


EXPRESSION OF INTEREST
FOR INSTALLATION OF CCTV CAMERAS AND ALLIED SOLUTIONS IN NIA
HQRS AND 12 NIA BRANCH OFFICES

This is for general information of the firms/manufacturers of the CCTV Cameras and Allied Solutions which have been framed by the Board of Officers of the NIA as per Appendix 'A'. All the interested vendors/firms are requested to go through the same and give their suggestions, if any, by 31 Jan 2023 on e-mail ID-spadmin.nia@gov.in.

A hard copy of suggestions may also be sent to the SP (Adm), NIA Hqrs, Opposite CGO Complex, New Delhi-110003.


Supdt of Police (Adm)
NIA Hqrs, New Delhi

NATIONAL INVESTIGATION AGENCY

(Ministry of Home Affairs)

New Delhi

Specifications of CCTV and related Equipments
to be installed in compliance of directives of Hon'ble Supreme Court India in case of
Paramvir Singh Saini Vs Baljit Singh & others dated 02.12.2020.

Vide NIA HO Admin office order No.PC-14/02/ CCTV/NIA/2020-21/2427 dated 18.02.2021 and No.PC-14/02/ CCTV/NIA/2020-21/3500 dated 10.03.2021, a committee was constituted for deciding Technical Specifications of CCTV Cameras with facility of Night Vision, Video and Audio recording and storage capacity of minimum 01 year in light of directions of Hon'ble Supreme Court of India in case of Paramvir Singh Saini Vs. Baljit Singh & Others dated 02.12.2020 (copy enclosed).

Requisite Specifications for CCTV and related equipments to be installed in compliance of the above directives have been prepared and the same have also been vetted by CDAC, Pune, NIA's IT Consulting Agency. The Specifications are given below :-

- A. **5 MP Bullet Camera with Audio, Motorised Varifocal, Night Vision** : To be used where view is to be recorded from a distance such as **Lockup Rooms, Main Entry/Exit Gates, Boundary Walls, Compound, etc.**

Specification:

S.No.	Feature of CCTV Camera	Value
1	Image Sensor Type	CMOS
2	Minimum Illumination	Color: 0.008 lux , B/W: 0 lux with IR ON
3	Resolution	5MP
4	Day/Night Capable	Yes
5	IR illumination Range(mtr.)	40 Mtr.
6	Type of Camera Housing	Bullet
7	IP Camera	Yes
8	Lens Type	Motorized Varifocal & Auto focus
9	Focal Length(mm)	2.8 - 12
10	Frame Rate (fps)	25 fps
11	Video Compression	H.264, H.265
12	Video Streaming	3 Streams
13	Audio Support	Yes
14	Number of Audio Input Channel	1
15	Number of Audio Output Channel	1

16	External Microphone Support	Yes
17	ONVIF Support	Yes
18	IP Support	Static, Dynamic , Unicast, Multicast, SRTP or equivalent to ensure data encryption between camera and video recorder device
19	On Board SD Card Support	Yes (128 GB Minimum)
20	Protection	IP67
21	Vandal Resistant Housing	Yes (IK10)
22	Alarm Support	Yes
23	Number of Alarm Input	1
24	Number of Alarm Relay Output	1
25	Power Input	PoE and 12VDC/ 24DC
26	Warranty	3 Years Onsite
27	Time for Replacement of Defective Product During Warranty Period	72 hour
28	BIS Registration for safety general requirements as per IS 13252 (Part 1) : latest	Yes
29	Certification	BIS, UL/EN
Additional Features		
1	External Microphone is to be provided with Camera and it should be able to record clear sound from a distance of 12-15 ft.	Yes
2	If CCTV Cameras are available with BIS Standards IS-16910 (Part-2/Sec-31), IS-16910 (Part-2/Sec-32) and IS-16910 (Part-5), preference would be given to these products for purchase. Please attach the support document of compliance.	Yes

Catalogues of the some of the products available in the open market are enclosed with this report as *Annexure- 'PA-1 to 'PA-3'*.

