency with wire speed traffic classification essential for real time streaming and real time Video and voice applications	
		ii) Should support for IEEE 802.1p standard, Policy-based QoS based on VLAN, port, MAC and general packet classifiers	
10	Switching Capacity	Non blocking switching and wire speed forwarding rate	
11	Certification and Compliances	UL/IEC/EN 60950-1; FCC and RoHS	

SFP MODULE - Makes: HP, ALLIED TELESIS, CISCO

S. No	PARAMETER	REQUIRMENT	COMPLIANCE (YES / NO)
1	COPPER GIGABIT	10/100/1000T (100 M)	
2	FIBER GIGABIT	LC SMF 10 KM	
3	FIBER GIGABIT	LC MMF 220-550 M	

8 Port PoE Switch - Makes: HP, ALLIED TELESIS, CISCO

S. No	PARAMETER	REQUIRMENT	COMPLIANCE (YES / NO)
1	No of ports	8 10/100/1000 Base-T and additional 2 1G Base-X ports. Should support minimum 120 watts poe budget that supports 802.3at	
2	L2 Features	Should support STP, RSTP, MSTP, IGMP v1/v2/v3 snooping, loop protection, STP root guard, Voice VLAN, loop protection, MLD snooping (MLDv1 and v2), IEEE 802.3ac, IEEE 802.1v, 16k MAC Table or more, PVST+ compatibility mode, RIP, static routing, capable to support IEEE 802.1Q, IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q)	
3	Resiliency	Should support IEEE 802.17/equivalent for sub 50ms ring protection	
4	Security	Should support ACL, DHCP (relay and client), IP Source guard, DAI, Private VLAN, Authentication (MAC, Web and IEEE 802.3x), sflow, SSLv2 and SSLv3, TACACS+, LAG, IP precedence and DiffServ marking based on layer 2, 3 and 4 headers	
5	Management	CLI, GUI, USB interface for taking backup of software release files configurations, Digital optical monitoring, Time Domain Reflectometry/ equivalent, DHCPv6, DNSv6, Telnetv6 and SSHv6, NTPv6 client and server, RMON 4 groups, SNMPv3, LLDP-MED, IEEE 802.3az, IPv4 and IPv6 support, SDN openflow v1.3 ready	
6		Should support single IP management of min 16 switches for ease of management.	
7		Should support Unidirectional Link Detection (UDLD) or equivalent to detect unidirectional links caused by incorrect fibre optic wiring or port faults and disable on fibre optics interfaces	
8	Operating Temperature	Should inherently support operating temperature range of 0-50C	
9	Certification and Compliances	Should support UL, cUL, UL-EU, UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, EN60950-1, EN60825-1, AS/NZS 60950	
10	Switching Capacity	Non blocking switching and wire speed forwarding rate	

16 Port PoE Switch - Makes: HP, ALLIED TELESIS, CISCO

S. No	PARAMETER	REQUIRMENT	COMPLIANCE (YES / NO)
1	No of ports	16 10/100/1000 Base-T and additional 2 1G Base-X ports. Should support minimum 245 watts poe budget that supports 802.3at	
2	L2 Features	Should support STP, RSTP, MSTP, IGMP v1/v2/v3 snooping, loop protection, STP root guard, Voice VLAN, loop protection, MLD snooping (MLDv1 and v2), IEEE 802.3ac, IEEE 802.1v, 16k MAC Table or more, PVST+ compatibility mode, RIP, static routing, capable to support IEEE 802.1Q, IEEE 802.1ad Provider bridges (VLAN stacking, Q-in-Q)	
3	Resiliency	Should support IEEE 802.17/equivalent for sub 50ms ring protection	
4	Security	Should support ACL, DHCP (relay and client), IP Source guard, DAI, Private VLAN, Authentication (MAC, Web and IEEE 802.3x), sflow, SSLv2 and SSLv3, TACACS+, LAG, IP precedence and DiffServ marking based on layer 2, 3 and 4 headers	
5	Management	CLI, GUI, USB interface for taking backup of software release files configurations, Digital optical monitoring, Time Domain Reflectometry/ equivalent, DHCPv6, DNSv6, Telnetv6 and SSHv6, NTPv6 client and server, RMON 4 groups, SNMPv3, LLDP-MED, IEEE 802.3az, IPv4 and IPv6 support, SDN openflow v1.3 ready	
6		Should support single IP management of min 16 switches for ease of management.	
7		Should support Unidirectional Link Detection (UDLD) or equivalent to detect unidirectional links caused by incorrect fibre optic wiring or port faults and disable on fibre optics interfaces	
8	Operating Temepature	Should inherently support operating temperature range of 0-50C	
9	Certification and Compliances	Should support UL, cUL, UL-EU, UL60950-1, CAN/CSA-C22.2 No. 60950-1-03, EN60950-1, EN60825-1, AS/NZS 60950	
10	Switching Capacity	Non blocking switching and wire speed forwarding rate	

