

**SPECIFICATION FOR SUPPLY,
INSTALLATION AND COMMISSIONING OF
CCTV SYSTEM**

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Specification for Supply, Installation and Commissioning of CCTV System

1.0 GENERAL SPECIFICATIONS

CCTV system shall meet the following general requirements with regard to the performance and operation unless otherwise stated under particular specifications.

The price should be included of the total cost of all the works necessary to complete, commissioning and functioning of the system.

The bidder should supply detailed literature and specifications from the manufacturers in respect of all materials included in his offer and give the names of all such manufacturers and the countries of origin and local agent of the materials and equipment.

Proposed CCTV system shall be an open standard based integrated system with IP network centric functional and management architecture aimed at providing high-speed manual/automatic operation for best performance.

System requirements

All cameras shall be color, IP and POE enabled, Day/ Night vision. Housing of cameras meant for indoor use shall be of IP 42 rating whereas outdoor camera housing shall be of IP 66 or better rating. All accessories must be integrated by the camera manufacturer. All camera recordings shall have Camera ID & location/area of recording as well as date/time stamp. Camera ID, Location/Area of recording & date/time shall be programmable by the system administrator with User ID & Password. Recording function commences with movement change and without any movement recording function should be disable. All indoor and outdoor cameras should be mounted with stainless steel bracket. System to have facility of additional camera installation beyond the originally planned capacity. System shall be triplex i.e. it should provide facility of Viewing, Recording & Replay simultaneously. The offered system shall have facility to export the desired portion of clipping (from a desired date/time to another desired date/time) on DVD. Viewing of this recording shall be possible on standard PC using standard software like windows media player etc.

CCTV System shall operate on 230 V, 50 Hz single -phase power supply. Power for all the equipment provides available central online UPS system available at site other than Security Building.

Contractor should Supply and lay Power Supply Cable from the Administration building to security building as the specified in BOQ.

All the power supply points taken from the UPS system should be isolated with the Surge arresters.

Contractor should Supply and Wire CCTV Cameras Point using CAT 5E or better cable including, face plates, Patch leads, conduits/ trunkings and all other necessary accessories required, power supply for the network switches should be supply as per the specified in BOQ. All power supply units and network switches should be installed in equipment rack.

All power cables and fiber patch codes which are exposed to the outside should be covered with PVC enclosure (1000) or conduits or trunkings. Cable warnings and marker posts shall be provided with 1.5 distance .It shall be concrete 3*3 inches in size and type of the cable shall be engraved on the top in maximum font size. All equipment installation and wiring should be done under supervision of responsible officer of the site.

System shall have surge arresters in both ends of the copper cables. Power lines shall have surge arresters. All surge arresters shall be complied with BS EN/IEC62305-4 standards.

Data communications paths shall be optical fiber cables if the distance is more than the limitations of the copper cables. All related accessories shall be provided by the contractor.

Following drawings and details shall be supplied.

1. Data Sheets – to proof technical specifications
2. Accurate and updated drawings of
 - a) Site drawings including cable drawings
 - b) Installation wiring drawings
3. Operations manuals shall be provided and comprehensive training need to be provided on all functions. System shall have password authentication for Administrator, Operator, Viewer levels. Training shall be covered on all levels and all functions.
4. Remote monitoring shall be available via web interface. All data connections for above requirements shall be provided by the contactor if required.
5. Recorded period of the system shall be Three months (03) of period.
6. All system functions shall be operated till two hours in the case of mains power failure

CCTV Installation details shall be according to the attached annex.

2.0 TECHNICAL SPECIFICATIONS

2.1 SPECIFICATION FOR BULLET TYPE DAY/ NIGHT FIXED LENS IP CAMERAS

General Requirements

- **Business Registration** - Should confirm the existence of Business Registration in same field for Minimum 3 Years
- **Installation of the CCTV Camera System** - Vendor must agree to install & commission Security Camera System on time. If else delay Charges will be Apply. Please Mention Period of Installation, Configuration and Training.
- **Product/Brand Name** - Please provide product authorization letter(s) from respective vendors (Product manufacturers)
- **Warranty and Product Support** - Minimum 03 years comprehensive warranty period, Minimum 05 years product support
- **Comprehensive post warranty** - Specify post warranty service & backup
- **Reference Sites** - At least 10 reference sites for camera installation (Specially in Government Organizations, Similar or More camera, fibre Networks, LAN Networks).

