

TECHNICAL SPECIFICATIONS FOR THE IP BASED CCTV SYSTEM

- A. ITEM No. 1: IP BASED INDOOR FIXED DOME CAMERA - 6 Nos.
- B. ITEM No. 2: IP BASED OUTDOOR CAMERA - 4 Nos.
- C. ITEM No. 3: INSTALLATION & CONFIGURATION OF CAMERAS, SOFTWARE, POWER CABLE, NETWORK CABLE, PIPES ETC - 10 Nos.
- D. ITEM No. 4: 4 PORT NAS BOX - 1 Nos.
- E. ITEM No. 5: 2 TB HARD DISK FOR NAS BOX - 4 Nos.
- F. ITEM No. 6: 40" LED SCREEN - 1 Nos.

Special Instructions:

1. Detail Specifications as per Annexure A.
2. All items are to be procured from single vendor i.e. item-wise splitting shall not be done.
3. Successful vendor will install and configure all items.
4. Standard warranty will be one year.
5. Enquiry may be sent to vendors as per Annexure B.

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IP BASED CCTV SURVEILLANCE

Surveillance CCTV system is required to ensure effective surveillance of an area as well as create a tamperproof record for post event analysis. System should facilitate viewing of live and recorded images and controlling of all cameras by the authorized users present in the LAN. Cameras shall be installed at factory gates and various sensitive areas of plant / buildings.

1. SYSTEM REQUIREMENTS

- i. IP Camera shall be used for image/video capture.
- ii. All Cameras shall be Day/Night cameras.
- iii. All cameras and software should be ONVIF compliant.
- iv. New cameras will be integrated with existing surveillance system consisting of cameras (AXIS make) and Axis Camera Station Server. Recording of new cameras shall be kept in NAS box (to be given by vendor), which will be connected to recording server through network.
- v. System must provide built-in facility of watermarking or Digital certificate to ensure tamperproof recording so that these can be used as evidence at a later date, if so desired. The recording shall support audit trail feature.
- vi. Cameras should support simultaneous usage of different compression technologies including MPEG for viewing and recording
- vii. Camera shall provide support for both IPv4 and IPv6.
- viii. The camera shall be fully supported by an open and published API (Application Programmers Interface), which shall provide necessary information for integration of functionality into third party applications.
- ix. The cameras shall be equipped with at least 1 alarm input and 1 output. It shall be capable of receiving external triggers from third party devices, as well as triggers from the built-in Video Motion Detection. In response to these triggers, the camera will be able to initiate alarms and/or image transmission. Notification will be provided over TCP, email and HTTP, while image upload will be available via FTP, email and HTTP.
- x. Cameras shall have audio input and output option with built-in microphone.
- xi. The camera shall connect to a network using 10/100BaseTX Fast Ethernet, via a standard RJ-45 socket.
- xii. The camera shall provide the ability to send operational and technical information using a standard SMTP mail server, and shall include support for SMTP authentication.
- xiii. The camera shall support the use of SNMP-based management tools according to v1, 2c & 3.

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- xiv. To ensure accuracy, the camera must accept external time synchronization from an NTP (Network Time Protocol) server.
- xv. The camera shall provide support for restricting access to pre-defined IP addresses only, so-called IP address filtering.
- xvi. LED's shall indicate the camera's operational status and provide information about power, communication with receiver, the network status and the camera status.
- xvii. Customer-specific settings, including the IP address, the local time & date, event functionality and video configuration, shall be stored in a non-volatile memory and shall not be lost during power cuts or soft resets.
- xviii. All required cables, modules, mounting kit and accessories shall be supplied by vendor. Vendor shall ensure tamperproof cabling in pipes.