8 Port Industrial PoE Switch - Makes: HP, ALLIED TELESIS, CISCO

S. No	PARAMETER	REQUIRMENT	COMPLIANCE (YES / NO)
1	No of ports	Outdoor Din Rail mountable Industrial grade switch with Min of 8 x 10/100/1000 Base-T POe/POE+ and 2 x 100/1000 SFP combo ports	
		Suitable Internal or External AC/ DC power Supply Unit with redundant power inputs, with power budget of 120W minimum	
2	PoE+	POE + standards should be in accordance with IEEE 802.3af and IEEE 802.3at standards.	
3	L2 Features	Supports for IEEE 802.3ac, IEEE 802.3az, IEEE 802.1ab, IEEE 802.3ad IEEE 802.1Q, IEEE 802.1s, IEEE 802.1w, IEEE 802.1D	
		switch must support ring protection technology for sub 20ms (or lower) for seamless recovery	
4	Performance	Should support for following parameters	
		i) MAC address 8K entries	
		ii) Jumbo frames 9 KB	
		iii) Priority Queues 8	
		iv) Supports 4094 configurable VLANs and 255 layer 2 multicast entries	
5	Multicast	Supports for both IGMP snooping v1 , v2 and v3, MLD snooping (v1 and v2)	
6	Security Features	Supports for RADIUS, SSL, SSH, SSL v2 and v3, NTP, Port Mirroring, and port security based on MAC, web-based and IEEE 802.1x	
7	Management	SNMPv1, v2c and v3, TFTP, Web GUI, CLI for both IPv4 and IPv6 management features	
8	Monitoring	sFlow or an equal industry standard technology for monitoring high speed switched networks	
9	Quality of Services	Supports low latency with wire speed traffic classification essential for real time streaming and real time Video and voice applications	
		Should support for IEEE 802.1p standard, Policy-based QoS based on VLAN, port, MAC and general packet classifiers	
10	Switching Capacity	Non-blocking switching and wire speed forwarding rate	
11	Operating Temperature	Min of -40 to 75 Degrees or more	
12	Operating Humidity (non-	10% to 95% or better	

	condensing)		
13	Certifications and compliance	EN5022, EN60715, ROHS, WEEE, IP30 Protection and DIN Rail Mounting	

32" LED Display Make: Samsung/LG/Panasonic

Sl. No.	Parameters/ Features	Required Specifications	Compliance (YES / NO)
1	Display Size	32"	
2	Resolution	1920*1080	
3	Screen Aspect	16:09	
4	Brightness	350 nits or higher	
5	Stereo Audio In	RCA Pin Type × 2	
6	HDMI	3 or more	
7	USB	USB 2.0 × 2 or more	
8	Power supply	230 V	
9	Operating Environment	0 °C to 40 °C or better	
10	Backlight Scanning	100 Hz or more	
11	Other Accesseries	Wall Mount kit Quick Setup	
		Guide, warranty card, application CD, power cord and Other accesseries	

