

Government of India
BHABHA ATOMIC RESEARCH CENTRE
Engineering Services Group
Security Technical Support Section
Mumbai – 400085

A. S. SALUNKE
HEAD, STSS
BARC, Trombay
Mumbai- 400085

BARC/ESG/HSPTL/IPCCTV/2018/679

DATE: 04/10/2018
Due date:19/10/2018 at 14.30

Sub: Invitation to submit your quotation

on behalf of president of India, head security technical support section, engineering services group, Bhabha Atomic Research Centre invites lowest quotation in sealed envelope for the work given below as per the scope of work & technical specification enclosed herewith

S No	Description of job	Completion Period
1.	Supply, Installation, Wiring, and Commissioning of IP based CCTV systems & it's Integration with existing analog CCTV Surveillance System at BARC Hospital as per the 'Annexure – A' attached.	Six months

Quotation are invited for the above system as per Annexure-A on or before October 21/2018 up to 14.30 hrs in a sealed envelope through registered post/speed post of Indian postal Services only.

The terms and condition are given below:

1. Qualifying criteria for bidders

- 1.1 firms willing to bid for above mentioned job shall have been vetted by security section of BARC
- 1.2 All the supervisors and workers should have valid police verification (PVC) (FOR minimum 03 persons) and not expiring during the tender period (i. e from the date of issue of this enquiry till competition of job after getting work order) the list of manpower available with firm shall also be submitted along with their details of PVC.
- 1.3 Workers/Labourers given by the vendor should be well experienced in installation, Wiring and Commissioning of similar type of jobs.
- 1.4 All Workers/Labourers of the Vendor/Contractor employed for execution of job in this tender should have proper Personal Protective Equipment (PPE), the arrangement of which shall be made by vendor/contractor.
- 1.5 The past experience of the firm in similar nature in BARC/DAE shall be made available with work order copy and satisfactory completion certificate from the user. Also the list on going jobs inside BARC premises with expected completion period shall be provided.

2. The quotation envelop shall be superscripted with **Description of the job and the tender Ref No**, as mentioned above.

3. Authorization & Service support up to five years “**certificate from the OEM of IPCCTV Camera, NVR & Its accessories**” shall be submitted along with the quotations.
4. The complete quotation shall reach the following address on or before **19/10/2018 14:30 hrs.** by **Registered Post/Speed post of Indian services only.** The quotations will be opened on the **22/10/2018** in Accounts Division, BARC between **15.00 to 16.00 HRS**

<p>TO, Attention : HEAD, STSS, ESG, shri. A. K. SHARMA SO/G Room No. 316 ESC building BARC, Trombay, Mumbai -400085</p>

5. **Printed Letter Head:** Quotation (along with GST No.) should be printed on letter head; computer generated quotation is not valid
6. **Validity of the Offer:** validity of the offer shall be for 90 days from the date of opening of quotation.
7. **Guarantee:** Vendor shall have to give guarantee of the quality and workmanship of work done for the period of min. 12 months from the date of completion of the work.
8. **Offer of firm :** offer of those firm, who do not submit their quotation as per the details given in the technical specification and incomplete quotations in any respect shall not be considered
9. The department reserves the right to extend /cancel the date of opening the quotations.
10. **Payment Terms:** Account division BARC Mumbai – 400085 shall make full and final payment only after submission of the satisfactory work completion certificate issued from the undersigned along with bill, Guarantee certificate, Delivery Challan and Advanced Stamp Receipt etc. No advance payment is permitted.
11. **Income Tax Recovery Clause:** Income Tax @ 2% will be deducted from the bill.
12. If any of the employee, consultant, or partner of the company is Ex – BARC employee, the same must be stated in the quotation clearly.
13. **Penalty:** any delay which is attributable to the contractor is liable for penalty @ 0.5% per week (max 5%)
14. **GST Number:** Quotation shall consist of GST Registration Number registered with local authority & PAN number of firm, etc.
15. **Safety & Security Rule:** The vendor shall follow all the safety procedures as per the normal industrial practice during the execution of the job at site. Any mishap occurring during the work due to unsafe Industrial Practice shall be the vendor’s liability. Security and transportation rule at BARC, Trombay premises shall be strictly followed.