- B. **5 MP Dome Camera with Audio, Motorised Varifocal, Night Vision** : To be used where view is to be recorded at near sight such as **Interrogation Rooms, Corridors of Lockup & Interrogations & other locations, reception areas, lobby, etc.**

Specification:

S.No.	Feature of CCTV Camera	Value
1	Image Sensor Type	CMOS
2	Minimum Illumination	Color: 0.008 lux , B/W: 0 lux with IR ON
3	Resolution	5MP
4	Day/Night Capable	Yes
5	IR illumination Range(mtr.)	40 Mtr.
6	Type of Camera Housing	Dome
7	IP Camera	Yes
8	Lens Type	Motorized Varifocal & Auto focus
9	Focal Length(mm)	2.8 – 12
10	Frame Rate (fps)	25 fps
11	Video Compression	H.264, H.265
12	Video Streaming	3 Streams
13	Audio Support	Yes
14	Number of Audio Input Channel	1
15	Number of Audio Output Channel	1
16	External Microphone Support	Yes
17	ONVIF Support	Yes
18	IP Support	Static, Dynamic , Unicast, Multicast, SRTP or equivalent to ensure data encryption between camera and video recorder device
19	On Board SD Card Support	Yes (128 GB Minimum)
20	Protection	IP67
21	Vandal Resistant Housing	Yes (IK10)
22	Alarm Support	Yes
23	Number of Alarm Input	1
24	Number of Alarm Relay Output	1

25	Power Input	PoE and 12VDC/ 24DC
26	Warranty	3 Years Onsite
27	Time for Replacement of Defective Product During Warranty Period	72 hour
28	BIS Registration for safety general requirements as per IS 13252 (Part 1) : latest	Yes
29	Certification	BIS, UL/EN

Additional Features

1	External Microphone is to be provided with Camera and it should be able to record clear sound from a distance of 12-15 ft.	Yes
2	If CCTV Cameras are available with BIS Standards IS-16910 (Part-2/Sec-31), IS-16910 (Part-2/Sec-32) and IS-16910 (Part-5), preference would be given to these products for purchase. Please attach the support document of compliance.	Yes

Catalogues of the some of the products available in the open market are enclosed with this report as *Annexure- 'PB-1' to 'PB-3'*.

- C. **RECORDING DEVICE (RACK MOUNTED SERVER WITH VMS SOFTWARE):** To record the feeds of CCTV cameras and Audio recording through Video Management Software. Additional NAS based storage shall be provisioned as per storage space requirement which cannot be fulfilled by in-built server Storage.

Specification:

S. No.	FEATURE OF NETWORK VIDEO RECORDER	Value
1	Operating System Support	Windows, Linux
2	Operating System Drive	2 x 128 GB SSD, Hot Swappable
3	Operating System Redundancy	RAID-1
4	RAID Level	0,1,5, 6 and combination.
5	CPU	Intel Xeon / AMD Server Series processor having Min 4 Core
6	RAM	32 GB
7	Monitor Output	HDMI, VGA, DVI Display

		Port (2 Min simultaneous)
8	Ethernet Ports	2x1Gbps, 2x10Gbps with compatible Multimode SFPs along with LC to LC multimode (10 Gbps) patch cables
9	USB Ports	6 ports (4xUSB3.0, 2xUSB2.0) - ports should be available at front and rear side.
10	DVD Writer	External
11	Power Supply	Redundant
12	Accessories	Keyboard, Mouse, Mounting Rail Kits
13	Pre-loaded Video Management Software (VMS): Enterprise Category	Yes
13.a	Video Content Analytics (VCA)	Motion Detection, Video Loss, Suspect Tracking (Supported), VIDEO MOTION, IP CAMERA CONNECTION
13.b	Camera Notification	Spot (POP up Window) on Event, PLAY SOUND, LOG ALERT
13.c	Search	Date, Time, Event, Log, Motion, Bookmarks, Time-Line Based Search
13.d	Minimum Supported IP Camera	64
13.e	Capability of Recorder to Work with Other Makes of CCTV Cameras (ONVIF support with Profile - G,S,T)	Yes
14	Minimum Storage (NAS/Unified Storage)	<p>Populated with 500 TB usable for recording and it should be upgradable to 1 Peta Byte.</p> <p>All Hard Disks should be NL-SAS/MDL SAS and Hot Swappable. At least 2 Nos. of HDDs to be provisioned as Active Hot spare.</p> <p>10% HDDs should be provided as Spare HDDs(cold spares).</p>
15	Warranty	3 year

16	Time for Replacement of Defective Product During Warranty Period	72 hour
17	Certification	BIS, UL/EN

Additional Features

1	If RACK MOUNTED SERVER WITH VMS SOFTWARE is available with BIS Standards IS-16910 (Part-2/Sec-31), IS-16910 (Part-2/Sec-32) and IS-16910 (Part-5), preference would be given to these products for purchase.	Yes
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Catalogues of the some of the products available in the open market are enclosed with this report as *Annexure- 'PE-1 to PE-6*.