2. VIDEO SURVEILLANCE APPLICATION SOFTWARE / LICENSE REQUIREMENTS

- i. Versatile IP surveillance software for recording and viewing live video remotely. Record continuously, on alarm or when motion is detected with instant playback of recorded images. License for 10 cameras to be supplied. License should include a 1 year free software upgrade right.
- ii. Should improve image quality in poor visibility conditions.
- iii. The software shall operate on open architecture for future integration with other security systems.
- iv. The software should have inbuilt facility to store configuration of encoders / decoders and cameras.
- v. The software should Support flexible 1/2/4 Windows Split screen display mode or scroll mode on the PC monitor or on preview monitor as per site requirement.
- vi. The Camera should have built in encoder to transfer the video over the LAN
- vii. The software should have user access authority configurable on per device or per device group basis.
- viii. The system shall provide User activity log (audit trail) with user id, time stamp, and action performed, etc.
- ix. The administrator should be able to add, edit & delete users with rights. It shall be possible to view ability / rights of each user or the cameras which can be viewed & controlled as per the permission assigned by the administrator. It should be able to integrate with Active Directory based LDAP.
- x. It should have recording modes viz. continuous, manual, or programmed modes on date, time and camera-wise. All modes should be disabled and enabled using scheduled configuration. It should also be possible to search and replay the recorded images on date, time and camera-wise. It should have the facility for scheduled recording. Different recording speeds (fps) and resolution for each recording mode for each camera should be possible.

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- xi. It should provide programmable motion detection and recording, to be defined area wise. System must be able to support video motion detection algorithms to detect and track objects within all the connected cameras in the network.
- xii. The settings shall be individually configurable for each alarm and each camera prerecord duration. This shall allow the Camera Server to capture video triggered by the alarm/event.
- xiii. The software for clients should also be working on a browser based system for remote users. This will allow any authorized user to display the video of any desired camera on the monitor.
- xiv. Software must provide built-in facility of watermarking or Digital certificate to ensure tamperproof recording so that these can be used as evidence at a later date, if so desired. The recording shall support audit trail feature.
- xv. 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.
- xvi. Facility of camera recording in real-time mode (25 FPS)/15/12.5/10 or lower FPS as well as in any desired combination must be available in the system.
- xvii. Facility of Camera recording in CIF, 2CIF, 4 CIF as well as in any combination i.e. any camera can be recorded in any quality – Selective or Group of cameras must be available in the system.
- xviii. System shall be triplex i.e. it should provide facility of Viewing, Recording & Replay, simultaneously.
- xix. The offered system shall have facility to export the desired portion of clipping (from a, desired date/time to another desired date/time) on CD or DVD. Viewing of this recording shall be possible on standard PC using standard software like windows media player etc.
- xx. Retrieval: The CCTV application should allow retrieval of data instantaneously or any date / time interval chosen through search functionality of the application software. The system should also allow for backup of specific data on any drives like CD/DVD/Blu ray Recorders or any other device in a format which can be replayed through a standard PC based software. Log of any such activity should be maintained by the system which can be audited at a later date.
- xxi. Storage: Recording of new cameras shall be kept in NAS box (to be given by vendor), which will be connected to Axis Camera Station recording server through network.

A. ITEM No. 1 - DETAILED TECHNICAL SPECIFICATIONS OF IP BASED FIXED DOME INDOOR CAMERA

1	Type	IP Based Fixed Dome Colour Camera
2	Image Device	Suitable CCD / CMOS Sensor

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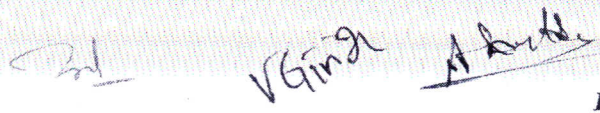
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Technical Specifications for IP BASED CCTV System

3	Number of Pixels	Minimum 800x600
4	Resolution	Selectable Resolutions from 800 x 600 to 1600 x 900
5	Min Illumination	Color: 0.15 lux, F1.4, B/W: 0.03 lux, F1.4
6	Electronic Shutter	2 sec to 1/12500 sec
7	Lens Built-in Verifocal lens	3.3-12 mm, 82° - 24° view, F1.4
8		Auto Iris
9	Power Supply	As per OEM's Specification
10	Backlight Compensation	Should be available
11	Housing	Vandal-proof, IP 54
12	Operating Temperature	0-50 degree C
13	Ethernet	10/100 Mbps RJ45
14	Network Protocol	IPv4, IPv6, HTTP, HTTPS, FTP, SMTP, NTP, DNS, DDNS, ICMP, DHCP, SNMP v1/v2/v3
15	Day / Night	Should be available
16	Certification	CE/FCC
17	ONVIF	Should be ONVIF Compliant
18	Open API	For Software Integration
19	Alarm	One Alarm Input and One Alarm Output
20	Audio I/O	Audio Input and Output ports with built-in microphone
21	Integration with Existing System	Cameras to be integrated with existing Axis Camera Station Server already configured for existing Axis make IP cameras
22	Cables & Pipes	Supply of Suitable power cable and Cat 6 UTP network cable (Approx 60 meters each per camera) Supply of Suitable ISI marked Medium Strength 1" PVC Pipe (Approx 60 meters per indoor camera)