16. Confidential clause:

- I. **Confidentiality:** No party shall disclose any information to any third party concerning matters under this contract generally. In particular, any information identified as “Proprietary” in nature by the disclosing party shall be kept strictly confidential by the receiving party shall not be disclosed to any third party without the prior written consent of the original disclosing party This clause shall apply to the sub-contractors, consultant advisors, or the employees engaged by a party with equal force.
- II. “Restricted information” categorise under section 18 of the Atomic Energy Act, 1962 and “official secrets” under section 5 of the official Secret Act, 1923: Any contravention of the above mentioned provisions by any contractor, sub – contractor, consultant, advisor or the employee of a contractor will invite penal consequences under the aforesaid legislation.
- III. Prohibition against use of BARC’s name without permission for any publicity purpose. The contractor or sub contractor, consultant, advisor or the employees engaged by the contractor shall not be use any public purpose through any media like press, TV, or internet, without the prior written approval of BARC.



(A. S. Salunke)
Head, STSS
BARC

(For and on behalf of President of India)

Scope of Work & Technical Specifications for Supply, installation, & commissioning, training and documentation of IP based CCTV Surveillance system for BARC Hospital building.

General:

It is indented to install indoor network cameras in OPDs and general areas of the **HOSPITAL** buildings and to monitor these cameras at central location (system administrator's cabin on ground floor) on 55" LED monitor.

- All indoor items for cameras like JB's. power supply etc. shall be in water proof and dust proof enclosures.
- Cables used for interconnecting cameras, NVRs and Switches should be of FRLS class.

2. The Scope of Work:

- A. This CCTV system shall be comprised of monitoring at multiple locations, viz. systems administrator's room, and office of the OPD in-charge, at each floor. **Annexure-I** indicates the devices location chart in **Hospital** building.

The proposed system shall be integrated CCTV surveillance systems with Network Video Recorders (NVR) having sufficient surveillance hard disk capacity for storing min. 90 days recoding of videos at reasonable resolution. Its Bill of materials (BOM) is given in **Annexure-II**. Detailed technical specifications of the major items are attached as **Annexure-III**.

- B. The Scope of the work includes design, inspection, testing, delivery, supply, installation, integration, commissioning of the system as per technical specifications, documentation, training & handing over of the system.
- C. It shall include pre-dispatch inspection & testing at suppliers work /premises of all components to be used in the system.
- D. It shall include packaging & safe delivery of all the components / materials to be used in this system.
- E. It shall include Project Documentation, which shall be done and handed over in three sets of hard copy & Three CDs. Documentation shall include documents like Project handover report, Site Acceptance test, as built layout of cable and Camera Installations, layout details, interconnection schematics, Camera Nomenclature and Operational procedure manuals, maintenance procedures, trouble shooting tips & repair maintenance guide. Offer shall include above report preparation and submission.

- F. Camera mounting pole/fixtures shall be provided and installed wherever required to mount the cameras as per site requirement.
- G. It shall include installation at site of various components, cameras, laying of control, network & power cables, JB's for cameras, NVRs, and LED monitors.
- H. It shall include Cabling & Conduit work wherever needed. The rates quoted shall be inclusive of all the material required for job such as clamps, spacers, saddles, mounting on wall etc. The rates shall be quoted as supply & installation rates per meter basis or total job. All the underground cables shall be laid in GI Conduit/ HDPE pipe.
- I. The rates for all the items to be quoted for supply & installation of the indented quantity. For cables rate shall be per meter basis for supply. Installation rate shall include all the accessories required for cabling & labour rates. Installation rate shall be applicable for the executed quantity which is installed and in case only supply is executed supply rate shall be applicable.
- J. The price quoted by the vendor should include all the expenses incurred in commissioning of all cameras with power supply, accessories and other devices complete with related software if any.
- K. It shall include O & M training on CCTV system at site.
- L. OEM Authorization letter/Certificate is required for all CCTV items mentioning tender specific reference no. for extension of product supply, service support and minimum 5 years spare availability.
- M. It shall include warranty for all the components, parts & assemblies supplied and installed against defects in material & workmanship for a period of at least TWELVE Months commencing upon the date of acceptance by the user.

