

बिड दस्तावेज़ / Bid Document

बिड विवरण/Bid Details	
बिड बंद होने की तारीख/समय /Bid End Date/Time	03-10-2026 10:00:00
बिड खुलने की तारीख/समय /Bid Opening Date/Time	03-10-2026 10:30:00
बिड पेशकश वैधता (बंद होने की तारीख से)/Bid Offer Validity (From End Date)	120 (Days)
मंत्रालय/राज्य का नाम/Ministry/State Name	Ministry Of Finance
विभाग का नाम/Department Name	Department Of Economic Affairs
संगठन का नाम/Organisation Name	Security Printing And Minting Corporation Of India Limited (spmci)
कार्यालय का नाम/Office Name	3rd Floor Tower G World Trade Centre Nauroji Nagar
शिकायत निवारण के संपर्क विवरण/ Contact details of Grievance redressal	HOD Email id :ram.sahai@gov.in Buyer Email id: putti.devendranath@spmci.com
कुल मात्रा/Total Quantity	1
वस्तु श्रेणी /Item Category	DSITC Of IP-based AI-enabled CCTV Surveillance System (200 Cameras) on Turn Key Basis
GeMARPTS में खोजी गई स्ट्रिंग्स / Searched Strings used in GeMARPTS	DSITC Of IP-based AI-enabled CCTV Surveillance System (200 Cameras)
GeMARPTS में खोजा गया परिणाम / Searched Result generated in GeMARPTS	Category not available on GeM for the text string uploaded by the buyer
अधिसूचना के लिए चयनित प्रासंगिक श्रेणियाँ / Relevant Categories selected for notification	• Video Recorder for CCTV System (V2) • Servers (V2) • Camera for CCTV System (V3)
बिडर का न्यूनतम औसत वार्षिक टर्नओवर (3 वर्षों का) /Minimum Average Annual Turnover of the bidder (For 3 Years)	326 Lakh (s)
मूल उपकरण निर्माता का औसत टर्नओवर (गत 3 वर्षों का)/OEM Average Turnover (Last 3 Years)	326 Lakh (s)
टर्नओवर पात्रता मानदंड/Turnover eligibility criteria	To be verified by the buyer at the time of technical evaluation
वर्षों के अनुभव एवं टर्नओवर से एमएसई को छूट प्राप्त है / MSE Relaxation for Years Of Experience and Turnover	Yes Complete

बिड विवरण/Bid Details	
स्टार्टअप के लिए अनुभव के वर्षों और टर्नओवर से छूट प्रदान की गई है / Startup Relaxation for Years Of Experience and Turnover	Yes Complete
विक्रेता से मांगे गए दस्तावेज़/ Document required from seller	Experience Criteria,Past Performance,Bidder Turnover,Certificate (Requested in ATC),OEM Authorization Certificate,OEM Annual Turnover,Additional Doc 1 (Requested in ATC) *In case any bidder is seeking exemption from Experience / Turnover Criteria, the supporting documents to prove his eligibility for exemption must be uploaded for evaluation by the buyer
क्या आप निविदाकारों द्वारा अपलोड किए गए दस्तावेज़ों को निविदा में भाग लेने वाले सभी निविदाकारों को दिखाना चाहते हैं? संदर्भ मेनू है/ Do you want to show documents uploaded by bidders to all bidders participated in bid?	No
बिड लगाने की समय सीमा स्वतः नहीं बढ़ाने के लिए आवश्यक बिड की संख्या। / Minimum number of bids required to disable automatic bid extension	3
दिनों की संख्या, जिनके लिए बिड लगाने की समय-सीमा बढ़ाई जाएगी। / Number of days for which Bid would be auto-extended	7
ऑटो एक्सटेंशन अधिकतम कितनी बार किया जाना है। / Number of Auto Extension count	1
विगत प्रदर्शन / Past Performance	80 %
बिड से रिवर्स नीलामी सक्रिय किया/ Bid to RA enabled	Yes
रिवर्स नीलामी योग्यता नियम/ RA Qualification Rule	H1-Highest Priced Bid Elimination
बिड का प्रकार/ Type of Bid	Two Packet Bid
तकनीकी मूल्यांकन के दौरान तकनीकी स्पष्टीकरण हेतु अनुमत समय / Time allowed for Technical Clarifications during technical evaluation	2 Days
निरीक्षण आवश्यक (सूचीबद्ध निरीक्षण प्राधिकरण /जेम के साथ पूर्व पंजीकृत एजेंसियों द्वारा)/ Inspection Required (By Empanelled Inspection Authority / Agencies pre-registered with GeM)	No
Payment Timelines	Payments shall be made to the Seller within 30 days of issue of consignee receipt-cum-acceptance certificate (CRAC) and on-line submission of bills (This is in supersession of 10 days time as provided in clause 12 of GeM GTC)
मूल्यांकन पद्धति/ Evaluation Method	Total value wise evaluation
वित्तीय दस्तावेज की आवश्यकता है / Financial Document Required	Yes

बिड विवरण/Bid Details

मध्यस्थता खंड/Arbitration Clause	No
सुलह खंड/Mediation Clause	No

ईएमडी विवरण/EMD Detail

एडवाइजरी बैंक/Advisory Bank	Indusind bank
ईएमडी राशि/EMD Amount	1627000

ईपीबीजी विवरण /ePBG Detail

एडवाइजरी बैंक/Advisory Bank	Indusind bank
ईपीबीजी प्रतिशत (%) /ePBG Percentage(%)	5.00
ईपीबीजी की आवश्यक अवधि (माह) /Duration of ePBG required (Months).	33

(a). जेम की शर्तों के अनुसार ईएमडी छूट के इच्छुक बिडर को संबंधित कैटेगरी के लिए बिड के साथ वैध समर्थित दस्तावेज़ प्रस्तुत करने हैं। एमएसई कैटेगरी के अंतर्गत केवल वस्तुओं के लिए विनिर्माता तथा सेवाओं के लिए सेवा प्रदाता ईएमडी से छूट के पात्र हैं। व्यापारियों को इस नीति के दायरे से बाहर रखा गया है।/EMD EXEMPTION: The bidder seeking EMD exemption, must submit the valid supporting document for the relevant category as per GeM GTC with the bid. Under MSE category, only manufacturers for goods and Service Providers for Services are eligible for exemption from EMD. Traders are excluded from the purview of this Policy.

(b).ईएमडी और संपादन जमानत राशि, जहां यह लागू होती है, लाभार्थी के पक्ष में होनी चाहिए। / EMD & Performance security should be in favour of Beneficiary, wherever it is applicable.

(c).ईएमडी और संपादन जमानत राशि लाभार्थी के पक्ष में होनी चाहिए। / Earnest Money Deposit (EMD) shall also be accepted by the buyer in the form of a surety bond.

लाभार्थी /Beneficiary :

CHIEF GENERAL MANAGER
P.B. NO: 10,IDA PHASE-II, CHERLAPALLY, HYDERABAD-500051, TELANGANA
(India Government Mint, Hyderabad)

UIN Number NCTGC2415P

बोली विभाजन लागू नहीं किया गया/ Bid splitting not applied.

एमआईआई खरीद वरीयता / MII Purchase Preference

एमआईआई खरीद वरीयता / MII Purchase Preference	Yes
मेक इन इंडिया विक्रेताओं को खरीद में प्राथमिकता, यदि उनका मूल्य $L1+X\%$ तक की सीमा में है / Purchase Preference to MII sellers available upto price within $L1+X\%$	20

मेक इन इंडिया खरीद में प्राथमिकता के लिए बिड की मात्रा का अधिकतम प्रतिशत / Maximum Percentage of Bid quantity for MII purchase preference	50
सार्वजनिक खरीद (मेक-इन-इंडिया को प्राथमिकता) आदेश 2017 के अनुसार केवल क्लास 1/क्लास 2 के स्थानीय आपूर्तिकर्ताओं को ही भागीदारी की अनुमति है दिनांक 16.09.2020 (समय-समय पर संशोधित एवं लागू) / Allow participation only from Class 1/Class 2 local suppliers as per the Public procurement(Preference to Make-in-india) order 2017 date 16.09.2020(as amended and applicable time to time)	Yes, in compliance with the MII ORDER : DPIIT Order(as amended and applicable time to time)

एमएसई खरीद वरीयता/MSE Purchase Preference

एमएसई खरीद वरीयता/MSE Purchase Preference	Yes
सूक्ष्म और लघु उद्यम मूल उपकरण निर्माताओं/सेवा प्रदाता को खरीद में प्राथमिकता, यदि उनका मूल्य $L1+X\%$ / Purchase Preference to MSE OEMs/ Service Provider available upto price within $L1+X\%$	15
सूक्ष्म और लघु उद्यम मूल उपकरण निर्माता/सेवा प्रदाता को खरीद में प्राथमिकता के लिए बिड की मात्रा का अधिकतम प्रतिशत / Percentage of Bid quantity/amount for MSE OEMs/ Service Provider Purchase preference	25

ट्रेड्स भुगतान संबंधी विवरण/TReDS Payment Details

This Bid provides for Trade Receivables Discounting System (TReDS) as Preferred mode of payment. For MSME sellers, payments may be processed through a TReDS exchange in which the Buyer is registered, subject to applicable policy and regulatory guidelines. Accordingly, sellers intending to avail payment through TReDS are required to be registered with at least one TReDS exchange in which the buyer is registered.

1. If the bidder is a Micro or Small Enterprise as per latest orders issued by Ministry of MSME, the bidder shall be relaxed from the eligibility criteria of "Experience Criteria" as defined above subject to meeting of quality and technical specifications. The bidder seeking Relaxation from Experience Criteria, shall upload the supporting documents to prove his eligibility for Relaxation.
2. If the bidder is a Micro or Small Enterprise (MSE) as per latest orders issued by Ministry of MSME, the bidder shall be relaxed from the eligibility criteria of "Bidder Turnover" as defined above subject to meeting of quality and technical specifications. If the bidder itself is MSE OEM of the offered products, it would be relaxed from the "OEM Average Turnover" criteria also subject to meeting of quality and technical specifications. The bidder seeking Relaxation from Turnover, shall upload the supporting documents to prove his eligibility for Relaxation.
3. If the bidder is a DPIIT registered Startup, the bidder shall be relaxed from the the eligibility criteria of "Experience Criteria" as defined above subject to their meeting of quality and technical specifications. The bidder seeking Relaxation from Experience Criteria, shall upload the supporting documents to prove his eligibility for Relaxation.
4. If the bidder is a DPIIT registered Startup, the bidder shall be relaxed from the the eligibility criteria of "Bidder Turnover" as defined above subject to their meeting of quality and technical specifications. If the bidder is DPIIT Registered OEM of the offered products, it would be relaxed from the "OEM Average Turnover" criteria also subject to meeting of quality and technical specifications. The bidder seeking Relaxation from Turnover shall upload the supporting documents to prove his eligibility for Relaxation.
5. The minimum average annual financial turnover of the bidder during the last three years, ending on 31st March of the previous financial year, should be as indicated above in the bid document. Documentary evidence in

the form of certified Audited Balance Sheets of relevant periods or a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid. In case the date of constitution / incorporation of the bidder is less than 3-year-old, the average turnover in respect of the completed financial years after the date of constitution shall be taken into account for this criteria.

6. OEM Turn Over Criteria: The minimum average annual financial turnover of the OEM of the offered product during the last three years, ending on 31st March of the previous financial year, should be as indicated in the bid document. Documentary evidence in the form of certified Audited Balance Sheets of relevant periods or a certificate from the Chartered Accountant / Cost Accountant indicating the turnover details for the relevant period shall be uploaded with the bid. In case the date of constitution / incorporation of the OEM is less than 3 year old, the average turnover in respect of the completed financial years after the date of constitution shall be taken into account for this criteria.

7. Preference to Make In India products (For bids < 200 Crore): Preference shall be given to Class 1 local supplier as defined in public procurement (Preference to Make in India), Order 2017 as amended from time to time and its subsequent Orders/Notifications issued by concerned Nodal Ministry for specific Goods/Products. The minimum local content to qualify as a Class 1 local supplier is denoted in the bid document. If the bidder wants to avail the Purchase preference, the bidder must upload a certificate from the OEM regarding the percentage of the local content and the details of locations at which the local value addition is made along with their bid, failing which no purchase preference shall be granted. In case the bid value is more than Rs 10 Crore, the declaration relating to percentage of local content shall be certified by the statutory auditor or cost auditor, if the OEM is a company and by a practicing cost accountant or a chartered accountant for OEMs other than companies as per the Public Procurement (preference to Make-in -India) order 2017 dated 04.06.2020. Only Class-I and Class-II Local suppliers as per MII order dated 4.6.2020 will be eligible to bid. Non - Local suppliers as per MII order dated 04.06.2020 are not eligible to participate. However, eligible micro and small enterprises will be allowed to participate .The buyers are advised to refer the OM No.F.1/4/2021-PPD dated 18.05.2023.

[OM No.1 4 2021 PPD dated 18.05.2023](#) for compliance of Concurrent application of Public Procurement Policy for Micro and Small Enterprises Order, 2012 and Public Procurement (Preference to Make in India) Order, 2017 and its subsequent Orders/Notifications issued by concerned Ministry .Benefits of MSE will be allowed only if seller/service provider is validated on-line in GeM profile as well as validated and approved by Buyer after evaluation of documents submitted.

8. Purchase preference to Micro and Small Enterprises (MSEs): Purchase preference will be given to MSEs having valid Udyam Certificate and whose credentials are validated online through Udyam Registration portal as defined in Public Procurement Policy for Micro and Small Enterprises (MSEs) Order, 2012 dated 23.03.2012 issued by Ministry of Micro, Small and Medium Enterprises and its subsequent Orders/Notifications issued by concerned Ministry. If the bidder wants to avail themselves of the Purchase preference, the bidder must be the manufacturer / OEM of the offered product on GeM. In respect of bid for Services, the bidder must be the Service provider of the offered Service. Traders are excluded from the purview of Public Procurement Policy for Micro and Small Enterprises and hence resellers offering products manufactured by some other OEM are not eligible for any purchase preference. Relevant documentary evidence in this regard shall be uploaded along with the bid in respect of the offered product or service, and Buyer will decide eligibility for purchase preference based on documentary evidence submitted in case of product bids, whereas in case of services the eligibility is automatically validated. If L-1 is not an MSE and MSE Seller (s) has / have quoted price within L-1+ 15% (Selected by Buyer) of margin of purchase preference /price band defined in relevant policy, such MSE Seller shall be given opportunity to match L-1 price and contract will be awarded for 25% (selected by Buyer) percentage of total quantity. The buyers are advised to refer the [OM No.1 4 2021 PPD dated 18.05.2023](#) for compliance of Concurrent application of Public Procurement Policy for Micro and Small Enterprises Order, 2012 and Public Procurement (Preference to Make in India) Order, 2017. Benefits of MSE will be allowed only if seller is validated on-line in GeM profile as well as validated and approved by Buyer after evaluation of documents submitted.

9. Past Performance: The Bidder or its OEM {themselves or through re-seller(s)} should have supplied same or similar Category Products for 80% of bid quantity, in at least one of the last three Financial years before the bid opening date to any Central / State Govt Organization / PSU. Copies of relevant contracts (proving supply of cumulative order quantity in any one financial year) to be submitted along with bid in support of quantity supplied in the relevant Financial year. In case of bunch bids, the category related to primary product having highest bid value should meet this criterion.

10. Reverse Auction would be conducted amongst all the technically qualified bidders except the Highest quoting bidder. The technically qualified Highest Quoting bidder will not be allowed to participate in RA. However, H-1 will also be allowed to participate in RA in following cases:

- i. If number of technically qualified bidders are only 2 or 3.
- ii. If Buyer has chosen to split the bid amongst N sellers, and H1 bid is coming within N.
- iii. In case Primary product of only one OEM is left in contention for participation in RA on elimination of H-1.
- iv. If L-1 is non-MSE and H-1 is eligible MSE and H-1 price is coming within price band of 15% of Non-MSE L-1
- v. If L-1 is non-MII and H-1 is eligible MII and H-1 price is coming within price band of 20% of Non-MII L-1

एक्सेल में अपलोड किए जाने की आवश्यकता /Excel Upload Required :

PRICE BID FORMAT - [1788245372.xlsx](#)

Pre Bid Detail(s)

मूल्य भिन्नता खंड दस्तावेज़/Pre-Bid Date and Time	प्री-बिड स्थान/Pre-Bid Venue
17-09-2026 11:00:00	Interested bidders are requested to submit their pre-bid queries to Putti.devendranath@spmcil.com & purchase.igmh@spmcil.com at least two days prior to the above referred Pre-bid Interaction date. The interested bidders also have to provide the details of the participants (Name, Designation, Photo ID) along with their respective soft copy of Aadhaar Card(s) (in PDF) to above referred e-mails for making necessary gate passes.

DSITC Of IP-based AI-enabled CCTV Surveillance System (200 Cameras) On Turn Key Basis (1 pieces)

(क्रमशः श्रेणी 1 और श्रेणी 2 के स्थानीय आपूर्तिकर्ता के रूप में अर्हता प्राप्त करने के लिए आवश्यक/Minimum 50% and 20% Local Content required for qualifying as Class 1 and Class 2 Local Supplier respectively)

तकनीकी विशिष्टियाँ /Technical Specifications

क्रेता विशिष्टि दस्तावेज़ /Buyer Specification Document	Download
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प्रेषिती/रिपोर्टिंग अधिकारी तथा मात्रा/Consignees/Reporting Officer and Quantity

क्र.सं./S.No.	प्रेषिती/रिपोर्टिंग अधिकारी /Consignee Reporting/Officer	पता/Address	मात्रा /Quantity	डिलीवरी के दिन/Delivery Days
1	Gadham Vidyasagar	500051,India Govt Mint, IDA, Phase-II Cherapally, (R.R district) Hyderabad , Telangana	1	210

क्रेता द्वारा जोड़ी गई बिड की विशेष शर्तें/Buyer Added Bid Specific Terms and Conditions

1. Generic

Bidders shall quote only those products (Part of Service delivery) in the bid which are not obsolete in the market and has at least 7 years residual market life i.e. the offered product shall not be declared end-of-life by the OEM before this period.

2. Generic

Bidders are advised to check applicable GST on their own before quoting. Buyer will not take any responsibility in this regards. GST reimbursement will be as per actuals or as per applicable rates (whichever is lower), subject to the maximum of quoted GST %.

3. Generic

Data Sheet of the product(s) offered in the bid, are to be uploaded along with the bid documents. Buyers can match and verify the Data Sheet with the product specifications offered. In case of any unexplained mismatch of technical parameters, the bid is liable for rejection.

4. **Generic**

IT equipment shall be IPv6 ready from day one.

5. **Generic**

Manufacturer Authorization:Wherever Authorised Distributors/service providers are submitting the bid, Authorisation Form /Certificate with OEM/Original Service Provider details such as name, designation, address, e-mail Id and Phone No. required to be furnished along with the bid

6. **Generic**

Non return of Hard Disk: As per Buyer organization's Security Policy,Faulty Hard Disk of Servers/Desktop Computers/ Laptops etc. will not be returned back to the OEM/supplier against warranty replacement.

7. **Generic**

OPTIONAL SITE VISIT:

1. The Bidder is advised to visit and examine the installation site and its surroundings and obtain for itself on its own responsibility all information that may be necessary for preparing the Bid. The costs of visiting the site shall be borne by the Bidder.

The Cost of Visiting the site shall be borne by the bidder only.

2. The Bidder representative shall be allowed entry upon consignee premises for such visits, only upon the express conditions that the Bidder will release and indemnify the Buyer and Consignee against all liabilities arising out of such visit including death or injury, loss or damage to property, and any other loss, damage, costs, and expenses incurred as a result of such visit.

3. The Bidder shall not be entitled to hold any claim against Buyer for noncompliance due to lack of any kind of pre-requisite information as it is the sole responsibility of the Bidder to obtain all the necessary information with regard to site, surrounding, working conditions, weather etc. on its own before submission of the bid.

8. **Generic**

Supplier shall ensure that the Invoice is raised in the name of Consignee with GSTIN of Consignee only.

9. **Generic**

The successful bidder has to supply all essential accessories required for the successful installation and commissioning of the goods supplied. Besides standard accessories as per normal industry practice, following accessories must be part of supply and cost should be included in bid price:

All the necessary accessories to be included and Lumpsum price to be quoted in GeM Portal while also submitting the Price bid Format of IGM, Hyderabad in Price/Financial Bid. NO Price aspects to be revealed in Technical Bid.

10. **Generic**

While generating invoice in GeM portal, the seller must upload scanned copy of GST invoice and the screenshot of GST portal confirming payment of GST.

11. **Scope of Supply**

Scope of supply (Bid price to include all cost components) : Supply Installation Testing Commissioning of

Goods and Training of operators and providing Statutory Clearances required (if any)

12. Service & Support

Availability of Service Centres: Bidder/OEM must have a Functional Service Centre in the State of each Consignee's Location in case of carry-in warranty. (Not applicable in case of goods having on-site warranty). If service center is not already there at the time of bidding, successful bidder / OEM shall have to establish one within 30 days of award of contract. Payment shall be released only after submission of documentary evidence of having Functional Service Centre.

13. Service & Support

Dedicated /toll Free Telephone No. for Service Support : BIDDER/OEM must have Dedicated/toll Free Telephone No. for Service Support.

14. Service & Support

Escalation Matrix For Service Support : Bidder/OEM must provide Escalation Matrix of Telephone Numbers for Service Support.

15. Certificates

Bidder's offer is liable to be rejected if they don't upload any of the certificates / documents sought in the Bid document, ATC and Corrigendum if any.

16. Warranty

Warranty period of the supplied products shall be as given in specifications from the date of final acceptance of goods or after completion of installation, commissioning & testing of goods (if included in the scope of supply), at consignee location. OEM Warranty certificates must be submitted by Successful Bidder at the time of delivery of Goods. The seller should guarantee the rectification of goods in case of any break down during the guarantee period. Seller should have well established Installation, Commissioning, Training, Troubleshooting and Maintenance Service group in INDIA for attending the after sales service. Details of Service Centres near consignee destinations are to be uploaded along with the bid.

17. Past Project Experience

Proof for Past Experience and Project Experience clause: For fulfilling the experience criteria any one of the following documents may be considered as valid proof for meeting the experience criteria:a. Contract copy along with Invoice(s) with self-certification by the bidder that service/supplies against the invoices have been executed.b. Execution certificate by client with contract value.c. Any other document in support of contract execution like Third Party Inspection release note, etc.**Proof for Past Experience and Project Experience clause:** For fulfilling the experience criteria any one of the following documents may be considered as valid proof for meeting the experience criteria:a. Contract copy along with Invoice(s) with self-certification by the bidder that service/supplies against the invoices have been executed.b. Execution certificate by client with contract value.c. Any other document in support of contract execution like Third Party Inspection release note, etc.

18. Forms of EMD and PBG

Bidders can also submit the EMD with Account Payee Demand Draft in favour of

India Government Mint, Hyderabad(A Unit of SPMCIL)
payable at
HYDERABAD

Bidder has to upload scanned copy / proof of the DD along with bid and has to ensure delivery of hardcopy to the Buyer within 5 days of Bid End date / Bid Opening date.

19. Forms of EMD and PBG

Bidders can also submit the EMD with Banker's Cheque in favour of

India Government Mint, Hyderabad(A Unit of SPMCIL)
payable at
Hyderabad

. Bidder has to upload scanned copy / proof of the BC along with bid and has to ensure delivery of hardcopy to the Buyer within 5 days of Bid End date / Bid Opening date.

20. **Forms of EMD and PBG**

Bidders can also submit the EMD with Payment online through RTGS / internet banking in Beneficiary name

INDIA GOVERNMENT MINT (A UNIT OF SPMCIL) -COLLECTION A/C
Account No.
201003484303
IFSC Code
INDB0000004
Bank Name
INDUSIND BANK
Branch address
0004 - HYDERABAD

. Bidder to indicate bid number and name of bidding entity in the transaction details field at the time of on-line transfer. Bidder has to upload scanned copy / proof of the Online Payment Transfer along with bid.

21. **Forms of EMD and PBG**

Successful Bidder can submit the Performance Security in the form of Account Payee Demand Draft also (besides PBG which is allowed as per GeM GTC). DD should be made in favour of

India Government Mint, Hyderabad(A Unit of SPMCIL)
payable at
Hyderabad

. After award of contract, Successful Bidder can upload scanned copy of the DD in place of PBG and has to ensure delivery of hard copy to the original DD to the Buyer within 15 days of award of contract.

22. **Forms of EMD and PBG**

Successful Bidder can submit the Performance Security in the form of Fixed Deposit Receipt also (besides PBG which is allowed as per GeM GTC). FDR should be made out or pledged in the name of

India Government Mint, Hyderabad(A Unit of SPMCIL)
A/C (Name of the Seller). The bank should certify on it that the deposit can be withdrawn only on the demand or with the sanction of the pledgee. For release of Security Deposit, the FDR will be released in favour of bidder by the Buyer after making endorsement on the back of the FDR duly signed and stamped along with covering letter. Successful Bidder has to upload scanned copy of the FDR document in place of PBG and has to ensure delivery of hard copy of Original FDR to the Buyer within 15 days of award of contract.

23. **Forms of EMD and PBG**

Successful Bidder can submit the Performance Security in the form of Payment online through RTGS / internet banking also (besides PBG which is allowed as per GeM GTC). On-line payment shall be in Beneficiary name

INDIA GOVERNMENT MINT (A UNIT OF SPMCIL) -COLLECTION A/C
Account No.
201003484303
IFSC Code
INDB0000004
Bank Name
INDUSIND BANK
Branch address
0004 - HYDERABAD

. Successful Bidder to indicate Contract number and name of Seller entity in the transaction details field at

the time of on-line transfer. Bidder has to upload scanned copy / proof of the Online Payment Transfer in place of PBG within 15 days of award of contract.

24. **Buyer Added Bid Specific ATC**

Buyer Added text based ATC clauses

A. Eligibility Criteria:

The bidder should meet the following qualification criteria:

1. **Experience & Past Performance:** The Bidder should have executed at least One similar project involving the supplying, installation, Testing and commissioning of IP-based AI-Enabled CCTV surveillance cameras/system of the same or higher specifications of in any one year during last five financial years ending 31.03.2025, with at least one such project, which includes at least 200 Cameras, offered having been in successful operation for a minimum period of one year as on the date of bid opening.
2. **Capability - Equipment & manufacturing Facilities:** The Bidder firm must have an annual capacity to manufacture and supply at least 100 similar types of Cameras. Bidder has to submit the following information regarding capacity and performance:
3. **Financial Standing:**
 - i. Average Annual Turnover of the Bidder firm should be more than Rs. 3.26 Crores during last three financial years ending on 31.03.2025.
 - ii. The net worth of the firm should not have eroded by more than 30% in the last three financial years ending 31.03.2025 and
 - iii. Net worth of the bidder should not be negative as on 31.03.2025.

Note: Participating bidder needs to submit all related and audited documents along with the bid.

Note:

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- i. All experience, past performance and capacity /capability related / data should be certified by the authorized signatory of the bidder firm. The credentials regarding experience and past performance to the extent required as per eligibility criteria submitted by bidder may be verified from the parties for whom work has been done.
- ii. The bidder should submit Audited Financials i.e., Profit & Loss statements and Balance Sheet. All financial standing data should be certified by certified accountant's e.g. Chartered Accountants (CA) in India.
- iii. Bidder to furnish stipulated documents in support of fulfilment of eligibility criteria. Non-submission or incomplete submission of documents may lead to rejection of offer.
- iv. Along with all the necessary documents/ certificates required as per the tender conditions, the bidder should furnish a brief write-up, backed with adequate data, explaining his available capacity (both technical and financial), for manufacture and supply of the required goods/ equipment, within the specified time of completion, after meeting all their current commitments.
- v. Bidder should submit signed & stamped copy of tender document as a token of acceptance of all the terms & conditions of the tender.

B. Undertaking :

1. Undertaking for acceptance of all the terms and conditions of the GeM Bid including Buyer Added Bid Specific Terms and conditions along with technical specification & scope of work without any deviation to be submitted duly sealed and signed.
2. Undertaking of declaration that the bidder is not blacklisted/debarred for dealing by Government of India.
3. Undertaking towards land border sharing submission criteria as per Ministry of Finance, Department of Expenditure, Public Procurement Division, Orders (Public Procurement 1,2 and 3) F. No. 6/18/2019-PPD dated 23rd/ 24th July 2020 (or any further amendments thereof) regarding eligibility of bidders from specified countries shall be applicable to this tender. Bidders are required submit the appropriate undertaking in this regard.
4. Documentary/undertaking against Make in India Status i.e. being a Class I/ Class II supplier with details of percentage as per the latest amendment in the MII policy.

C. The terms and conditions, guidelines of SPMCIL Procurement Manual Version 3.0 will be applicable to this bid at any stage to avoid any conflict at later stage. Kindly refer to GIT and GCC of SPMCIL Procurement Manual Version 3.0 for additional terms and condition as per the links given below:

A. General Instruction to Tenderer(GIT):

<https://spmCIL.com/uploaddocument/GIT3.0.pdf>

B. General Conditions of Contract GCC):

<https://spmCIL.com/uploaddocument/GCC3.0.pdf>

Note: Bidder should submit the signed & stamped copy of GIT & GCC document (download from the above link).

D. Special Instruction to Tenderers (SIT)

The following Special Instructions to Tenderers will apply for this purchase. These special instructions will modify/ substitute/ supplement the corresponding General Instructions to Tenderers (GIT). The corresponding GIT clause numbers have also been indicated in the text below. In case of any conflict between the provisions in the GIT and that in the SIT, the provisions contained in the SIT shall prevail.

1. **Pre-Bid Conference (GIT Clause No. 8):** A Pre-bid conference for bidder's clarification on Technical Specifications and Commercial conditions of the Tender shall be conducted. Bidders may participate in Pre-bid conference at the premises of India Government Mint, Hyderabad or via Video Conference. Participation is not mandatory, however, in case a bidder chooses not to participate (or fails to do so) in the pre-bid conference, it would be assumed that they have no issues regarding the Technical/Commercial Specifications/Conditions.
2. **Price Schedule (GIT Clause No. 10.2):** The firm has to fill the Price Schedule as per IGMH format and same is to be uploaded in Financial Bid.
3. **Signing and Sealing of Tender (GIT Clause No. 20.4 & 20.5):** Tenderer shall sign all the pages of the tender document as token of the acceptance of all the tender conditions and upload through GeM portal.

E. **Special Conditions of Contract (SCC)**

The following Special Conditions of Contract (SCC) will apply for this purchase. The corresponding clauses of General Conditions of Contract (GCC) relating to the SCC stipulations have also been incorporated below. These Special Conditions will modify/ substitute/ supplement the corresponding (GCC) clauses.

Whenever there is any conflict between the provision in the GCC and that in the SCC, the provision contained in the SCC shall prevail.