No	Description	NWSDB Requirement
1.	Certification	CE/FCC /ROHS/UL listed compliant
2.	Image Sensor	1/ 2.8' CMOS
3.	Native resolution	2.0MP or higher
4.	Min Illumination	Color – 0.0008Lux or Better, B/W - 0.0001Lux or Better, IR 0Lux
5.	Shutter Time	1s – 1/100,000s
6.	Lens	4mm
7.	Lens Mount	M12
8.	Day & Night	IR Cut Filter With Auto Switch
9.	Wide Dynamic Range	120dB or Better
10.	Digital Noise Reduction	3D DNR
11.	Video Compression	S+265/H.265/H.264
12.	Video Bit Rate	32Kbps ~ 8Mbps
13.	Resolution	1920 x 1080
14.	Frame Rate	PAL: 1080P@25fps or Better
15.	Streaming	Dual Streaming 1080P Main Stream, Sub Streaming 4CIF or Better
16.	Image Setting	Brightness, Saturation, Contrast, Flip Mode

		Adjustable by client software or web browser
17.	HLC	Support
18.	Smart Defog	Support
19.	Privacy Mask	Support
20.	OSD	16x16,32x32,48x48, Total 1 Region
21.	Alarm Trigger	Motion Detection, IP Conflict, MAC Conflict
22.	Protocols	TCP/UDP/HTTP/DHCP/DNS/NTP/ RTSP
23.	System Compatibility	ONVIF (Profile S)
24.	Communication Interface	1-ch RJ45 10M/ 100M
25.	Power Supply	DC 12V, POE
26.	Power Consumption	< 7.5W (POE)
27.	IR Distance	50M or Better
28.	Impact Protection	IP 67 or Better
29.	Certification Document	Manufacturer Authorization, ISO 9001, ISO 14001 , CE, FCC (Please attached)
30.	Warranty	Minimum 3 years comprehensive including parts, labor and accessories with onsite replacement / repair

2.2 SPECIFICATION FOR FIBER OPTIC CABLE

No	Description	NWSDB Requirement
1.	Certification	Manufacturer Should be ISO 9001 certified (Please attached)
2.	Manufacturer Warranty	Should provide Manufacturer Warranty Certification for 25 Years for Product & Performance assurance
3.	Product Specification	<p>The OM3 optical cable should consist of 8 fibers of Unitube construction</p> <p>The Fiber Optic Backbone should be on Multimode 8 Core OM2 Outdoor Armored type fiber type</p> <p>8 Core Multimode OM3 Fiber Optic cable jacket must be MDPE</p> <p>The cable should consist of an armoring layer with the polymer bonded to the outer sheath to provide rodent protection</p> <p>The OM3 Fiber Optic cable should support 850nm and 1300nm fiber optic transceivers</p> <p>The Cable should Bellcore GR-20-Core & IEC60794-1</p> <p>The cable should consist of a steel wire as a strength member</p> <p>The dynamic cable tensile strength should be at least 1500N</p> <p>The crush dynamic crush resistance should be at least 1000N</p>
4.	Manufacturer Authorization	Please Attached

2.3 SPECIFICATION FOR NETWORK CABLE – CAT 5E OR BETTER

No	Description	NWSDB Requirement
1.	Certification	Manufacturer Should be ISO 9001 certified (Please attached)
2.	Manufacturer Warranty	Should provide Manufacturer Warranty Certification for 25 Years for Product & Performance assurance
3.	Product Specification	The fly leads should support LAN technologies such as Fast Ethernet (100Mbps) and Gigabit Ethernet (1000Mbps)
		Should be constructed of 23 AWG & 0.56mm Solid Bare Copper conductors
		Should consist of a Polyethylene insulation
		Should consist of a Grey color Flame Retardant PVC jacket
		Should be performance optimized for 250Mhz
		Should be performance PoE ++ & 4PPoE
		Shall be available in spools of 305m
4.	Standards and Compliance	ETL verified for ISO / IEC 11801 2 nd Edition Class E
		Should meet ANSI/TIA 568-2.D Category 6 cables Specifications
		Should be fluke listed
5.	Manufacturer Authorization	Please Attached