Calculation of Storage Space requirement for CCTV Cameras recording:
Storage space can be calculated as per respective Branch Office requirements depending upon the **number of cameras** to be installed and the number of days (recommended retention period is 1.5 yrs.) to be recorded.

Example storage calculation matrix is given below.

<https://www.seagate.com/in/en/video-storage-calculator/>

Parameters	Value
Number of Camera	1
Frames per second	25
Hours per day	24
Number of Days Recording Stored	1
Resolution	5MP
Video Quality	High
Compression Type	H.265
Required Storage Space (GB)	72.89
RAID Extra Space 10%	7.29
Future Camera Extension 10%	7.29
Some extra Archival of Important Events 5%	3.64
Storage in GB for 01 Camera for 01 day:	91.11

Note:

Required Storage for recording of cameras = No. of Days x No. of cameras x 91 GB

D. VIDEO MANAGEMNET SYSTEM SOFTWARE (VMS): To record the feeds of CCTV cameras.

Specification:

S.No.	FEATURE OF VIDEO MANAGEMNET SYSTEM (VMS) SOFTWARE:	Value
1	Type of video management system software	1. VMS software for local monitoring
2	Type of licence	Perpetual
3	Deployment option	On site
4	No of days Training Provided at Site	upto 5
5	Number of Years upto which Support is available from OEM	3
6	Generic feature in the offered product	<p>1. Proposed Video Management software should be highly scalable Enterprise level software & a complete video surveillance solution. It is scalable to required numbers of cameras by adding additional licenses.</p> <p>2. Video Management software should be compatible with Intel x86 /AMD server running windows/linux.</p> <p>3. The User with administrative rights to create clients (users) & give access to the software client application based on predefined user access rights.</p> <p>4. System allow the recording, live monitoring, playback of archived</p>

		video and Audio simultaneously. 5. Management screen: Lock, unlock with password support.
7	Software provides	1. Several simultaneous live picture connections of camera in network. 2. Configuration of monitoring situation (site maps). 3. Programming of alarm-triggered automatic events in various alarms configuration. 4. System set up with limited operation options for clearly defined surveillance tasks. 5. Automatic recording events on a network recorder.
8	Type of Streaming	Triple Streaming.
9	Video compression format supported by the software in real time	1. H.264, 2.MJPEG, 3.H.265 or Higher video streams
10	Number of monitors for displaying live video with one server /workstation	3
11	Camera related feature in the offered product	1. Bit rate , frame rate and resolution to be set independently from other Cameras in the system and altering these settings do not affect the recording and display settings of other Cameras. 2. Automatic search & discovery of components of video surveillance system on the network which can be network Cameras. 3. Drag & drop functions on the system & also for set up of connection between Cameras and monitors connected to one workstation.

		<p>4.The Software capable of handling Camera & alarm icons on area map & area map to be configurable to pop up upon the receipt of an alarm received from a camera on the map.</p> <p>5. Capability on client to dynamically create connections between Cameras and clients and view live or recorded video on monitors.</p> <p>6. Scalable licensing model supporting unlimited cameras per server based on the available hardware configuration</p> <p>7. Unrestricted camera replacement in case of camera failure along with associated licenses.</p>
12	The offered product capable to allow	<p>1. Live Display of Cameras 2. Live Display of Camera sequences 3. Control of PTZ Cameras 4. Playback of archived Audio and video 5. Retrieval of archived Audio and video 6. Instant Replay of live Audio and Video 7. Use of Site maps 8. Configuration of System Settings 9. Configuration and programming of P /T /Z Cameras, features like auto tours, presets etc. 10. Digital PTZ Control 11. Preset position setup.12. Preset position search. 13. Optical zoom in, Zoom out. 14. Full screen view enable/ disable . 15. Camera connect/disconnect.</p>
13	Software capable to record Audio and video on	<p>1. Inbuilt hard disks on the server,2. Direct attached storage boxes attached to the servers,3. Network attached storage,4. Storage area network</p>
14	Software capable to record	<p>1. Inbuilt hard disks on the server</p>