1. **Terms of Delivery:** (GCC Clause No.10)

- a. Ordered quantity has to be delivered to IG Mint, Hyderabad as per the schedule intimated along with GeM Contract.
- b. Goods shall be delivered by the supplier in accordance with the terms of delivery specified in the contract. However, the delivery schedule shall be completed **within 06 months**

2. **Comprehensive Warranty: (GCC Clause No.16) -**

- a. The complete SITC of IP-based AI-enabled CCTV Surveillance System (200 Cameras) shall be warranted for a period of twenty four (24) months from the date of Final Acceptance Certificate.
- b. The supplier should submit the warrantee certificate that the goods supplied under the contract are new, unused of the most recent or current models and incorporate all recent improvements in design and material unless provided otherwise in the contract.
- c. The supplier further warrants that, all the goods supplied under this contract shall have no defect in design, materials or workmanship or from any act or omission of the supplier that may develop under normal use of the supplied goods in the conditions prevailing in the country of final destination.
- d. This warranty shall remain valid as given in the specifications from the date of acceptance of Mint Authorities. The purchaser shall promptly notify the supplier in writing of any claims arising out under this warranty.
- e. Upon receipt of such notice, the supplier shall repair or replace the defective goods or parts thereof without cost to the purchaser immediately.
- f. If the supplier having been notified fails to take remedial measure or rectify the defect within the period specified, the purchaser may proceed to take such action as may be necessary, at the supplier's risk and expense without prejudice or any other rights, which the purchaser may have against the supplier under the contract.

3. **Terms and Mode of Payments:** (GCC Clause No.22.3, 22.4, 22.6)

- l. 100% Payment shall be released within 30 days from the date of acceptance by Mint Authorities subject to online submission of Bills.

F. **Submission of Bid Security /EMD:** Bidders can also submit the EMD/Bid Security in the form of Bank Guarantee and the format of the same is as per the format attached as Annexure - EMD (Section XIII – format for submission of Bid Security). The scan copy of the BG against EMD to be uploaded on the GeM portal and the original physical BG has to reach IGM Hyderabad within 5 days of last date of submission of the bids/bid due date. The offer submitted shall be summarily rejected in case of non-receipt of the original physical copy of BG within the stipulated time.

G. Submission of Performance Security Deposit: Bidders can also submit the Performance Security also in the form of Bank Guarantee and the format of the same is as per the format attached as Annexure - PBG (Section XV – format for submission of Performance Security). The BG against Performance Security has to be submitted within 21 days of issue of GeM contract/Notification of Award of Contract (NAC); whichever is earlier.

H. Check list for the bidder to submit the documents in Technical bid:

1	EMD related information & document
2	Experience & Past Performance: Documents in support
3	Capability - Equipment & Manufacturing Facilities: Documents in support
4	Financial Standing: Documents in support
5	Undertakings
5.1	Undertaking of acceptance to Technical Specifications, Scope of work, Quality Control requirement, Delivery Schedule without any deviation DULY STAMPED AND SIGNED
5.2	Undertaking of acceptance to all terms and conditions as set forth in this GeM bid including Buyer Added Bid specific ATC Clauses.
5.3	Declaration that the bidder is not be blacklisted or debarred for dealing by Government of India
5.4	Undertaking towards Land Boarder Sharing
5.5	Undertaking to Make in India Declaration being Class-I/II with detailed Percentage
6	Acceptance of GIT & GCC as per the links provided in the Buyer added bid specific ATC Clauses.
7	Manufacturer's authorization in case of participating firm is not a manufacturer.
8	Acceptance of GIT & GCC as per the links provided in the Buyer added bid specific ATC Clauses.
9	Any other document as per tender
10	Tenderers need to submit the Price bid format (uploaded in GeM bid) in Price bid.

NOTE: Any dispute arising out of this contract shall be subject to Hyderabad Jurisdiction only.

TECHNICAL SPECIFICATION AND SCOPE OF PROJECT

A. BILL OF QUANTITIES:

The tentative Bill of Quantities for the entire scope of the project is as under :

S.N	Item Description	Units	UoM
1	5MP Bullet Camera with Required Accessories	149	Nos
2	5MP Dome Camera with Required Accessories	30	Nos
3	5MP PTZ Camera with Required Accessories	18	Nos
4	5MP ANPR Camera with Required Accessories including Auto tracking license	3	Nos
5	ANPR Automatic Number Plate Recognition License	3	Nos
6	Industrial microSDXC Card - 128 GB	200	Nos
7	IP Based Public Addressing Speakers with accessories for Two-way audio requirement at CCTV Cameras	28	Nos
8	Data Surge Protection Device for Camera (SPD)	200	Nos
9	24 Port Layer 3 Stackable Managed Switch with 10G Uplink	2	Nos
10	24 - Port PoE+ Managed Switch With 4 SFP	15	Nos
11	16- Port PoE+ Switch With 2 SFP	32	Nos
12	16- Port PoE+ Outdoor Industrial Switch With 2 SFP	8	Nos
13	SFP Module-1G	80	Nos
14	SFP Module-10G	120	Nos
15	Central VMS Server (Primary)	01	Nos
16	Redundant VMS Server (Failover)	01	Nos
17	VMS Video Management Software license	250	Nos
18	Application Server (User/Client Access)	01	Nos

19	Storage Server with 90 Days Retention (Capacity for 200 cams video footage, ANPR data and analytics backup retention)	01	Nos
20	1.5PB usable NAS Storage with Dual Controller and other required accessories for 90 days Storage	1	Nos
21	Advanced AI Video Analytics License	250	Nos
22	End Point Security with 8 years support	1	Lot
23	Videowall with display push pull mounting, controller and software	1	set
24	CCTV display console with 2 work desk sitting arrangement	1	Lot
25	Workstations for CCTV Control Room	2	Nos
26	Joystick Keyboard	2	Nos
27	4K HDMI Cable 15 Mtrs	12	Nos
28	Client Monitoring PC with keyboard and Mouse	4	Nos
29	24" Monitor	1	Nos
30	FP/RFID CARD based Biometric readers	2	Nos
31	Double Leaf 600lbs EM lock	2	No's
32	Stainless Steel Push Button	2	No's
33	2-zone conventional fire alarm system with axillary equipment/accessories for server room	1	Lot
34	Ultrasonic Rodent Repellent Panel Supports Up to 12 Transducers. 20KHz (Variable) Operating frequency	2	No's
35	Ultrasonic Rodent Repellent Transducer: 80dB to 110dB sound pressure, ABS Plastic housing with mounting base. CE approved.	12	No's
36	60KVA Modular UPS with 1 Hr backup along with Batteries, racks and accessories	1	Nos

37	60 KVA DG Set with AMF Panel, PDB and Accessories	1	Nos
38	Protective Shed for 60KVA DG Set	1	No's
39	2 TR 5 Star Split AC with Stabilizer	4	Nos
40	Dual AC Changeover controller for 2 TR 5 Star Split AC	2	Nos
41	3 Core 2.5 Sqmm Copper Armoured Outdoor Power Cable	6000	Meters
42	Cat-6 Indoor Cable - 305m Box	20	Nos
43	Cat-6 Outdoor Armoured Cable - 305m Box	15	Nos
44	12F Core OFC Armored Cable Single Mode	6000	Meters
45	6F Core OFC Armored Cable Single Mode	3000	Meters
46	Cat-6 I/O	200	Nos
47	RJ 45 Connector	500	Nos
48	6 Meter Pole with Required fittings	15	Nos
49	Pole mount Outdoor Junction box for CCTV with mounting Accessories	25	Nos
50	Wall mount 15U Racks for Buildings	10	Nos
49	42 U Rack for Networking with Accessories	2	Nos
50	A.C. racks 15U (outdoor field racks)	5	Nos
51	AC Rack Foundation with Accessories	5	Nos
52	24 Port Light Guide Interconnect Unit (LIU)-Fully Loaded	10	Nos
53	12 Port Light Guide Interconnect Unit (LIU)-Fully Loaded	45	Nos
54	24 Patch Panels Unloaded	25	Nos
55	CAT6 Patch Cord 3 Mtr	50	Nos
56	CAT6 Patch Cord 2 Mtr	220	Nos
57	SC - LC Fiber Patch Cord 3 Mtr Duplex	250	Nos

58	LC - LC Fiber Patch Cord 3 Mtr Duplex	50	Nos
59	SC - SC Fiber Patch Cord 3 Mtr Duplex	50	Nos
60	PVC Conduit	2500	Meters
61	Flexible GI Pipe 25 mm	500	Meters
62	HDPE Pipe-40 MM-OFC-Perimeter	6000	Meters
63	65 mm GI Pipe with Accessories for Road Crossing	150	Meters
64	Fiber Joint Enclosure	20	Nos
65	Cable Chambers	35	Nos
66	Route Markers	200	Nos
67	Industrial Grade Power Extension Boards	50	No's
68	MCB 16 A 1 PH Double Pole for Junction Box	50	No's
69	Double compression glands 3/4" with accessories	240	Nos
70	Supply of Accessories for installation Project (Cable Tie, Tag Tie, PVC Gland, Cable Lugs, Gitti, Screw, Saddle, Nut, Bolt, Fasteners, PVC Bend, Tee, GI Pipe Coupler etc.)	01	Lot
71	Earthing - with 2 Meters Lightning arrester for Control room and Server room	2	No's
72	Instrumentation/Grid Earthing for Control Room	1	No's
73	Chemical/Plate Earthing with Lightning arrestors for Camera Pole and AC Rack	30	No's
74	Table Desk for Monitoring Workstation in Server Room	1	Lot
75	Chairs with castor wheels and Height adjustable feature For Server and Monitoring Room	6	No's

76	Server Room - Interior Gypsum False ceiling (20x20)=400sft, painting, Lighting and Civil Works, Door based biometric access control with supply and installation of 6.6 x 4 glass door	1	Lot
77	Monitoring Room - Interior Gypsum False ceiling (19x12)=228sft, painting, Lighting and Civil Works, Door based biometric access control.	1	Lot
78	Maintenance Tools and Testing Equipment	01	Lot
79	GI Saddling of PVC Pipe on wall and Laying of CAT6, Fiber Optics and Power cable on PVC Pipe	01	AU
80	Digging - Hard Soil	3000	Meters
81	Digging - Road Cutting	800	Meters
82	Dismantling of Existing CCTV Infrastructure & Safe Shifting to Designated Location	01	Ls.
83	Deployment of Onsite CCTV Technician (1 No's) at site location in General Shift during all working days of IGM Hyderabad	8	Years

B. TECHNICAL SPECIFICATIONS AND SCOPE OF WORK:

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1. 5MP BULLET CAMERA WITH ACCESSORIES

BULLET CAMERA WITH INDUSTRIAL microSDXC CARD & REQUIRED ACCESSORIES FOR INSTALLATION(149 Nos) : 149 Nos. Primary outdoor/general surveillance camera system. Shall provide high- resolution 24x7 surveillance with AI-enabled detection, IR night vision, suitable outdoor protection, local recording capability and complete mounting/installation accessories. The cameras shall form the major field-level video acquisition layer of the 200-camera system. The Minimum specifications are as below:

S.No. Parameter: Specification

1. Camera Type: 5 MP Varifocal Outdoor Bullet Network Camera
2. Certification: STQC and ER Certified, BIS Registered, CE
3. OEM Requirement: Single source manufacturer
4. Warranty: as per OEM standard warranty not less than 2 years

5. Compression: H.265+/H.265, H.264
6. Resolution: Up to 3072 × 1728 @ 30 fps
7. Aspect Ratio: 16:9
8. Image Sensor: 1/2.8" CMOS or best
9. Minimum Illumination Color: 0.05 lux, B/W: 0.004 lux or better
10. Wide Dynamic Range: Not less than 132 dB (Super Dynamic + ABS)
11. IR Range: Minimum 55 meters
12. Streams: Up to 4 simultaneous streams
13. AI Engine: Built-in Edge AI [AI Detection: Intrusion, Loitering, Line Crossing; Analytics Face, People, Vehicle Detection
14. Shutter Speed: 1/30 to 1/10000 sec
15. Noise Reduction 0-255 levels
16. Backlight Compensation: BLC / HLC
17. Fog Compensation: Supported
18. Image Rotation: 0°, 90°, 180°, 270°
19. Focus: Auto Focus
20. Zoom: 3.1x Optical or better
21. Focal Length: 2.9 – 9 mm or better
22. Aperture: F1.3 – F2.5 or better
23. Field of View 34°-106° (Horizontal)
24. Focus Range 0.3 m to ∞
25. Network Interface: RJ45 (10/100 Base-T)
26. Protocols: IPv4/IPv6, HTTP, HTTPS, RTSP, ONVIF
27. ONVIF Compliance: Profile G / S / T / M
28. Storage microSD: up to 256 GB
29. Recording Modes: Manual, Alarm, Schedule
30. Operating Temperature: -40°C to +60°C
31. Humidity: 10-100%
32. IP Rating: IP66
33. Impact Resistance: IK10
34. Wind Resistance: Up to 40 m/s
35. Material: Aluminum Die Cast
36. Power Supply: 12V DC / PoE
37. The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.
38. The camera OEM Should be a genuine manufacturer and The offered camera shall support H.265+/H265 compression in compliance with international standards. Documentary evidence from the OEM datasheet

et shall be submitted.

39. The proposed Camera OEM shall have a proven track record in manufacturing IP CCTV surveillance equipment and shall have adequate after-sales service support in India. Documentary evidence shall be submitted.

40. INDUSTRIAL microSDXC CARD for CCTV CAMERAS

- Type: Industrial Grade microSDXC Card
- Capacity: 128 GB or better
- Application: Suitable for 24x7 continuous video recording CCTV/Surveillance/Industrial use)
- Speed Class: Class 10 or higher
- UHS Speed Class: UHS-I U3 or higher
- NAND Type: High Endurance MLC / pSLC (preferred for industrial use)
- Endurance: Minimum 10,000 hours continuous recording or manufacturer-rated high endurance
- Data Retention: Minimum 10 years
- Power Failure Protection: Supported (Data protection during sudden power loss)
- Certification: CE, FCC, RoHS compliant

2. 5MP DOME CAMERA WITH ACCESSORIES

DOME CAMERA WITH INDUSTRIAL microSDXC CARD & REQUIRED ACCESSORIES FOR INSTALLATION(30 Nos) : 30 Nos. Indoor/covered-area surveillance camera system. Shall provide high-quality continuous surveillance, AI analytics, suitable low-light performance, audio capability where required, local recording and vandal/weather protection, complete with installation accessories. The Minimum specifications are as below:

S.No. Parameter: Specification

1. Camera Type : 5MP Varifocal Network Dome Camera
2. Certification: STQC and ER Certified, BIS Registered, CE
3. OEM: Single Manufacturer
4. Warranty: Standard Manufacturer Warranty NOT less than 2 years
5. Compression H.265+/ H.265, H.264
6. Resolution: 3072×1728 (16: 9), 3072×2304 (4: 3) @ 30 fps
7. Image Sensor: 1/2.8" CMOS or better
8. Minimum Illumination Color: 0.05 lux, B/W: 0.004 lux or best
9. Wide Dynamic Range: not less than 132 dB
10. IR Range : 55 meters or more
11. Streams: Up to 4 simultaneous streams

12. AI Engine: Built-in Edge AI [AI Detection: Intrusion, Loitering, Line Crossing; Analytics Face, People, Vehicle Detection
13. Shutter Speed: 1/30 to 1/10000 sec
14. Backlight Compensation: BLC / HLC
15. Fog Compensation : Supported
16. Noise Reduction: 0-255 levels
17. Image Rotation: 0° / 90° / 180° / 270°
18. Focus: Auto Focus
19. Optical Zoom: 3.1x Motorized
20. Focal Length: 2.9 – 9 mm or better
21. Aperture: F1.3 – F2.5 or better
22. Field of View: 33° – 103° (Horizontal) or better
23. Focus Range: 0.3 m to ∞
24. Network Interface: RJ45 (10/100 Base-T)
25. Protocols: IPv4/IPv6, HTTP, HTTPS, RTSP
26. ONVIF Profile: G / S / T / M
27. Max Users: Up to 14 users
28. Storage microSD: up to 256 GB
29. Recording Modes: Manual, Alarm, Schedule
30. Audio Compression: G.711, G.726, AAC-LC
31. Audio Mode: Full Duplex
32. Audio Ports: 3.5 mm In/Out
33. Operating Temperature: -40°C to +60°C
34. Humidity: 10-100%
35. Protection: IP66, IK10
36. Wind Resistance: Up to 40 m/s
37. Material: Aluminum Die Cast
38. Dimensions: Ø154 mm × 105 mm
39. Power Supply: 12V DC / PoE
40. Power Consumption Approx. 12W
41. The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.
42. The camera OEM Should be a genuine manufacturer and The offered camera shall support H.265+/H265 compression in compliance with international standards. Documentary evidence from the OEM datasheet shall be submitted.
43. The proposed Camera OEM shall have a proven track record in manufacturing IP CCTV surveillance equipment and shall have adequate after-sales service support in India. Documentary evidence shall be submitted.

44. INDUSTRIAL microSDXC CARD for CCTV CAMERAS

- Type: Industrial Grade microSDXC Card
- Capacity: 128 GB or better
- Application: Suitable for 24x7 continuous video recording CCTV/Surveillance/Industrial use)
- Speed Class: Class 10 or higher
- UHS Speed Class: UHS-I U3 or higher
- NAND Type: High Endurance MLC / pSLC (preferred for industrial use)
- Endurance: Minimum 10,000 hours continuous recording or manufacturer-rated high endurance
- Data Retention: Minimum 10 years
- Power Failure Protection: Supported (Data protection during sudden power loss)
- Certification: CE, FCC, RoHS compliant

3. 5MP PTZ CAMERA WITH ACCESSORIES

PTZ CAMERA WITH INDUSTRIAL microSDXC CARD & REQUIRED ACCESSORIES FOR INSTALLATION (18 Nos)
: 18 Nos. Long-range, actively controllable surveillance system. Shall provide highest pan, high optical zoom, long-distance detection/observation/recognition/identification and automatic tracking/patrol functions for critical and large-area surveillance zones.

S.No. Parameter: Specification

1. Camera Type: 5MP PTZ Dome Network Camera (30x)
2. Certification: STQC and ER Certified, BIS Registered
3. OEM: Single Manufacturer
4. Warranty: OEM default warranty but not less than 2 Years
5. Compression: H.265 / H.264
6. Resolution: 3328 × 1872 @ 30 fps or better
7. Image Sensor: 1/2.8" CMOS or better
8. Minimum Illumination Color: minimum 0.001 lux, B/W: 0.0004 lux
9. Wide Dynamic Range : not less than 132 dB
10. Image Stabilization: Supported
11. Streams: Up to 4 simultaneous streams
12. Smart Coding: GOP + Smart Facial Coding
13. Encryption: Encrypted video stream
14. Motion Detection: VMD (4 areas)
15. Intelligent VMD: Intrusion, Loitering, Line Crossing
16. White Balance: ATW1 / ATW2 / AWC
17. Shutter Speed: 1/30 to 1/10000 sec

- 18. Backlight Compensation: BLC / HLC
- 19. Fog Compensation: Supported
- 20. Super Chroma Compensation: Supported
- 21. Noise Reduction: 0-255 levels or better
- 22. Image Stabilizer: Built-in gyro sensor
- 23. Image Rotation Supported
- 24. Optical Zoom: not less than 30x Motorized
- 25. Extra Zoom: Up to 78x
- 26. Focal Length: 4.5 – 135 mm
- 27. Aperture: F1.8 – F4.7 or better
- 28. Field of View: 2.5° – 62° (Horizontal)
- 29. Focus Range: 3 m to ∞
- Parameter Specification
- 30. Detect: Up to 3050 m
- 31. Observe: Up to 1220 m
- 32. Recognize: Up to 610 m
- 33. Identify: Up to 305 m
- 34. Pan Range: 360° Endless
- 35. Tilt Range: -20° to +90°
- 36. Pan Speed: Up to 700°/s (preset)
- 37. Tilt Speed: Up to 500°/s (preset)
- 38. Presets: 256 positions
- 39. Auto Modes: Auto Track, Auto Pan, Patrol
- 40. Self Return Configurable (10 sec to 60 min)
- 41. Network Interface: RJ45 (10/100 Base-T)
- 42. Protocols: IPv4/IPv6, HTTP, HTTPS, RTSP
- 43. ONVIF Profile: G / S / T / M
- 44. Max Users: Up to 14
- 45. Storage: microSD up to 512 GB
- 46. Recording Modes: Manual, Alarm, Schedule
- 47. Audio Compression: G.711, G.726, AAC-LC
- 48. Audio Mode: Full Duplex
- 49. Audio Ports: 3.5 mm In/Out
- 50. Alarm Inputs: 3
- 51. Alarm Actions: Email, HTTP, SD Recording
- 52. Cyber Security: FIPS 140-2 Level 3

53. Authentication: HTTPS, IEEE802.1X

54. Operating Temperature -50°C to +60°C

55. Humidity 10-100%

56. Protection: IP66, IK10

57. Wind Resistance: Up to 40 m/s

58. Power Supply: PoE++ (IEEE 802.3bt)

59. Power Consumption: ~45.9W or efficient

60. Material: Aluminum Die Cast

61. The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

62. The camera OEM Should be a genuine manufacturer and The offered camera shall support H.265+/H265 compression in compliance with international standards. Documentary evidence from the OEM datasheet shall be submitted.

63. The proposed Camera OEM shall have a proven track record in manufacturing IP CCTV surveillance equipment and shall have adequate after-sales service support in India. Documentary evidence shall be submitted.

64. INDUSTRIAL microSDXC CARD for CCTV CAMERAS

- Type: Industrial Grade microSDXC Card
- Capacity: 128 GB or better
- Application: Suitable for 24x7 continuous video recording CCTV/Surveillance/Industrial use)
- Speed Class: Class 10 or higher
- UHS Speed Class: UHS-I U3 or higher
- NAND Type: High Endurance MLC / pSLC (preferred for industrial use)
- Endurance: Minimum 10,000 hours continuous recording or manufacturer-rated high endurance
- Data Retention: Minimum 10 years
- Power Failure Protection: Supported (Data protection during sudden power loss)
- Certification: CE, FCC, RoHS compliant

4. 5MP ANPR CAMERA WITH ACCESSORIES

ANPR CAMERAS WITH INDUSTRIAL microSDXC CARD & REQUIRED ACCESSORIES FOR INSTALLATION (3 Nos) : 3 Nos. Automatic Number Plate Recognition and vehicle surveillance system. Shall capture vehicle number plates and associated driver/vehicle information, support AI-based detection, vehicle-speed capture and integration with VMS and gate/barrier systems wherever required.

S.No.	Parameter:	Specification
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1. Camera Type: 5MP ANPR Outdoor Bullet Network Camera
 2. Certification: STQC and ER Certified, BIS Registered
 3. OEM: Single Manufacturer
 4. Warranty: Standard Manufacturer Warranty but not less than 2 years
 5. Compression H.265 / H.264 / JPEG
 6. Resolution: 3072 × 1728 @ 30 fps
 7. Image Sensor : 1/2.8" CMOS
 8. Minimum Illumination Color: 0.04 lux, B/W: 0 lux (IR ON)
 9. Wide Dynamic Range 132 dB
 10. IR Range Up to 180 m (PoE++), 120 m (PoE+), 85 m (DC)
 11. Optical Zoom: 10x
 12. Streams Up to 4 simultaneous streams
 13. Smart Coding: GOP control
 14. Corridor Mode: Supported
 15. Image Stabilization: Built-in gyro sensor
 16. AI Engine: Built-in Edge AI
 17. Motion Detection: AI-VMD (Intrusion, Loitering, Line Crossing)
 18. White Balance: ATW1 / ATW2 / AWC
 19. Shutter Speed: 1/30 to 1/10000 sec
 20. Backlight Compensation: BLC / HLC
 21. Fog Compensation: Supported
 22. Noise Reduction: 0-255 levels
 23. Image Rotation: 0° / 90° / 180° / 270°
 24. Focus: Motorized
 25. Optical Zoom: 10x Motorized
 26. Digital Zoom: Up to 160x
 27. Focal Length: 4.7 – 47 mm
 28. Aperture: F1.6 – F3.0
 29. Field of View: 6.1° – 58°
 30. Focus Range: 1.5 m to ∞
- Minimum Parameter Specification
31. Detect Up to: 960 m
 32. Observe Up to: 384 m
 33. Recognize Up to: 192 m
 34. Identify Up to: 96 m
 35. Network Interface: RJ45 (10/100 Base-T)

36. Protocols: IPv4/IPv6, HTTP, HTTPS, RTSP
37. ONVIF Profile: G / S / T / M
38. Max Users: Up to 14
39. Storage: microSD up to 512 GB
40. Recording Modes: Manual, Alarm, Schedule
41. Audio Compression: G.711, G.726, AAC-LC
42. Audio Mode: Full Duplex
43. Audio Ports: 3.5 mm In/Out
44. Alarm Inputs: 3
45. Alarm Actions: Email, HTTP, SD Recording, FTP/SFTP
46. Cyber Security: FIPS 140-2 Level 3
47. Authentication: HTTPS, IEEE802.1X
48. NDAA Compliance: Yes
49. Vehicle Speed Capture: Up to 120 km/hr
50. Integration: Support supplied VMS platforms
51. Detection Setup: Web-based tuning
52. Gate Integration: Dry contact for barrier control
53. Operating Temperature: -40°C to +60°C
54. Humidity: 10-100%
55. Protection: IP66/IP67, IK10
56. Wind Resistance: Up to 40 m/s
57. Power Supply DC 12V / PoE+ / PoE++
58. Power Consumption Up to ~32.4W
59. Material Aluminum Die Cast
60. The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.
61. The camera OEM Should be a genuine manufacturer and The offered camera shall support H.265+/H265 compression in compliance with international standards. Documentary evidence from the OEM datasheet shall be submitted.
62. The proposed Camera OEM shall have a proven track record in manufacturing IP CCTV surveillance equipment and shall have adequate after-sales service support in India. Documentary evidence shall be submitted.
63. INDUSTRIAL microSDXC CARD for CCTV CAMERAS
- Type: Industrial Grade microSDXC Card
 - Capacity: 128 GB or better
 - Application: Suitable for 24x7 continuous video recording CCTV/Surveillance/Industrial use)
 - Speed Class: Class 10 or higher
 - UHS Speed Class: UHS-I U3 or higher

- NAND Type: High Endurance MLC / pSLC (preferred for industrial use)
- Endurance: Minimum 10,000 hours continuous recording or manufacturer-rated high endurance
- Data Retention: Minimum 10 years
- Power Failure Protection: Supported (Data protection during sudden power loss)
- Certification: CE, FCC, RoHS compliant

5. CCTV NETWORK INFRASTRUCTURE

CCTV Network Infrastructure – L3 switches, PoE switches, industrial switches, SFPs, LIUs, SPD, racks, junction boxes, etc. Complete redundant IP communication backbone for the CCTV system. Shall provide reliable, secure, high-bandwidth and fault-tolerant connectivity between all 200 cameras, field equipment, VMS, servers and monitoring stations. The network shall support redundancy, VLAN/QoS, multicast, cybersecurity, fibre backbone and future scalability. The system specifically requires a redundant fault-tolerant IP network with no single point of failure. CCTV Network Infrastructure shall contain:

[5-1]. 24 PORT LAYER 3 MANAGED SWITCH WITH 10G UPLINK : 2 Nos

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No. Parameter: Specification

1. Physical port: 24x10GE(SFP+) + 2x100GE
2. Management port: 1 x RJ45 Ethernet Management port 1x Console port 1x USB2.0 interface
3. Switching Capacity: 880Gbps or better
4. Forwarding Rate: 654.72 Mbps or better
5. Jumbo Frame: 16K or better
6. MAC Address: 96K or better
7. ARP Table: 16K or better
8. Routing Table: 32K or better
9. ACL Table: 1K or better
10. L3 Interface: Max 1K
11. Relative Humidity 5%~90% non-condensing (storage 95%)
12. Temperature Working: 0°C~50°C Storage: -40°C~70°C
13. Power Consumption <85W
14. Power Supply: 2 × Hot-swappable AC/DC modules (1+1 redundancy & load sharing)

15. Fan Trays: 3 × Hot-swappable fan trays (N+1 redundancy)
16. Main Features: • Port loopback detection • LLDP and LLDP-MED, UDLD • 802.3ad LACP, max 128 group trunks with max 8 ports for each trunk, LACP load balance • N: 1 Port Mirroring
17. Physical Stacking: Up to 4 switches (80 Gbps stacking bandwidth, ring/chain topology) via 4 × 10G ports
18. Virtual Stacking: Up to 32 units (Single IP Management)
19. Additional Redundancy: ERPS, Switch Resource Management (SRM) with 3 modes (IP/LAN/L2 VPN)
20. Priority-based Flow Control: IEEE 802.1Qbb (PFC)
21. Enhanced Transmission Selection: IEEE 802.1Qaz (ETS)
22. Congestion Notification: IEEE 802.1Qau (CN)
23. L2 Features: 802.1D/1w/1s STP, Root/Loop Guard, Jumbo Frame (12 KB), 802.1AX LAG (32 groups/8 ports), MLAG, ERPS, Port Mirroring (4 groups), Flow/VLAN Mirroring, LBD, iSCSI Awareness, L2 Protocol Tunneling
24. L2 Multicast IGMP Snooping v1/v2/v3 (512 groups), MLD Snooping v1/v2 (256 groups), Querier, Fast Leave, Per-VLAN, PIM Snooping
25. L3 Features: Static Routing, RIPv1/v2, OSPFv2, BGP4, OSPFv3, BGP4+ OSPF multiple processes
Policy-based routing (PBR) for IPv4 and IPv6, VRRP, URPF, ECMP, BFD, DVMRP, PIM-DM, PIM-SM, PIM-SSM, Anycast RP, MSDP, Static Multicast Route, Multicast Receive Control, Illegal Multicast Source Detect, ARP Guard, Local ARP proxy, Proxy ARP, ARP Binding, Gratuitous ARP, ARP Limit, Anti ARP/NDP Cheat, Anti ARP/NDP Scan
DNS Client, DNS Relay
26. L3 Routing Static Routing (256 IPv4/128 IPv6), Hardware Routing up to 32K IPv4 / 16K IPv6, RIP v1/v2/RIPng, PBR, BFD, Route Redistribution, Default/Null Route
27. IPv6 ICMPv6, ND, DNSv6, IPv6 Policy-based Routing (PBR), IPv6 VRRPv3, IPv6 URPF, IPv6 RA RIPng, OSPFv3, BGP4+ MLD Snooping, IPv6 Multicast VLAN MLDv1/v2, PIM-SM/DM for IPv6, IPv6 Anycast RP, IPv6 ACL, IPv6 QoS
28. QoS 8 Queues SWRR, SP, WRR, WDRR, SWDRR Traffic Classification Based on 802.1p COS, ToS, DiffServ DSCP, ACL, Port number Traffic Policing PRI Mark/Remark
29. Main Features Port loopback detection
LLDP and LLDP-MED, UDLD
802.3ad LACP, max 128 group trunks with max 8 ports for each trunk, LACP load balance
N: 1 Port Mirroring
RSPAN
ERSPAN
IEEE802.1d(STP)
IEEE802.1w(RSTP)
IEEE802.1s(MSTP)
Root Guard
BPDU Guard
802.1Q, 4K VLAN

MAC VLAN, Voice VLAN, PVLAN, Protocol VLAN, Multicast

VLAN

QinQ, Selective QinQ, Flexible QinQ

GVRP

Broadcast / Multicast / Unicast Storm Control

IGMP v1/v2/v3 Snooping and L2 Query, IGMP Proxy

ND Snooping

MLDv1/v2 Snooping

Port Security

Flow Control: HOL, IEEE802.3x

Bandwidth Control

30. Security: • 802.1x AAA • Port-based & MAC-based authentication • Accounting based on time length and traffic • Guest VLAN and Auto VLAN • RADIUS for IPv4 and IPv6 • TACACS+ for IPv4 and IPv6 • MAB (MAC Authentication Bypass)

31. DHCPv4/v6 • DHCP Server / Client for IPv4 / IPv6 • DHCP Relay / Option 82 • DHCP Snooping / Option 82 • DHCPv4/v6 Traffic Monitor

32. Traffic Monitor: • sFlow • Traffic Analysis

33. Network Management: • CLI, WEB, Telnet, SNMPv1/v2c/v3 (through IPv4 and IPv6) • Syslog and external Syslog Server • HTTP / SSL • SNMP MIB, SNMP TRAP • FTP / TFTP • SNTP / NTP • RMON (1, 2, 3, 9) • Authentication by RADIUS / TACACS • SSH v1 / v2 • Dual firmware images / Configuration files • 802.3ah OAM, 802.1ag OAM

[5-2]. 24 - PORT POE+ MANAGED SWITCH WITH 4 SFP: 15 No's

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No. Parameter: Specification

1. Interface: 24GE PoE/PoE+ Ports, 4 10GE SFP+ Ports

2. Console: 1 RJ45 Port

3. Backplane: 128Gbps or better

4. Forwarding rate (Mpps with 64 bytes): 96 Mpps

5. Power consumption (no load) < 25W

6. Power consumption (Full load) < 408W

7. Power supply (AC: 100-240V): 410W

8. PoE Power Budget: 370W

9. Total output BTU (1000BTU/H=293W) : 1392.49 or better

10. MTBF(H) >200,000

11. Forwarding mode: Store-forward
12. Flash (MB): Minimum 16
13. DRAM (MB): Minimum 256
14. MAC: 16K
15. Buffer size(MB): minimum 1.5
16. Jumbo frame: Upto 12K
17. Interface: VLAN 64
18. Routing entries: (IPv4/v6) 502/132
19. Surge protection: 6kv port and 4kv power supply
20. VLAN:
- 4K Active VLAN
 - QinQ & Selective QinQ
 - GVRP
 - Private VLAN
 - Voice-VLAN Spanning Tree:
 - 802.1D (STP), 802.1W (RSTP), 802.1Q(PVST+) and 802.1S (MSTP)
- BPDU guard, Root guard and Loopback guard
21. Multicast:
- IGMP v1/v2/v3
 - IGMP Snooping
 - IGMP Fast Leave
 - MVR, IGMP filter
- PIM-SM, PIM-DM
22. IP:
- Static route, RIP, OSPF,
- IPv4/IPv6 Dual stack
23. IPv6:
- ICMPv6, DHCPv6, ACLv6
 - IPv6 Telnet
 - IPv6 neighbor discovery
 - Path MTU discovery
 - MLD V1/V2, MLD snooping
 - IPv6 Static Routing
 - RIPng, OSPFv3
 - Manual tunnel
- ISATAP tunnel 6 to 4 tunnel

24. QoS:

- CAR, HQoS
- MAC/IP/TCP/UDP/VLAN/COS/

DSCP/TOS based QoS

- 802.1P/ DSCP priority re-labeling
- SP, WRR, and SP+WRR
- Tail-Drop
- WRED

flow monitoring and traffic shaping

25. Security:

- Port isolation
- Port security and IP+MAC+port binding
- MAC sticky
- DAI & IP source guard (IPv4)
- IEEE 802.1x, AAA Radius and TACACS+
- L2/L3/L4 ACL flow identification and filtration

Anti-attack from DDoS

- TCP's SYN Flood, UDP Flood, etc.
- Broadcast/multicast/unknown unicast storm-control
- BMD5, SHA-256, RSA-1024, AES256, etc.