List of CCTV System Devices & their locations in Hospital building

Floor	Area	Type Camera	Qty
Basement	Lobby	Dome Camera	2
		Bullet Camera	2
		NVR	1
	Whole Body Counter Door	Dome Camera	1
	Lab Area	Dome Camera	3
	Dental Area	Dome Camera	3
	Outside of Dental Lab	Dome Camera	1
	Kitchen Area	Dome Camera	1
	CSSD	Dome Camera	1
Ground Floor	Lobby-	Dome Camera	2
		NVR	1
	Entrance of Blood Bank	Bullet Camera	1
	Library Entry	Bullet Camera	1
	Library Room C-13	Bullet Camera	2
	Computer Centre Entrance	Bullet Camera	1
	Ortho OPD	Bullet Camera	1
	Corridor of HA Office	Bullet Camera	2
	Security Counter	Bullet Camera	2
		Dome Camera	2
	LMO	Bullet Camera	1
	Security Counter	55"FULL HD Monitor or Higher	1
First Floor	Lobby-	Dome Camera	2
		NVR	2
	Pathology Lab area	Dome Camera	2
	Security Officer Cabin Area	Bullet Camera	1
	Admin Wing	Dome Camera	2.
	Surgical OPD	Dome Camera	2
	Medical OPD	Dome Camera	2
	Psychiatry OPD	Dome Camera	1
	Dental OPD	Dome Camera	1
	Physiotherapy OPD	Dome Camera	1

	OPD corridor	Bullet Camera	8
Second Floor	Lobby	Bullet Camera	2
		NVR	1
	Staircase	Bullet Camera	2
	Entry of OT	Dome Camera	1
	Instrument of OT	Dome Camera	1
Third Floor	Lobby	Bullet Camera	2
	Staircase	Bullet Camera	1
Fourth Floor	Lobby	Bullet Camera	2
	Staircase	Bullet Camera	1

New Building

Floor	Area	Type Camera	Qty
Ground Floor	Corridor area	Bullet Camera	8
	Casualty	Dome Camera	2
		NVR	2
First Floor	Lift Area	Dome Area	2
	OPD Corridor	Bullet Camera	8
	ENT OPD	Dome Camera	8
	Ophthalmic OPD	Dome Camera	1
Second Floor	Near Room no F-312/ Staircase	Dome Camera	1
		NVR	1
Third Floor	Near Room no E-412/ Staircase	Dome Camera	1
Fourth Floor	Entry of RMO (Male) Quarters	Dome	1
	RMO Dinning Area	Dome	1
Total			90

Bill of Material (BOM)

Sl. No.	Item Descriptions	Qty
I)	SUPPLY	
1	IP 2 MP day night IR RUGGED BULLET Camera Varifocal 2.7-12 mm or better	36 Nos
2	IP 2 MP day night IR RUGGED BULLET Camera fixed focal 3.6 mm or better	12 Nos
3	IP 2 MP day night IR RUGGED DOME Camera Varifocal 2.7-12 mm	42 Nos
4	16 Channel NVR with PoE (+) Ports, 2 SATA . Hot Swappable HDD's	8 Nos
5	4 TB Surveillance HDD	12 Nos
6	55"FULL HD Monitor or Higher	1 Nos
7	6 U Rack for NVR with power supply	6 Nos.
8	VMS Software	1 Nos.
9	CAT 6 CABLE STP (305 METER)	27 Nos
10	Supply of 1" PVC PIPE/Casing Capping/Flexible GI Conduit	2000 Mtrs
11	8 PORT PoE (+) switch 30w.	2 Nos
II	SERVICES	
1	Installation, Laying, Wiring, Digging Soil, Testing, Commissioning & Training	1Lot