2.4 SPECIFICATION FOR NETWORK VIDEO RECORDER (NVR)

No	Description	NWSDB Requirement
1.	Processor	Dual-Core Embedded Processor
2.	IP Camera Input	Minimum 20 Channel or Better
3.	Operating System	
4.	User Interface	
5.	Video display Split	1/4/6/8/9/10/16/20/25
6.	Video display Output	4K, Full HD local display through VGA / HDMI interface Display should support full screen display, 2x2, matrix display views and automatic sequencing on full screen.
7.	Incoming Bandwidth	80Mbps
8.	Outgoing Bandwidth	80Mbps
9.	Two-way Audio	1-ch 3.5mm
10.	I-Frame Record	Support
11.	E-Zoom	Support
12.	Central CMS compatibility	The system shall be able to support for central management system (CMS). The CMS shall allow for the continuous monitoring of the operational status and event-triggered alarms from system servers, cameras, POS and other external devices. CMS shall support server/client architecture to fulfil multi-cast video streaming and support unlimited simultaneous client stations login without compromising NVR operation and resource
13.	Date time synchronization	The NVR must support automatic date/time synchronization through a central server based on NTP protocol
14.	Internet Protocol	IPv4/IPv6/HTTP/802.1x/FTP/SMTP/UPnP/SNMP DNS/DDNS/NTP/RTSP/TCP/UDP/DHCP/PPPoE
15.	Remote Connection	64 Users
16.	ANR	Support
17.	Configuration management	System should support web based configuration management Record channel management (per camera channel) including compression, video format and frame rate Camera connectivity and authentication management User account and access control management Storage management including display of remaining recording time Recording schedule Log file Event log management System configuration parameters
18.	Recording formats	S+265/H.265/H.264H/H.264M/H.264B

19.	Recording modes	Should support continuous cyclic recording, record at motion and record at alarm event (with pre-event and post event recording support)
20.	Playback support	System should support simultaneous play back on not less than two streams with,
		Main stream supporting playback up to full resolution @ 25fps
		Sub streams supporting low bandwidth playback suitable for mobile and remote monitoring (100kbps onwards)
21.	Alarm notification	System should support alarm notification on following channels
		Direct popup on local display, CMS and Mobile Software
		TCP/IP notifications to central servers
		Email based notification through SMTP
		FTP upload of event images to remote servers
22.	Data management	System should support local and remote (via network) backups
		Video export in uncompressed (AVI) format and compressed (H.265) format at full source resolution and frame rates
		Frame export in JPEG formats
		System log and event log backups
23.	Playback search and video analytics	System should support the following functions
		Time based search
		Event based search
		Motion search
		Alarm event search
24.	Playback resolutions	System must support standard playback resolutions ranging from CIF format to Full HD format
25.	Mobile viewing and playback facility	System must support mobile device viewing facility (on Android and IOS) with device authentication
26.	Storage Capacity and throughput	The storage system must support recording of all channels at 1080P real time resolution
		Capacity must be sufficient to retain Full HD resolution
		HDD mirroring redundancy for video data protection
		2SATA HDD Ports
		Storage capacity should Support not be less than 20 TB
27.	Recording Period	Minimum 30 Days
28.	HDD Management	Group and Quota, Customized Recording Days
29.	NAS	NFS Protocol, Support Manual Backup
30.	Image Flip	Support
31.	Hot Standby	N+M
32.	Corridor Mode	Support

33.	Video Analytics(VCA)	Support 20-ch Camera VCA Function, Including Tripwire/Double Tripwire/ Object Abandon/Object Lost/Running/Loitering/Parking/ Face Detection / Crowd / On duty detection / Face Counting / People counting / Alert / Auto tracking / Video Abnormal Detection / Audio Abnormal Detection / Video Defocus Diagnosis
34.	Network interface	1 RJ45 port (10/100)
35.	Power supply	DC 12V and <4A
36.	Power consumption	< 35W (Without HDD)
37.	Working Temp	Temperature range - better than -10 – +55 degrees Celsius
38.	Certification	Manufacturer Authorization, ISO 9001, ISO 14001 , CE, FCC (Please attached)
39.	Warranty	Minimum 3 years comprehensive including parts, labour and accessories with onsite replacement / repair