26. DHCP:

- DHCP server/relay/client
- DHCP snooping/option82

27. Reliability:

- Static/LACP link aggregation, Interface backup
- EAPS and ERPS
- ISSU Uninterrupted system upgrade
- Upto 8 units per stack
- VRRP

UDLD

28. Management:

- Command-Line-Interface (CLI) through console, Telnet, SSHv1/v2

Simple web-based GUI (http, https) SNMP v1/v2/v3, RMON

- TFTP, FTP, SFTP

NTP, ZTP, SPAN, RSPAN

29. Environment:

- Operating temperature: 0°C -50°C
- Operating humidity: 10%-90% non condensing
- Storage temperature:
-20°C to -70°C
- Storage humidity:
5%-95% non-condensing

[5-3]. 15- PORT POE+ SWITCH WITH 2 SFP: [32 Nos]

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

Sl. No. Parameter Specification Details

1. Ports (15-Port Variant): 16 × 10/100/1000 Mbps Gigabit RJ45 PoE+ Ports + 2 × 1G SFP Uplink Ports
2. PoE Standard: IEEE 802.3af/at (PoE+) on all downlink ports
3. Total PoE Power Budget (15-Port): Minimum 250W
4. Switching Capacity: ≥ 36 Gbps (15-Port)
5. Management: Smart Managed / Web Managed (VLAN, QoS, IGMP Snooping)
6. Key Features: Port Mirroring, Cable Diagnostics, Energy Efficient Ethernet (802.3az), Fanless operation (where possible)
7. Operating Temperature: 0°C to 50°C
8. Enclosure: Metal desktop/rack-mountable
9. Warranty: Standard OEM warranty but not less than Minimum 2 years

[5-4]. 15- PORT POE+ OUTDOOR INDUSTRIAL SWITCH WITH 2 SFP : [08 Nos]

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

Sl. No. Parameter Specification Details

1. Ports (15-Port Variant): 16 × 10/100/1000 Mbps Gigabit RJ45 PoE+ Ports + 2 × 1G SFP Uplink Ports
2. PoE Standard: IEEE 802.3af/at (PoE+)
3. Total PoE Power Budget: Minimum 360W (15-Port)
4. Protection Rating: IP67 / IP66 (weatherproof, dust-tight) with IK10 vandal protection
5. Operating Temperature: -40°C to +75°C (industrial grade)
6. Management: Layer 2 Managed (Web/CLI/SNMP) with VLAN, QoS, IGMP Snooping
7. Power Input: Dual redundant power input (48V DC or AC with adapter)

- 8. Enclosure: Rugged aluminum die-cast, DIN-rail / Wall / Pole mountable
- 9. Additional Features: Surge protection (6kV), EFT protection, Redundant ring (ERPS), Broadcast storm control
- 10. Compliance: IEC 61000-5-2, EN 50121 (EMC for industrial), RoHS
- 11. Warranty: Standard OEM warranty but not less than Minimum 2 years

[5-5]. SFP MODULE-1G: : Required Number as per design

S.No Specification

- 1. Mode: Single Mode Fibre
- 2. Speed: 1 Gbps
- 3. Distance Capacity: 20 km
- 4. Transceiver Type/ Form Factor Type: SFP+
- 5. Cable Type: Single-mode 9/125 um fiber
- 6. Power: 3.3 V
- 7. Connector: Duplex LC connector
- 8. Wavelength: 1310 nm
- 9. Features: Hot Pluggable, MSA Compliant, RoHS Compliant
- 10. Temperature range: 0 to 70°C
- 11. Operating Humidity: 5 to 85%
- 12. IEEE Standard: IEEE 802.3z
- 13. Warranty: Standard OEM warranty but not less than Minimum 2 years

[5-6]. 10 GBPS Single Mode SFP Module: : Required Number as per design

S.No Specification

- 1. Mode: Single Mode Fibre
- 2. Speed: 10 Gbps
- 3. Distance: Capacity 20 km
- 4. Transceiver Type/ Form Factor Type: SFP+
- 5. Heat Generated: 3.6 kJ/h
- 6. Cable Type: Single-mode 9/125 um fiber
- 7. Power: 3.3 V or better
- 8. Connector: Duplex LC connector
- 9. Wavelength: 1310 nm
- 10. Features: Hot Pluggable, MSA Compliant, RoHS Compliant

11. Temperature range: 0 to 70°C
12. Operating Humidity: : 5 to 85%
13. IEEE Standard: IEEE 802.3z
14. Warranty: Standard OEM warranty but not less than Minimum 2 years

[5-7]. FULLY LOADED 24 PORT LIGHT GUIDE INTERCONNECT UNIT (LIU) : Required Number as per design

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No PARTS MATERIAL REMARKS

1. Metal Draw: Steel, 1.5mm Thickness, 1U, Black or Beige
2. Metal Outer Shelf: Steel, 1.5mm Thickness, 1U, Black or Beige
3. Metal Mounting Ear: Steel, 2.0mm Thickness
4. Splice Tray: Plastic- Containers 24 fibers
5. Adapter Panel Steel: 1.5mm Thickness - 3 Panel
6. Cable Plug: Rubber- 28mm Diameter; For 2 Cable Entries
7. 19-inch Sliding LIU
8. 24 Nos SC Fibre Pigtails must be inserted
9. Front-mounted cable saddles for jumper management
10. Material would be Cold Rolled Steel with Black Powder Coating
11. Fusion Capacity would be 24 Fiber maximum per splice tray
12. 4 fiber saddles built-in for 900µm tight buffered fiber winding & storing
13. There must be 24 Port available for the SC Type Fibre Patch Cord
14. Front lockwith key arrangement to avoid tampering and for safety
15. Two cable entry holes for different size cables through cable glands
16. Accessories like Cable management rings (2 nos), Splice rods (24 nos), Velcro ties (6 nos.), Cable ties (6 nos.), Screws M3x6 (8 nos) etc., should be in LIU.
17. Warranty: Standard OEM warranty but not less than Minimum 2 years

[5-8]. FULLY LOADED 12 PORT LIGHT GUIDE INTERCONNECT UNIT (LIU): Required Number as per design

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No PARTS MATERIAL REMARKS

1. Metal Draw: Steel, 1.5mm Thickness; 1U, Black or Beige
2. Metal Outer: Shelf Steel, 1.5mm Thickness ; 1U, Black or Beige
3. Metal Mounting Ear: Steel, 2.0mm Thickness 2 Pieces
4. Splice Tray: Plastic; Containers 12 fibers
5. Adapter Panel: Steel, 1.5mm Thickness ; 3 Panels, Black or Beige
6. Cable Plug: Rubber 28mm Diameter For 2 Cable Entries
7. 19-inch Sliding LIU
8. 12 Nos SC Fibre Pigtailes must be inserted
9. Front-mounted cable saddles for jumper management
10. Can include adapter panels for up to 72 LC, 36 SC, 24 ST or 24 FC terminations
11. Capable of storing up to 3 meters of 900µm tight buffered fiber per adapter
12. 4 fiber saddles built-in for 900µm tight buffered fiber winding & storing
13. Front lock with key arrangement to avoid tampering and for safety
14. Two cable entry holes for different size cables through cable glands
15. Accessories like Cable management rings (2 nos), Splice rods (24 nos), Velcro ties (6 nos.), Cable ties (6 nos.), Screws M3x6 (8 nos) etc., should be in LIU.
16. Warranty: Standard OEM warranty but not less than Minimum 2 years

[5-9]. DATA SURGE PROTECTION DEVICE FOR CAMERAS (SPD): 200 No's

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No. Description Specification

1. Nominal voltage (Data signals): 48 V
2. Maximum continuous operating voltage (Uc): 57 V
3. Nominal discharge current (8/20 µs) (In): 5 kA
4. Maximum flow capacity (8/20 µs) (Imax): 10 kA
5. Limit voltage (Ur): ≤ 65 V
6. Transmission rate (Vs) : 10/100/1000 Mbps
7. Response time (Ta): ≤ 1 ns
8. Insertion loss (AE): ≤ 0.5 dB
9. Pin Protection: 1/2/3/6, 4/5/7/8
10. Ambient temperature (operation): -20°C to 60°C
11. Ambient temperature (storage): -20°C to 75°C

12. Relative humidity 95% at 25°C, no condensation
13. Cooling: Natural air convection
14. Installation position: Panel mounting
15. Type of connection: RJ45 Connector
16. Warranty: Standard OEM warranty but not less than Minimum 2 years

[5-10]. 42 U RACK FOR NETWORKING WITH ACCESSORIES : 02 Nos or more as per design

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No. Description

General Requirements

1. Rack should be designed to provide Secure, Store, Streamline and Systemize IT Equipment's. Rack should have 100% assured compatibility with all equipment's conforming to DIN 41494 (General Industrial Standard for equipment's) or Equivalent EIA / ISO / EN Standard. The Rack minimum dimensions should be as follows: 42U x 800 x 1000
2. Rack design should enable shipping of the rack in (CKD) completely Knock Down condition. Typically, the structure should comprise of extra deep front and rear frames in a welded multi-fold format fastened together with 3 pairs of depth channels to ensure perfect square construction
3. Rack design should allow maximum utilization of the inner space. In terms of width of 800mm - at least 590mm should be available for the cable dressing throughout the vertical height of the rack without any hindrance and/or for PDU mounting in the front & rear of the rack
4. Design should permit an easy assembly of the racks

Physical Specifications

5. The Rack unit should be supported on castors / integral Plinth. Levelling Legs should support a static load of at least 1000 kg, total installed equipment weight. a) Rack should be of All Steel Construction & powder coated finish b) All sheet metal parts should be Pre Treated and powder coated meeting ASTM Standard. The Vendor should have a perforated front door transparent Toughened Glass and split rear Door Options with Industry Standard Centre / Swing Handle Multi-point locking. Door design should be compatible to use variety of access control. These doors should be easily removable type without any tools.
6. Vertical mounting Rails should be fastened to the depth members such that the loading is directly and uniformly passed to the basic rack frame
7. 4 Nos (2 Pairs) of Mounting rails (For standard 19" mounting) should be made up of steel (Minimum 2.0 mm thickness). Recessing of these Front & Rear 19" mounting rails should be completely flexible within depth of the rack. These multi-fold mounting rails (Not Simple L Type) should also have an extra internal web for increasing rigidity and to facilitate mounting of the shelves and other required accessories
8. Unique U identification notch and U numbering should be provided on the 19" mounting rails such that these unique numbers are visible after mounting of the equipment also
9. The Rack should have two side panels, top Cover and grounding and bonding accessories pre-installed by the manufacturer. Side Panels should be removable type but should be secured. These side panels should be flushed in the overall width. All Rack components including Doors and Panels should be bonded together with appropriate earth links / bonding leads. Horizontal OR vertical Ground bus bar should be for equipment Grounding

Equipment Access & Installation

10. The Rack should have usable Space even after installing locks and supportive accessories. The OEM should include Mounting hardware for equipment fixing with Universal Headed Washer, Base Type of Screw head, Baying/ Bolt-together kits for coupling racks

Certifications, Environmental and Safety Requirements

11. Racks should be manufactured by ISO9001, 14001, 27001, 45001 Certified company. Manufacturer must certify that the products are RoHS Compliance and EIA/ISO/EN /CEA Standard. The rack should comply minimum of IP 20 rating. The enclosure should both protect the user from mechanical hazards and generally meet the requirements for a mechanical enclosure (stability, mechanical strength, aperture sizes, etc.)

Ventilation and Thermal Management

12. The Rack should have Curved Glass Door front and Split Hex Mesh Perforated rear doors to provide adequate airflow required by the major server manufacturers. The Rack should have a maximum ventilation area for the front door & rear doors. The Rack should provide the means to mount optional cooling accessories for high-density. The manufacturer should provide blanking panel kit to prevent the Recirculation of hot exhaust air. The manufacturer should provide air seal kit to seal all gaps to prevent recirculation of hot air. The Manufacturer should provide Brushed cable entry and exit cutouts to avoid cold air leakage

Cable Management (800 width Racks)

13. The bidder should supply 2 No cable management with detachable door in the front (On R & L Side) for management of Vertical Cables. These Cable Managers will have the Rigid Plastic Fingers in 1U Format to facilitate the cable management. Inner Space in these cable managers should be provided with combination of Fibre Management Spools and Metal Hoops. For Horizontal Cable Management Closed Type Cable Organizer to be provided for management of Horizontal and power cables. For the Field Cables / In-Rack Cable Management, 2 No 300mm Cable baskets made from 5mm thick wire should be provided for management of Vertical Cables

Earthing Kit

14. shall be included as standard accessory

Power Management

15. 6/12 sockets of Indian standards ISI branded 15amps with 32amps capacity. All internal looping of sockets to the mains to be done with bus bars for 100% safety. Colored PDU for identification of Source A & B

16. Heavy Duty Fixed Shelf having 580mm Depth

[5-11]. POLE MOUNT OUTDOOR JUNCTION BOX FOR CCTV WITH MOUNTING ACCESSORIES : 2 Nos or more as per design

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No. Description Specification

1. Rack Dimension: 250MM H X 600MM W X 500MM D or better
2. Rack Type: Welded body
3. Door & Lock: Single section with Lockable/removable Front door
4. Cable entry: Enclosure should have suitable cable entry section. Bidder to ensure proper sealing of cable entry section after termination of all cables.
5. Equipment Mounting: Din Rails with provisions for mounting power supply unit

6. Gasket: Removable high-quality EPDM gaskets for IP Rating
7. Mounting Type: Pole Mounting Arrangement with Support Brackets as required
8. Color Surface Treatment: Powder Coating 80-120 Micron and Color- RAL (7032)
9. Canopy: Rain Canopy on Top with front projection of the enclosure such that rainwater, water logging should not penetrate in the Junction Box / Enclosure and hamper working of the system
10. Protection degree: IP55
11. Mounting Suitable mounting arrangement shall be done by bidder for fixing PDU, Power Strip, Network Switch
12. Material of Cabinet: Min. Thickness of 1.2 to 1.5mm
13. Standards: Regulatory Standard Compliance: IP55 to Certificates: ISO 9001, 14001

[5-12]. WALL MOUNT 15U RACKS FOR BUILDINGS : : 10 Nos or more as per design

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No. Description Specification

1. Rack Dimension: 15U x 500MM W x 400MM D or better
2. Rack Type: Welded body
3. Door & Lock: Single section with Lockable/removable Front door
4. Cable entry: Enclosure should have suitable cable entry section. Bidder to ensure proper sealing of cable entry section after termination of all cables.
5. Equipment Mounting: Din Rails with provisions for mounting power supply unit
6. Gasket: Removable high-quality EPDM gaskets for IP Rating
7. Mounting Type: Wall Mounting Arrangement with Support Brackets as required
8. Color: Surface Treatment: Powder Coating 80-120 Micron and Color- RAL (7032)
9. Canopy: Rain Canopy on Top with front projection of the enclosure such that rainwater, water logging should not penetrate in the Enclosure and hamper working of the system
10. Protection degree: IP55
11. Mounting: Suitable mounting arrangement shall be done by bidder for fixing PDU, Power Strip, Network Switch
12. Material of Cabinet: Min. Thickness of 1.2 to 1.5mm
13. Standards: Regulatory Standard Compliance: IP55 to Certificates: ISO 9001, 14001

[5-13]. A.C. RACKS 15U (OUTDOOR FIELD RACKS): 05 Nos or more as per design

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No Description Specification

1. Rack Dimension: 15U H x 600 mm W x 700 mm D or better
2. Rack Type: Welded body
3. Door & Lock: Single section with Lockable/removable Front door
4. Cable entry: Enclosure should have suitable cable entry section. Bidder to ensure proper sealing of cable entry section after termination of all cables.
5. Equipment Mounting: Din Rails with provisions for mounting power supply unit
6. Gasket: Removable high-quality EPDM gaskets for IP Rating
7. Mounting Type: Floor standing / Wall mounted
8. Color: Surface Treatment: Powder Coating 80-120 Micron and Color-RAL (7032)
9. Doors: 130° opening angle which can be retrofitted for 180° in accordance with VDI, cam lock with double-bit insert, 1.5 mm Sheet Steel with 4 mm thick glass
10. Canopy: Rain Canopy on Top with front projection of the enclosure such that rainwater, water logging should not penetrate in the Junction Box / Enclosure and hamper working of the system
11. Panel AC: Side Mounted Outdoor Panel Air-conditioner with cooling capacity of 600 W IP54 Level of Protection of AC Panel With Digital Temp indicator / controller 230V AC – Single Phase Unit, Evaporator tray at the bottom of the AC unit for Drain water evaporation
12. PDU Main Incomer in PDU: 2.5 sqmm 3 core armored power cable Cable shall enter inside this enclosure with single compression brass gland. This power cable shall be terminated into a box having one 5/15 A socket with suitable MCB

6. CCTV SERVERS AND STORAGE

CCTV Servers and Storage – VMS servers, AI Analytics servers, Application Server, NAS/storage and Analytics Evidence Storage Central computing, recording, analytics and evidence-retention infrastructure. Shall provide centralized VMS operation, AI processing, continuous recording, failover, evidence management, video retention with additional failover/evidence storage as specified. The CCTV Servers and Storage systems shall contain:

[6-1]. VMS SERVER :

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

Primary VMS Server

1. Form Factor: 1U/2U Rack Mountable (Enterprise Grade)

2. CPU Dual Intel Xeon Gold CPU (Minimum 24-Cores/48-Threads each); 2.6GHz or higher
3. RAM 128GB DDR5-4800MHz ECC RDIMM
4. Storage: 2 x 960GB NVMe SSD (Enterprise) in RAID 1
5. Cache: 2 TB Enterprise NVMe SSD
6. Network Interfaces 2 x 10GbE SFP+ (Data) + 2 x 1GbE (Mgmt NIC)
7. RAID Controller Hardware RAID with 4GB Flash Backed Cache; RAID 0/1/5/6/10
8. Power Supply: Dual Hot-plug Redundant (1+1)
9. Operating System: Licensed version of minimum 64 bit latest version of Windows Server or equivalent as suitable for supplied Server(As per bidder solution)
10. Warranty: Standard OEM Comprehensive warranty but same shall not be less than 2 years

Redundant Failover Server (N+1)

1. Form Factor: 1U/2U Rack Mountable (Enterprise Grade)
2. CPU Dual Intel Xeon Gold CPU (Minimum 24-Cores/48-Threads each); 2.6GHz or higher
3. RAM 128GB DDR5-4800MHz ECC RDIMM
4. Storage: 2 x 960GB NVMe SSD (Enterprise) in RAID 1
5. Cache: 2 TB Enterprise NVMe SSD
6. Network Interfaces 2 x 10GbE SFP+ (Data) + 2 x 1GbE (Mgmt NIC)
7. RAID Controller Hardware RAID with 4GB Flash Backed Cache; RAID 0/1/5/6/10
8. Power Supply: Dual Hot-plug Redundant (1+1)
9. Operating System: Licensed version of minimum 64 bit latest version of Windows Server or equivalent as suitable for supplied Server(As per bidder solution)
10. Warranty Standard OEM warranty as applicable but same shall not be less than 2 years

[6-2]. AI ANALYTICS SERVER :

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

[6-2-1]. FEATURES OF AI ANALYTICS SERVER

1. Form Factor: 2U Rack Mountable (Enterprise Grade)
2. CPU: Dual Intel Xeon Gold (48-Cores/96-Threads each)
3. RAM: 256GB DDR5-4800MHz ECC RDIMM
4. GPU(AI Engine): 3 x NVIDIA L4 (24GB VRAM Each)
5. Storage: 2 x 960GB NVMe SSD (Enterprise) in RAID 1
6. Scratch Disk: 2 x 1.92TB NVMe (Enterprise)
7. Event Storage: 5 TB SSD/HDD

8. Network Interfaces: 2 x 25GbE
9. Power Supply: Dual Hot-plug Redundant (1+1)
10. Operating System: Licensed version of minimum 64 bit latest version of Windows Server or equivalent as suitable for supplied Server (As per bidder solution)
11. Warranty: Standard OEM warranty as applicable but same shall not be less than 2 years

[6-2-2]. FEATURES OF AI ANALYTICS FAILOVER SERVER (N+1)

1. Form Factor: 2U Rack Mountable (Enterprise Grade)
2. CPU: Dual Intel Xeon Gold (48-Cores/96-Threads each)
3. RAM: 256GB DDR5-4800MHz ECC RDIMM
4. GPU(AI Engine): 3 x NVIDIA L4 (24GB VRAM Each)
5. Storage: 2 x 960GB NVMe SSD (Enterprise) in RAID 1
6. Scratch Disk: 2 x 1.92TB NVMe (Enterprise)
7. Event Storage: 5 TB SSD/HDD
8. Network Interfaces: 2 x 25GbE
9. Power Supply: Dual Hot-plug Redundant (1+1)
10. Operating System: Licensed version of minimum 64 bit latest version of Windows Server or equivalent as suitable for supplied Server(As per bidder solution)
11. Warranty: Standard OEM warranty as applicable but same shall not be less than 2 years

[6-3]. APPLICATION SERVER

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

Sl. No. Parameter Minimum Specification Details

1. Processor: 2 × Intel Xeon Silver/Gold, 24 Core Processor each
2. RAM: Minimum 128 GB ECC
3. Storage OS: 4 x 1.92TB NVMe (Enterprise) in RAID 1
Storage: Minimum usable storage of 380 TB
Storage shall support 90 days data retention
4. GPU: 3 × 20 GB NVIDIA A4000 Ada GPU Card
5. Network interface: 2 x 10GbE
6. Power supply: Redundant Power Supply
7. RAID support: Integrated Hardware RAID Controller with RAID 0, 1 & 5
8. Operating System: Licensed version of minimum 64 bit latest version of Windows Server or equivalent as suitable for supplied Server(As per bidder solution)

9. Form Factor: 4U Rack with minimum 8 Bays
10. Warranty: Standard OEM warranty as applicable but same shall not be less than 2 years

[6-4]. STORAGE SERVER

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

[6-4-1]. STORAGE REQUIREMENT MINIMUM PREFERRED PARAMETERS FOR DATA RETENTION PERTAINING TO 200 CAMERAS:

- Resolution: 2560 × 1440 pixels;
- Frame Rate: 15 FPS;
- Compression: H.265/H.265+;
- Bitrate: 4 Mbps CBR;
- GOP/I-frame interval: Maximum 2 seconds;
- Recording Mode: Continuous 24×7;
- Colour: Full colour during day and appropriate monochrome/night mode where applicable;
- Retention: Minimum 90 consecutive days for main and 30 days for failover;
- RAID configuration (minimum RAID-6). Design the storage calculation accordingly with scalable storage of 10% for future scalability. Minimum preferred Hardware configuration is below

[6-4-2] NAS STORAGE SERVER MAIN PRIMARY: FOR 90 DAYS (VIDEO DATA)

5.No Parameter Minimum Specification

1. Purpose: Enterprise Unified Storage for CCTV Video Recording, AI Analytics Metadata, Event Database and Snapshot Storage
2. Processor: Each Controller shall have one Intel Xeon Gold Processor (Minimum 12 Physical Cores, 24 Threads, 2.4 GHz Base or higher) or OEM Storage Controller CPU of equivalent performance.
3. Cache: 64 GB per Controller (minimum) with Battery-less Cache Protection using Super Capacitor and Flash Module
4. Form Factor: 4U Rack Mount
5. Controller: Dual Active-Active Storage Controllers operating simultaneously without single point of failure
6. Drive Bays: 36 Bays (24 + 12 Expansion Shelf)
7. HDD: Required Number of Enterprise SAS Hard Disk Drives 12Gb/s, 7200 RPM suitable for 200 cameras recording with following common minimum parameters Resolution: 2560 × 1440 pixels; Frame Rate: 15 FPS; Compression: H.265/H.265+; Bitrate: 4 Mbps CBR; GOP/I-frame interval: Maximum 2 seconds; Recording Mode: Continuous 24×7; Colour: Full colour during day and appropriate monochrome/night mode where applicable; Retention: Minimum 90 consecutive days backup with additional storage of 10% for future scalability. Bidder has to submit the detailed Storage calculation along with the bid.
8. RAID: RAID-6

9. Global Hot Spare: 2 Drives
10. Host Ports: 4 × 10GbE SFP+ (Expandable to 25GbE)
11. SAS Expansion: Dual 12 Gb SAS Ports
12. Snapshot: Yes, Minimum 1024 Snapshots per Volume
13. Compression: Yes
14. Deduplication: Yes
15. Encryption: AES-256
16. Expansion: Storage shall support online expansion up to minimum 5 PB Raw Capacity without replacing controllers
17. Power Supply: Dual Hot-Pluggable Redundant Power Supplies
18. Cooling: Redundant Hot-Pluggable Fans
19. Data Integrity: End-to-End Data Protection
20. Monitoring: SNMP, Email Alert, Syslog
21. Authentication: LDAP/Active Directory
22. Management: Web GUI and CLI
23. Firmware: Non-disruptive Online Upgrade
24. Warranty: Standard OEM comprehensive warranty as applicable with 24×7 Technical Support but same shall not be less than 2 years

[6-4-3] NAS Storage Server Failover: for 30 Days (Video Data)

S.No Parameter Minimum Technical Specification

1. Purpose: Failover Storage for Continuous Video Recording
2. Server: Each Controller shall have one Intel Xeon Silver Processor (Minimum 8 Physical Cores, 16 Threads, 2.2 GHz Base or higher) or OEM Storage Controller CPU of equivalent performance.
3. Controller: Cache/ Memory Minimum 32 GB ECC Cache per Controller (64 GB Total)
4. Storage Architecture: Enterprise Unified NAS Storage
5. Controller: Architecture Dual Active-Active Controllers
6. Form Factor: 2U/3U Rack NAS
7. Drive Bays: 16 Bays
8. HDD: Required Number of Enterprise SAS Hard Disk Drives 12Gb/s, 7200 RPM suitable for 200 cameras recording with following common minimum parameters Resolution: 2560 × 1440 pixels; Frame Rate: 15 FPS; Compression: H.265/H.265+; Bitrate: 4 Mbps CBR; GOP/I-frame interval: Maximum 2 seconds; Recording Mode: Continuous 24×7; Colour: Full colour during day and appropriate monochrome/night mode where applicable; Retention: Minimum 30 consecutive days backup. Bidder has to submit the detailed Storage calculation along with the bid.
9. RAID: RAID-6
10. Global Hot Spare: 1 Drive
11. Controller: Dual Controller
12. Host Ports: Minimum 2 × 10GbE SFP+

- 13. SAS Expansion: Dual 12Gb SAS
- 14. Power Supply: Dual Hot-Pluggable Redundant Power Supplies
- 15. Cooling: Redundant Hot-Pluggable Fans
- 16. Monitoring: SNMP, Syslog, Email
- 17. Online Expansion: Supported
- 18. Snapshot: Supported
- 19. Thin Provisioning: Supported
- 20. Warranty: Standard OEM comprehensive warranty as applicable with 24x7 Technical Support but same shall not be less than 2 years

[6-5] DEDICATED ANALYTICS EVIDENCE STORAGE SERVER FOR 90 DAYS

S.No Parameter Recommendation

- 1. Purpose: AI Metadata, Face Images, ANPR Database, Event Clips and Forensic Evidence
- 2. Form Factor: 2U Enterprise Rack Server
- 3. Processor: Intel Xeon Gold (Minimum 16 Cores)
- 4. RAM: Minimum 64 GB ECC
- 5. OS Storage: 2 x 960 GB Enterprise SSD RAID-1
- 6. RAID: RAID-6
- 7. RAID Controller: Hardware RAID Controller with Cache
- 8. Storage: Required Number of Enterprise SAS Hard Disk Drives 12Gb/s, 7200 RPM suitable for the storage of AI Metadata, Face Images, ANPR Database, Event Clips and Forensic Evidence pertaining to 90 days. Bidder has to submit the detailed Storage calculation along with the bid.
- 9. SSD: 2 x 960 GB RAID-1
- 10. Network: 2 x 10GbE SFP+
- 11. Power Supply: Dual Hot-Pluggable Redundant
- 12. Cooling: Redundant Fans
- 13. Operating System: Licensed version of minimum 64 bit latest version of Windows Server or equivalent as suitable for supplied Server(As per bidder solution)
- 14. Event Database: AI Metadata Storage
- 15. Snapshot: Storage Supported
- 16. Warranty: Standard OEM comprehensive warranty as applicable with 24x7 Technical Support but same shall not be less than 2 years
- 17. Storage data requirement: All camera wise data (Face Images, Vehicle Snapshots, ANPR Database, Event Clips, AI Metadata, Heat Maps, Object Images etc.) pertaining to Listed AI Analytics Features among 200 CCTV Cameras:
 - 1. Aggressive Behaviour Detection 134 No's
 - 2. Camera Tampering Detection 121 No's
 - 3. Face Detection 81 No's

4. Smoke and Fire Detection 93 No's
5. Loitering Detection 85 No's
6. People Gathering Monitoring 81 No's
7. Missing Object Detection 49 No's
8. Motion Detection 59 No's
9. Intruder Detection 56 No's
10. Line Crossing Detection 40 No's
11. ANPR with driver face detection 03 No's

7. COMPLETE SOFTWARES & LICENSES

The Software & Licenses system pertaining to CCTV Project shall contain:

[7-1]. VIDEO MANAGEMENT SOFTWARE WITH 250 CAMERA LICENSES

(50 Extra Licenses for future scalability)

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No Description

1. VMS Platform: Enterprise-grade IP Video Management Software suitable for 24x7 CCTV surveillance, monitoring, recording, playback, alarm/event management, PTZ control, video analytics integration and evidence management.
2. Licensing Capacity: Minimum 250 IP camera/device channels. The initial system shall support 200 cameras, with 50 additional licensed channels available for future expansion.
3. Architecture: Scalable client-server architecture supporting Management, Recording/Media, Database and Analytics functions, either as integrated or distributed components, depending upon the proposed system architecture.
4. Scalability: The VMS shall support expansion up to at least 250 licensed cameras/devices without replacement of the complete VMS platform. The system shall permit addition of recording/media servers and storage capacity as required.
5. Camera Compatibility: Shall support standards-based IP cameras and encoders, including ONVIF Profile S, T and G. Profile M shall be supported where required for AI/analytics metadata integration.
6. Video Compression: Shall support H.264 and H.265/HEVC video streams.
7. Streaming: Shall support multiple streams from cameras and efficient distribution of live and recorded video to authorized clients. Unicast and multicast shall be supported where required by the proposed network architecture.