ITEMWISE DETAILED TECHNICAL SPECIFICATIONS**Item Sr. No-1****1/2.8" CMOS, 2 MP, VARI FOCAL, IR LEDs IR Indoor/Outdoor Network Bullet Camera,****Desired Features:**

- Fixed Bullet-Style providing HDTV 1080p video quality.
- Vari-focal lens and remote zoom and focus
- The day and night functionality, with IR and P-Iris control
- Optimized IR, to automatically adapt zoom level set at installation
- Evenly illuminated image.
- I/O support
- Corridor Format for vertically oriented video streams

Bullet type Camera specifications:

Image sensor	Progressive scan RGB CMOS 1/2.8"
Lens	Vari-focal, 2.7–12 mm, F1.4, Horizontal angle of view 92°–33° Auto focus, Remote focus and zoom, P-Iris control, IR corrected
Day and night	Automatically removable infrared-cut filter
Minimum illumination	HDTV 1080p 25/30 fps with WDR - Forensic Capture: Color: 0.25 lux, F1.4 B/W: 0.05 lux, F1.4, 0 lux with IR illumination on
Shutter time	1/28000 s to 2s
Video compression	H.264 Baseline, Main and High Profile (MPEG-4 Part 10/AVC) Motion JPEG
Resolutions	1920x1080
Frame rate	25/30 fps with power line frequency 50 Hz in all resolutions
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG, Controllable frame rate and bandwidth, VBR/MBR H.264
Image settings	Manual Shutter tome, Compression, Color, Brightness, Sharpness, White balance, Exposure control, Exposure zones, Backlight compensation, Fine tuning of behavior at different light levels, WDR Rotation: 0°, 90°, 180°, 270° including Corridor Format
Network Security	Password protection, IP address filtering, HTTPS encryption, IEEE 802.1X network access control, Digital authentication, User access log
Supported protocols	IPv4/v6, HTTP, HTTPS, SSL/TLS, QoS Layer 3Server, FTP, CIFS/SMB, SMTP, Bonjour, UPnP, SNMP v1/v2c/v3(MIB-II), DNS, DDNS, NTP, RTSP, RTP, SFTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SSH

Application	Open API for software integration,
Programming Interface	
Analytics	Video motion detection, Active tampering alarm Cross Line Detection, etc.
Event triggers	Analytics, Edge storage events
Event actions	File upload: FTP, SFTP, HTTP, HTTPS, network share and email Notification: email, HTTP, HTTPS, TCP and SNMP trap External output activation
Data streaming	Event Data
Memory	256 MB RAM, 128 MB Flash
Power	Power over Ethernet IEEE 802.3af/802.3at Type 1 Class 3, max 11.2 W
Connectors	RJ45 10BASE-T/100BASE-TX PoE(+), I/O 4 pin terminal block
IR illumination	Optimized IR LEDs with adjustable angle of illumination and intensity. Range of reach up to 15 m (82 ft)
Operating conditions	0 °C to 50 °C (32 °F to 122 °F) Humidity 10 to 85% RH (non-condensing) -40 °C to 65 °C (-40 °F to 149 °F)
Approvals	EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, Etc.
Warranty	1-year warranty

General Requirements of Camera Accessories

Camera mounts:

The camera mount should be:

- i. Of the same make as that of camera and suitable for the model number offered as specified by the manufacturer and should be an integrated unit.
- ii. Should be compact and indoor / outdoor type as required.
- iii. Should support the weight of camera and accessories such as housing, pan & tilt head in any vertical or horizontal position etc.