	Audio and video on	2. Direct attached storage boxes attached to the servers 3. Network attached storage 4. Storage area network
15	Software capable to select recording based on	1. Time at which recording was activated 2. Duration of recording 4. Event activated recording 5. Scheduled recording 6. Camera 7. Date
16	Option available in the offered product for reporting utility for tracking for	2. Alarms,3. Incidents,4. Operator logs
17	Video management and recording feature in the offered product	1. Export of desired portion of clipping of video from a Desired date/ Time to another desired date/ time. 2. Capable to maintain a catalog of settings for all clients, servers and IP 3. Enable the client to dynamically create connections between Cameras and clients and view live or recorded video on monitors. 4. Video push feature to send individual cameras or an entire view of cameras to other monitor
18	Supporting feature in the offered product	1. Provide a full matrix operation of IP video to display monitors. 2. Capability of creating camera sequences with following functionalities: i) Capability to sequence cameras ii) Each camera in the sequence has its own individual dwell time iii) Multiple users able to view the same camera sequence simultaneously, not necessarily synchronized one with the other.
19	Maximum VMS Throughput	1000 Mbps
20	Number of monitor for	4

	displaying live video with one server / workstation (Hint : Select '0' if not applicable)	
21	Number of Video Streams (Channels)concurrently supported by Local VMS	64
22	Number of Video Streams (Channels) expandable for local VMS up to	256
23	Type of audio	2-way
24	No of Motion detection selectable area(Hint : Select '0' if not applicable)	4
25	Network storage path	ISCSI, network share, NAS
26	Storage/ Backup features	Multiple local storage support, Network Storage Device Support, USB backup support
27	The GUI software capable to support	1. Any form of IP network connectivity including LAN,WAN and wireless LAN technologies 2. Multicast video streaming 3. Unicast video streaming
28	GUI Software Feature	1. User authentication mechanism. 2. Live monitoring of video. 3. Provide management and control over the system using a standard PC mouse, keyboard and Digital keyboard 4. Display all Cameras attached to the system regardless of their physical location on the network. 5. Display all Camera sequences created in the system 6. Display all Cameras, sequences and users in a logical tree.7. Support graphical site representation (map) functionality 8. Support digital zoom on a fixed Camera's live video streams 9. Support digital zoom on a PTZ Camera's live video streams

		<p>10. Display video of Cameras on Large Display Monitors and Workstation Monitors</p> <p>11. Capable to allow the control of display from the client PC</p> <p>12. The operator from the GUI software able to decide the screen layout and also the Cameras that shall be displayed on the monitors</p> <p>13. Capable to support multicasting</p> <p>14. Capable to switch the screen layout in response to an alarm</p>
29	Tiles Views provided on each of the digital monitors independently	<p>1. Full screen</p> <p>2. Quad view</p> <p>3. 4x4 (16-view), 6x6 (36 view) and 8x6 (48-view)</p> <p>4. Support any other window division based on the site requirement</p>
30	GUI Software Operator Feature	<p>1. View an instant replay of any Camera.</p> <p>2. Allow to define the amount of time desired to go back from timeline bar</p> <p>3. control the playback with play, pause, forward, and speed buttons,</p> <p>4. Drag and drop a Camera from a tree of available Cameras into any video tile for live viewing</p> <p>5. View the Camera from a tree of available Cameras into any video tile for live viewing.</p>
31	Video Recording Feature by the offered product	<p>1. Recording H.264/MJPEG/H.265 or higher video streams and audio for all the channels.</p> <p>2. Supports triplex applications, recording, replay and backup simultaneously compatible with windows Server OS or Linux</p> <p>3. Operates on open architecture and not requires any proprietary hardware.</p> <p>4. Record different video streams or more simultaneously accessible from any client PC connected to the network.</p> <p>5. Provides network time server function to ensure the</p>

		<p>synchronization of the video servers and the recordings.</p> <p>6. Servers/NVRs be connected to the network so that these can be placed at any location which has network access.</p> <p>7. Software capable to receive alarms of different types from equipment to start a recording .These alarms be motion detection, video loss, unified picture and trigger input.</p>
32	Features of Fault Tolerance Recording	<p>1 .Software & Server(s)/ NVRs operation are interrupted, like power disconnection and once the server(s) are restarted, these automatically resume recording of any Cameras these were recording prior to the interruption.</p> <p>2. Software supports network fault-tolerant recording such that if the network connection between i.e. recording will resume automatically recover when the connection is restored.</p>
33	Feature of Search & Export	<p>1. Search for recordings by Camera, date and time, possible to playback more than one Camera simultaneously.</p> <p>2. Capable to export sections of recordings to a separate folder, which then be written to CD-ROM, DVD-ROM or USB Flash Drives etc. to be played back at a location not connected to the network video management & recording network. The export process make available a player application, which provided with the exported video. Export be possible in Windows media player or any other media player compatible format. Simultaneous</p>