8. Live Monitoring: Live viewing of multiple cameras with configurable layouts including 1×1, 2×2, 3×3, 4×4 and user-defined layouts; full-screen display, digital zoom, camera sequencing and multi-monitor operation shall be supported.
9. Recording: Shall support 24×7 continuous recording, scheduled recording, event/alarm-based recording, manual recording and pre/post-event recording.
10. Recording Profile: The VMS shall support the approved CCTV recording profile of 2560 × 1440 resolution, 15 FPS and H.265 compression, and shall also support other resolutions, frame rates and bitrates as required for individual cameras such as PTZ and ANPR cameras.
11. Retention: Shall support configuration and enforcement of a minimum 90-day recording retention period for the complete CCTV system, subject to the approved storage capacity.
12. Playback: Shall provide date/time, camera, event and alarm-based search; timeline playback; synchronized multi-camera playback; variable-speed playback; frame-by-frame playback; digital zoom and bookmarking.
13. Evidence Export: Shall support export of selected video, snapshots and associated evidence in standard and/or native evidence formats. Exported evidence shall retain relevant camera identification, date/time and other available metadata.
14. Evidence Integrity: The system shall provide tamper-evident mechanisms such as digital signature, checksum, hash or equivalent means for verification of exported video evidence.
15. PTZ Control : Shall support Pan, Tilt, Zoom, Focus, Iris, presets, preset tours/patrols and variable-speed PTZ control.
16. PTZ Joystick Integration: Shall support integration with the 2 Nos. supplied CCTV PTZ joystick keyboards, with independent control and camera selection from the respective operator terminals.
17. ANPR Integration: Shall support display, recording, searching and retrieval of ANPR events/metadata, including plate number, camera identification, date/time and associated vehicle image/video, as supported by the supplied ANPR solution.
18. Video Analytics Integration: Shall support integration and centralized management/display of the specified AI/video analytics events, including intrusion, line crossing, loitering, people gathering, missing object, motion, camera tampering, smoke/fire and face detection, as applicable to the supplied cameras/analytics solution.
19. AI Event Management: Analytics events shall be searchable and shall support event notification, associated video retrieval, alarm generation and evidence export.
20. Alarm Management: Shall support configurable alarm/event priorities, alarm acknowledgement, event history, pop-up video, audible/visual indication and event-to-action rules.
21. Video Wall Integration: Shall integrate with the proposed 9 × 55-inch, 3×3 CCTV video wall and support configurable layouts, camera selection, sequencing, alarm/event pop-up, full-screen display and multi-camera display.
22. Video Wall Scaling: The VMS/video-wall solution shall support scaling of incoming camera streams of different resolutions, including 2560×1440, to the native resolution of the video-wall displays. 4K video-wall displays shall not require all cameras to record/transmit 4K resolution.
23. User Management: Shall support role-based access control with configurable permissions for live viewing, playback, PTZ, export, configuration, alarm management, analytics and administration.
24. Authentication: Shall support individual user accounts, password policy, account lockout and session/security controls.
25. Audit Trail: Shall maintain audit logs of significant user and system activities including login/logout, failed login, configuration changes, video export, PTZ operation, user/permission changes and other security-relevant activities.
26. Time Synchronization: Shall support synchronization with a centralized NTP/SNTP time source to maintain consistent timestamps across cameras, VMS servers, recording servers and operator workstations.
27. System Health Monitoring: Shall monitor camera connectivity, recording status, server/service status

s, storage health, available storage capacity and other critical system parameters and generate appropriate alarms.

28. Recording Failure Monitoring: The VMS shall detect and generate an alarm for camera recording failure or recording gaps exceeding a configurable threshold.

29. Storage Support: Shall support the proposed enterprise storage architecture, including NAS/SAN/DAS or equivalent storage technology, as applicable to the approved design.

30. Storage Management: Shall support configurable recording destinations, retention policies, storage-health monitoring and automatic management of recordings in accordance with the approved retention policy.

31. Redundancy/Failover: Where redundant servers are provided, the VMS shall support recording/media-server failover and automatic recovery/reconnection after server/service failure, as applicable to the proposed architecture.

32. Client Application: Shall provide a user-friendly operator client for live monitoring, playback, PTZ, alarm management, analytics monitoring, search and evidence export.

33. Web Client: A secure web client shall be available for authorized users for functions supported by the VMS, subject to the permissions assigned to the user.

34. Mobile Client: Mobile client for Android/iOS may be provided where required; access shall be subject to IGMH approval and cybersecurity policy.

35. API/Integration: The VMS shall provide documented API/SDK or equivalent integration capability for integration with approved third-party systems and future expansion.

36. Cybersecurity: Communication between VMS components and authorized clients shall support secure protocols such as TLS/HTTPS. The system shall support secure authentication, role-based access, audit logging, security hardening and applicable security updates/patches.

37. Configuration: Backup The VMS shall support scheduled and manual backup/restoration of system configuration, database/configuration information and other necessary system parameters.

38. Software Support: The supplied VMS shall be a current supported version at the time of supply and shall receive applicable software updates, bug fixes and security patches during the contractual warranty/support period.

39. Licensing: Documentation The Contractor shall provide complete VMS licence certificates/keys, entitlement details, installation media/software, manuals and OEM support details to IGMH.

40. Performance Demonstration: The Contractor shall demonstrate during FAT the operation of the VMS with the supplied CCTV system, including live viewing, recording, playback, PTZ, ANPR, AI events, alarm management, video-wall integration, user management, evidence export, health monitoring and other specified functions.

41. The VMS shall be fully integrated with the complete CCTV system supplied under this Contract. The Contractor shall be responsible for configuration and integration of all cameras, recording servers, storage, video analytics, ANPR, PTZ cameras, operator workstations, PTZ joystick keyboards and the 9×55-inch video wall. All licences, software components, drivers, APIs, connectors and integration components necessary for the specified functionality shall be included in the Contract Price.

42. The Bidder shall submit a VMS sizing and performance calculation with the Technical Bid based on the actual proposed system, covering minimum 200 cameras and 250 licensed channels. The calculation shall include camera resolution, FPS, bitrate, recording streams, live-view streams, concurrent users, playback sessions, analytics events, network bandwidth, recording throughput, storage I/O and CPU/RAM/GPU requirements of the proposed VMS infrastructure.

43. The VMS shall support industry-standard secure communication protocols and cryptographic mechanisms appropriate to the implemented security architecture, including TLS/HTTPS for server/client communication, with support for current secure cryptographic algorithms and configurations.

[7-2]. ANPR / LPR SOFTWARE LICENSE:

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No. Parameter: Specification

1. License Type: Edge/server-based ANPR/LPR software license for compatible AI-enabled IP cameras
2. Architecture: Distributed / Edge-based processing (no dependency on central server for recognition)
3. Compatibility: Compatible with AI IP cameras; OEM-supported integration
4. Integration Protocols: ONVIF compliant; support for HTTP, REST API, XML/JSON or better integration
5. Analytics Type: Edge/server-based Automatic Number Plate Recognition (ANPR/LPR) using AI / Deep Learning
6. Recognition Engine: OCR-based plate recognition with AI/ML algorithms
7. Recognition Accuracy: $\geq 95\%$ (under standard conditions) or OEM declared
8. Capture Speed Support vehicle speeds up to 120 km/h or higher
9. Multi-Lane Support: Capable of detecting and recognizing vehicles across multiple lanes (if applicable)
10. Plate Detection: Automatic detection, segmentation, and recognition of license plates
11. Plate Format Support: Support for multiple plate formats (state/national formats)
12. Day/Night Operation: 24x7 operation with IR/night support for low-light conditions
13. Illumination Handling: Capable of handling glare, headlights, shadows, and varying lighting conditions
14. Event Trigger: Ability to trigger alarms, outputs, notifications on recognition events
15. Event Actions: Support relay output, email alerts, HTTP triggers, VMS integration
16. Blacklist/Whitelist Support: for vehicle database (blacklist/whitelist matching)
17. Data Output: Plate number, date/time, image snapshot, lane/camera ID
18. Storage Edge storage support (SD card) and/or server-based storage
19. Video Support: Minimum 1080p resolution compatibility; 25-30 fps
20. Image Requirements: Minimum plate pixel density for accurate recognition (as per OEM)
21. Processing Mode: Real-time recognition with event generation
22. User Interface: Web-based configuration and monitoring interface
23. Configuration: Define detection zones, lanes, trigger lines
24. Reporting: Searchable logs, exportable reports (CSV/Excel/PDF)
25. API Support: Open API for third-party integration (VMS, traffic systems, access control)
26. Security: HTTPS, user authentication, role-based access
27. Cyber Security: Secure communication (SSL/TLS), firmware integrity, access logging
28. Scalability: Scalable architecture supporting multiple cameras and sites
29. Time Sync: NTP synchronization support

- 30. Compliance: ONVIF compliant, NDAA compliant (if applicable)
- 31. License Model: Per camera license (perpetual)
- 32. Software Upgrade: Free updates/patches during warranty/support period
- 33. Warranty / Support: Minimum 2 years support with updates

[7-3]. AI ANALYTICS REQUIREMENT:

Requirement of AI Analytics Features among 200 CCTV Cameras:

- 1. Aggressive Behaviour Detection 134 No's
- 2. Camera Tampering Detection 121 No's
- 3. Face Detection 81 No's
- 4. Smoke and Fire Detection 93 No's
- 5. Loitering Detection 85 No's
- 6. People Gathering Monitoring 81 No's
- 7. Missing Object Detection 49 No's
- 8. Motion Detection 59 No's
- 9. Intruder Detection 56 No's
- 10. Line Crossing Detection 40 No's
- 11. ANPR with driver face detection 03 No's

[7-3-1]. Terms and Conditions of AI Analytics :

- 1. The CCTV system shall support advanced AI-based video analytics including but not limited to aggressive behaviour detection, intrusion detection, loitering detection, people counting, ANPR, and fire/smoke detection. The analytics shall operate in real-time with configurable rules, zones, and alerts, and shall be fully integrated with the VMS platform.
- 2. AI analytics shall be both edge-based and server-based
- 3. AI analytics shall be based on deep learning algorithms.
- 4. Minimum 95% detection accuracy (OEM declared)
- 5. All features shall support for real-time alerts and event triggering
- 6. Integration with VMS via ONVIF / API / SDK
- 7. Capability to define ROI (Region of Interest)
- 8. Should Support for day/night operations
- 9. Storage of event snapshots, metadata, and logs.
- 10. Configurable sensitivity, thresholds, and rules.
- 11. System shall support low false alarm rate using AI filtering.
- 12. All analytics shall be scalable and license-based where applicable.
- 13. Aggressive Behaviour Detection:

a. The camera/system shall support AI-based aggressive behaviour detection using deep learning algorithms capable of identifying violent activities such as fighting, physical assault, sudden abnormal body movement, or group conflict. The system shall generate real-time alerts with video snapshots and metadata.

b. This feature analyses human motion patterns and posture changes to detect abnormal or violent behaviour. It is useful in high-security environments like government premises, public areas, and restricted zones.

c. Performance Requirement:

i. Minimum detection accuracy: $\geq 90\text{--}95\%$ (OEM declared)

ii. Real-time alert generation (< 2 seconds)

iii. Configurable detection zones and sensitivity

14. Camera Tampering Detection

a. The camera shall support intelligent tamper detection capable of identifying scene obstruction, defocus, redirection, spray, covering, or sudden lighting changes, and shall trigger alarms.

b. Ensures surveillance integrity by detecting attempts to disable or manipulate the camera.

c. Performance Requirement:

i. Detection of blur, occlusion, and scene change

ii. Instant alert generation

iii. Integration with VMS alarm system

15. Face Detection:

a. The system shall support AI-based face detection capable of detecting human faces and capturing facial snapshots with bounding box, timestamp, and metadata.

b. Detects presence of human faces without necessarily identifying individuals (unless face recognition is specified separately).

c. Performance Requirement:

i. Multi-face detection capability

ii. Detection under varying lighting conditions

iii. Metadata tagging (time, camera ID, location)

16. Smoke and Fire Detection:

a. The camera shall support AI-based smoke and fire detection capable of identifying smoke patterns and flame characteristics in real time without additional sensors.

b. Provides early fire warning using video analytics, especially useful in server rooms, warehouses, and public buildings.

c. Performance Requirement:

i. Detection in low light and IR mode

ii. False alarm filtering (dust, fog, lighting changes)

iii. Real-time alert with snapshot/video clip

17. Loitering Detection:

a. The system shall support loitering detection to identify persons/objects remaining in a predefined area beyond a configured dwell time.

b. Detects suspicious lingering behavior near restricted zones such as gates, ATMs, or entry points.

c. Performance Requirement:

- i. Configurable dwell time
- ii. ROI (Region of Interest) configuration
- iii. Alert generation with timestamp

18. People Gathering Monitoring (Crowd Detection)

a. The system shall support AI-based crowd detection/people counting analytics capable of generating alerts when the number of persons in a defined area exceeds a predefined threshold.

b. Used for crowd control, law enforcement, and safety compliance.

c. Performance Requirement:

- i. Configurable threshold limits
- ii. Real-time counting and alerting
- iii. Accuracy $\geq 90\%$ in normal conditions

19. Missing Object Detection:

a. The system shall support missing object detection to identify removal of static objects from the monitored scene.

b. Detects theft or removal of items such as baggage, equipment, or assets.

c. Performance Requirement:

- i. Background learning capability
- ii. Detection of object removal within defined time
- iii. Alert with before/after image

20. Motion Detection:

a. The camera shall support motion detection with configurable sensitivity, detection zones, and event triggering.

b. Basic detection of movement in the scene to trigger recording or alerts.

c. Performance Requirement:

- i. Multi-zone configuration
- ii. Adjustable sensitivity
- iii. Low false alarm rate

21. Intruder Detection:

a. The system shall support intrusion detection to identify unauthorized entry into predefined virtual zones or restricted areas.

b. Detects entry into restricted areas and generates alerts.

c. Performance Requirement:

- i. Zone-based detection
- ii. Human/vehicle classification (preferred)
- iii. Real-time alarm generation

22. Line Crossing Detection:

a. The camera shall support line crossing detection to detect objects/persons crossing a virtual line in speci

fied direction(s): Used for perimeter security and boundary monitoring.

b. Performance Requirement:

c. Direction-based detection (A→B, B→A)

d. Multiple line configuration

e. High accuracy detection

23. ANPR with Driver Face Detection:

a. The system shall support AI-based Automatic Number Plate Recognition (ANPR) along with simultaneous driver face capture and tagging, capable of operating under day/night conditions.

b. Captures vehicle number plate and driver face simultaneously for enhanced security and enforcement.

c. Performance Requirement:

i. Vehicle speed support: up to 120 km/h

ii. Plate recognition accuracy $\geq 95\%$

iii. Driver face capture with clear image

iv. Integration with whitelist/blacklist database

[7-4]. END POINT PROTECTION: SHALL COVER ALL END POINTS SUPPLIED AS PART OF THIS PROJECT

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No Minimum Specification

1. The solution must utilize Client Server architecture where Central Endpoint Management Console should be used for creating and distributing policies. Central Endpoint Management Console should be able to manage and monitor all the endpoints across the organization centrally. Central Endpoint Management Server should utilize On-Premise architecture and no SaaS / Cloud model.

2. The solution should support All-in-One Centralized Management — deploy, manage and monitor Clients on-premise or off-premise. Management Server console also should help to provide real-time control and visibility into endpoints when they are either on or off corporate networks.

3. Solution should support integration and synchronization with Microsoft Active Directory (AD) to deploy the Agents to all the endpoints.

4. Solution should support installing and managing agents on Microsoft Windows 10 / 11 & Windows Server 2019+,

5. Solution should support Endpoint Protection features of Anti-Malware, Anti-Exploit, Web Filter, Application Firewall, Vulnerability Assessment and Management, Software Inventory Management and USB Control.

6. Solution should be able to Block Access to Malicious Websites, Scan Compressed Files, Scan Network Files, Scan Removable Media on Insertion, Scan Email attachments.

7. Solution should support easy creation of security profiles with customizable features such as Antimalware, Exploit Prevention, Application Firewall, Web Filter, USB Control etc. applied to specific set of devices or for all devices.

8. The management server should support creation of Custom Installer Packages with included Security Profiles to help simplify deployment and management of endpoints from a single console.

9. Custom Installer Package should be available from web-link of Management Console in MSI / EXE / DMG packages.
10. The centralized management console should be web-based and should support Role Based Access (RBAC).
11. Solution must offer comprehensive client/server security by protecting enterprise networks from Viruses, Trojans, Worms, Network Viruses, Spyware and Rootkits.
12. Solution must provide real-time on-access scanning for file systems to prevent or stop malicious code execution.
13. The proposed solution should provide tamper protection to prevent end-users or malicious actors from disabling the endpoint protection software.
14. Tamper protection should support configurable password in case emergency override is required.
15. The proposed system shall be able to query a real time database of over 50 million+ rated websites categorized into 70+ unique content categories.
16. Should support Endpoint Quarantine to quickly disconnect a compromised endpoint from the network and stop it from infecting other assets.
17. Solution should be able to detect and prevent communication patterns used by Bots like information about botnet family.
18. Solution should be able to block traffic between infected host and remote C&C operator but at the same time allow traffic to legitimate destinations.
19. The solution should detect and prevent various exploit techniques providing protection against memory-based attacks.
20. Solution should monitor behavior of applications like Web Browsers (IE, Chrome, Firefox), Java/Flash plug-ins, Microsoft Office applications, and PDF reader as part of anti-exploit feature.
21. Endpoint solution should have vulnerability scanning feature to check for known vulnerabilities in the endpoints.
22. The solution must support creation of exclusions / exceptions from Central Console and pushing them to the endpoints. It should not require creation of exclusions on individual endpoints.
23. The solution must be provided with software updates, upgrades and technical support for 2 years.

8. CONTROL ROOM & MONITORING SYSTEM

CCTV Monitoring / Control Room Equipment – monitoring PCs, displays/LED TVs, monitors, monitoring tables, chairs and associated equipment Centralized and distributed video monitoring and operator interface. Shall enable authorized personnel to continuously monitor live/recorded CCTV feeds, alarms, events and analytics from the central monitoring room as well as designated offices/workstations and to provide dedicated distributed monitoring workstations for the Server Room, CGM Office, AGM Office and Commandant Office. Control room and Monitoring System pertaining to CCTV Project shall contain:

[8-1]. VIDEOWALL WITH DISPLAY PUSH PULL MOUNTING AND CONTROLLER

Supply, installation, testing and commissioning of professional-grade 24×7 CCTV Video Wall System comprising approximately 12 ft × 7 ft effective display area, preferably configured using 3×3 Nos. 55-inch professional IPS LED/LCD video-wall panels or equivalent, minimum 1920×1080 native resolution per panel, 60 Hz, minimum 500 cd/m² brightness, ≥178° viewing angle, anti-glare surface, ≤1.5 mm bezel-to-bezel gap, professional 24×7 duty rating, panel protection against image retention, complete push-pull front-service mounting system, video-wall controller/processor, video-wall management software, minimum 12 digital source inputs, required display outputs, 4K UHD source processing, bezel compensation, multi-windowing, layout management, alarm integration, VMS integration, source switching, cables, connectors, control interfaces, power distribution, earthing, installation accessories and all associated hardware/software required for a complete functional CCTV video wall system.

The Video Wall shall be fully integrated with the CCTV VMS and the CCTV Operator Workstations and shall support simultaneous display of multiple live camera streams, alarms, AI events, maps, playback and other authorized VMS content.

[8-1-1] VIDEO WALL SPECIFICATIONS:

S.No. Specification

1. Videowall: should cover 12 FT X 7 FT (W X H) Area. Preferred configuration: 3 × 3 professional 55-inch 16: 9 video-wall panels, or an equivalent configuration providing equal or better effective display area and functionality. The Bidder may offer an equivalent panel configuration where the proposed configuration provides an effective display area substantially equivalent to or greater than the specified 12 ft × 7 ft requirement, without compromising viewing quality, serviceability, bezel uniformity or control-room ergonomics.
2. The display shall be flicker-free under normal operating conditions and shall be suitable for prolonged CCTV monitoring. The display shall incorporate appropriate manufacturer-supported protection against image retention/burn-in caused by prolonged display of static content, including pixel shifting, image refresh, panel protection or equivalent technology. No objectionable permanent image retention under normal operation when operated in accordance with OEM recommendations."
3. The video wall shall provide uniform brightness and colour reproduction across all panels. Adjacent panels shall have no visually objectionable variation in brightness, colour temperature or gamma under normal operating conditions. The system shall support: Panel-to-panel colour calibration; Brightness uniformity adjustment; Colour temperature adjustment; Gamma adjustment; White balance; Individual panel calibration
4. Viewing angle : Minimum 178° horizontal and 178° vertical viewing angle or equivalent technology providing uniform colour and luminance across the specified viewing positions.
5. The display system shall support professional image-processing controls including brightness, contrast, gamma, RGB/white balance, colour temperature and grayscale adjustment sufficient to achieve uniform image reproduction across the complete video wall.
6. The videowall adopts a larger font for better visibility, which is necessary when users want to control displays from relatively far distances.
7. Large screens shall positioned higher than human-eye level, making uniform picture quality essential for video wall
8. The display shall support adjustable colour temperature through the display/controller software, with sufficiently fine adjustment to enable panel-to-panel colour matching.
9. Bezel: Extreme to Ultra narrow Bezel
10. Diagonal Size: 55" or better
11. Resolution: 1920*1080 (native resolution) or better. Preferred 4K-capable input.

12. Bezel-to-bezel gap: ≤ 1.0 mm preferred; ≤ 1.5 mm maximum. The bidder shall clearly declare the manufacturer's published bezel-to-bezel gap, not merely the bezel width of the individual panel.

13. Interfacing: HDMI 2.0 or higher – 2 Nos.; DisplayPort – 1 No.; USB – firmware/service; RJ45 – control/management; RS-232/RS-232C – control

14. Panel: Non-Glare

15. Operation: 24 X 7 Hours

16. Power Required (Max): The bidder shall declare the maximum power consumption of the complete video wall. The system shall incorporate energy-efficient panels and shall not exceed the approved electrical load allocation.

17. Power Supply: AC 100 - 240 V, 50 Hz

18. Each panel shall be mounted on a professional push-pull serviceable video-wall mounting system that allows the individual panel to be pulled forward from the front for maintenance without dismantling adjacent panels. The mounting system shall be designed to suit the available room depth while providing adequate ventilation and service access. Where rear access is restricted, the mounting system shall provide front-service access to individual panels.

[8-1-2] LED MONITOR SPECIFICATION:

1. Brightness: Minimum brightness: 500 cd/m²; preferred ≥ 700 cd/m². 20 Orientation: Landscape / Portrait

2. Haze: approximately 25-30% or equivalent anti-glare performance.

3. Contrast Ratio (Typ.): 1000: 1 or better

4. Type: Professional-grade IPS LCD panel with LED backlighting, specifically designed and warranted for 24x7 5. video-wall/control-room operation.

5. Operation Hour: 24 X 7 Hours

6. Video: Display Port 1.2 (1), HDMI 2.0 (2)

7. USB: F/W upgrade

8. External Control: RS232C(in/out), RJ45

9. Hardware: ACM Support (Advanced Color Management) Temperature Sensor

10. Software: Auto Source Switching & Recovery RS232C/RJ45 MDC Button Lock

11. IP Rating: IP55

12. Power Supply: 180 - 240 V, 50 Hz

13. Temperature: 0°C~ 40°C

14. Relative Humidity: 10~80%

[8-1-3]. VIDEO WALL MANAGEMENT SOFTWARE

1. Scaling and display: Software to enable the user to display multiple sources in any size and anywhere on the display wall.

2. Auto Source Detection: Software should support for auto source detection

3. Layout Management: Should support for Video, RGB, DVI, , Desktop Application and Remote Desktop Monitoring Layouts. Web-based applications and modern browser-compatible sources shall be supported, subject to the organization's cybersecurity policy.

4. Scenarios: Software should able to Save and Load desktop layouts from Local or remote machines as

per AS

5. Layout Scheduler: All the Layouts can be scheduled as per user convenience

6. Scalable GUI: Scalable GUI to scale to any size of Videowall screen.

7. Launch Application: Software should be able to support

8. Integration with 3rd party devices: The video-wall controller/software shall provide documented APIs, SDKs or standard control interfaces where required for integration with authorized third-party control systems.

9. Live Playback: Software should be able to provide live playback of Videowall

10. Offline Layouts: It should be possible to create offline layouts

11. User friendly: Software should be user friendly

12. The system shall optionally support configurable text/ticker display for authorized operational messages, with configurable position, font, size and colour.

13. The software shall support:

- . Creation of arbitrary display layouts.
- . Multiple input sources.
- . Multiple VMS camera streams.
- . Independent scaling of each source.
- . Drag-and-drop source positioning.
- . Full-screen display.
- . Multi-window display.
- . 1×1, 2×2, 3×3, 4×4 and custom layouts.
- . Preset/scenario creation.
- . Save/load layouts.
- . Scheduled layouts.
- . Alarm-triggered layouts.
- . Camera sequence/patrol display.
- . Source switching.
- . Auto source detection where supported.
- . Source-loss detection.
- . Automatic source recovery.
- . User-based access control.
- . Audit logging.
- . Remote management.
- . Screen identification.
- . Individual panel control.
- . Brightness/colour management.
- . Bezel compensation.

- . Layout preview.
- . Drag-and-drop GUI.
- . Multi-user administration.
- . API/SDK for authorized third-party integration where required.

[8-1-3]. VIDEO WALL CONTROLLER :

The video-wall controller shall support processing and display of 4K UHD (3840 × 2160) input sources at minimum 60 Hz, with appropriate scaling and distribution across the video wall.

1. Display controller: Each Controller to be able to control the layouts of sources on the Active LED Screen
2. Architecture: The controller should be based on the latest architecture
3. Platform: Windows 11 or better
4. CPU Intel Xeon / AMD EPYC or equivalent; CPU Minimum 12 physical cores; RAM 64 GB ECC minimum
5. System storage ≥1 TB enterprise SSD ; Data storage ≥2 TB HDD as required
6. Video inputs Minimum 12 digital inputs, HDMI/DP or equivalent
7. Video outputs Sufficient for complete wall; minimum 9 outputs for 3×3 architecture
8. Output Minimum 1920×1080 per display; 4K capable processing
9. Network: 2 Network Ports
10. Resolution: Each controller Should support Minimum aggregate output capability: 20 megapixels or higher, or sufficient capacity for the actual proposed wall resolution.
11. Inputs: 16 inputs per controller
12. Keyboard & Mouse Extension: Keyboard and Mouse along with mechanism to extend them to 20 Mtrs. operator desk from display controller to be provided
13. OEM Certification: All features and functionality should be certified by the OEM.
14. The display panels, video-wall controller and management software shall be fully interoperable and shall be supplied as a validated solution. The Bidder shall provide OEM/system-integrator certification confirming compatibility and end-to-end support. A single-OEM solution may be offered; however, equivalent multi-component solutions shall be acceptable provided complete interoperability, unified support and performance are demonstrated.
15. Certified HDMI 2.0/2.1 digital video cables of suitable length, supporting the required resolution and refresh rate, shall be supplied and installed for interconnection between the VMS/workstation outputs and video-wall controller. The exact cable length shall be based on the approved layout. If distances exceed standard passive HDMI limits, the contractor shall provide: Active optical HDMI, HDMI-over-fibre, HDMI extender as appropriate.
16. The Contractor shall configure the two CCTV operator workstations to provide the required video outputs to the video-wall controller. All required graphics adapters, display interfaces, HDMI/DP cables, converters, extenders and licences shall be included.