Item Sr No-2

1/2.8" CMOS, 2 MP FIXED FOCUS, IR LEDs IR Indoor/Outdoor Network Bullet Camera,

Desired Features:

- Fixed Bullet-Style providing HDTV 1080p video quality.
- Vari-focal lens and remote zoom and focus
- The day and night functionality, with IR and P-Iris control
- Optimized IR, to automatically adapt zoom level set at installation
- Evenly illuminated image.

- I/O support
- Corridor Format for vertically oriented video streams

Bullet type Camera specifications:

Image sensor	Progressive scan RGB CMOS 1/2.8"
Lens	fixed-focal, 3.6 mm, F1.4, Horizontal angle of view 92°–33° Auto focus, Remote focus and zoom, P-Iris control, IR corrected
Day and night	Automatically removable infrared-cut filter
Minimum illumination	HDTV 1080p 25/30 fps with WDR - Forensic Capture: Color: 0.25 lux, F1.4 B/W: 0.05 lux, F1.4, 0 lux with IR illumination on
Shutter time	1/28000 s to 2s
Video compression	H.264 Baseline, Main and High Profile (MPEG-4 Part 10/AVC) Motion JPEG
Resolutions	1920x1080
Frame rate	25/30 fps with power line frequency 50 Hz in all resolutions
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG, Controllable frame rate and bandwidth, VBR/MBR H.264
Image settings	Manual Shutter tome, Compression, Color, Brightness, Sharpness, White balance, Exposure control, Exposure zones, Backlight compensation, Fine tuning of behavior at different light levels, WDR Rotation: 0°, 90°, 180°, 270° including Corridor Format
Network Security	Password protection, IP address filtering, HTTPS encryption, IEEE 802.1X network access control, Digital authentication, User access log
Supported protocols	IPv4/v6, HTTP, HTTPS, SSL/TLS, QoS Layer 3Server, FTP, CIFS/SMB, SMTP, Bonjour, UPnP, SNMP v1/v2c/v3(MIB-II), DNS, DDNS, NTP, RTSP, RTP, SFTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SSH
Application	Open API for software integration,
Programming Interface	Video motion detection, Active tampering alarm
Analytics	Cross Line Detection, etc.
Event triggers	Analytics, Edge storage events
Event actions	File upload: FTP, SFTP, HTTP, HTTPS, network share and email Notification: email, HTTP, HTTPS, TCP and SNMP trap External output activation
Data streaming	Event Data
Memory	256 MB RAM, 128 MB Flash
Power	Power over Ethernet IEEE 802.3af/802.3at Type 1 Class 3, max 11.2 W
Connectors	RJ45 10BASE-T/100BASE-TX PoE(+), I/O 4 pin terminal block
IR illumination	Optimized IR LEDs with adjustable angle of illumination and intensity. Range of reach up to 15 m (82 ft)

Operating conditions	0 °C to 50 °C (32 °F to 122 °F) Humidity 10 to 85% RH (non-condensing) -40 °C to 65 °C (-40 °F to 149 °F)
Approvals	EN 55022 Class A, EN 61000-3-2, EN 61000-3-3, EN 61000-6-1, Etc.
Warranty	1-year warranty

General Requirements of Camera Accessories

Camera mounts:

The camera mount should be:

- i. Of the same make as that of camera and suitable for the model number offered as specified by the manufacturer and should be an integrated unit.
- ii. Should be compact and indoor / outdoor type as required.
- iii. Should support the weight of camera and accessories such as housing, pan & tilt head in any vertical or horizontal position etc.