IP CAMERA (25m) Rugged Mini Dome compatible for NVR

Makes : HONEYWELL/BOSCH/AXIS/PELCO/PANASONIC/SONY

S.No	MINIMUM SPECIFICATIONS OR BETTER	Compliance
1	VIDEO STANDARD NTSC/PAL	
2	SCANNING SYSTEM Progressive scan	
3	IMAGE SENSOR 1/3" 4 MP CMOS	
4	NUMBER OF PIXELS (H × V) 2688 × 1520	
5	MINIMUM ILLUMINATION 0.08 lux color @ F2.0 (Color, 1/3s, 30 IRE) 0 lux B/W with IR LEDs on @ F2.0	
6	S/N RATIO > 45 dB	
7	ELECTRONIC SHUTTER SPEED 1/3(4) – 1/100,000 s	
8	IR DISTANCE Up to 82 ft (25 m), depending on scene reflectance	
9	SMART IR Auto/Manual	
10	DAY/NIGHT Auto (ICR)/Color/BW	
11	BACKLIGHT COMPENSATION BLC/HLC/WDR (120 dB)	
12	WHITE BALANCE Auto/Natural/Street Lamp/Outdoor/Manual	

13	GAIN CONTROL Auto/Manual	
14	WIDE DYNAMIC RANGE True WDR (120 dB)	
15	NOISE REDUCTION 3D DNR	
16	LENS 2.8 mm, fixed, F2.0	
17	ANGLE OF VIEW 104°/87° (H), 57°/48° (V)	
18	VIDEO COMPRESSION H.265+/H.265/H.264+/H.264	
19	RESOLUTION 4 MP (2688×1520), QHD (2560×1440), 3 MP (2304×1296), 1080p (1920×1080), SXGA (1280×1024), 1.3 MP (1280×960), 720p (1280×720), D1 (704×576/704×480), VGA (640×480), CIF (352×288/352×240)	
20	FRAME RATE 4 MP at 1 – 20fps, 3 MP at 1 – 25/30fps D1/CIF at 1 – 25/30fps	
21	BIT RATE CONTROL CBR/VBR	
22	BIT RATE H.265: 12K – 8448 Kbps H.264: 32K – 10240 Kbps	
23	NETWORK ETHERNET RJ-45 (10/100BASE-T)	
24	PROTOCOLS IPv4/v6, TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, HTTPS, SSL, FTP, SMTP, DHCP, PPPoE, UPnP, SNMP v2/v3, Bonjour, DNS, DDNS, IEEE 802.1X, QoS, NTP	
25	SECURITY User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled	
26	POWER SUPPLY PoE (802.3af) Class 0, 12 VDC	
27	RELATIVE HUMIDITY Less than 95%, non-condensing	
28	INGRESS PROTECTION IP66	
29	EMISSIONS FCC Part15B, EN 55032	
30	IMMUNITY EN 50130-4	
31	SAFETY EU: EN 60950-1 North America UL listed to UL/CSA 60950-1	
32	ROHS EN 50581	

IP CAMERA (30m) Bullet compatible for NVR

Makes : HONEYWELL/BOSCH/AXIS/PELCO/PANASONIC/SONY

S.No	MINIMUM SPECIFICATIONS OR BETTER	Compliance
1	VIDEO STANDARD NTSC/PAL	
2	SCANNING SYSTEM Progressive scan	
3	IMAGE SENSOR 1/3" 4 MP CMOS	
4	NUMBER OF PIXELS (H × V) 2688 × 1520	
5	MINIMUM ILLUMINATION 0.08 lux color @ F2.0 (Color, 1/3s, 30 IRE) 0 lux B/W with IR LEDs on @ F2.0	
6	S/N RATIO > 45 dB	
7	ELECTRONIC SHUTTER SPEED 1/3(4) – 1/100,000 s	
8	IR DISTANCE Up to 98 ft (30 m), depending on scene	