[8-2]. CCTV DISPLAY CONSOLE WITH 4 OPERATOR POSITIONS: 01 Lot for CCTV MONITORING ROOM

The Contractor shall design, supply, install, test and commission a professional-grade modular CCTV Contr

ol Room Operator Console with four individual operator positions, suitable for continuous 24×7 operation and capable of accommodating two high-performance CCTV workstations and their associated displays/peripherals. The console shall be ergonomically designed for prolonged surveillance operations and shall include all structural, electrical, networking, cable-management, equipment-mounting and finishing accessories necessary for a complete and functional installation.

The dimensions indicated below are minimum/design-basis requirements. The Contractor shall submit detailed shop drawings for India Government Mint Hyderabad approval before fabrication.

Sl. No. Parameter Revised Minimum Technical Requirement

1. Configuration: 4 individual operator positions, suitable for operation of 2 CCTV workstations
2. Overall dimension: Approximately 750(H) × 3730(W) × 1030(D) mm, subject to approved control-room layout
3. Individual operator width: Minimum 850 mm per operator position
4. Work surface height: 720-750 mm
5. Work surface depth: Minimum 900 mm usable depth
6. Monitor provision: Provision for minimum 4 operator monitors, with adjustable VESA-compatible monitor arms/functional rail mounting
7. Keyboard/mouse: Individual keyboard/mouse provision for each operator, preferably retractable/sliding trays
8. Structure: Heavy-duty modular structure using powder-coated aluminium/steel profiles or equivalent, designed for continuous control-room use
9. Structural frame: Adequately reinforced top/bottom structural members; minimum 2 mm MS structural members where MS construction is used
10. Table top: Minimum 25 mm thick high-density board or equivalent industrial-grade worktop with durable, scratch-resistant and moisture-resistant laminate
11. Front edge: Ergonomically rounded/nosed front edge
12. Side panels: Minimum 25 mm pre-laminated board or equivalent durable panel
13. Modesty: panels Removable/modular front and rear modesty panels, with lockable access where required
14. Cable management: Integrated horizontal and vertical cable-management channels
15. Power/data segregation: Power and LAN/data cables shall be physically segregated
16. Power outlets: Minimum 2 UPS-backed 6A sockets per operator position, or higher as required by final equipment design
17. Data outlets: Minimum 2 × RJ45 Cat6/Cat6A outlets per operator position
18. Earthing: All metallic portions shall be properly bonded/connected to protective earth
19. CPU provision: Secure and ventilated CPU mounting provision for 2 Nos. workstations
20. Heat management: Adequate ventilation for removal of heat generated by workstation equipment; no enclosed arrangement causing excessive temperature rise
21. Equipment space: Adequate provision for CPU, KVM/accessories, power adapters and other approved operator equipment
22. Cable entry: Flush cable-entry grommets and concealed routing
23. Levelling: Adjustable levelling feet

24. Finish: Industrial-grade powder-coated/laminated finish suitable for 24x7 control-room use
25. Safety: No sharp edges, exposed wiring, unstable structures or hazardous projections
26. Identification: Operator positions shall be permanently identified as OP-01, OP-02, OP-03 and OP-04
27. The Contractor shall determine the final number of power sockets, data outlets, cable-management accessories, monitor arms, CPU holders and other fittings based on the approved workstation design. Any additional quantity required for a complete functional installation shall be included in the Contractor's scope.
28. The console shall provide ergonomic provision for mounting minimum 2 Nos. professional operator monitors, one for each supplied CCTV workstation, using adjustable VESA-compatible monitor arms/functional rail mounting. The console shall also have adequate structural provision for expansion to additional monitors, if required by the approved system design. Minimum Specifications are as below:

Sl. No. Parameter Minimum Requirement

Size: 27 Inch IPS LED

Resolution: 2560*1440

Refresh: 60Hz

Brightness: more than 300cd/m2

Viewing angle: minimum 178degree

VESA : mandatory

Height adjustment : mandatory

Tilt/Swivel: mandatory

HDMI/DP: : mandatory

[8-3]. HIGH PERFORMANCE WORKSTATIONS FOR CONTROL ROOM: 02 No's or more as per design

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

Sl. No. Parameter Specification Details

1. Processor (CPU): Intel Xeon or better (12 cores / 24 threads minimum, base frequency ≥ 3.0 GHz or equivalent performance)
 2. CPU architecture Current-generation x86-64 professional workstation platform
 3. Chipset Intel W790
 4. Memory (RAM): 64 GB DDR5-4800 ECC RDIMM (4 x 16 GB minimum, expandable to 512 GB)
 5. GPU: Professional graphics GPU with minimum 12 GB VRAM
 6. GPU outputs: Minimum 4 independent digital display outputs
- GPU Professional workstation-grade graphics card
7. Display support : Minimum 4 x 4K displays at appropriate refresh rate
 8. SSD: 1 TB NVMe PCIe Gen4 or better
 9. Operating System Windows 11 Pro 64-bit (pre-loaded with latest updates)

10. Network Minimum 2 × 1 GbE + 1 × 10 GbE Ethernet
11. Ethernet 10 GbE shall be mandatory where required by the approved network architecture
12. Motherboard Professional workstation motherboard with ECC support
13. Expansion Minimum 2 PCIe slots suitable for GPU/network expansion
14. USB Minimum 8 × USB ports, including USB 3.x
15. USB-C Minimum 1
16. Power Supply 1000 W 80+ Platinum redundant hot-swap PSU
17. Cooling High-performance liquid / air cooling with redundant fans for 24×7 operation
18. Chassis Tower form factor, tool-less access, lockable side panels, dust filters
19. Keyboard & Mouse Dell / HP USB quiet keyboard + optical mouse (with palm rest)
20. Certifications UL, CE, RoHS, Energy Star, ISO 8528 equivalent reliability standards
21. 24×7 Suitable for continuous control-room operation
22. Dust protection Replaceable/cleanable dust filters
23. Security Lockable chassis or equivalent physical security

[8-4]. JOYSTICK KEYBOARD: 02 No's or more as per design

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No. Features Technical Specification

Type Professional CCTV PTZ keyboard/controller

1. Joystick: 3-axis Hall-effect joystick for Pan/Tilt/Zoom
2. Pan/Tilt: Variable-speed proportional control
3. Zoom: Variable-speed zoom control
4. Z-axis: Twist-type proportional zoom or equivalent
5. Buttons: Minimum 8 programmable function buttons
6. PTZ functions: Pan, Tilt, Zoom, Focus, Iris, Preset, Patrol, Tour, Scan
7. Presets: Support selection/activation of PTZ presets
8. Camera selection: Camera/channel selection
9. VMS integration: Compatible with the supplied VMS
10. Protocol: Standard IP/network communication and/or VMS-supported protocol
11. Display: LED/LCD status indication preferred
12. Interface: USB and/or Ethernet as supported by VMS
13. Power: USB or PoE/DC as applicable
14. Housing: Heavy-duty ABS/metallic industrial housing

15. Key switches: Long-life tactile switches
16. Operating temperature : 0°C to 50°C minimum
17. Mounting: Desktop
18. 24x7 operation Suitable for continuous control-room operation
19. Each joystick controller shall be fully integrated and demonstrated with the supplied VMS and PTZ cameras during FAT. The Contractor shall ensure simultaneous and independent operation of both joystick controllers without conflict, including PTZ selection, pan, tilt, zoom, focus, iris, preset, patrol and other supported functions. All required drivers, licences, configuration and integration shall be included in the Contract Price.

[8-5]. MONITORING PC FOR VARIOUS OFFICES: 04 No's

The system shall feature a distributed architecture with dedicated user viewing workstations supplied at the Server Room & CGM Office.

Sl. No. Parameter Specification Details

1. Processor (CPU) Intel Core i7-14700 or better (12 cores / 20 threads minimum)
2. Memory (RAM) 16 GB DDR5-4800 (2 × 8 GB, expandable to 128 GB)
3. Graphics NVIDIA T400 4 GB
4. Storage 512 GB NVMe PCIe SSD (OS + VMS) + 512 GB SATA HDD
5. Operating System Windows 11 Pro 64-bit
6. Display Outputs Minimum 3 × DisplayPort + 1 × HDMI (support for dual monitors)
7. Networking Integrated 1 GbE LAN + Wi-Fi 6 optional
8. Power Supply 260 W 80+ Platinum efficient PSU
9. Chassis Tower / SFF (space-saving), tool-less, dust resistant
10. Keyboard & Mouse USB keyboard + mouse
11. The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

[8-6]. 55" LED TV FOR USER WORKSTATION: (NOT APPLICABLE)

[8-7]. 24" LED MONITOR FOR CCTV MONITORING / WORKSTATIONS: 01 NO FOR SERVER ROOM WORKSTATION

S.No. Parameter: Specification

1. Type: 24" LED Backlit Monitor
2. Application: CCTV Monitoring / Office Workstation
3. Warranty Minimum 2 Years Onsite

4. Panel Type: IPS LED
5. Resolution: Minimum Full HD (1920 × 1080) or higher
6. Aspect Ratio: 16: 9
7. Brightness: Minimum 300 nits (cd/m²)
8. Contrast Ratio: ≥ 1000: 1
9. Viewing Angle: 178° (H) / 178° (V)
10. Refresh Rate: 60 Hz or higher
11. Surface Anti-glare coating
12. Flicker Free Supported
13. Low Blue Light Supported
14. Continuous Display Suitable for long-duration CCTV viewing
15. HDMI Ports: Minimum 1 (preferably 2)
16. VGA Port: Available (for legacy systems)
17. Display Port: Preferred
18. Audio Output: Yes
19. Mounting: table-top support
20. Power Supply: 100–240V AC, 50/60 Hz
21. Power Consumption ≤ 30W (operating)
22. Standby Power ≤ 0.5W
23. Operating Temperature 0°C to 50°C
24. Certifications BIS, CE, FCC, RoHS compliant
25. Standards Suitable for CCTV / Control Room Applications
26. The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.
27. The monitor shall be suitable for continuous CCTV monitoring applications with high clarity, wide viewing angle, and anti-glare display for prolonged usage.

[8-8] SUPPLY OF 1 NO'S MONITORING TABLE FOR THE SERVER ROOM:

1. Monitoring Table DESK DIMENSION: 750(H) X 700 (W) X 900(D)MM, Tolerance: ±10 mm
2. Type: Heavy-duty Monitoring Console Desk suitable for 24×7 CCTV Surveillance Operation.
3. Frame: CRCA Steel Frame minimum 1.6 mm thick with powder-coated finish (minimum 70 micron).
4. Table Top: Minimum 25 mm BWP Grade Pre-laminated Particle Board/MDF
5. Anti-scratch and anti-glare finish.
6. PVC edge banding minimum 2 mm.
7. Load Capacity: Minimum 150 kg uniformly distributed load.

8. Finish: Grey/Black/Graphite colour.
9. Keyboard Tray: Heavy-duty telescopic sliding keyboard tray.
10. CPU Compartment: Lockable ventilated compartment.
11. Cable Management: Integrated cable raceway., Brush cable entry., Vertical cable duct., Cable organizer.
12. Power Provision: Integrated Electrical Module with minimum: 6 Universal Power Sockets
13. 2 RJ45 Data Ports, Space for UPS connection
14. Monitor Support: Suitable for installation of 2 LED monitors.
15. VESA compatible monitor mounting provision.
16. Accessories: Footrest., Document holder., Headphone hook.,
17. Stability: Anti-vibration construction. Adjustable levelling feet.
18. Safety: Rounded edges. Fire-retardant laminate. RoHS compliant materials.
19. Warranty: Minimum 2 Years Comprehensive Warranty.

[8-9] SUPPLY OF 08 NO'S OF CHAIRS WITH CASTOR WHEELS AND HEIGHT ADJUSTABLE FEATURE.

1. Type: Ergonomic High Back Mesh Operator Chair suitable for continuous 24x7 monitoring.
2. Seat: High-density moulded PU foam (45-50 kg/m³).
3. Back: Breathable mesh with lumbar support.
4. Headrest: Adjustable.
5. Armrest: Adjustable height. PU padded.
6. Seat Height Adjustment: Pneumatic gas lift. Adjustment range approximately 420-520 mm.
7. Seat Tilt: Synchronized tilt mechanism.; Multi-position locking.;
8. Lumbar Support: Adjustable.
9. Base: Five-star nylon/aluminium base.
10. Castors: Heavy-duty twin wheel nylon castors. 360° swivel.
11. Gas Lift: Class-4 gas lift.
12. Weight Capacity: Minimum 120 kg.
13. Upholstery: Mesh back with fabric seat or PU upholstery.
14. Colour: Black/Dark Grey.
15. Warranty: Minimum 2 Years Comprehensive Warranty.

9. POWER SUPPLY, BACKUP & HVAC SYSTEM

Power Supply, Backup & HVAC System – 60 kVA Online UPS, batteries, DG Set/Generator and associated power arrangements Uninterrupted and stable power infrastructure dedicated to CCTV operations. Shall ensure that all cameras, switches, servers, storage, VMS, workstations, Video walls and associated critical CCTV equipment continue operating during utility failure and DG changeover. Power Supply, Backup & HVAC System part pertaining to CCTV Project shall contain:

[9-1]. 60KVA ONLINE UPS :

The scope includes design, manufacture, supply, installation, testing, and commissioning of one (1) no. 60 KVA true online double-conversion UPS system (IGBT-based, DSP-controlled) complete with suitable VRLA battery bank sized for a minimum 60 minutes (1 hour) backup at full rated load (60 KVA at 0.8 power factor or better). The system shall provide clean, uninterrupted, regulated power to the CCTV surveillance system. The UPS shall be suitable for continuous duty operation with non-linear loads typical of CCTV systems (switched-mode power supplies).

S.No. Parameter Technical Specification (Minimum Requirement)

1. UPS Type: True Online Double Conversion (VFI), IGBT-based PWM with DSP control
2. Rated Capacity: 60 kVA / 48 kW minimum (Output PF greater than 0.8; preferably 1.0)
3. Configuration: 3-Phase Input / 3-Phase Output (3/3)
4. Application: Dedicated for CCTV Surveillance System (cameras, NVRs, networking equipment)
5. Backup Time: Minimum 60 minutes at 100% rated load (end-of-discharge)
6. Standards: IEC 62040-1 (Safety), IEC 62040-2 (EMC), IEC 62040-3 (Performance)
7. Nominal Input Voltage: 380 / 400 / 415 V AC, 3-Phase + Neutral + Earth (selectable)
8. Input Voltage: Range -15% to +20% at full load (wider preferred)
9. Input Frequency: Range 45 – 65 Hz
10. Input Power Factor : minimum 0.99 at full load
11. Input Current THDi : Maximum 3% at rated load
12. Rectifier Technology: IGBT-based with Active PFC
13. Nominal Output Voltage: 380 / 400 / 415 V AC, 3-Phase + Neutral + Earth
14. Output Voltage Regulation: $\pm 1\%$ (steady state)
15. Output Frequency: 50 Hz $\pm$ 0.05 Hz (synchronizable)
16. Output Voltage THDv: max 2% (linear load), max 3% (non-linear, CF 3: 1). Pure Sine Wave
17. Output Power Factor : min. 0.8 lagging (preferably 1.0)
18. Crest Factor: 3: 1
19. Overload Capacity: 110% for 60 min, 125% for 10 min, 150% for 1 min
20. AC-AC Efficiency: min. 94% at full load (preferably $\geq 95\%$)
21. Manual Maintenance Bypass Provided for safe servicing

22. Protections: Input/output UV/OV, short circuit, overload, over-temperature, battery deep-discharge, EPO, Phase reversal alarm
23. Cold Start: Yes (from battery)
24. Auto Restart: Yes (after mains restore)
25. Display: Large LCD (min. 7") with graphical mimic, real-time parameters, event log, Input/Output/Battery status
26. Communication: RS-232 / RS-485 standard; SNMP card slot, Dry contacts for alarms
27. Operating Temperature: 0°C to 40°C
28. Relative Humidity: 0-95% non-condensing
29. Protection Class: IP20 (IP21 preferred), Floor-standing cabinet
30. Cooling: Forced air cooling with redundant fans
31. Battery Type: Sealed Maintenance-Free (SMF) VRLA, 12V 200AH or higher. Make: Exide / Amaron / Equivalent
32. Backup Duration: minimum 60 minutes at 100% load. With 9-15% design margin + aging factor 1.25
33. Nominal DC Bus Voltage: 384 V DC (32 blocks) or manufacturer standard (higher preferred)
34. Recharge Time: min. 8 hours to 90-95% capacity
35. Charger: Temperature-compensated, constant voltage/current, Automatic float/boost mode
36. Battery Cabinet: Separate free-standing rack/cabinet, IP20, front accessible. With DC breaker & inter-cell connectors
37. Warranty: Standard Manufacturer comprehensive warranty but not less than 2 years.

[9-2]. 60 KVA PRIME RATED SILENT DIESEL GENERATOR SET WITH AMF PANEL:

Supply, installation, testing, and commissioning of one (1) no. 60 kVA Prime Rated Silent Diesel Generator Set (DG Set) complete with Automatic Mains Failure (AMF) Panel, acoustic enclosure, base fuel tank, exhaust system, batteries, accessories. The DG Set shall be suitable for reliable standby power to CCTV surveillance system in case of mains failure. The set shall be installed outdoors and shall comply with latest CPCB-IV+ emission and noise norms (less than 75 dBA at 7 m).

Sl. No. Parameter Specification Details

1. Scope Supply, installation, testing & commissioning of 1 No. 60 kVA Prime Rated Silent DG Set complete with AMF Panel, acoustic enclosure, base fuel tank and all accessories
2. Application: Standby power for CCTV Surveillance System (Cameras, NVRs, Network Switches etc.)
3. Preferred Make & Model: Cummins C62.5D5P (Prime Rated 62.5 kVA / 50 kWe) or better
4. Duty Prime Power (PRP): as per ISO 8528-1
5. Voltage / Frequency / PF: 415 V , 3 Phase 4 Wire, 50 Hz, 0.8 lagging
6. Speed: 1500 RPM or better
7. Noise Level: less than 75 dBA at 7 meters (CPCB compliant)
8. Emission Norms CPCB-IV+ compliant

9. Ambient Design Conditions: 50 C, 95% RH, Altitude up to 1000 m
10. No. of Cylinders / Configuration: 4 / In-line
11. Aspiration: Turbocharged with Charge Air Cooling
12. Bore × Stroke: 95 mm × 115 mm or better
13. Displacement: 3.3 litres or better
14. Compression Ratio: 19: 1
15. MoEF Certified Power: not less than 84 BHP
16. Required Power for Rated kVA: 81 BHP or better
17. Cooling System: Liquid cooled with radiator (EG Compleat 50: 50)
18. Governor: Electronic / Class A1 (G2 performance class)
19. Fuel: High Speed Diesel (IS: 1460)
20. Fuel Consumption @ 100% Load: not more than 16 L/hr
21. Fuel Consumption @ 75% Load: not more than 12 L/hr
22. Starting System: 12 V DC Electrical
23. Alternator Type: Brushless, Self-excited, Self-regulated, Single bearing
24. Alternator Enclosure Protection: IP23
25. Alternator Insulation Class: Class H
26. Maximum Unbalanced Load : less than 25% across phases
27. Acoustic Enclosure (Canopy) Type: CPCB compliant Silent Type
28. Acoustic Enclosure (Canopy) Noise Level : less than 75 dBA at 7 m
29. Acoustic Enclosure (Canopy) Material & Thickness: CRCA sheet steel (1.6–2 mm), powder coated with 11-tank pretreatment
30. Acoustic Enclosure (Canopy) Insulation: High quality fire-retardant PU foam (IS 8183)
31. Acoustic Enclosure (Canopy) Features: Flush styling, fuel filling inside, fluid drains, air inlet louvers, emergency stop, two-point lifting
32. AMF Panel & Control System: Controller Cummins PSO600 (or equivalent Deep Sea with AMF)
33. AMF Functions: Auto mains failure detection, programmable delays, auto start/stop, cool-down timer, auto changeover
34. AMF Changeover Device: 4-pole contactor / MCCB with electrical & mechanical interlock
35. Display & Meters Digital: Voltage (L-L & L-N), Current, Frequency, kW, kVA, kWh, PF, RPM, Oil Pressure, Coolant Temp, Fuel Level, Battery Voltage, Hour Meter
36. Protections & Alarms: Over-speed, Low lube oil pressure, High coolant temp, Under/Over voltage, Over-current, Short-circuit, Earth fault, Reverse power etc.
37. Enclosure Protection: IP54, Floor / wall mounted, powder coated CRCA
38. Battery Charger: Automatic float/boost type
39. Base Fuel Tank Capacity: Minimum 150 litres (8–10 hours at 75% load)
40. Fuel Tank Features: Integral with canopy, digital level indicator, low level alarm
41. Battery: 12 V, 2 × 88–100 Ah maintenance-free lead acid

42. Battery Charging Alternator + separate charger in AMF panel

43. Factory Testing: Load test at 50%, 75%, 100% + 10% overload for 1 hr, fuel consumption, noise, transient response

44. Site Testing: AMF functionality, full load test with load bank, noise measurement, training

45. Warranty: Standard Manufacturer comprehensive warranty but not less than 2 years.

46. Service Support: 24x7 service network with genuine spares in Hyderabad / Telangana region. Quarterly preventive maintenance visit shall be covered throughout Warranty of CCTV project.

47. Other Terms and Conditions:

- The DG Set, including its associated electrical, mechanical, civil, fuel, exhaust, acoustic, control, protection, earthing, cabling, changeover and monitoring systems, shall be supplied, installed, tested and commissioned by the Contractor on a complete turnkey basis. The Contractor shall be responsible for all engineering, statutory permissions/approvals, drawings, calculations, inspections, testing, commissioning, documentation and compliance required for lawful and safe installation and operation of the DG Set. No additional payment shall be admissible for any component, accessory, approval, test, modification or ancillary work that is reasonably required for successful and compliant operation of the DG Set.

- The Contractor shall identify, obtain, coordinate and close all statutory permissions, NOCs, certificates, inspections and approvals applicable to the DG installation from the competent authorities, at no additional cost to the India Government Mint Hyderabad, wherever such responsibility legally rests with the installer/contractor. These may include, Pollution Control / Environmental : Applicable consent/authorization from the competent State Pollution Control authority.; Compliance with applicable CPCB emission requirements.; Compliance with applicable DG noise standards.; Applicable stack/exhaust requirements.; Applicable environmental conditions for installation and operation.

- The Contractor shall be responsible for preparation of all drawings, technical documents, applications, calculations, certificates, test reports and supporting documents required for statutory approvals and shall coordinate with the concerned authorities. Where an application, NOC, consent or approval is legally required to be obtained in the name of IGM Hyderabad/SPMCIL as owner/occupier, the Contractor shall prepare the complete application and supporting technical documentation and shall provide all assistance required to the India Government Mint Hyderabad for obtaining such approval.

The Contractor shall bear all applicable professional, testing, inspection, documentation and statutory charges attributable to the Contractor's scope, unless specifically stated otherwise in the Contract.

[9-3] SUPPLY, DESIGN, INSTALLATION OF ELECTRICAL DISTRIBUTION SYSTEM :

- The Contractor shall be completely responsible for the design, engineering, supply, installation, testing, commissioning, labelling, documentation and maintenance of the complete electrical power distribution system required for the CCTV Surveillance System, including design specific Main/Intermediate PDBs, local Power Distribution Boards, Power Junction Boxes, protective devices, Power extension boxes, MCBs, MCCBs, cables, conduits, glands, lugs, termination accessories, isolators, SPDs, earthing connections and all associated accessories.

- The Contractor shall carry out a detailed electrical load assessment and shall design the power distribution network such that all CCTV cameras, PoE switches, network equipment, servers, storage equipment and other CCTV-related loads receive a stable and adequate power supply under all normal operating conditions.

- The Contractor shall design and size all power cables and distribution circuits such that the voltage at the terminals of every connected CCTV equipment/switch remains within the operating voltage range specified by the respective OEM under maximum design load conditions.

- For design purposes, voltage drop shall preferably be limited to a maximum of 3% from the source PDB to the final CCTV equipment/node and shall not exceed the permissible voltage drop prescribed by applicable electrical standards or the equipment manufacturer, whichever is more stringent. The Contractor shall submit voltage-drop calculations for every major feeder and representative longest-distance final circuit.

[9-3-1]. EACH PDB SHALL BE A PROPERLY ENGINEERED LOW-VOLTAGE DISTRIBUTION ASSEMBLY. MINIMUM REQUIREMENTS:

PARAMETER RECOMMENDED REQUIREMENT

1. Construction: Factory-fabricated/engineered enclosed PDB
 2. Standard: IEC 61439 series / applicable Indian adoption
 3. Indoor enclosure: Minimum IP54
 4. Outdoor enclosure: Minimum IP65
 5. Material: CRCA/GI powder-coated or SS304/SS316 as environmental conditions require
 6. Sheet thickness: Minimum 1.6 mm; preferably 2.0 mm for outdoor/industrial PDB
 7. Incomer: 4-pole MCCB/MCB as per calculated load
 8. Outgoings: Individual MCB/RCBO/MCCB as appropriate
 9. SPD: Type 2 minimum; coordinated Type 1+2 where required by electrical design
 10. Neutral bar: Insulated neutral bar
 11. Earth bar: Dedicated copper/brass earth bar
 12. Cable entry: Bottom/top as approved
 13. Glands: Suitable cable glands
 14. Labelling: Permanent engraved/printed labels
 15. Spare ways: Minimum 20%
 16. Future capacity: Minimum 20% spare current capacity
 17. Door: Lockable
 18. Metering: Digital V/A/kWh metering where appropriate
- Indication R-Y-B phase indication where applicable
19. Cooling: As required by calculated heat dissipation

[9-3-2]. OUTDOOR PDB - MANDATORY WEATHERPROOF CONSTRUCTION

For PDBs installed outdoors: The enclosure shall be minimum IP65, suitable for outdoor installation and protected against rain, dust, humidity, insects and accidental water ingress. The enclosure shall be provided with a suitable gasketed lockable door, weatherproof cable glands, rain canopy where required, drainage/condensation management and anti-corrosion treatment.

[9-3-3]. PDB INCOMER:

Each PDB shall have an appropriately rated incomer based on the calculated connected and diversified load. The incomer shall include:

4-pole MCCB/MCB

Short-circuit protection

Overload protection

Surge protection

Under/over-voltage protection where required

Phase-failure/phase-sequence protection where applicable

Digital metering

The breaker rating shall be determined by calculation and shall not be arbitrarily selected.

[9-3-4]. INDIVIDUAL OUTGOING PROTECTION

Every outgoing CCTV circuit shall have an individual protective device. This ensures that failure of one circuit does not unnecessarily shut down multiple CCTV nodes.

[9-3-5]. POWER JUNCTION BOXES (PJBs) : Power Junction Boxes shall be provided at suitable intermediate locations wherever required for safe and maintainable distribution of power to CCTV switches/nodes. PJBs shall be suitably sized for the connected load and shall provide adequate space for termination, isolation, protection and future maintenance.

PJB LOCATION: The contractor shall determine PJB locations based on: Cable length, Voltage drop, Number of downstream loads, Accessibility, Environmental exposure, Maintenance requirements, Security, Camera/switch location. PJBs shall not be installed merely for reducing cable quantity if doing so creates excessive voltage drop or unsafe loading.

PJB shall include:

- a) Weatherproof enclosure
- b) Minimum IP65 for outdoor applications
- c) Lockable cover where required
- d) Suitable DIN rail
- e) Local MCB/fuse/isolator as required
- f) Terminal blocks
- g) Neutral terminal
- h) Earth terminal
- i) SPD where justified by location/design
- j) Cable glands
- k) Cable identification
- l) Ferruling
- m) Internal wiring
- n) Proper earthing/bonding
- o) Drainage/condensation provision

[9-4]. 2 TR 5 STAR SPLIT AC: 04 No's (02 No's for Monitoring Room & 02 No's for Server Room)

Supply, installation, testing & commissioning of wall-mounted split type Air Conditioner complete with indoor unit, outdoor unit, remote, and standard installation kit.

Sl. No. Parameter Specification Details

1. Capacity 2 TR (Nominal Cooling Capacity: 7000 W $\pm$ 5%)
2. Star Rating 5 Star (BEE Rated, ISEER $\geq$ 4.60 or better)
3. Type Inverter Split AC (Variable speed compressor)
4. Refrigerant R-32 (Eco-friendly, low GWP)
5. Compressor Rotary / Swing Inverter Compressor (100% Copper Condenser & Evaporator)
6. Timer Function 24-Hour On/Off Timer with sleep mode
7. Features PM 2.5 / Dust Filter, Auto Restart, Self-Diagnosis, Stabilizer-free operation (140–280 V), Wi-Fi / App control (optional), 4-Way Swing, Quiet Operation ($\leq$ 38 dB indoor)
8. Power Supply 230 V, 50 Hz, Single Phase
9. Operating Ambient Temp Up to 54°C (High Ambient Design)
10. Warranty 1 Year on Product + 5 Years on Compressor + 5 Years on PCB (or better)
11. Standards IS 1391, BEE 5 Star, RoHS Compliant

[9-5]. AUTOMATIC ALTERNATING TIMER / DUAL AC CHANGEOVER CONTROLLER

Supply, installation, testing, and commissioning of one (1) no. Microcontroller-based Automatic Dual AC Alternating Timer / Changeover Controller suitable for controlling two nos. 2 TR Inverter Split AC units. The timer shall run AC-1 for 12 hours, then automatically switch OFF AC-1 and switch ON AC-2 for next 12 hours, and continue this cyclic operation 24 $\times$ 7 without manual intervention.