Item Sr No-3

1/2.8 in, 2 MP VARI FOCAL indoor IP IR Dome type Network Camera

Desired Features:

- Fixed dome providing HDTV 1080p video quality.
- Vary-focal lens and remote zoom and focus
- The day and night functionality, with IR and P-Iris control
- Optimized IR, to automatically adapt zoom level set at installation
- Evenly illuminated image.
- WDR

Dome type Camera specifications:

Image sensor	Progressive scan RGB CMOS 1/2.8"
Lens	Vari-focal, 2.7–12 mm F2.0, Horizontal angle of view 115° Vertical angle of view 64° Remote focus and zoom, P-Iris control, IR corrected
Day and night	Automatically removable infrared-cut filter
Minimum illumination	HDTV 1080p 25/30 fps with WDR - Forensic Capture: Color: 0.25 lux, F1.4 B/W: 0.05 lux, F1.4, 0 lux with IR illumination on HDTV 1080p 50/60 fps: Color: 0.5 lux, F1.4 B/W: 0.1 lux, F1.4, 0 lux with IR illumination on

Shutter time	1/142850 s to 2s
Video compression	H.264 Baseline, Main and High Profile (MPEG-4 Part 10/AVC) Motion JPEG
Resolutions	1920x1080
Frame rate	With WDR: 25/30 fps with power line frequency 50/60 Hz Without WDR: 50/60 fps with power line frequency 50/60 Hz
Video streaming	Multiple, individually configurable streams in H.264 and Motion JPEG Controllable frame rate and bandwidth, VBR/MBR H.264
Multi-view streaming	2 individually cropped out view areas
Image settings	Compression, Color, Brightness, Sharpness, Contrast, White balance, Exposure control (including automatic gain control), Exposure zones, Backlight compensation, Fine tuning of behavior at different light levels, WDR - Forensic Capture: Up to 120 dB depending on scene, Local contrast, Text and image overlay, Mirroring of images, Privacy masks Rotation: 0°, 90°, 180°, 270°, including Corridor Format
Network Security	Password protection, IP address filtering, HTTPS ^a encryption, IEEE 802.1X ^a network access control, Digest authentication, User access log, Centralized Certificate Management
Supported protocols	IPv4/v6, HTTP, HTTPS ^a , SSL/TLS ^a , QoS Layer 3 DiffServ, FTP, CIFS/SMB, SMTP, Bonjour, UPnP TM , SNMP v1/v2c/v3(MIB-II), DNS, DDNS, NTP, RTSP, RTP, TCP, UDP, IGMP, RTCP, ICMP, DHCP, ARP, SOCKS, SSH
Application Programming Interface	Open API for software integration,
Analytics	Video motion detection, Active tampering alarm Cross Line Detection, etc.
Event triggers	Analytics, Edge storage events
Event actions	File upload: FTP, SFTP, HTTP, HTTPS, network share and email Notification: email, HTTP, HTTPS, TCP and SNMP trap Video recording to edge storage Pre- and post-alarm video buffering Send video clip Overlay text IR illumination on/off Event data
Data streaming	Event Data
Memory	512 MB RAM, 256 MB Flash
Power	Power over Ethernet IEEE 802.3af/802.3at Type 1 Class 3, max 10.2 W, typical 3.9 W
Connectors	RJ45 10BASE-T/100BASE-TX PoE (+)
IR illumination	Optimized IR with power-efficient, long-life 850 nm IR LEDs with stable angle of illumination and intensity. Range of reach up to 25 m (82 ft) depending on scene
Operating conditions	0 °C to 50 °C (32 °F to 122 °F) Humidity 10 to 85% RH (non-condensing) -40 °C to 65 °C (-40 °F to 149 °F)
Approvals	EN 55022 Class B, EN 61000-6-1, EN 61000-6-2, EN 55024, EN 50121-4, IEC 62236-4, FCC Part 15 Subpart B Class A and B,

ICES-003 Class B, VCCI Class B, C-tick AS/NZS CISPR 22 Class B,
KCC KN22 Class B, KN24
IEC/EN/UL 60950-1, IEC/EN 62471
IEC 60068-2-1, IEC 60068-2-2, IEC 60068-2-14
IEC 60068-2-6 (vibration), IEC 60068-2-27 (shock),
IEC 60068-2-78, IEC/EN 60529 IP52, IEC/EN 62262 IK08

Warranty 1-year warranty

Item Sr No.4:

16 Channel Embedded NVR with PoE Ports.

Desired Features:

- 16 Chanel NVR integrated with manageable PoE(+) switch.
- High-definition surveillance up to 4K.
- Preloaded with VMS with Universal licenses for 16 channels and other necessary system software.
- Preconfigured to minimize installation time.
- Intuitive user interface
- Supports integration of third-party cameras.