		export of multiple Cameras be possible.
34	Alert feature in the offered product	<p>1. Detect signal loss & have the capability to alert the Systems administrator.</p> <p>2. Receive all incoming events (motion detection, triggered digital input & relay output) in the system and take the appropriate actions based on user-defined event/action relationships. 3. Create an audit trail of all events and user activities. 4. Provide alarm management module.</p>
35	Integrity of Recorded and exported Audio and Video	1. VMS shall support end to end integrity of Audio and Video by means of channel encryption and maintaining of checksum/hash values. It should also support to digitally sign the exported Audio and Video files.

Catalogues of the some of the products available in the open market are enclosed with this report as *Annexure- 'PF-1 to PF-7*.

- E. ADDITIONAL REQUIRED ITEMS/ ACCESSORIES :** Besides Cameras and Recording Device (Rack Mounted Server), the other accessories/items such as Storage Device (Network Attached Storage (NAS)/Unified Storage), Rack Mounted Network Switch, Server Rack, LED Display, Copper Patch Panels, Patch Cords, CAT6 Unarmoured Cables, Conduits, Gang Boxes, etc are required for proper installation of required CCTV Systems, as per site requirement. Cost of required licences of all hardware and software's including Video Management Software should be inclusive so that whole integrated installed CCTV Systems works properly and live recording of all cameras takes place on integrated storage automatically for the whole specified recording period.

It is also suggested to perform POC from the bidders to ensure that the features mentioned in this document are met before placing the order.

S.No.	ADDITIONAL ITEMS/ ACCESSORIES
1	<p>Network Attached Storage (NAS)/Unified Storage: If the required storage capacity for cameras is not fulfilled by the in-built storage capacity of the NVR /VMS Server, NAS / Unified storage can be provisioned for recording purpose. Storage capacity to be decided as per site requirement.</p> <p>Besides providing required data storage, NAS should have license for data encryption of data at rest, support minimum RAID-6, at least 2x1Gbps, 2x10Gbps with compatible Multimode SFPs along with LC to LC multimode (10 Gbps) patch cables. Proposed NAS storage should have Dual controllers (HA) to avoid single point of failure.</p>
2	<p>Server Rack: Size 42 U (600Wx1200D), Door with Lock and latch, perforated front and back doors, fan fitted, free standing, cable managers, 2 no's of Power strip with minimum 8 sockets. Recommended to connect to Power Source1 and Power Source2 based on availability. VMS Server, NVR/NAS/Unified Storage and POE switches shall be connected over UPS only.</p>
3	<p>Rack Mounted Network Layer-2 PoE Switch: having 48 Port PoE, minimum 6 ports of 10Gbps along with Multimode SFPs and LC to LC OM3 multimode 3 mts. patch cables.</p>
4	<p>LED Display: 55 "</p> <p>Type: Non-interactive display Resolution: 3840x2160(Ultra HD) Minimum Contrast ratio: 3000:1 Minimum Brightness - 300 Nits (cd/m2) Viewing Angle - 170 Degrees Input ports - 2xHDMI,1xVGA,2xUSB3.0,1xAUDIO Output ports -1xAudio Built in Speakers - 2 x 10W (Minimum) Mounting: Wall mounting brackets with swivel.</p>
5	<p>Copper Patch Panel: Category-6 UTP 48-port Patch Panel loaded with all ports and accessories.</p>
6	<p>Copper Patch Cord: CAT-6 UTP Patch cord, 1mtr lengths, AWG 23 stranded cable, flame retardant.</p>

7	Cat-6 Cable Unarmoured: CAT6 UTP, AWG23 stranded cable.
8	Conduit ISI Mark Medium PVC Conduit 25 mm for Indoor/Outdoor with all accessories.
9	Gang Boxes
10	Any other equipment/accessories/software required for the installation of equipments as per site requirement.

F. ADDITIONAL TERMS & CONDITIONS:

- a) Country of Origin and Country of Assembly of the quoted products (Hardware and Software) should be clearly mentioned and NIA has right to accept or reject the product based upon the above parameters.

******* End *******