Sl. No. Parameter Specification Details

1. Type Microcontroller-based Digital Automatic Alternating / Sequential Timer for Two AC Units
2. Control Logic AC-1 ON for 12 hours $\rightarrow$ Auto switch to AC-2 for 12 hours $\rightarrow$ Cycle repeats continuously
3. ON Time Setting Fixed / Programmable 12 Hours per AC (field selectable or factory set to 12 hrs)
4. Cycle Time 24 Hours full cycle (12 hrs AC-1 + 12 hrs AC-2)
5. Relay / Contactor Rating Heavy-duty relay / contactor minimum 30 Amps per AC (suitable for 2 TR Split AC compressor + indoor fan load)
6. Power Supply 230 V AC $\pm$ 10%, 50 Hz, Single Phase
7. Display Digital LCD / LED display showing: Current running AC (AC-1 or AC-2), Remaining time, Status (ON/OFF)
8. Indications LED indicators for AC-1 ON, AC-2 ON, Power ON, Fault
9. Manual Override Yes – Manual selection of AC-1 or AC-2 (with lock to prevent both ACs running simultaneously)
10. Switching Mechanism Automatic changeover with minimum 30–60 seconds delay (to allow compressor safety)
11. Protections Overload protection, Short-circuit protection, Surge suppression, Anti-simultaneous operation of both ACs
12. Operating Temperature 0°C to 55°C (suitable for Indian server room conditions)
13. Enclosure Wall-mountable, IP40 or better, Powder-coated MS / ABS plastic, Compact size
14. Mounting Surface / Wall mounting with necessary brackets
15. Terminals / Connectivity Heavy-duty screw terminals for AC-1 Power, AC-2 Power, Neutral, Earth, and Control wiring from both indoor units

16. Standards / Compliance IEC / IS standards for safety, RoHS compliant, CE / equivalent

10. SECURITY AND SAFETY SYSTEMS

Security and Safety systems part pertaining to CCTV Project shall contain:

[10-A]. BIOMETRIC READERS WITH EM ROOM LOCK : 02 No's

S.No Description Specification

1. Verification method Face, Palm, Fingerprint, Card & Password
2. User Capacity 1,000
3. Face Capacity 1,000
4. Palm Capacity 1,000
5. Fingerprint Capacity 3,000
6. Card Capacity 1,000
7. Password Capacity 1,000
8. Log Capacity 1,60,000
9. Power management Screensaver feature
10. Verification speed $\leq 0.6s$
11. False Acceptance Rate (FAR) 0.00%
12. False Rejection Rate (FRR) 0.10%
13. Authentication mode 1: N
14. The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

[10-B]. 2-ZONE CONVENTIONAL FIRE ALARM SYSTEM, INCLUDING SMOKE DETECTOR WITH BASE , RESPONSE INDICATOR WITH BACK BOX, MANUAL CALL POINT WITH BACK BOX AND HOOTER WITH BACK BOX

[10-B-1]. FIRE ALARM CONTROL PANEL (FACP - 2 ZONE)

S.No. Parameter: Specification

1. Type Conventional Fire Alarm Control Panel
2. Zones Minimum 2 Zones
3. Display 16 × 2 Dot Matrix LCD Display
4. Operation Tactile keypad for easy navigation and programming
5. Indications Fire, Fault, Power ON status through dedicated colored LEDs
6. LED Indication Separate LED for each zone (Fire/Fault)
7. Power Supply 230V AC, 50 Hz input
8. SMPS Built-in Switch Mode Power Supply
9. Battery Backup Provision for 24V DC sealed maintenance-free battery
10. Charging Inbuilt automatic battery charger with overcharge & deep discharge protection
11. Alarm Output Sounder output with supervision
12. Relay Outputs Potential-free relay for Fire, Fault, and Alarm
13. Zone Capacity Minimum 20 detectors per zone (or as per OEM standard)
14. Zone Monitoring Open/Short circuit fault monitoring
15. Reset Function System reset, alarm silence, buzzer silence
16. Protection Reverse polarity, surge protection
17. Enclosure MS powder-coated / ABS enclosure
18. Mounting Wall-mounted
19. Standards Conforming to IS/EN 54 standards
20. Certification BIS/CE approved
21. Make RAVEL or equivalent approved make
22. System Type Conventional Fire Alarm System
23. Detection Smoke detection with manual triggering
24. Alarm Activation Automatic (detector) + Manual (MCP)
25. Indication Audio + Visual alarms
26. Monitoring Continuous line supervision
27. Expandability Expandable within conventional limits
28. Integration Potential-free contacts for BMS/third-party integration

[10-B-2]. OPTICAL SMOKE DETECTOR WITH BASE

S.No. Parameter: Specification

1. Type Optical Photoelectric Smoke Detector
2. Detection Principle Light scattering / photoelectric sensing
3. LED Indication 360° visible LED for alarm status

4. Sensitivity As per EN 54 / IS standards
5. Operating Voltage 12-24V DC
6. Mounting Ceiling mount
7. Base Detector with mounting base included
8. Reset Auto reset from panel
9. Protection Insect screen, dust protection
10. Standards EN 54 compliant
11. Make RAVEL or equivalent

[10-B-3]. RESPONSE INDICATOR WITH BACK BOX

S.No. Parameter: Specification

1. Type Remote Response Indicator
2. Function Visual indication of detector activation
3. LED Type High intensity LED
4. Voltage Compatible with detector output
5. Mounting Wall / false ceiling mount
6. Back Box Included
7. Application For concealed detectors / above false ceiling
8. Make RAVEL or equivalent

[10-B-4]. MANUAL CALL POINT (MCP) WITH BACK BOX

S.No. Parameter: Specification

1. Type Break Glass / Resettable Manual Call Point
2. Operation Push / Break glass type
3. Indication LED indication for activation
4. Reset Key resettable (preferred)
5. Mounting Surface / flush mounting
6. Back Box Included
7. Protection Protective cover (optional)
8. Standards EN 54 compliant
9. Make RAVEL or equivalent

[10-B-5]. HOOTER WITH BACK BOX

S.No. Parameter: Specification

1. Type Electronic Hooter / Sounder
2. Sound Output Minimum 90-110 dB at 1 meter

3. Tone Continuous / intermittent tone
4. Operating Voltage 12/24V DC
5. Mounting Wall mount
6. Back Box Included
7. Application Indoor audible alarm
8. Make RAVEL or equivalent
 - o All equipment shall conform to relevant IS/EN 54 standards and shall be from a single OEM
 - o The complete system shall be supplied, installed, tested, and commissioned, including all accessories, cabling, and interconnections required for proper functioning.
 - o The system shall be covered under a minimum 3-year comprehensive warranty
 - o The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

[10-C]. PUBLIC ADDRESSING SYSTEM TO ADDRESS WATCH TOWERS, GATES & BUILDINGS WITH 2-WAY AUDIO & VIDEO COMMUNICATION INCLUDING OF PAGING MIC STATION, TALK BACK UNIT, WORKSTATION WITH SERVER : 28 No's

[10-C-A] PAGING MIC

1. Power Supply DC 12V, 1.5A
2. Power Consumption $\leq 10W$
3. Audio Codec MP3, PCM, ADPCM
4. Audio Sampling & Bit Rate 8kHz~44.1kHz, 16bit, 8kbps~320kbps
5. Built-in Speaker 1.5W, 4 Ω
6. S/N >82dB
7. Frequency Response 40Hz-18KHz
8. Network I/F 10BASE-T/100BASE-TX RJ45
9. Network Protocol TCP/IP/ UDP/ ARP/ ICMP
10. Display Screen 7 inch (1280*800); capacitive touch screen
11. CPU 4-core ARM
12. RAM 1 GB
13. Memory 4 GB
14. Mounting Method Desktop
15. Installation Environment Dry Indoor Locations
16. Operating Temperature 0°C~45°C
17. Operating Humidity $\leq 90\%$ RH non-condensing

18. Front Panel Material Steel

19. Housing Material ABS

[10-C-B] TALKBACK UNIT

1. Drive Unit $\Phi 40\text{mm}$ full frequency drive unit

2. Sensitivity $96\pm 3\text{dB}/1\text{M}/1\text{W}$

3. Distortion $<1\%$

4. Amplifier 5W Single Channel D-class

5. Rated Power 8Ω 5W

6. Frequency Range $100\text{Hz}\sim 20\text{KHz}$

7. Acoustics Mono

8. Microphone $-36\pm 2\text{dB}$

9. Audio Codecs G.722, G.711 A-law, G.711 U-law, Opus

10. Music Streaming MP3 sampling rate 8-48KHz, bit rate 64-320kbps, mono or stereo

11. Network Interface 10/100Mbps, Support PoE IEEE 802.3af/at

12. Protocols SIP(RFC3261), HTTP, TCP/IP, SSL, DNS, SNTP, NTP, RTSP, RTP, RTCP, TCP, UDP, MQTT, ICMP, DHCP, ARP, SSH

13. Configuration Web interface or auto provisioning server

14. Provisioning method MQTT IoT Protocol

15. Memory 128MB RAM, 256MB Flash

16. Power Input PoE IEEE 802.3at/af or DC 12V-1A

17. Material Corrosion-resistant aluminum

18. Color Silver

19. Weight 500g

20. Dimension 162mm100mm44mm

21. Mounting Methods Surface or Flush mounted

22. Installation Indoor/Outdoor

23. Operating Temperature - $20^{\circ}\text{C}\sim 50^{\circ}\text{C}$ ($-4^{\circ}\text{F}\sim 122^{\circ}\text{F}$)

24. Storage Temperature $40^{\circ}\text{C}\sim 70^{\circ}\text{C}$ ($-40^{\circ}\text{F}\sim 158^{\circ}\text{F}$)

25. Humidity 10% - 95% RH Non-condensing

26. The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

S.No Description Specification

[10-C-C] SOFTWARE

1. PA Features PA Zone, Voicemail, Groups, Wakeup Call, Background Music, Do Not Disturb, Task, Time Conditions, Scheduling, Paging & Intercom, Call Transfer Caller ID , Call Waiting, Video Call, Speed Dial, Co

ference Call, IVR (Multi-layer

2. Protocols & Codecs SIP(RFC3261), IAX2 DTMF(RFC4733, SIPINFO,In-Band) Transport Protocols: UDP,TCP,TLS,SRTP Network Protocols: IPv4, IPv6, VLAN, DHCP, PPPoE, DDNS, NTP, SNTP, TFTP, SSH, HTTPS, LDAP Video Codecs: VP8,H.264,H.263+,H.263,H.261 Audio Codecs: Opus, G.722, G.711(a-law,u-law), G.729, G.726, GSM, SPEEX,AMR,AMR-WB

3. System Capacity 50 Users 50 Zone Announcement 400 hrs Recording (Internal Storage) Unlimited SIP/IMS Trunks (Max) 1TB USB Expansion Storage Maximum 30 Paging Groups

4. Multi-level User Administration Admin user: All Privileges Operator user: Extensions, , CDR, recordings, etc. Operator panel user

5. Network Features Network (WAN): Static IP, DHCP, VPN Static Routing DHCP Server VLAN WAN&LAN Interface

[10-C-D]. IP BASED PUBLIC ADDRESSING SPEAKERS FOR TOWERS AND BUILDINGS: 28 No's

The specifications mentioned herein are indicative and minimum in nature. Bidders are permitted to offer products with equal or superior specifications, subject to compliance with the overall functional requirements of the tender.

5.No Description Specification

1. Audio Format MP3

2. Speaker component 1.5" mid-frequency driver unit

3. Sensitivity 115 dB / 1 m / 1 W / 1 KHz

4. Max sound pressure level 129 dB

5. Frequency range 380 Hz – 10 KHz

6. Interface 1× RJ45 (PoE) 1× 3-pin 3.81 mm Phoenix terminal (Dry Contacts)

7. Power Supply 10/100 Mbps, support PoE IEEE 802.3af/at

8. Protocol SIP (RFC3261), HTTP, TCP/IP, SSL, DNS, SNTP, NTP, RTSP, RTP, RTCP, TCP, UDP, MQTT, ICMP, DHCP, ARP, SSH

9. IP Rating IP66

10. Mounting method Wall / Pole mounted

11. Installation environment Indoor / Outdoor

12. Operating temperature -30°C to 70°C (-22°F to 158°F)

13. Humidity 10% – 95% RH Non-condensing

11. PASSIVE N/W COMPONENTS, CABLE ETC.,

Cabling & Passive Infrastructure – CAT6, OFC, power cables, conduits, flexible GI pipes, patch cords, LIUs, cable accessories, etc. Complete physical communication and power-distribution infrastructure. Shall provide properly routed, protected, labelled, terminated and tested connectivity from cameras to switches and from field/network infrastructure to the central systems. The Quantities mentioned in this part are minimum, however The contractor is responsible for determining actual cable quantities based on site survey/design and supplying all necessary termination and ancillary accessories.

[11-A]. 3 CORE 2.5 SQMM COPPER ARMoured OUTDOOR POWER CABLE : 3000 Meters

Sl. No. Parameter Specification Details

1. Conductor Electrolytic Grade Annealed Copper, Class 2 stranded
2. Size 3 Core × 2.5 sq.mm
3. Insulation XLPE / PVC (FR / FRLS)
4. Inner Sheath PVC / PVC ST2
5. Armour Galvanised Steel Wire / Strip Armoured
6. Outer Sheath PVC (FR / FRLS, Black, UV Stabilised)
7. Voltage Grade 1.1 kV
8. Standards IS 7098 (Part-1), IS 1554, IEC 60502
9. Application Outdoor underground / aerial power supply to CCTV cameras / poles
10. Packing 500 / 1000 m drums (as required)
11. Marking Manufacturer name, size, voltage, year of manufacture

[11-B]. CAT-6 INDOOR CABLE: 3000 Meters

Sl. No. Parameter Specification Details

1. Type Cat-6 Unshielded Twisted Pair (UTP), 4 Pair
2. Conductor 23 AWG Solid Bare Copper
3. Insulation HDPE
4. Jacket FR-PVC (Flame Retardant)
5. Outer Diameter 6.1 mm ± 0.2 mm
6. Performance Supports 1000 Base-T (Gigabit Ethernet), Bandwidth up to 250 MHz
7. Standards TIA/EIA 568-C.2, ISO/IEC 11801 Class E, UL Listed, RoHS
8. Packing Easy-pull 305 m (1000 ft) Box
9. Application Indoor horizontal cabling for CCTV IP cameras & network

[11-C]. CAT-6 OUTDOOR ARMoured CABLE : 4500 Meters

Sl. No. Parameter Specification Details

1. Type Cat-6 Armoured UTP, 4 Pair, Outdoor Rated
2. Conductor 23 AWG Solid Bare Copper
3. Insulation HDPE / PE
4. Armour Corrugated Steel Tape / Steel Wire Armour + Gel-filled for water blocking
5. Outer Jacket UV Stabilised Black PE (Double Sheath)
6. Performance Gigabit Ethernet, 250 MHz, Direct Burial / Aerial capable
7. Standards TIA/EIA 568, ISO/IEC 11801, IEC 60794 (for armour), RoHS
8. Temperature Range -40°C to +70°C
9. Packing 305 m Easy-pull Box / Drum
10. Application Outdoor underground / exposed cabling for CCTV cameras

[11-D]. 12F CORE OFC ARMORED CABLE SINGLE MODE : 6000 Meters

Sl. No. Parameter Specification Details

1. Fiber Count 12 Fibers
2. Fiber Type Single Mode G.652D (OS2)
3. Construction Loose Tube, Gel-filled, Multi-tube / Uni-tube
4. Armour ECCS Steel Tape / Steel Wire Armoured
5. Strength Members FRP Rods + Glass Yarn
6. Outer Jacket UV Stabilised Black HDPE
7. Attenuation ≤ 0.35 dB/km @ 1310 nm, ≤ 0.22 dB/km @ 1550 nm
8. Standards ITU-T G.652D, IEC 60794, Telcordia GR-20, RoHS
9. Application Outdoor duct / direct burial backbone for CCTV fiber network
10. Packing Wooden drum (as per length required)

[11-E]. 6F CORE OFC ARMORED CABLE SINGLE MODE [3000 Meters]

Sl. No. Parameter Specification Details

1. Fiber Count 6 Fibers
2. Fiber Type Single Mode G.652D (OS2)
3. Construction Loose Tube, Gel-filled, Multi-tube / Uni-tube
4. Armour ECCS Steel Tape / Steel Wire Armoured
5. Strength Members FRP Rods + Glass Yarn
6. Outer Jacket UV Stabilised Black HDPE
7. Attenuation ≤ 0.35 dB/km @ 1310 nm, ≤ 0.22 dB/km @ 1550 nm

8. Standards ITU-T G.652D, IEC 60794, Telcordia GR-20, RoHS
9. Application Outdoor duct / direct burial backbone for CCTV fiber network
10. Packing Wooden drum (as per length required)

[11-F]. 40MM HDPE PLB DUCT FOR POWER & FO CABLE : [6000 Meters]

S.No Specification / Parameter Details

1. Dimensions 40/32 PLB Duct, Outer Diameter (OD): 40 + 0.5 mm
2. Wall Thickness 3.7 + 0.6 mm
3. Bonding Permanently Lubricated (PLB) layer is strongly locked into HDPE
4. Friction Properties Low Coefficient of Friction (CoF) < 0.06; same physical/mechanical properties as HDPE
5. Distribution Evenly distributed around the bore and along the length of the duct
6. Chemical Resistance Non-reactive with water; allows cleaning via water stream for obstructions
7. Durability Maintains same frictional properties throughout the life of the duct
8. Resistance (ESCR) Environment Stress Crack Resistance (ESCR) and Impact Resistance
9. Crush Resistance High resistance to external crushing forces
10. Friction Low Coefficient of Friction for easier cable pulling
11. Thermal Resistance High Temperature Resistance
12. UV Protection High Ultraviolet (UV) protection

[11-G]. 65 MM GI PIPE FOR CULVERT : 150 Meters

S.No. Parameter: Specifications

1. Material Galvanized Iron (GI)
2. Size (Nominal Bore) 65 mm
3. Outer Diameter (OD) 76.6 mm
4. Class Medium
5. Thickness 3.6 mm
6. Standards IS: 1239 / IS: 3589

[11-H]. ROUTE MARKER [200 Nos]

S.No. Parameter: Specifications

1. Material Mild Steel (MS)
2. Application Fiber Optic Cable (OFC) marking

3. Size 100 mm
4. Thickness 3 - 8 mm
5. Shape Round
6. Surface Finishing Embossed

[11-I]. CABLE CHAMBER [35 No's]

S.No. Parameter: Specifications

1. Chamber Size 600 x 600 x 900 mm (Length x Width x Depth)
2. Construction 9-inch Brick wall
3. Finishing 3/4-inch Plastering on all internal walls
4. Cover 3-inch R.C.C. Cover equipped with handle

[11-J]. DOUBLE COMPRESSION GLANDS (3/4") WITH ACCESSORIES [as per site requirement]

S.No. Parameter: Specifications

1. Material 13 mm Weatherproof Stainless Steel / Brass
2. Surface Finishing Nickel Plated
3. Durability Suitable for use in corrosive conditions
4. Sealing Material Neoprene Rubber Ring
5. Weight 80 - 100 grams
6. Ingress Protection IP 66 (Dust-tight and protected against powerful water jets)
7. Included Accessories Locknut, Washers, Armour Clamping Nut, Neoprene Inner Ring, Armour Clamping Ring, Gland Body, Neoprene Outer Ring, Skid Washer, and Outer Seal Nut
8. Standard Compliance IEC 60529: 1999

[11-K]. PVC PIPE (25 MM) [as per site design requirement]

S.No Description Specification

1. Size 25 mm
2. Load Capacity 3 kgs suspension capacity
3. Mechanical Strength Medium
4. Length 3 Meters per unit
5. Standards IS: 9537 Part 3, BS: EN 61386 - 21
6. Color Options Black, Grey, Ivory, Red, White

[11-L]. FLEXIBLE GI PIPE (25 MM): 500 Meters

S.No Description Specification

1. Size 25 mm
2. Type of Pipe GI (Galvanized Iron) Corrugated Flexible Conduit
3. Thickness 0.30 - 0.50 mm
4. Mechanical Strength High Mechanical Strength
5. Length 25 Meters (Coil/Bundle)
6. Color Black / Zinc / Silver
7. Temperature Resistance -100°C to +90°C

[11-M] OTHER TERMS AND CONDITIONS:

I. Cable quantities indicated in the BOQ, if any, shall be treated as minimum indicative unless specifically stated as fixed quantities. The Contractor shall determine the actual cable quantities based on the approved routing, site survey, equipment locations and installation methodology. All cables, including power, copper network, optical fibre, HDPE/conduit and associated termination accessories required for complete implementation shall be supplied and installed by the Contractor. Any additional cable quantity required due to the Contractor's approved routing/design shall be included in the Contract Price and shall not constitute a variation. It is scope of vendor to supply required number of Cable Tie, Tag Tie, PVC Gland, Cable Lugs, Grommet, Screw, Saddle, Nut, Bolt, Fasteners, PVC Bend, Tee, GI Pipe Coupler etc

II. Other Network components such as CAT6 Patch Cords, SC - LC Fiber Patch Cord, LC - LC Fiber Patch Cord, SC - SC Fiber Patch Cord, Fiber Joint boxes, SFP Modules etc shall be in the scope of bidder. Vendor has to submit the same quantity distribution as per Design of the CCTV project as designed by the Vendor after site survey.

12. Installation, Integration, Testing and Commissioning of CCTV Surveillance system along with Civil & Fabrication works:

INSTALLATION INTEGRATION TESTING AND COMMISSION OF CCTV SURVEILLANCE SYSTEM ALONG WITH CIVIL & FABRICATION WORKS: IITC & Civil Works / Complete Turnkey Implementation - Installation, Integration, Testing & Commissioning, civil/fabrication works, earthing, lightning protection, dismantling, training, documentation and acceptance Complete end-to-end delivery of a fully functional CCTV Surveillance System. The bidder shall be responsible for design, engineering, supply, installation, integration, testing, commissioning, training and documentation of the complete 200-camera AI-enabled IP CCTV system, including all necessary equipment, software, networking, electrical, civil, earthing and ancillary works. Server Room / Monitoring Room Infrastructure & Associated Facilities Dedicated, secure and environmentally suitable operational infrastructure for CCTV command, computing and storage. Shall provide suitable server/monitoring rooms, flooring, false ceiling, lighting, air-conditioning/environment monitoring, access control, fire protection and other required facilities for reliable 24x7 CCTV operation. The part also requires all required civil & f

abrication works pertains to state-of-the-art CCTV Server and Monitoring Rooms as part of the turnkey solution. The part shall broadly contain:

[12-A] TECHNICAL SCOPE OF SERVICES:

[i] The scope includes Design, Installation, Testing, Commissioning (DSITC) of IP-based AI-enabled CCTV Surveillance System (200 Cameras) on Turnkey Basis as per the technical specifications. The bidder shall be responsible for following broader scope: The bidder shall be solely responsible for the complete design, engineering, supply, installation, testing, commissioning, integration, training, and documentation of the Integrated IP-based CCTV Surveillance System with AI Analytics as per the tender specifications, and applicable national/international standards (STQC, BIS, IEC, TIA/EIA, ONVIF, ISO/IEC 27001 for information security, and relevant fire & electrical codes).

[ii] The Contractor shall provide a complete, fully functional and operational CCTV Surveillance System on a turnkey SITC basis. The scope shall include all equipment, materials, software, licences, accessories, consumables, interconnections, interfaces, mounting arrangements, civil works, electrical works, networking, power distribution, earthing, testing, commissioning and other requirements necessary for achieving the specified system functionality and performance, whether or not each individual item has been expressly listed in the BOQ. The BOQ shall not be construed as limiting the Contractor's responsibility to provide a complete and operational system. The scope is comprehensive and turnkey in nature. All works shall be executed under the supervision of the nominated Official of IGMH.

[ii-1]Design: The bidder shall carry out complete system design and submit detailed design documents for approval before procurement:

- o System Architecture Design: Detailed block diagram, network architecture (Layer-3 & Layer-2 switching with redundancy), IP addressing scheme, VLAN segmentation, bandwidth calculation, and failover mechanisms.

- o Camera Positioning & Layout: Site survey-based camera placement plan with coverage heat maps, field of view (FoV) calculations, minimum pixel density (PPM/PDF) as per application (minimum 250 PPM for general surveillance, 500 PPM for facial recognition zones), and compliance with EN 62676-4 requirements.

- o Network Topology: Redundant fiber-optic backbone (single-mode OS2, minimum 10Gbps) with CAT6 copper for edge devices; detailed network topology diagram including core, distribution, and access layers with QoS configuration for video traffic.

- o Storage Calculation: Detailed storage sizing based on Resolution: 2560 × 1440 pixels; Frame Rate: 15 FPS; Compression: H.265/H.265+; Bitrate: 4 Mbps CBR; GOP/I-frame interval: Maximum 2 seconds; Recording Mode: Continuous 24×7; Colour: Full colour during day and appropriate monochrome/night mode where applicable; Retention: Minimum 90 consecutive days; RAID configuration (minimum RAID-6), and redundancy storage for 30 days storage backup and also a dedicated analytics evidence storage server. NAS Storage Server Main Primary : for 90 Days (Video Data), NAS Storage Server Failover: for 30 Days (Video Data), Dedicated Analytics Evidence Storage Server for 90 Days.

- o AI Analytics Integration: Design of hybrid such that edge and server-based AI analytics modules for Aggressive Behaviour Detection, Camera Tampering Detection, Face Detection, Smoke and Fire Detection, Loitering Detection, People Gathering Monitoring, Missing Object Detection, Motion Detection, Intruder Detection, Line Crossing Detection, ANPR with driver face detection etc., and integration with VMS.

- o Submission of all design documents (GA drawings, schematic diagrams, cable schedules, Bill of Materials) for IGMH approval prior to execution.

- o The Contractor shall carry out a detailed electrical load assessment and shall design the power distribution on network such that all CCTV cameras, PoE switches, network equipment, servers, storage equipment and other CCTV-related loads receive a stable and adequate power supply under all normal operating conditions.

Mandatory Centralized Power Distribution Design

- o The Contractor shall prepare a Central CCTV Electrical Distribution Layout showing:

Incoming power source; Existing electrical source point; DG source; UPS source; ATS/AMF arrangement, where applicable; Main CCTV PDB; Intermediate PDBs; Local PDBs; Power Junction Boxes; PoE switches; Cameras; Server room; Storage room; Video wall; UPS; Cable routes; Earthing points; Surge protection; Circuit numbers; Cable sizes

Breaker ratings; Maximum calculated load; Voltage-drop calculation;

The layout shall be submitted for approval before execution.

The Contractor shall be responsible for the completeness and adequacy of the system design. Approval of drawings, calculations, BOMs, quantities or technical submissions by the India Government Mint Hyderabad shall not relieve the Contractor of responsibility for the proper functioning, capacity, reliability, safety and performance of the complete CCTV Surveillance System. Any omission, error, mismatch, under-sizing or inadequacy in the Contractor's design shall be rectified by the Contractor at its own cost where such rectification is necessary to achieve the contractual requirements.

[ii-2] Supply: The bidder shall supply all new, original, and latest-model equipment of reputed make with minimum 2 years comprehensive OEM warranty

[ii-3] Installation: All installation shall be carried out by certified technicians as per approved drawings and best engineering practices:

- o Camera mounting on wall/ceiling/pole with anti-vandal brackets and proper alignment.
- o Laying of fiber-optic (in HDPE ducts with warning tape) and CAT6 cables (in PVC conduits/cable trays) with proper labeling, bending radius, and testing.
- o Installation of poles with foundation, earthing, and anti-climb guards.
- o Earth excavation, backfilling, and cable route marking.
- o Rack mounting of servers, networking equipment, and video wall.
- o Complete setup of Monitoring Room and Server Room including:
 - o Brick wall partition works with plaster & painting.
 - o State-of-the-art false ceiling (mineral fiber/acoustic tiles with grid).
 - o Anti-static raised flooring or vitrified tile flooring.
 - o LED lighting with emergency backup.
 - o Air-conditioning with auto-timer and temperature/humidity monitoring.
 - o Biometric access control at all entry doors.
 - o Glass door with access control at server room.
- o Proper earthing (less than 1 ohm) and surge protection for all equipment.

[ii-4] Dismantling and Site Cleaning

- o The bidder shall carefully dismantle the existing CCTV system (cameras, switches, cabling, power supplies, etc.) without damaging the building structure.
- o All dismantled materials shall be shifted to the designated storage area identified by IGMH and handed over with proper inventory.
- o After completion of erection and commissioning, the bidder shall remove all waste, debris, packing materials, and restore the site to its original condition (including cleaning, painting touch-up, and restoration of civil surfaces).

[ii-5] Civil Construction Works: The bidder shall execute the following civil works as part of the turnkey scope:

- o Construction of weatherproof protective shed for DG Set (RCC/structural steel with GI sheet roofing, ventilation, and acoustic enclosure).
- o Brick partition walls in server and monitoring rooms (minimum 230mm thick with plaster and paint).
- o Installation of toughened glass door with biometric access control at server room.
- o Biometric access control system at monitoring room door.
- o State-of-the-art false ceiling, painting, and vitrified tile flooring in server and monitoring rooms.
- o Complete fire suppression system (clean agent) installation in server room including piping, nozzles, cylinders, detection, and control panel with integration to fire alarm system.
- o All associated electrical wiring, earthing, and power distribution works.

[ii-6] Testing & Commissioning:

- o The bidder shall perform comprehensive testing and commissioning in the presence of IGMH representatives:
- o Camera calibration, alignment, focuses adjustment, and verification of coverage with test footage.
- o UPS and DG Set load testing with AMF panel automatic changeover verification.
- o Video wall integration testing (seamless display, bezel compensation, multi-windowing).
- o End-to-end network testing (throughput, latency, packet loss, redundancy/failover).
- o AI analytics performance shall be demonstrated during Final Acceptance Test under mutually agreed test scenarios. Acceptance criteria shall be jointly recorded prior to testing.
- o System performance testing under full load (24/7 recording + live view + AI processing).
- o Issuance of Test Reports, As-Built drawings, and Commissioning Certificate.

[ii-7] Integration

- o Seamless integration of all cameras, VMS, AI analytics engine, video wall, access control, and fire suppression system.
- o Configuration of centralized dashboard with real-time alerts, event-based recording, etc.,
- o Redundant architecture with automatic failover and load balancing.

[ii-8] Training & Documentation

Training: Comprehensive hands-on training to nominate employees of IGMH and CISF as follows:

- a) Operator Training: 5 Working Days
- b) Administrator Training 3 Working Days
- c) Technical Maintenance 5 Working Days
- d) AI Analytics 2 Working Days
- e) Cybersecurity 1 Working Day
- f) Disaster Recovery 1 Working Day
- g) Refresher Training 2 Working Days (before warranty expiry)

During Training period, The Contractor shall provide 2 sets of:

- a) Printed User Manual
- b) Administrator Manual
- c) Maintenance Manual
- d) AI Analytics Manual
- e) Quick Reference Guide
- f) Standard Operating Procedures (SOPs)
- g) Preventive Maintenance Checklist
- h) Troubleshooting Guide
- i) Soft Copies (PDF and editable formats where applicable)

The bidder shall submit editable and PDF versions of:

- a) AutoCAD Drawings
- b) Network Diagrams
- c) IP Address Plan
- d) Configuration Backup
- e) Firmware Versions
- f) Password Register
- g) Test Reports
- h) OTDR Reports
- i) Fluke Reports
- j) Earth Test Reports

Documentation: (3 copies each)

- a) As-built drawings (AutoCAD + PDF).
- b) Operation & Maintenance manuals (hard + soft copy).
- c) System architecture diagrams, cable schedules, IP addressing plan, and test reports.
- d) OEM warranties, test certificates, and compliance documents.
- e) Training completion certificates and user manuals for all software modules.
- f) Original OEM media, license keys, activation certificates, and administrator passwords shall be handed over in sealed envelopes along with detailed documentation.
- g) Passwords and Login credentials of each and every component of CCTV surveillance system supplied including handing over of admin access of all equipment and systems.
- h) Detailed Fiber Optics cable Network Connectivity Route.
- i) Detailed Rack Wiring diagram.
- j) Detailed Power Distribution and electrical diagram.