	reflectance	
9	SMART IR Auto/Manual	
10	DAY/NIGHT Auto (ICR)/Color/BW	
11	BACKLIGHT COMPENSATION BLC/HLC/WDR (120 dB)	
12	WHITE BALANCE Auto/Natural/Street Lamp/Outdoor/Manual	
13	GAIN CONTROL Auto/Manual	
14	WIDE DYNAMIC RANGE True WDR (120 dB)	
15	NOISE REDUCTION 3D DNR	
16	NETWORK ETHERNET RJ-45 (10/100BASE-T)	
17	LENS 3.6 mm, fixed, F2.0	
18	ANGLE OF VIEW 104°/87° (H), 57°/48° (V)	
19	VIDEO COMPRESSION H.265+/H.265/H.264+/H.264	
20	RESOLUTION 4 MP (2688×1520), QHD (2560×1440), 3 MP (2304×1296), 1080p (1920×1080), SXGA (1280×1024), 1.3 MP (1280×960), 720p (1280×720), D1 (704×576/704×480), VGA (640×480), CIF (352×288/352×240)	
21	FRAME RATE 4 MP at 1 – 20fps, 3 MP at 1 – 25/30fps D1/CIF at 1 – 25/30fps	
22	BIT RATE CONTROL CBR/VBR	
23	BIT RATE H.265: 12K – 8448 Kbps H.264: 32K – 10240 Kbps	
24	PROTOCOLS IPv4/v6, TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, HTTPS, SSL, FTP, SMTP, DHCP, PPPoE, UPnP, SNMP v2/v3, Bonjour, DNS, DDNS, IEEE 802.1X, QoS, NTP	
25	SECURITY User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled	
26	POWER SUPPLY PoE (802.3af) Class 0, 12 VDC	
27	RELATIVE HUMIDITY Less than 95%, non-condensing	
28	INGRESS PROTECTION IP66	
29	EMISSIONS FCC Part 15B, EN 55032	
30	IMMUNITY EN 50130-4	
31	SAFETY EU: EN 60950-1 North America UL listed to UL/CSA 60950-1	
32	ROHS EN 50581	

IP CAMERA (50m) Bullet compatible for NVR**Makes : HONEYWELL/BOSCH/AXIS/PELCO/PANASONIC/SONY**

S.No	MINIMUM SPECIFICATIONS OR BETTER	Compliance
1	VIDEO STANDARD NTSC/PAL	
2	SCANNING SYSTEM Progressive scan	
3	IMAGE SENSOR 1/3" 4 MP CMOS	
4	NUMBER OF PIXELS (H × V) 2688 × 1520	
5	MINIMUM ILLUMINATION 0.03 lux color @ F1.4(Color, 1/3s, 30 IRE) 0 lux B/W with IR LEDs on @ F1.4	
6	S/N RATIO > 45 dB	
7	ELECTRONIC SHUTTER SPEED 1/3(4) – 1/100,000 s	
8	IR DISTANCE Up to 164 ft (50 m), depending on scene reflectance	
9	SMART IR Auto/Manual	
10	DAY/NIGHT Auto (ICR)/Color/BW	
11	BACKLIGHT COMPENSATION BLC/HLC/WDR (120 dB)	
12	WHITE BALANCE Auto/Natural/Street Lamp/Outdoor/Manual	
13	GAIN CONTROL Auto/Manual	
14	WIDE DYNAMIC RANGE True WDR (120 dB)	
15	NOISE REDUCTION 3D DNR	
16	LENS 2.7 – 13.5 mm, MFZ, F1.4	
17	ANGLE OF VIEW 104° – 28° (H), 55° – 16° (V)	
18	VIDEO COMPRESSION H.265+/H.265/H.264+/H.264	
19	RESOLUTION 4 MP (2688×1520), QHD (2560×1440), 3 MP (2304×1296), 1080p (1920×1080), SXGA (1280×1024), 1.3 MP (1280×960), 720p (1280×720), D1 (704×576/704×480), VGA (640×480), CIF (352×288/352×240)	
20	FRAME RATE 4 MP at 1 – 20fps, 3 MP at 1 – 25/30fps D1/CIF at 1 – 25/30fps	
21	BIT RATE CONTROL CBR/VBR	
22	BIT RATE H.265: 12K – 8448 Kbps / H.264: 32K – 10240 Kbps	
23	NETWORK ETHERNET RJ-45 (10/100BASE-T)	
24	PROTOCOLS IPv4/v6, TCP/IP, UDP, RTP, RTSP, RTCP, HTTP, HTTPS, SSL, FTP, SMTP, DHCP, PPPoE, UPnP, SNMP v2/v3, Bonjour, DNS, DDNS, IEEE 802.1X, QoS, NTP	
25	SECURITY User account and password protection, HTTPS, IP filter, IEEE 802.1X, digest authentication, user access log, TLS1.2, AES-256, SSH/Telnet closed, FTP disabled	
26	POWER SUPPLY PoE (802.3af) Class 0, 12 VDC	
27	RELATIVE HUMIDITY Less than 95%, non-condensing	
28	INGRESS PROTECTION IP66	
29	EMISSIONS FCC Part 15B, EN 55032	
30	IMMUNITY EN 50130-4	