NVR Specifications

System

Main Processor Dual-core embedded processor or better

Operating System Embedded LINUX preferable

Video

IP Camera Inputs 16 channels

Bi-directional Audio 1 channel input; 1 channel output; BNC

Display

Interface 1 HDMI; 1 VGA min.

Resolution 1920 x 1080; 1280 x 1024; 1280 x 720; 1024x768

Display Split 1/16

OSD Camera title; Time; Video loss; Camera lock; Motion detection; Recording

Recording

Compression H.264 / MJPEG

Resolution 1080p (1920 x 1080); 720p (1280 x 720); D1 (704 x 576 / 704 x 480); SXGA (800 x 600); 1.3 MP (1280 x 1024)

Recording Rate 100/120 fps @ 1080p, (100 fps @ 1080p for PAL)

Bit Rate	256 to 8192 Kbps 8-/16-channel NVRs: 1 to 8192 Kbps
Recording Mode	Manual; Schedule (Regular [Continuous], Motion Detection, Alarm, Motion Detection+Alarm); Stop
Recording Interval	1 to 120 minutes (default: 60 minutes); Pre-recording: 1 to 30 seconds. Min.

Video Detection and Alarms

Trigger Events	Recording; Tour; Alarm; Email; FTP; Buzzer; Screen Tips
Video Detection	Motion Detection; Motion Detection Zones (396: 22 x 18); Video Loss and Camera Blank
Alarm Input	16 channels min.
Relay Output	3 channels min.

Playback and Backup

Sync Playback	1/16
Search Mode	Time/Date; Alarm; Motion Detection; Exact Search (accurate to a second)
Playback Function	Play; Pause; Stop; Rewind; Fast play; Slow play; Full Screen; Backup
Backup Mode Compatibility	USB Device; Network

Network

Operating System	Windows® XP; Windows Vista; Windows 7
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Item Sr No.5:

4 TB Surveillance Hard Disks

Parameters Required

Humidity Sensor	Yes
Super Parity	Yes
Low Halogen	Yes
Hot-Plug Support	Yes
Cache, Multi-segmented (MB)	128 MB
Mean Time Between Failures (MTBF, hours)	1.4M
Reliability Rating @ Full 24x7 Operation (AFR)	0.63%
Non-recoverable Read Errors per Bits Read	1 sector per 10E15
Power-On Hours per Year	8760 (24x7)
Sector Size (Bytes per Sector)	512 Bytes
Limited Warranty	5 Years
Spindle Speed	7200 RPM

Interface Access Speed (Gb/s)	6.0, 3.0, 1.5
Max. Sustained Transfer Rate OD (MB/s)	216
Average Latency	4.16 ms
Interface Ports	Single
Rotation Vibration @ 1500 Hz	12.5 rad/s ²
Idle Power, Average	6.0 W
Typical Operating, Random Read (W)	9.42
Power Supply Requirements	+12V and +5V
Temperature, Operating	5 to 60 °C
Vibration, Non-operating: 10Hz to 500Hz	5.0 Grms
Shock, Operating, 2ms (Read/Write) (Gs)	70/40
Shock, Nonoperating, 1ms and 2ms (Gs)	300
Height (in/mm, max)	1.028/26.1
Width (in/mm, max)	4.010/101. 85
Depth (in/mm, max)	5.878/147. 0
Weight	635 grams approx.