- k) Layout Route of Fiber Optics cable chambers.
- l) Warranty Certificate.
- m) CoC/Test Reports from OEMs/Authorized Dealer.
- n) OTDR test reports for Optical fiber cable
- o) Earth Test Report for Earthing System.
- p) Maintenance Schedule, Operational and Trouble Shooting Manual.
- q) Training Document.
- r) All OEM manuals to be supplied with the equipment. User Manuals, Operation manuals to be tailor made as per the user requirement at site.

[iii] The bidder shall ensure care during migration from the existing system to the new system all disconnections can be made with due intimation to the HOD of CCTV department and shall provide 24x7 support during the warranty period of 24 months from the date of successful commissioning and handing over. All works shall be executed in a professional manner maintaining highest standards of safety, quality, and aesthetics. This will include fixing of camera using suitable camera mount (as per site requirement) complete with required civil and fabrication works, creating backbone for the system by laying the required data and power cables cable laying & termination/splicing of all cables, fixing of cable trays, conduits, installation and commissioning of all items supplied under CCTV system as required basis.

[iv] The proposed CCTV Surveillance System shall mandatorily comply with the latest Essential Requirements (ER) issued by Standardisation Testing and Quality Certification (STQC), Ministry of Electronics & Information Technology (MeitY), Government of India. and all offered components including IP Cameras (Bullet, Dome, PTZ, ANPR), Video Management Software (VMS), Recording Servers (NVR/Servers) and Storage Systems (SAN/NAS) shall be STQC certified and ER compliant, supported by valid certificates, test reports and compliance declarations at the time of bid submission, failing which the bid shall be rejected; the system shall ensure secure architecture with features such as secure boot, signed Successful Firmware, role-based access control, strong password policy, encryption using HTTPS/SSL/TLS, secure communication protocols (SFTP, SSH, SNMPv3), protection against unauthorized access and cyber threats, audit logs with time synchronization, tamper-proof recording, and secure data storage, while the VMS and servers shall operate on hardened platforms with controlled access, logging of all administrative and user activities, and protection against common vulnerabilities, and the storage system shall provide secure, redundant and fault-tolerant architecture with RAID support and access control; further, all APIs and integrations shall be secured, no backdoor access shall be permitted, and the OEM/bidder shall ensure regular security updates, patch management and continued compliance with STQC ER throughout the warranty period, along with submission of necessary undertakings conforming adherence to these requirements.

[v] All works shall be executed in strict compliance with latest editions of relevant BIS / IS standards (IS 3043 for earthing, IS 7098 for cables, IEC 60364 for electrical installations, TIA/EIA-568 for structured cabling, IEEE 802.3 for Ethernet), CPWD specifications, and best industry practices for industrial-grade IP-based CCTV systems. The entire system shall be designed for 24x7 fail-safe operation with N+1 redundancy wherever applicable.

[vi] Supply, mounting, installation, testing and commissioning of Servers, Rack-mounted equipment, Storage Arrays, Operator Viewing Workstations, and their complete integration. All equipment shall be installed in lockable, dust-proof, IP54-rated racks with proper cable management, PDUs, and environmental monitoring sensors.

[vii] Supply, mounting, installation, testing and commissioning of Video Wall as per specification along with integration of all operator workstations. The video wall controller shall support seamless scaling, matrix switching, and failover to standby workstation without single point of failure.

[viii] Supply, installation, testing and commissioning of Core Switch, Access Switches and all associated active & passive network components (including SFP modules, media converters, LIU, patch panels, etc.) as per approved network architecture. All switches shall be configured with VLANs, QoS, IGMP snooping, and cybersecurity features (802.1X, port security, ACLs).

[ix] Supply, installation, testing, and commissioning of 60 kVA Prime Rated Silent Diesel Generator Set (DG Set) complete with Automatic Mains Failure (AMF) Panel.

- The DG Set, including its associated electrical, mechanical, civil, fuel, exhaust, acoustic, control, protection, earthing, cabling, changeover and monitoring systems, shall be supplied, installed, tested and commissioned by the Contractor on a complete turnkey basis. The Contractor shall be responsible for all engineering, statutory permissions/approvals, drawings, calculations, inspections, testing, commissioning, documentation and compliance required for lawful and safe installation and operation of the DG Set. No additional payment shall be admissible for any component, accessory, approval, test, modification or ancillary work that is reasonably required for successful and compliant operation of the DG Set.

- The Contractor shall identify, obtain, coordinate and close all statutory permissions, NOCs, certificates, inspections and approvals applicable to the DG installation from the competent authorities, at no additional cost to the India Government Mint Hyderabad, wherever such responsibility legally rests with the installer/contractor. These may include, Pollution Control / Environmental : Applicable consent/authorization from the competent State Pollution Control authority.; Compliance with applicable CPCB emission requirements.; Compliance with applicable DG noise standards.; Applicable stack/exhaust requirements.; Applicable environmental conditions for installation and operation.

- The Contractor shall be responsible for preparation of all drawings, technical documents, applications, calculations, certificates, test reports and supporting documents required for statutory approvals and shall coordinate with the concerned authorities. Where an application, NOC, consent or approval is legally required to be obtained in the name of IGM Hyderabad/SPMCIL as owner/occupier, the Contractor shall prepare the complete application and supporting technical documentation and shall provide all assistance required to the India Government Mint Hyderabad for obtaining such approval.

The Contractor shall bear all applicable professional, testing, inspection, documentation and statutory charges attributable to the Contractor's scope, unless specifically stated otherwise in the Contract.

[x] The scope is on complete Turnkey basis and includes SITC of all accessories required for satisfactory operation and fail-safe performance of the IP-based CCTV system. This explicitly covers (but is not limited to): hardware, perpetual-licensed software, structured cabling (CAT-6 / OFC), secondary power supplies (UPS with minimum 60 minutes backup + DG Set with AMF panel), storage & retrieval media, viewing stations, servers, CAT-6 cables, armoured OFC, cable markers, power cables & conduits, earthing, mounts, structures, civil works, and any software integration. All items shall be industrial-grade and suitable for harsh industrial environment.

[xi] Complete system integration and optimization for highest video quality, lowest latency, redundant failover paths, and centralized management through the Video Management System (VMS).

[xii] Camera mounting: Cameras shall be installed on dedicated GI poles (as per site requirement and wind-load calculation as per IS 875) wherever required, even if not explicitly mentioned. Where poles are not feasible, cameras shall be mounted on walls or roof trusses using heavy-duty powder-coated MS brackets, GI pipes, and vibration-dampening clamps. All mounting hardware shall be SS 304 fasteners. Supply & erection of poles (including foundation, painting, and earthing) is entirely under the bidder's scope.

[xiii] Erection and commissioning of complete networking infrastructure comprising UTP CAT-6/ OFC through GI/PVC conduits or cable trays. All cables shall be concealed; no cable shall remain exposed or accessible to personnel or rodents. Scope includes network panels, switches, enclosures, media converters, LIUs, factory-pre-terminated patch cords, and all accessories. Cable routes shall be approved by HoD of CCTV dep

artment, IGMH before execution.

[xiv] All software supplied (VMS, Video Analytics, Video Wall controller, client software, etc.) shall be perpetual enterprise licenses issued in the name of "India Government Mint, Hyderabad". Licenses shall be non-expiring and transferable only to IGMH.

[xv] All AI licenses shall be perpetual, transferable to IGM Hyderabad, and remain valid throughout the system lifecycle without recurring subscription.

[xvi] Original OEM media, license keys, activation certificates, and administrator passwords shall be handed over in sealed envelopes along with detailed documentation.

[xvii] All flexible cables shall be laid inside industrial-grade GI/PVC casing-capping or flexible corrugated PVC conduits with proper identification markings at every 3 meters and at terminations.

[xvii] Scope includes complete erection, testing, and commissioning of all system interfaces (VMS with existing IT systems, access control, fire alarm, PA system, etc., wherever required).

[xviii] Installation, configuration, and customization of all application software (VMS, Video Analytics modules – intrusion, loitering, ANPR, face detection, etc., Video Wall software, Active Directory integration, etc.). The bidder shall demonstrate all functionalities, provide detailed operation & maintenance training, and hand over the system to IGMH with as-built drawings, O&M manuals, and soft copies.

[xix] Supply and installation of all required CAT-6 interconnecting cables, patch cords, RJ-45 jacks, jack panels, cable trays, conduits, and accessories for complete end-to-end connectivity and satisfactory system operation.

[xx] The bidder shall design, supply, install, test, and commission a dedicated earthing system for the entire IP-based CCTV system as per IS 3043. Earthing pits (minimum 2 nos. copper-plate earthing with CI cover and water chamber) shall be provided. Since the power system is centralized, earthing shall also be centralized and common for all electronic and power equipment in the control room/server room.

[xxi] All cabling shall have permanent, UV-resistant, machine-printed identification markers / cable tags at both ends and every 5 meters. Tags shall clearly indicate camera ID / zone / function for easy identification and maintenance.

[xxii] All cabling, conduit, and installation works shall be executed as per latest relevant Indian Standards / CPWD practices and shall present a neat, aesthetic, and professional appearance acceptable to the HoD of CCTV department, IGMH.

[xxiii] Individual identification tags shall be installed on every cable run, switch port, and equipment.

[xxiv] Electrical Works (complete responsibility of bidder):

a) The Contractor shall be completely responsible for the design, engineering, supply, installation, tes

ting, commissioning, labelling, documentation and maintenance of the complete electrical power distribution system required for the CCTV Surveillance System, including Main/Intermediate PDBs, local Power Distribution Boards, Power Junction Boxes, protective devices, cables, conduits, glands, lugs, termination accessories, isolators, SPDs, earthing connections and all associated accessories.

b) • For all critical CCTV loads, the power architecture should be: Normal Utility Supply + DG Backup - ATS/AMF - Online UPS - CCTV PDB - Local PDB/PJB - CCTV Equipment.

c) All critical CCTV equipment shall be supplied through the designated online UPS-backed CCTV power distribution system. The UPS input shall be connected to the normal/DG-backed electrical source through the approved changeover/ATS arrangement, so that failure of normal utility supply shall not interrupt the UPS-backed CCTV load during DG changeover.

d) The Contractor shall carry out a detailed electrical load assessment and shall design the power distribution network such that all CCTV cameras, PoE switches, network equipment, servers, storage equipment and other CCTV-related loads receive a stable and adequate power supply under all normal operating conditions.

e) Electrical cabling, power distribution, UPS DB (loaded with suitable MCBs / MCCBs), DG AMF panel with Power Distribution Board (PDB), and all associated works for Servers, NVRs, switches, cameras, video wall, and control room equipment.

f) Power tapping shall be done only from the source indicated by HoD (Electrical), IGM Hyderabad.

g) All electrical components shall carry ISI mark and shall be heavy-duty industrial grade suitable for continuous operation in dusty, humid industrial environment.

h) Minimum two independent copper-plate earthing stations shall be provided exclusively for the entire CCTV installation including all electronic and power gadgets in the control room / server room.

i) The CCTV electrical distribution system shall be suitably segregated from non-critical/general-purpose electrical loads. CCTV PDBs shall not be used for connecting unrelated loads such as lighting, air-conditioners, heaters, welding equipment, general-purpose sockets or other high-inrush/high-disturbance loads.

j) The number and locations of PDBs, PJBs, isolators, protective devices and associated electrical distribution components shall be determined by the Contractor based on the approved electrical load schedule, cable-route survey, voltage-drop calculations, protection coordination and final CCTV network architecture. The quantities shown in the BOQ, where any, shall be considered minimum requirements and shall not limit the Contractor from providing additional PDBs/PJBs or other electrical infrastructure necessary to ensure safe and reliable operation.

k) The Contractor shall design and size all power cables and distribution circuits such that the voltage at the terminals of every connected CCTV equipment/switch remains within the operating voltage range specified by the respective OEM under maximum design load conditions.

l) For design purposes, voltage drop shall preferably be limited to a maximum of 3% from the source PDB to the final CCTV equipment/node and shall not exceed the permissible voltage drop prescribed by applicable electrical standards or the equipment manufacturer, whichever is more stringent. The Contractor shall submit voltage-drop calculations for every major feeder and representative longest-distance final circuit.

[xxiv] Civil Works: All civil works required for successful implementation (including but not limited to underground cable trenches, foundations for camera poles, fabrication and fixing of camera mounting structures, support brackets, etc.) shall be executed by the bidder. Any damage to false ceiling, flooring, walls, or civil structures during execution shall be repaired / restored to original condition by the bidder at no extra cost.

a) All civil works shall be executed as per approved drawings. Quantities if shown in tender specifications are indicative. Any additional work essential for successful completion of the project shall be deemed included in the turnkey scope.

b) Supply and erection of camera poles as per actual site requirement, wind-load calculation, and approval of HoD (CCTV), IGM Hyderabad.

c) • Cable laying methodology: Cables shall be laid in underground trenches, HDPE PLB pipes, GI pipe

pes (mandatory for road crossings and hard standing areas), cable trays, or along structures as per site conditions and approved route. All underground cables shall be protected with RCC hume pipes / GI pipes at crossings.

d) The bidder shall carry out all necessary fabrication, modification, welding, gas cutting, and erection of cable supporting structures at site as per actual requirements at no extra cost.

[xxv] All cables shall be tested for continuity, insulation resistance, and loop resistance using calibrated instruments as per statutory standards before laying. Test reports shall be submitted to HoD (CCTV), IGM Hyderabad.

[xxvi] All interconnecting cables inside equipment racks / panels shall be factory pre-terminated, factory-tested, and supplied with proper labeling.

[xxvii] All active and passive network elements shall be connected through TCP/IP network with proper I/O boxes, patch panels, and redundant paths wherever feasible.

[xxviii] LAN management activities (Core & Access switch configuration, VLAN assignment, routing, SNMP monitoring, router configuration if required) shall be carried out by the bidder and handed over with complete configuration backup and documentation.

[xxix] All power wiring from the centralized UPS room and centralized DG Set to the CCTV system components is under the bidder's scope.

[xxx] UPS shall support the entire CCTV system load with minimum 60 minutes backup at full load considering 20% future expansion.

[xxxi] All interconnecting cables and ports shall be appropriately and permanently labelled to prevent incorrect connections.

[xxxii] Any replacement or upgradation activity during warranty period shall be carried out by the bidder without any loss of existing archival CCTV footage. Hot-swap / parallel migration methodology shall be used.

[xxxiii] The bidder shall tap both network and power supply from the nearest approved point and connect exclusively to the centralized CCTV power distribution (not to any raw power source). All tapping accessories (OFC media converter, MCBs, power cables, LAN cables, armoured OFC, junction boxes, etc.) are included in the bidder's scope.

[xxxiv] System Design Requirements:

a) The IP-based CCTV system shall ingest uncompressed or lightly compressed video streams from various types of IP cameras equipped with high-sensitivity CMOS image sensors installed at multiple locations. The system shall process, encode (using H.265 or superior standard with adaptive bitrate), and enable simultaneous live viewing, recording, playback, archiving, and remote access of all camera feeds on any authorized Video wall/workstation/monitor in the Control Room and all Local workstations without performance degradation.

b) All cameras shall be true IP-based (ONVIF Profile S, G, T and M compliant. Compliance certificate or declaration shall be submitted.), equipped with infrared (IR) night vision as per detailed technical specifications.

tions.

c) The system shall feature a distributed architecture with dedicated user viewing workstations supplied at the Server Room, CGM Office, AGM Office, and Commandant Office. The bidder shall supply LED TV, keyboard, mouse, and fully configured workstations with softwares and antivirus meeting the minimum specifications. All associated structured cabling (CAT6/STP), HDMI Cable, power cabling, termination, and earthing for these workstations shall be in the bidder's scope.

d) The offered system shall be fully scalable and expandable using commercially available, off-the-shelf hardware and open-standard protocols (ONVIF, RTSP, RTP, NTP). Proprietary or closed hardware/software that restricts future expansion is not acceptable.

e) The system shall implement tamper-proof recording using hardware-level Write-Once-Read-Many (WORM) storage or equivalent digital signing/watermarking technology. Once recorded, video footage and metadata shall not be alterable or deletable by any user or administrator. A complete, immutable audit trail (including user access logs, export logs, and timestamped events) must be maintained for evidentiary and forensic purposes.

f) The Video Management System (VMS) shall include a comprehensive health diagnostic module with real-time monitoring of network link status, device online/offline status, camera failure, storage connectivity, bandwidth utilization, CPU/memory usage, and service health. The system shall support automatic service restart on malfunction, SNMPv3 traps, email/SMS alerts, and dashboard-based visualization. All alarms shall be logged with timestamp and severity.

g) The system shall be fully pentaplex (simultaneous live viewing, recording, playback, backup/archiving, and remote access) without any performance compromise. The VMS shall allow authorized users to export any selected clip (from specific start date/time to end date/time) in native or standard MP4 format to CD/DVD, USB drive, or external HDD. Exported files shall be playable on any standard PC using Windows Media Player, VLC, or equivalent without requiring proprietary software.

h) Design, supply, installation, testing, integration, and commissioning of the Video Management Server (VMS), VAS, SAN/NAS storage system, video analytics software, and all associated hardware as applicable (including licenses, switches, firewalls, and accessories) shall be entirely in the bidder's scope.

i) o Power Cable Specifications: 3 Core 2.5 Sq.mm Armored cable; Conductor: Multi-strand Copper. Makes: Polycab / Anchor / RR Kabel / Finolex or equivalent.

j) o CAT6 Cable Specifications: Shielded CAT6 Cable (STP Cat 6), 4 Pair, 23 AWG Copper. Makes: D-Link / Polycab / Molex / Finolex / Digisol or equivalent.

k) o OFC Cable Specifications: 12/6-core armored outdoor single-mode optical fiber cable, OS-2 compliant. Makes: Molex / D-Link / Sysmax / Panduit / Siemens or equivalent.

l) The proposed solution shall enable IGM Hyderabad officials to monitor live and recorded video locally and centrally from any authorized portable or fixed PC over the existing LAN/WAN using secure client software or web browser (HTTPS, role-based access control).

m) The system shall be designed with at least 20% additional capacity (camera ports, storage, bandwidth, and VMS licenses) beyond the current requirement to allow seamless addition of cameras without major hardware replacement.

n) The bidder shall design and implement a fully redundant, fault-tolerant IP network (redundant fiber paths, LACP link aggregation, STP/RSTP, multi-core switches) to ensure 100% uptime for all camera-to-VMS and workstation links. Single point of failure is not acceptable.

o) The entire system (cameras, servers, switches, and accessories) shall be designed for continuous 24x7x365 operation under South Indian climatic conditions (temperature 0°C to +55°C, humidity up to 95% non-condensing).

p) Centralized DG-set connectivity and minimum 1-hour UPS backup for the complete CCTV system (including cameras, servers, switches, and workstations) shall be maintained by the bidder during the entire Warranty period.

q) The bidder shall supply and install all mounting brackets, weatherproof junction boxes (IP66/IP67), camera housings, poles, cabinets, and workstation accessories as per site design requirements.

r) Only industrial-grade, high-endurance microSDXC cards specifically designed for surveillance applic

ations shall be accepted. Consumer-grade memory cards shall not be permitted. The offered memory card shall be tested and certified for compatibility with the proposed camera system and shall support continuous 24x7 recording without performance degradation

- s) All system components (cameras, servers, workstations, switches) shall automatically synchronize time with a central NTP server. The VMS server shall act as the primary NTP server. No manual time setting shall be required.
- t) The proposed solution shall support future expansion through scalable hardware and software architecture without replacement of existing core components.
- u) All PCs, workstations, and servers shall be protected by enterprise-grade, centrally managed server-client antivirus/EDR solution with valid licenses for the entire warranty period. Regular signature updates and centralized reporting shall be provided.
- v) The VMS server shall be provided in active-hot-standby configuration. In case of primary failure, the secondary server shall assume control automatically. Upon recovery, automatic bidirectional data synchronization shall take place.
- w) All storage redundancy, mirroring, and RAID operations shall be implemented at the hardware controller level (RAID-6 or better) and shall not depend on the operating system or server CPU resources.
- x) All storage redundancy and mirroring capabilities shall be done using hardware solution and shall not rely on the Operating System and Server CPU to perform these functions.

[12-B]. SYSTEM DESIGN & ARCHITECTURE

- Network Topology: A Ring and star topology shall be proposed keeping in view of the site requirements with the design of Fiber Optic LAN is based on Gigabit Ethernet Technologies.

[12-C] SERVER ROOM & MONITORING ROOM - INTERIOR AND CIVIL WORKS:

[12-C-1] SERVER ROOM - INTERIOR AND CIVIL WORKS:

- a) It is the responsibility of Vendor for the development of a separate, state-of-the-art CCTV Server Room with Gypsum False ceiling (20x20)=400sq.ft & [approx.] along with Painting 3000sft [Approx] & Laying of Tiles suitable for aesthetic server room environment. Installation and Civil works shall be completed as part of the complete turnkey solution for the new AI-enabled IP CCTV Surveillance System at India Government Mint, Hyderabad.
- b) Supply and Install Lighting such that Minimum 300 lux at working plane with 500 lux preferred at equipment /rack working area.
- c) Glass door of size 6.6 x 4 [approx] for CCTV Server room shall be supplied and installed along with all required Civil works.
- d) Entrance door shall be installed with Biometric EM based door lock Access control devices. Secure biometric-based access control (fingerprint + facial) at the server room entrance with electromagnetic locks, readers, controllers, and integration with VMS for audit logs.
- e) 2-zone conventional fire alarm system with auxiliary equipment shall be installed at the CCTV server room and Alarm system for the same shall be installed in Monitoring room.
- f) LED luminaires shall be positioned so that they do not obstruct the view of rack-mounted equipment, CCTV displays, status indicators or maintenance areas. The lighting system shall not cause objectionable reflections on monitor/video-wall displays.
- g) Lighting circuits shall be suitably segregated from critical CCTV/server power circuits and shall not be connected to the UPS-backed supply unless specifically required by the approved electrical design.
- h) The Contractor shall design the server/CCTV equipment room lighting system based on actual room

dimensions, rack arrangement, equipment locations and working-plane requirements. The Contractor shall submit a lighting layout and illumination calculation using the proposed luminaire photometric data for approval. The number and wattage of luminaires shall be determined by the Contractor to achieve the specified maintained illumination level without excessive glare, heat generation or obstruction to equipment maintenance.

[12-C-2] MONITORING ROOM - Interiors and Civil Works (Approximately 250 Sqft)

- a) It is the responsibility of Vendor for the development of a separate, state-of-the-art CCTV Monitoring Room with Gypsum False ceiling (19x12)=228 sq.ft [approx.] & Painting 3000sft approximately as part of the complete turnkey solution for the new AI-enabled IP CCTV Surveillance System at India Government Mint, Hyderabad.
- b) Supply and Install Lighting such that Minimum 300 lux at working plane with 500 lux preferred at equipment /rack working area.
- c) LED luminaires shall be positioned so that they do not obstruct the view of rack-mounted equipment, CCTV displays, status indicators or maintenance areas. The lighting system shall not cause objectionable reflections on monitor/video-wall displays.
- d) Lighting circuits shall be suitably segregated from critical CCTV/server power circuits and shall not be connected to the UPS-backed supply unless specifically required by the approved electrical design.
- e) Entrance door shall be installed with Biometric EM based door lock Access control devices. Secure biometric-based access control (fingerprint + facial) at the server room entrance with electromagnetic locks, readers, controllers, and integration with VMS for audit logs.

[12-D]. PROTECTIVE SHED / WEATHERPROOF ENCLOSURE FOR DG SET :

Supply, fabrication, erection, installation, testing and commissioning of one (1) no. Protective Shed / Weatherproof Enclosure to house the 60 kVA DG Set (with its acoustic canopy), batteries, and associated accessories. The shed shall provide complete protection against rain, direct sunlight, dust, wind, birds/animals, and vandalism while ensuring adequate ventilation, easy access for operation & maintenance, and safe routing of exhaust. The protective shed shall be installed on a suitable RCC foundation. It shall be independent of the DG acoustic canopy but shall fully enclose the DG set package.

1. Type of Shed : Prefabricated / Site-fabricated weatherproof protective shed (modular bolted construction for easy assembly & future relocation)
2. Structural Frame MS ISMC / ISA sections (minimum 75 × 75 × 6 mm or equivalent) with anti-corrosion treatment
3. Wall & Roof Material 0.50 mm thick pre-painted GI color-coated sheets (IS 14246) or 1.6 mm thick CRCA sheet with 7-tank pretreatment + powder coating (80-100 micron) both sides
4. Roof Type Sloping / Double-sloped roof (minimum 10° slope) with ridge ventilator for natural exhaust
5. Internal Dimensions & External Dimensions: As per the dimension of DG Set
6. Floor Raised RCC platform / plinth (by civil contractor) with anti-skid chequered plate or concrete flooring inside shed; 150 mm high kerb wall all around
7. Access Doors Two nos. double-leaf doors (1200 mm wide × 2100 mm high) with 3-point locking, stainless steel hinges, and weatherproof gaskets. One emergency exit door
8. Ventilation Adequate fixed / adjustable louvers on opposite walls for fresh air intake + hot air exhaust. Provision for optional exhaust fan (if required for temperature control inside shed ≤50°C)
9. Exhaust System Provision Suitable opening / sleeve with rain cap for DG residential silencer exhaust pipe (up to 3 m extension) routed through roof / side wall with flexible bellows and thermal insulation
10. Cable Entry Removable gland plates / PVC sleeves at bottom for power cables, control cables, and earthing
11. Lightning & Earthing Provision for lightning conductor and earthing terminals (2 nos.) connected to main earth grid

12. Painting / Corrosion Protection 7-tank phosphating + epoxy primer + polyurethane paint (minimum 120 micron DFT total). Colour: Siemens Grey or approved shade
13. Foundation DG set to be mounted on existing / proposed RCC foundation with vibration isolators. Shed base frame anchored with chemical fasteners / foundation bolts
14. Load Consideration Designed for wind load, dead load of DG set (≈ 1470 kg wet), and roof live load 75 kg/m^2
15. Comprehensive warranty 3 years from date of handing over against manufacturing defects, paint failure, and structural integrity.

[12-E]. AC RACK FOUNDATION WITH ACCESSORIES

1. Size: $800 \times 700 \times 500$ (mm)
2. Concrete Mixture: M15
3. Provision for both side cable entry & exit, 100 mm – 2 Nos.
4. Digging of soil, leveling and surfacing, extra material removal from site & disposal as instructed by site in-charge

[12-F]. EARTHING FOR CONTROL ROOM WITH 2 METERS LIGHTNING ARRESTOR FOR CONTROL ROOM AND SERVER ROOM

S.No. Specification

1. Material: Pure Solid Copper, Single Rod, Air Rod Saddle, Non-Radio Active
2. Rod Size: 2000 mm
3. Rod Diameter: 16 mm
4. Accessories: Base Plate for Mounting Lightning Arrester
5. 2 Nos of Lightning Arrestor installed at the top Buildings
6. Each Lightning Arrestor must cover 10 meters area
7. Total 3 Nos of Chemical Earthing should be done per Lightning Arrester
8. Chemical Earthing to be done in Grid manner
9. Solid Copper wire or Copper strip must be used to connect Lightning Arrester to Chemical Earthing Rod
10. Earthing Compound as per IEC 62561-7
11. Earth pit to be covered with heavy duty RCC cover
12. Voltage between Neutral & Earth: 0 Volt and Earthing Resistance (IR value) below 1 Ohm

[12-G]. INSTRUMENTATION / GRID EARTHING FOR SERVER ROOM : 01 No's

S.No. Description

1. Grid earthing to be implemented at Central server Room to protect instruments installed in racks from lightning

2. Galvanized Iron (GI) electrode of 3 meters length and 50 mm diameter to be grouted into soil in grid manner
3. 2 sets of grid earthing; each set consisting of 3 Nos. of 3-meter long, 50 mm diameter GI rods
4. All instrumentation racks to be connected to grid earthing using solid copper wire or copper strip

[12-H]. Chemical / Plate Earthing with Lightning Arrestor for Camera Pole & AC Rack : 30 Nos

S.No. Specification

1. Chemical GI earthing using Dual Pipe Technology with GI electrode (2 m length, 50 mm dia)
2. Internal strip size: 32 × 4 mm, filled with highly conductive metallic compounds
3. Connection terminal hole diameter: 12 mm
4. 2 Nos. of holes provided on rod
5. Includes 50 kg backfill compound (highly conductive, non-corrosive, moisture-retaining chemical mixture of sulphate, silica, alumina, iron oxide, titanium oxide, calcium oxide, magnesium oxide, sodium oxide, zinc oxide, etc.)
6. Earthing compound shall comply with IEC 62561-7
7. Permanent sealing at both ends with lead terminal on top
8. Earth pit to be covered with heavy-duty RCC cover
9. Voltage between Neutral & Earth: 0 Volt; Earthing resistance (IR value) below 1 Ohm

Lightning Arrestor

10. Material: Pure Copper, Single Rod, Air Rod Saddle, Non-Radio Active
11. Rod Size: 2000 mm
12. Rod Diameter: 12 mm
13. Accessories: Base plate for mounting lightning arrester
14. Lightning arrester to be installed at the top of camera pole with proper coupling
15. Lightning arrester to be installed at the top of watch tower/post for rack earthing

[12-I]. SUPPLY & ERECTION OF 6 METERS GALVANIZED IRON CAMERA POLE: 15 No's

[12-I-1]. Supply: Tentative no. of Poles will be 15 but it can vary during execution as per site requirement.

Specifications:

1. Octagonal shape pole Height -6 meter or more
2. Hot dip galvanized , Non-abrasive and anti-corrosive in nature
3. Minimum Top Diameter 70 mm & Bottom Diameter 155 mm

4. minimum Sheet Thickness 3.5 mm
5. Withstand harsh Environmental conditions
6. Secured door for cable entry and exit along with requisite accessories
7. Having Suitable Casted Canopy at TOP
8. Primer coated and painted with Polyurethane based Mass Grey (RAL 7003) with Semi Glossy finish as per standard
9. All Poles including old should be numbered with unique sequential identification with water resistant paint.