31	SAFETY EU: EN 60950-1 North America UL listed to UL/CSA 60950-1	
32	ROHS EN 50581	

6U , 9U, 12U & 15U Network Rack Make: APW President/Netrack

Sl. No.	Required Specifications	Compliance
1	RACK 19" 6U /9U/12U/15U 500mm Depth Single Section with Front Glass Door and Lock & Key facility	
2	H/D STATIONERY SHELF -375MM D -1 No	
3	AC DISTRIBUTION BOX 6X5 AMPS with MCB - 1No's	
4	FAN 230VAC 90CFM - 2 No's	
5	The Cable inlet points at junction box should be water proof by providing rubber linings	

CAT 6 UTP Box

Make : Molex / Panduit (Pan Net Only) / Commscope (Systimax Only) / TE (AMP Only)

S.No	Parameters/ Features	Required Specifications	Compliance
1	Type	Unshielded twisted pair cabling system, TIA / EIA 568-C.2 Category 6 Cabling system	
2	Network support	Supports ultrahigh speed data networks such as Gigabit Ethernet (1000 Base-T and 1000 Base-TX) and beyond.	
3	TIA / EIA 568-B.1	ETL Verified,	
4	IEEE 802.3ab	ETL verified	
5	Warranty	25-year systems warranty; Warranty to cover Bandwidth of the specified and installed cabling system, and the installation costs. Site certificate must be issued by OEM	
6	Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR for 4-connector channel	
7	Manufacturer	All passive cabling must be from same OEM (UTP and Fiber)	
8	Conductors	23 AWG solid bare copper	

9	Insulation	Polyethylene	
10	Approvals	UL Listed and UL Channel verified ETL verified to TIA / EIA Cat 6	
11	Frequency tested up to	600 MHz minimum	
12	Packing	Box of 305 meters	
13	Impedance	100 Ohms + / - 15 ohms	
14	Performance characteristics to be provided along with bid	Attenuation, Pair-to-pair and PS NEXT, ELFEXT and PSELFEXT, Return Loss, ACR and PS ACR	
15	Delay Skew:	45ns Max	
16	Impedance:	100 ± 15 Ohms	
17	Current Rating:	1.5 A Max	
18	Conductor DC Resistance:	66.5Ω/km	
19	Voltage:	150VAC	
20	Propagation delay:	535ns/100m @250MHz	
21	Mutual Capacitance:	5.6nF/100m Nominal	
22	Insulation Resistance:	500 MΩ Minimum	
23	Dielectric Strength:	1000 V RMS	
24	Contact Resistance:	10 mΩ Max	

Cat 6 outdoor armoured cable Box

Make : Molex / Panduit (Pan Net Only) / Commscope (Systimax Only) / TE (AMP Only)