Item Sr. No. -6

Wall Mountable 55-inch HD Ready 24X7 LED Monitor or higher Specifications

Display

Screen Size	55 inch Diagonal Minimum (IPS panel design) suitable for 24/7 operation
Screen Resolution	1920 x 1080
HD	Full HD
Screen Type	LED

Video Feature Details Cine Motion, Noise Reduction, 3D Comb Filter, Selectable Picture Modes (User, Cinema, Sports, Vivid, Hi-bright, Photo, etc), Live Color

Supported Video Formats	3GP, MP4, WebM, ASF, AVI, VOB, PS, MPEG-1, WMV, VRO
Audio Features	
Number of Speakers	1

Speaker Output (RMS) 8W

Sound Technology Dolby Digital

SPDIF (Digital Output) required

Audio Feature Details S-Master Digital Amplifier, USB Play

Sound Mode Music, Standard, Sports, Cinema, Game

Supported Audio Formats MPEG, MPEG2PS, MPEG2TS

Internet Features & Ports

Connectivity MHL

HDMI 2

USB 1

Headphone Jack 1

Composite In Yes

Component In Yes

RF Connectivity Input Yes

General Specifications

Dimensions (mm) 640 x 400 x 80

Weight with Stand 3.9kg

Weight without Stand 3.7kg

Remote Standard Remote

Power Consumption (In Use) 45W

Item Sr. No.-7

6 U Rack for NVR

Power supply Electrical EMI/RFI arrester

Panel Cooling Fan

Panel Lock & Key

Item Sr No.-8

VMS Client Software for Control Room

Item Sr No.-9

CAT 6 Cable STP (305 METER each box)

Twisted Pair, Insulated with High Quality Polyethylene and Unshielded Light Grey PVC Jacket with Improved Fire Retardant properties, Low attenuation and crosstalk and Low Structural return loss as per IS .

Class E CAT 6A,

Frequency (MHz) 1-500,

Insertion Loss (dB) 20.9

NEXT (dB) 39.9, PS-NEXT (dB) 37.1, ACR (dB) 18.6, PS-ACR (dB) 15.8,

ACRf (dB) 23.3—22.5, PS-ACRF (dB) 20.3—22.5 Return Loss (dB) 12.0, PS-ANEXT (dB) 60.0, PS-AACRF (dB) 37.0

Propagation Delay (ns) 548

Networks Supported 10GBASE-T

Bend Radius — PVC: 1.41" (36 mm); Plenum: 1.29" (33 mm)

Capacitance Unbalance (Pair Ground) — 330 pF/100 in max.,

Characteristic Impedance— 100 ohm \pm 10% (10-500 MHz)

Conductor — 4 pairs, 23 AWG solid bare copper,

Construction — Internal separator, FEP insulation, dielectric tape, drain wire, aluminum /Mylar tape, Delay Skew — 45 nS/100 max.,

DCR Unbalance — PVC: 3% max.;

Plenum: 5% max.

Insertion Loss (dB/100 m) — 18.6 @ 100 MHz; 43.8 @ 500 MHz; 50.6 @ 650 MHz

Jacket — Low-smoke, flame-retardant LS0H/PVC

Drain Wire — Tinned copper,

Insulation — PVC: HOPE;

Plenum: fluoro-polymer (FEP)

Mutual Capacitance: 56 pF/100 m max. Nominal Velocity of Propagation:

PVC: 66%; Plenum: 70%

outside Diameter — PVC: 0.303" (7.7 mm); Plenum: 0.283" (7.3 mm)

Propagation Delay Skew — 45 ns/100 m max.

Return Loss (dB/100 m) — 21.1 @ 100 MHz; 16.5 @ 500 MHz; 15.7@650MHz, Shield —A

Item No. 10

Supply of 1" PVC PIPE/Casing Capping/Flexible GI Conduit ISI brand.

PVC Casing - Capping gauge 3mm thickness made of Polycab/Finolex/Legrand make & its accessories

Conduit

- a) Flexible PVC Conduit pipe corrugated parallel ridges and grooves so as to give added rigidity and strength
- b) MS Pipe with anti-rust black paint Industrial grade & accessories

Item No. 11

8 ports POE (+) 30W switch from reputed manufacturer

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