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Technical Specifications for IP BASED CCTV System

23	Software	Software & License as described in system requirements and video surveillance application software requirements
24	Warranty	Standard Repair / Replacement Warranty for one year from date of supply

B. ITEM No. 2 - DETAILED TECHNICAL SPECIFICATIONS OF IP BASED OUTDOOR CAMERA

1	Type	IP Based Outdoor Colour Camera
2	Image Device	Suitable CCD / CMOS Sensor
3	Number of Pixels	Minimum 800 x 600
4	Resolution	Selectable Resolutions from 800 x 600 to 160 x 90
5	Min Illumination	Color: 0.2 lux, B/W: 0.05 lux, F1.0
6	Electronic Shutter	1/6 sec to 1/12500 sec
7	Lens Built-in Varifocal lens	Varifocal 3-8 mm: 61° - 21° view, F1.0
8		Auto Iris
9	Power Supply	As per OEM's Specification
10	Backlight Compensation	Should be available
11	Housing	Vandal-proof IP66. Suitable for Outdoor installation on pole / mast / wall
12	Operating Temperature	0-50 degree C
13	Ethernet	10/100 Mbps RJ45
14	Network Protocol	IPv4, IPv6, HTTP, HTTPS, FTP, SMTP, NTP, DNS, DDNS, ICMP, DHCP, SNMP v1/v2/v3
15	Day / Night	Should be available
16	Certification	CE/FCC
17	ONVIF	Should be ONVIF Compliant
18	Open API	For Software Integration

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19	Alarm	One Alarm Input and One Alarm Output
20	Audio I/O	Audio Input and Output ports with built-in microphone
21	Integration with Existing System	Cameras to be integrated with existing Axis Camera Station Server already configured for existing Axis make IP cameras
22	Cables & Pipes	Supply of Suitable power cable and Cat 6 UTP network cable (Approx 60 meters each per camera) Supply of Suitable ISI marked Grade B 1" GI Pipe (Approx 60 meters per outdoor camera)
23	Software	Software and License as described in system requirements and video surveillance application software requirements
24	Warranty	Standard Repair / Replacement Warranty for one year from date of supply

C. ITEM No. 3 – INSTALLATION OF CAMERAS

1	Installation	Installation of Indoor cameras on walls Installation of Outdoor cameras on Wall / Pole / Mast Installation & Configuration of software, license and various other parameters
2	Cables	Tamperproof Installation, Termination and Testing of Suitable power cable and Cat 6 UTP network cable (Approx 60 meters each per camera)
3	Pipes	Outdoor Camera - Installation of Suitable ISI marked Grade B 1" GI Pipe (Approx 60 meters per outdoor camera) and tamperproof installation of cables inside it Indoor Camera - Installation of Suitable ISI marked Medium Strength 1" PVC Pipe (Approx 60 meters per indoor camera) and tamperproof installation of cables inside it

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D. ITEM No. 4 – NAS BOX

1	Description	NAS Box with 4 bays for SATA Type HDDs
2	HDD Support	Support for SATA Type Hot Swappable Hard Disks
3	RAID	RAID 0, 1, 5 Support
4	Network Interface	10/100/1000 Base T RJ45 Port
5	Network protocols	CIFS, SMB, NFS, FTP, HTTPS, HTTP, DHCP, Active Directory Support, Local users
6	Power	Dual Power Supply
7	Device Management	Through Web Browser
8	LED	HDD, LAN, Power
9	Certification	CE/FCC
10	USB Port	Minimum 1 no.
11	Form Factor	19" Rack Mountable with Rack Mount Kit
12	Warranty	Standard Repair / Replacement Warranty for one year from date of supply

E. ITEM No. 5 – Hard Disk

1	Description	2 TB SATA Hard Disk for Above NAS Box
2	Warranty	Standard Repair / Replacement Warranty for one year from date of supply

F. ITEM No. 6 – 40 Inch LED TV Screen

1	Description	Minimum 40 Inch LED TV Screen Full HD (Samsung / Sony / LG / Panasonic/ Philips) with Connectivity to client PC Any Interface cable, card etc required for PC connectivity is in vendors scope. Client PC with standard VGA port will be provided by BHEL.
2	Warranty	Standard Repair / Replacement Warranty for one year from date of supply

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