S.No	Parameters/ Features	Required Specifications	Compliance
1	Type	Unshielded twisted pair cabling system, TIA / EIA 568-C.2 Category 6 Cabling system	
2	Network support	Supports ultrahigh speed data networks such as Gigabit Ethernet (1000 Base-T and 1000 Base-TX) and beyond.	
3	Conductor Size	Solid 0.58 23 AWG Bare Annealed Copper	
4	Primary Insulation	Solid Polyolefin	
5	Nominal O.D	1.0 mm / Overall 10.3 mm Inner 0.6mm Outer 1.8 mm	
6	Sheath Type (Inner)	LSOH	
7	Sheath Type (Outer)	Heavy Duty UV Resistant PVC	
8	Commercial Standards	Category 6 ANSI/TIA/EIA 568C.2, ISO/IEC 11801, IEC 61156-5	

24 Port Jack Panel loaded

Make : Molex / Panduit (Pan Net Only) / Commscope (Systimax Only) / TE (AMP Only)

	Features and benefits		
1		Available in 1U 24 Port	
		Each port features the patented spring-loaded shutter:	
		– prevents incomplete mating	
		– protects from dust and contaminants	
		Patented IDC V-shaped contacts that flex not fatigue when terminated	
		Features pointed IDC towers to speed termination and enhance cable retention	
		Dual colour-coding allows for 568 A/B wiring configuration	
		Front and rear port labelling (port sequence 1–480) as well as panel identification label	
		4 x 6 ganged jack configuration	
		Individually removable patch panel ports	
		Removable cable management shelf(s) ensure bend radius compliance	
		Available with either ANSI and metric hardware kit	
		Can be terminated using industry standard punch-down tools	
		RJ45 port which is RJ-11 compatible	
		Molded category identification on each port face as well as optional port identification icons	
2	Rear Cable Manager	Flat type metal with Perforated Rear Cable Manager to hold CAT6 UTP Cable with velcro cable ties	
3	Dust Proof	RJ45 Jack should be supplied with Cap or Shutter to avoid Dust	
4	RJ45 I/O Compatibility	Individual Compatible RJ45 Jack	
		Pointed IDC Tower on RJ45 Jack for easy termination	
		Half Plugged Patch Cord should be spitted out if not properly plugged in	

5	Mechanical Characteristics		
	Material:	CRS (cold rolled steel)	
	Thickness:	.060" (1.52mm)	
	Coating:	Grey / Option for Black	
6	Jack Connector		
	Plastic Housing:	Thermoplastic UL94V-0 rated or equivalent	
	Operating Life:	Minimum 750 insertion cycles	
	Contact Material:	Phosphor Bronze	
	Contact Plating:	50μ" Gold/100μ" Nickel	
	Contact Force:	100g minimum	
	Plug Retention Force:	11 lbf minimum	
7	IDC Connector		
	Plastic Housing:	Thermoplastic UL94V-0 rated or equivalent	
	Operating Life:	Minimum 20 reterminations	
	Contact Material:	Phosphor Bronze	
	IDC Contact Plating:	Solder Plate (60% tin/40% lead)	
	Wire Accommodation:	22-24 AWG solid	
8	Electrical Characteristics		
	Interface Resistance:	20 milliohms	
	Initial Contact Resistance:	2.5 milliohms	
	Insulation Resistance:	>100 Megaohms	
9	Standards	ETL Verified to ANSI/TIA-568-C.2, ISO/IEC 11801 Category 6	

OTHER PASSIVE COMPONENTS

Make : Molex / Panduit (Pan Net Only) / Commscope (Systimax Only) / TE (AMP Only)

S.No	Item Description
1	Single mode 12Core OFC Cable
2	Multimode 12 Core OFC Cable OM3
3	Multimode 12 Core OFC Cable OM4
4	6 Port LIU with couplers
5	24 Port LIU with Couplers
6	Single mode Fiber Patch Cord – 3 Mtrs
7	Multimode Fiber Patch card - 3 Mtrs
8	CAT 6 Patch Card -1 Mtrs
9	CAT6 RJ45 Jack
10	Pigtail

CAMERA LOCATION				
Floors/Areas	Areas	25 Mtrs Dome Camera	30 Mtrs Bulet Camera	50 Mtrs Bullet Camera
Ground Floor	Reception Areas	2	1	
	A -Wing		2	
	B-Wing			1
	C-Wing		2	
First Floor	Reception	1	1	
	A -Wing		2	
	B-Wing			1
	C-Wing		2	
Second Floor	Reception	1	1	
	A -Wing		2	
	B-Wing			1
	C-Wing		2	
Third Floor	Reception	1	1	
	A -Wing		2	
	B-Wing			1
	C-Wing		2	
Fourth Floor	Reception	1	1	
	A -Wing		2	
Ground Floor	Main Entrance Door (Facing Outside)		1	
Entrance Outside Area (Right)	Facing Main Gate -1			1
Right Side of the Main Building	Parking Area - 1 (BIKE ONLY)			3
Entrance Outside Area (Left)	Tapal Receiving Section Pathway			3
Entrance Outside Area (Left)	Facing Main Gate -2			1
Left Side of the Main Building	Lest side way of building			1
Left Side of the Main Building	Parking Area -2 (Car & Bike)			1
Rear Side of thr Main Building	Back Entrance			1
Rear Side of the Main Building	Parking Area -3 (CAR ONLY)			2
Rear Side of the Main Building (Behind Temple)	Car Parking Area			2
Rear Side of Building	Canteen backside and Stores			1
TOTAL		6	24	20

Chapter V – Price Schedule

ACTIVE COMPONENTS

CAMERA / NVR / DISPLAY

S.No	Item Description	Brand	Model	Part Number	Quantity	Rates in Rs.
1	32 channel NVR				2	
2	SURVEILANCE HARD DISK				16	
3	IP CAMERA (25m) Rugged Mini Dome				6	
4	IP CAMERA (30m) Bullet				24	
5	IP CAMERA (50m) Bullet				20	
6	32" LED Display				1	

NETWORK COMPONENTS

S.No	Item Description	Brand	Model	Part Number	Quantity	Rates in Rs.
1	24 port Core Switch				1	
2	COPPER GIGABIT 10/100/1000T (100 M)				3	
3	SFP Fiber modules					
	3A FIBER GIGABIT LC SMF 10 KM				EITHER OF THE TWO 20NOS	
	3B FIBER GIGABIT LC MMF 220-550 M					
4	16 Port PoE Switch				5	
5	8 Port PoE Switch				4	
6	8 Port Industrial PoE Switch				1	

PASSIVE COMPONENTS

FIBER

S.No	Item Description	Brand	Part Number	Quantity	Rate
1	Single mode 12Core OFC Cable				
2	Multimode 12 Core OFC Cable OM3				
3	Multimode 12 Core OFC Cable OM4				
4	6 Port LIU with couplers				
5	24 Port LIU with Couplers				
6	Single mode Fiber Patch Cord – 3 Mtrs				
7	Multimode Fiber Patch card - 3 Mtrs				
8	Pigtail				

COPPER

S.No	Item Description	Brand	Part Number	Quantity	Rate
1	CAT 6 UTP Box				
2	24 Port Jack Panel loaded				
3	CAT 6 Patch Card -1 Mtrs				
4	CAT6 RJ45 Jack				
5	CAT6 outdoor armoured UTP Box				

OTHERS

S.No	Item Description	Brand	Part Number	Quantity	Rate
1	6U Rack with all Accessories				
2	9U Rack with all Accessories				
3	12U Rack with all Accessories				
4	15U Rack with all Accessories				
5	HDPE Pipe - 40mm with accessories				
6	PVC Pipe with Accessories				
7	GI Pole				

LABOUR CHARGES

Note: Taxes may be quoted separately for each item