[12-I-2]. Installation:

- o Erection of 6 Meter Pole
- o The foundation for Poles would be made as per standards.
- o The foundation works consists of the following activities
 - a. Excavation of required dimension, depending on the soil condition
 - b. Leveling & cleaning of pit in all sides
 - c. Rafting with PCC (1: 4: 8)
 - d. Preparation of centering & shuttering on PCC bed including foundation Bolts.
 - e. Preparation of RCC (1: 2: 4) pedestal
 - f. Curing of concrete with pneumatic vibrator.
 - g. Regular watering on RCC for reinforcement for about 6 days
 - h. Backfilling with excavated soil i. Removal of excess soil
- J. Finishing of elevated portion of foundation with cement & soil.
- o Install pole on the foundation by matching base plate holes with foundation bolts. fix washers and nuts on foundation bolts tightly.
- o Touchup with paint would be done on the scratches after erection and if any damage in transportation, those should be rectified by contractor only.
- o Close the opening other than cable entry exit holes with proper plates/covers by welding.
- o Provide suitable rubber grommets for cable entry/exit holes

[12-J]. INSTALLATION OF THE SYSTEM:

GI Saddling of PVC Pipe on wall and Laying of CAT6, Fiber Optics and Power cable on PVC Pipe:

[12-J-1]. TRENCH DIGGING

- o Soft soil trench: Digging of trench of 900mm depth and 500 mm width and then lay the 2" dia HDPE pipes. After laying conduits and cables, trench would be re-filled and resurfacing and level the ground with the dug soil. While laying the HDPE conduit required coupler would be used to join the conduit.
- o Hard soil/ rock trench: Digging of trench of 300mm depth and 300mm width and then lay 40 mm HDP

E pipes through 65mm GI Pipe. While laying GI conduits, suitable bends and couplers would be used for proper routing. After laying conduits and cables, re-fill the trench and level the ground. Where ever required Hume pipes would be used at the slopes and valleys. Hume's pipe if any required in the scope of Bidder.

- o Road cutting: The same procedure for hard soil trenching but with GI pipes of required diameter, in addition, the resurfacing should be done such that road will be as per the original condition.

- o Alternate Option Where Digging & Trenching is not possible i.e. Hard rock then 300 mm X 300 mm stone would be cut, then lay the cable in 40 mm HDPE pipes through 65mm GI Pipe and fill concrete in the excavated rock. Care would be taken such that cable would not be exposed inside the trench. Route markers would be provided for every 40 meters and at each turn along the route of the trench.

- o Cabling inside the Buildings : PVC conduits would be laid in the cable trays/ via GI saddle along with wall at height of approx. 6 meter, as direction provided by India Govt Mint, Hyderabad for running the OFC and power Cables.

- o Culverts crossing: 300 X 300 mm (W X D) trench of Soft/Hard soil is done manually/JCB, 40 mm HDPE laid through 65 mm GI Pipe, then cable is crossed via HDPE Pipe. Back fill the trench with concrete.

[12-J-2]. CABLE LAYING:

- o When the cables are laid in GI/HDPE conduits, it would be followed that Fiber Optic cable and power cable together or fiber optic cable and CAT6 cable together can be laid in one conduit.

- o For CAT6 cable, proper length would be buffered in the rack and junction Box to do proper termination. If CAT6 length from switch to device (Camera) is less than 70 meters, 5 meters of buffering should be provided in cable chamber. Wherever the length exceeds 70 meters, 1 meter of buffering would be provided, in cable chamber.

- o CAT6 cable and power cable would not be laid in the same conduit.

- o CAT6 Cable not to be laid where camera and switch distance exceed from 80 meters.

- o The CAT6 cable laid would be terminated in the junction box or rack (as per routing) using info outlets. After termination of CAT-6 Cable in junction Boxes, the Info-Outlet would be fixed in the slot of the adapter plate given in the junction Box. In the racks, jack panel will be provided for fixing the Info Outlets.

- o After termination, proper labeling would be provided.

- o Proper care would be taken not to expose the cable while progressing from the chamber to the pole, from the pole to the camera. Flexible PVC conduit for running all cables wherever cables are exposed outside would be provided.

- o All the cables to be laid in the trench and in cable chambers would be tagged with the labels and the detailed list of the labels will be given at site. Labeling would be made on cable stickers.

- o After termination of the cables at the jack panel, LIU and IO box would be properly labeled with cable sticker on front face plates, and with ferrule for the cable rear side.

- o At Watch Tower/Post and Entrance Gate all cables are laid through 40 mm GI conduit.

[12-J-3]. INSTALLATION OF CABLE CHAMBERS

- o Pre-fabricated Cable chambers of 2' depth, 2' square/ round with cement cover should be provided in the ground near poles, field racks and near LCS for extra cable buffering. The locations to install the cable chambers would be done in consultation with IGMH representative at the time of installation.

- o 5 meters of power cable (i.e. 2.5 sq.mm or 1.5 sq.mm), 10 meters of FO cable would be provided in each cable chamber preferably.

- o If CAT6 length from switch to device (Camera) is less than 70m, 5m of buffering would be provided in cable chamber. Wherever the length exceeds 70m, 1m of buffering would be provided, in cable chamber.

- o All the cables in cable chambers would be tagged with the labels and the detailed list of the labels will be given at site. Labeling would be made on cable stickers.

[12-K]. CAMERA DEPLOYMENT: LOCATIONS OF THE 200 CCTV CAMERAS PROPOSED:

1. TOWARDS TIME OFFICE XBS & CISF FRISKING 1 No's
2. TOWARDS CCTV MONITORING ROOM DOOR 1 No's
3. INSIDE CCTV MONITORING ROOM 1 No's
4. TOWARDS TURSTILE GATE EXIT FROM FIREROOM CORNER 1 No's
5. TOWARDS TIMEOFFICE TURSTILE GATES ENTRANCE 1 No's
6. OUT SIDE TIME OFFICE TOWARDS LOCKERS 1 No's
7. OUT SIDE TIME OFFICE PTZ 1 No's
8. INNERSIDE OF TIME OFFICE ENTRANCE 3 No's
9. CCTV SERVER ROOM ENTRANCE 1 No's
10. CCTV SERVER ROOM INSIDE 1 No's
11. DRC ENTRANCE & TOWARD CANTEEN 2 No's
12. TIME OFFICE FOUNTAIN OUTSIDE PATHWAY 2 No's
13. CANTEEN INSIDE 3 No's
14. TOWARDS CANTEEN OPPOSITE GATE 1 No's
15. MSDS ENTRANCE PATH WAY 2 No's
16. INSIDE MSDS 2 No's
17. BACKSIDE MSDS 2 No's
18. BACKSIDE MSDS-WT2 GATE 1 No's
19. WATCH TOWER 1 2 No's
20. WATCH TOWER 1 PTZ 1 No's
21. ASSAY DEPT ENTRANCE 1 No's
22. ASSAY DEPT 1st FLOOR 4 No's
23. ASSAY DEPT 2nd FLOOR 2 No's
24. ENGRAVING DIES VAULT 1 No's
25. TOWARDS ENGRAVING DIES VAULT ROOM ENTRANCE 1 No's
26. R&D LAB INSIDE 1 No's
27. LANG MACHINE ROOM - INSIDE TOWARDS MACHINE 1 No's
28. TOWARDS STORES & GWS ENTRANCE 1 No's
29. INSIDE GWS 5 No's
30. INSIDE GWS - BETWEEN ELECTRICAL AND MW SECTIONS 1 No's
31. GWS - ELECTRICAL SECTION STORAGE AREA 1 No's
32. STORES - INSIDE 2 No's

33. STORES - INSIDE AT THE ENTRANCE 1 No's
34. STORES- ACID HANDLING 1 No's
35. BLANKING SECTION ENTRANCE 1 No's
36. BLANKING - SILVER MELTING AREA ENTRANCE 1 No's
37. BLANKING -INSIDE SILVER MELTING AREA 2 No's
38. BLANKING VAULT 2 No's
39. PPL SECTION 2 No's
40. FACTORY CORRIDOR 3 No's
41. COINING SECTION PTZ 2 No's
42. COINING ENTRANCE AREA 1 No's
43. COINING SUPERVISOR ROOM INSIDE 1 No's
44. COINING - CP 01 1 No's
45. COINING - CP 2&3 1 No's
46. COINING - CP 4&5 1 No's
47. COINING - CP No: 8&9 1 No's
48. INDOOR PATHWAY BETWEEN COINING TO PACKAGING 1 No's
49. EXAMINING - ENTRANCE 1 No's
50. EXAMINING - PTZ 2 No's
51. EXAMINING -WASHROOMS WALL TO BOSCH LINES PANELS 1 No's
52. EXAMINING - SCAN COIN AREA RIGHT 1 No's
53. EXAMINING - SCAN COIN AREA LEFT 1 No's
54. EXAMINING SECTION - SIDE WALLS 2 No's
55. EXAMINING VAULT 2 No's
56. INSIDE RBI Vault 6 No's
57. DIE SECTION FOREMAN ROOM 1 No's
58. DIE WORKING AREA 1 No's
59. DIE FLUIDTHERM FURNACE AREA 1 No's
60. DIE SECTION CORRIDOR 1 No's
61. TOWARDS COINING COMPRESSOR ROOM NEAR RO 1 No's
62. RBI CORRIDOR 1 No's
63. MEDAL ENTRANCE FRISKING 1 No's
64. MEDAL HOOKING ROOM 2 No's
65. SPECTROMETER ROOM 1 No's
66. MEDAL ENTRANCE - INSIDE 1 No's
67. MEDAL GRABBENER PRESS 1 No's
68. MEDAL WORKING AREA 1 No's

69. MEDAL BACKSIDE 1 No's
70. MEDAL MEGATHERM FURNACE BACKSIDE 1 No's
71. MEDAL SPEALACK MACHINE 1 No's
72. TOWARDS BULLION VAULT AND R&D ENTRANCE 1 No's
73. BULLION VAULT INSIDE 1 No's
74. BULLION VAULT - WEIGHMENTS 1 No's
75. BULLION VAULT - SILVER ROOM 1 No's
76. BULLION VAULT ENTRANCE AREA 2 No's
77. MELTING CISF CHECKPOST 1 No's
78. STORE GATE TO OLD MELTING CISF CHECK POST 1 No's
79. INSIDE OLD MELTING 2 No's
80. INSIDE OLD MELTING PTZ 1 No's
81. INSIDE OLD MELTING - SILVER PROCESSING AREA 2 No's
82. OLD MELTING INSIDE - CORNER 1 No's
83. OLD R&D VAULT 2 No's
84. INSIDE COMPRESSOR ROOM 1 No's
85. COMPRESSOR ROAD - PERIMETER WALL 3 No's
86. PUMP HOUSE ENTRANCE 1 No's
87. WATCH TOWER 3 PERIMETER 2 No's
88. WATCH TOWER 3 PTZ 1 No's
89. SUBSTATION 2 TRANSFORMER PERIMETER WALL 2 No's
90. PATHWAY NEAR SUBSTATION 1 TRANSFORMERS TO WT 3 1 No's
91. WATCH TOWER 2 PTZ 1 No's
92. NEAR WATCH TOWER 2 PATHWAY 2 No's
93. BACK SIDE WATCH TOWER 2 PERIMETER WALL 2 No's
94. OUTSIDE ROAD BETWEEN MINT AND MEDHA FROM MSDS GATE 1 No's
95. SUBSTATION 3 ENTRANCE 1 No's
96. ANNEALING OUTSIDE 3 No's
97. WATCH TOWER 4 PTZ 1 No's
98. WATCH TOWER 4 PERIMETER WALL [TO COVER BOTH SIDE ROADS OF WALL] 1 No's
99. TOWARDS TOWNSHIP GATE 1 No's
100. TOWARDS RBI GATE 1 No's
101. TOWARDS MINT HOUSE GATE 1 No's
102. NEAR WATCH TOWER 5 PATHWAY TURN 1 No's
103. WATCH TOWER 5 PTZ 1 No's
104. WATCH TOWER 5 [TO COVER BOTH SIDE ROADS OF WALL] 1 No's

105. TOWARDS WATCH TOWER 4 1 No's
106. FACTORY GATE ENTRANCE 1 No's
107. TOWARDS CISF DC OFFICE ENTRANCE 1 No's
108. TOP OF CISF DC OFFICE TOWARDS FACTORY PATHWAY 1 No's
109. TOWARDS QUARTER GUARD ENTRANCE & CCS ENTRANCE 2 No's
110. QUARTER GUARD INSIDE 1 No's
111. QUARTER GUARD CLEANING PIT 1 No's
112. RBI OUTSIDE GATE 1 No's
113. QUARTER GUARD TO WATCH TOWER 5 CORNER PERIMETER 2 No's
114. ADMIN GATE 2 No's
115. WATCH TOWER 6 PTZ 1 No's
116. WATCH TOWER 6 2 No's
117. FLAG HOISTING AREA NEAR WT 6 1 No's
118. ADMIN BUILDING ENTRANCE (LEFT, CENTER, RIGHT) 3 No's
119. ADMIN GROUND FLOOR - RECEPTION 1 No's
120. ADMIN GROUND FLOOR - BILL SECTION WALL TOWARDS STAIRS 1 No's
121. ADMIN GROUND FLOOR - COMM COIN PACKAGING ROOM 1 No's
122. ADMIN 1ST FLOOR 1 No's
123. ADMIN 2ND FLOOR 1 No's
124. ADMIN PURCHASE SECTION ENTRANCE AREA 1 No's
125. ADMIN 1ST FLOOR - SERVER ROOM 1 No's
126. ADMIN - CELLAR TELEPHONE EXCHANGE 1 No's
127. ADMIN CELLAR - PARKING 1 No's
128. ADMIN BACKSIDE PATHWAY 2 No's
129. ADMIN BACK SIDE PERIMETER (LEFT and RIGHT) 2 No's
130. ADMIN RIGHT SIDE 1 No's
131. ADMIN CORNER SIDE 2 No's
132. MAIN GATE - INSIDE ENTRANCE GATE 2 TOWARDS MAIN GATE 1 No's
133. MAIN GATE - TOWARDS XBS & TURNSTILE AREA 1 No's
134. TOWARDS BOOM BARRIER & TURNSTILE OUT PUNCH AREA FROM INSIDE 1 No's
135. MAIN GATE PTZ 1 No's
136. MAIN GATE - INSIDE PASS SECTION 1 No's
137. TOWARDS SCOOTER PARKING FROM PASS SECTION TOILETS 1 No's
138. ABOVE PASS SECTION TOWARDS DRC AND OUTSIDE GATE 2 No's
139. MAIN GATE OUTSIDE - LEFT 1 No's
140. MAIN GATE OUTSIDE - RIGHT 1 No's

141. TOWARDS BOOM BARRIER 1 No's

142. MAIN GATE ANPR 3 No's

Total Summary:

- o TOTAL ANPR CAMERAS: 3 No's
- o TOTAL BULLET CAMERAS : 149 No's [79 Outdoor]
- o TOTAL DOME CAMERAS : 30 No's
- o TOTAL PTZ CAMERAS: 18 No's
- o TOTAL NUMBER OF CAMERAS INCLUDING ANPR: 200 No's
- o TOTAL CAMERAS REQUIRED TWO WAY AUDIO REQUIREMENT : 28 No's

[12-L] AI ANALYTICS:

Requirement of AI Analytics Features among 200 CCTV Cameras:

1. Aggressive Behaviour Detection 134 No's
2. Camera Tampering Detection 121 No's
3. Face Detection 81 No's
4. Smoke and Fire Detection 93 No's
5. Loitering Detection 85 No's
6. People Gathering Monitoring 81 No's
7. Missing Object Detection 49 No's
8. Motion Detection 59 No's
9. Intruder Detection 56 No's
10. Line Crossing Detection 40 No's
11. ANPR with driver face detection 03 No's

Terms and Conditions of AI Analytics:

1. The CCTV system shall support advanced AI-based video analytics including but not limited to aggressive behaviour detection, intrusion detection, loitering detection, people counting, ANPR, and fire/smoke detection. The analytics shall operate in real-time with configurable rules, zones, and alerts, and shall be fully integrated with the VMS platform.
2. AI analytics shall be both edge-based and server-based
3. AI analytics shall be based on deep learning algorithms.
4. Minimum 95% detection accuracy (OEM declared)
5. All features shall support for real-time alerts and event triggering
6. Integration with VMS via ONVIF / API / SDK
7. Capability to define ROI (Region of Interest)

8. Should Support for day/night operations

9. Storage of event snapshots, metadata, and logs.

10. Configurable sensitivity, thresholds, and rules.

11. System shall support low false alarm rate using AI filtering.

12. All analytics shall be scalable and license-based where applicable.

13. Aggressive Behaviour Detection:

a. The camera/system shall support AI-based aggressive behaviour detection using deep learning algorithms capable of identifying violent activities such as fighting, physical assault, sudden abnormal body movement, or group conflict. The system shall generate real-time alerts with video snapshots and metadata.

b. This feature analyses human motion patterns and posture changes to detect abnormal or violent behaviour. It is useful in high-security environments like government premises, public areas, and restricted zones.

c. Performance Requirement:

i. Minimum detection accuracy: $\geq 90-95\%$ (OEM declared)

ii. Real-time alert generation (< 2 seconds)

iii. Configurable detection zones and sensitivity

14. Camera Tampering Detection

a. The camera shall support intelligent tamper detection capable of identifying scene obstruction, defocus, redirection, spray, covering, or sudden lighting changes, and shall trigger alarms.

b. Ensures surveillance integrity by detecting attempts to disable or manipulate the camera.

c. Performance Requirement:

i. Detection of blur, occlusion, and scene change

ii. Instant alert generation

iii. Integration with VMS alarm system

15. Face Detection:

a. The system shall support AI-based face detection capable of detecting human faces and capturing facial snapshots with bounding box, timestamp, and metadata.

b. Detects presence of human faces without necessarily identifying individuals (unless face recognition is specified separately).

c. Performance Requirement:

i. Multi-face detection capability

ii. Detection under varying lighting conditions

iii. Metadata tagging (time, camera ID, location)

16. Smoke and Fire Detection:

a. The camera shall support AI-based smoke and fire detection capable of identifying smoke patterns and flame characteristics in real time without additional sensors.

b. Provides early fire warning using video analytics, especially useful in server rooms, warehouses, and public buildings.

c. Performance Requirement:

i. Detection in low light and IR mode

- ii. False alarm filtering (dust, fog, lighting changes)

- iii. Real-time alert with snapshot/video clip

17. Loitering Detection:

- a. The system shall support loitering detection to identify persons/objects remaining in a predefined area beyond a configured dwell time.

- b. Detects suspicious lingering behavior near restricted zones such as gates, ATMs, or entry points.

- c. Performance Requirement:

- i. Configurable dwell time

- ii. ROI (Region of Interest) configuration

- iii. Alert generation with timestamp

18. People Gathering Monitoring (Crowd Detection)

- a. The system shall support AI-based crowd detection/people counting analytics capable of generating alerts when the number of persons in a defined area exceeds a predefined threshold.

- b. Used for crowd control, law enforcement, and safety compliance.

- c. Performance Requirement:

- i. Configurable threshold limits

- ii. Real-time counting and alerting

- iii. Accuracy $\geq 90\%$ in normal conditions

19. Missing Object Detection:

- a. The system shall support missing object detection to identify removal of static objects from the monitored scene.

- b. Detects theft or removal of items such as baggage, equipment, or assets.

- c. Performance Requirement:

- i. Background learning capability

- ii. Detection of object removal within defined time

- iii. Alert with before/after image

20. Motion Detection:

- a. The camera shall support motion detection with configurable sensitivity, detection zones, and event triggering.

- b. Basic detection of movement in the scene to trigger recording or alerts.

- c. Performance Requirement:

- i. Multi-zone configuration

- ii. Adjustable sensitivity

- iii. Low false alarm rate

21. Intruder Detection:

- a. The system shall support intrusion detection to identify unauthorized entry into predefined virtual zones or restricted areas.

- b. Detects entry into restricted areas and generates alerts.

c. Performance Requirement:

- i. Zone-based detection
- ii. Human/vehicle classification (preferred)
- iii. Real-time alarm generation

22. Line Crossing Detection:

a. The camera shall support line crossing detection to detect objects/persons crossing a virtual line in specified direction(s).: Used for perimeter security and boundary monitoring.

b. Performance Requirement:

- c. Direction-based detection (A→B, B→A)
- d. Multiple line configuration
- e. High accuracy detection

23. ANPR with Driver Face Detection:

a. The system shall support AI-based Automatic Number Plate Recognition (ANPR) along with simultaneous driver face capture and tagging, capable of operating under day/night conditions.

b. Captures vehicle number plate and driver face simultaneously for enhanced security and enforcement.

c. Performance Requirement:

- i. Vehicle speed support: up to 120 km/h
- ii. Plate recognition accuracy $\geq 95\%$
- iii. Driver face capture with clear image
- iv. Integration with whitelist/blacklist database

[12-M]. QUALITY ASSURANCE & STANDARDS:

- Regulatory Compliance: Adherence to STQC and ER compliance, local security standards or SPMCIL IT Policy guidelines.

- The proposed CCTV Surveillance System shall mandatorily comply with the latest Essential Requirements (ER) issued by Standardization Testing and Quality Certification (STQC), Ministry of Electronics & Information Technology (MeitY), Government of India. and all offered components including IP Cameras (Bullet, Dome, PTZ, ANPR), Video Management Software (VMS), Recording Servers (NVR/Servers) and Storage Systems (SAN/NAS) shall be STQC certified and ER compliant, supported by valid certificates, test reports and compliance declarations at the time of bid submission, failing which the bid shall be rejected; the system shall ensure secure architecture with features such as secure boot, signed Successful firmware, role-based access control, strong password policy, encryption using HTTPS/SSL/TLS, secure communication protocols (SFTP, SSH, SNMPv3), protection against unauthorized access and cyber threats, audit logs with time synchronization, tamper-proof recording, and secure data storage, while the VMS and servers shall operate on hardened platforms with controlled access, logging of all administrative and user activities, and protection against common vulnerabilities, and the storage system shall provide secure, redundant and fault-tolerant architecture with RAID support and access control; further, all APIs and integrations shall be secured, no backdoor access shall be permitted, and the OEM/bidder shall ensure regular security updates, patch management and continued compliance with STQC ER throughout the warranty period, along with submission of necessary undertakings confirming adherence to these requirements.

- All works shall be executed in strict compliance with latest editions of relevant BIS / IS standards (IS 3043 for earthing, IS 7098 for cables, IEC 60364 for electrical installations, TIA/EIA-568 for structured cabling, IEEE 802.3 for Ethernet), CPWD specifications, and best industry practices for industrial-grade IP-based CCTV systems. The entire system shall be designed for 24x7 fail-safe operation with N+1 redundancy wherever applicable.

[12-N]. TESTING & COMMISSIONING:

- The bidder must perform comprehensive testing and commissioning in the presence of IGMH representatives, including:
 - Camera calibration, alignment, focus, and coverage verification with test footage.
 - UPS + DG Set load testing with AMF automatic changeover.
 - Video wall integration (seamless display, bezel compensation, multi-windowing).
 - End-to-end network testing (throughput, latency, packet loss, redundancy/failover).
 - AI analytics validation (false alarm rate <2 %, detection accuracy ≥95 %).
 - Full system performance under 24×7 load (recording + live view + AI).
- Final Acceptance shall be based upon successful completion of Final Acceptance Test (FAT), Performance Trial Run of 30 days, and submission of all documentation.
- The bidder must submit Test Reports, As-Built drawings (AutoCAD + PDF), cable schedules, O&M manuals, and Commissioning Certificate. All works under the supervision of the nominated Sr. Supervisor (TO), IGMH.

[12-N-1]. FINAL ACCEPTANCE TEST (FAT)

The Final Acceptance Test (FAT) shall verify that the complete CCTV Surveillance System has been installed, configured, integrated, tested, and commissioned in accordance with the approved design, technical specifications, and contract requirements under actual site conditions. Successful completion of FAT shall be mandatory before commencement of the Performance Trial Run.

[12-N-1-1]. FAT shall commence only after:

- Submission of OEM/Factory test certifications
- Completion of equipment installation
- Completion of structured cabling and fibre network
- Power system commissioning
- UPS and DG commissioning
- VMS installation
- AI analytics configuration
- Submission of preliminary as-built drawings
- Completion of internal testing by the contractor

[12-N-1-2]. Documents to be submitted before FAT

The contractor shall submit:

- Approved Design Drawings
- As-Built Drawings
- Cable Schedule
- IP Addressing Plan

- Device Inventory
- Serial Number Register
- Software Licence Register
- Firmware Version Register
- OTDR Reports
- Fluke Test Reports
- Earth Resistance Test Reports
- UPS Test Reports
- DG Test Reports
- FAT Report
- Training Schedule

[12-N-2]. FINAL ACCEPTANCE TEST (FAT) PROCEDURE

1. Physical Verification

Verify:

- Equipment make and model
- Equipment quantity
- Installation workmanship
- Camera mounting
- Pole installation
- Junction boxes
- Rack installation
- Cable routing
- Labelling
- Earthing
- Power distribution
- Civil restoration
- Cleanliness

2.Camera Acceptance Test

Each installed camera shall be verified for:

- Parameter Acceptance Criteria
- Camera ID Matches approved drawings
- Location Installed at approved location
- Resolution As per tender specification
- Focus Sharp image

- Field of View Approved coverage achieved
- IR Performance Night image acceptable
- Day/Night Switching Automatic
- Timestamp Correct
- Recording Continuous
- Live View Stable
- Network Connectivity No packet loss
- Audio Functional (where applicable)
- Alarm I/O Functional
- AI Detection Functional

3. Network Acceptance

Verify:

- Core Switch
- Access Switch
- Industrial Switch
- Fibre Connectivity
- OFC Splicing
- VLAN Configuration
- QoS
- Link Aggregation
- Redundant Paths
- Switch Failover
- SNMP Monitoring

Acceptance:

- No communication loss
- Stable latency
- No abnormal packet drops

4. Fibre Network Test

Verify:

- OTDR
- Optical Power
- Splice Loss
- Connector Loss
- Fibre Identification

- Route Markers
- Cable Chambers

Acceptance:

- Within approved optical loss budget
- OTDR trace acceptable
- No broken fibres

5.Power System Test

Verify:

- UPS
- DG Set
- AMF Panel
- Distribution Boards
- Earthing
- Surge Protection

Tests:

- UPS backup
- Automatic DG start
- Automatic restoration
- Load transfer
- Battery charging

6.Recording Test

Verify:

- Continuous recording
- Scheduled recording
- Motion recording (if configured)
- Event recording
- Playback
- Timeline search
- Recording integrity
- Export

Acceptance:

- No missing recordings
- Correct timestamps
- Smooth playback

7.Storage Test

Verify:

- RAID Health
- Storage Capacity
- Disk Health
- Controller Health
- Recording Throughput
- Playback Speed
- Storage Failover

8. VMS Acceptance

Verify:

- Login
- Role-based access
- Live View
- Playback
- Camera Mapping
- Health Monitoring
- Alarm Management
- User Management
- Event Search
- Evidence Export
- Backup
- Restore

9.AI Analytics Test

Each analytics function shall be demonstrated under site conditions:

- Intrusion Detection
- Line Crossing
- Loitering
- Face Detection
- Crowd Detection
- Camera Tampering
- Missing Object
- Smoke Detection

- Fire Detection
- Aggressive Behavior
- ANPR
- Driver Face Detection

Acceptance:

- Correct event generation
- Correct recording
- Alarm notification
- Event search
- Event playback

10.Video Wall Test

Verify:

- Layout switching
- Live display
- Playback display
- Alarm display
- Camera sequencing
- Resolution
- Controller redundancy

11.Workstation Test

Verify:

- Hardware
- Operating System
- Client Software
- Login
- Playback
- Search
- Export
- Printing
- USB Export

12. Cybersecurity Test

Verify:

- HTTPS

- Strong password policy
- Role-based access
- Audit logs
- Firmware integrity
- Time synchronization
- Account lockout
- Secure communication

13. Failover Test

Simulate:

- Camera failure
- Network link failure
- Switch failure
- Server failure
- Storage disk failure
- Power failure
- UPS operation
- DG operation

Acceptance:

- Automatic recovery
- No data corruption
- No configuration loss

14. Integrated System Test

Demonstrate:

- Alarm to Video
- AI to Recording
- Video Wall Integration
- Multi-user access
- Simultaneous recording and playback
- Evidence export
- User audit logs

15. Burn-in Test

The complete system shall operate continuously for 72 hours under normal site load.

Acceptance Criteria:

- No server crash
- No camera disconnection
- No storage error
- No recording loss
- No network instability
- No unexpected reboot
- No software failure

16. Documentation Verification

The following shall be verified:

- As-built drawings
- Cable schedule
- IP schedule
- Password register
- Warranty certificates
- Training manuals
- O&M manuals
- Test reports
- Configuration backup
- Software licenses

17. The Contractor shall implement and maintain a comprehensive Configuration Backup and Disaster Recovery (DR) mechanism for the entire CCTV Surveillance System. Configuration backups shall be taken at the prescribed frequency, securely stored, periodically verified through restoration testing, and updated after every approved configuration change. The Contractor shall successfully demonstrate restoration of selected devices during the Final Acceptance Test (FAT) and complete at least one Disaster Recovery Drill before Final Acceptance. All backup files, recovery procedures, software, licences, and documentation shall be handed over to IGM Hyderabad at project completion without additional cost.

18. Acceptance Criteria

- a) FAT shall be considered successful only when:
- b) All contractual equipment is installed.
- c) All mandatory tests are passed.
- d) No major non-conformity remains.
- e) Documentation is complete.
- f) Training is completed.
- g) The India Government Mint Hyderabad signs the FAT Report.

[12-O]. COMPREHENSIVE WARRANTY:

- o Comprehensive Warranty: 2 years from the date of issue of the Final Acceptance Certificate (FAC).
- o Scope includes preventive, predictive, and breakdown maintenance, free replacement of any faulty equipment, software/firmware upgrades, patches, and antivirus updates at no extra cost.
- o Centralized DG Set + 1-hour UPS backup remains under bidder maintenance throughout.

COMPREHENSIVE WARRANTY TERMS & CONDITIONS (2 YEARS)

1. The entire CCTV system along with all supplied hardware, software, networking, electrical, civil and associated infrastructure items shall be covered under Comprehensive Onsite Warranty for a period of TWO (02) Years.
2. The warranty period shall commence from the date of issue of Final Acceptance Certificate (FAC) by India Government Mint, Hyderabad.
3. The warranty shall be end-to-end and inclusive of all components supplied under the project BOM.
4. Comprehensive warranty of 2 years shall include all hardware, firmware, software, licenses, accessories, and passive components including Civil & Electrical Works including cabling, earthing, piping, Software Components (VMS, Analytics, Security Software) supplied as part of this project. However if the cases wherever manufacturer default warranty is more than 2 years, standard manufacturer warranty shall be provided by vendor and submit warranty certificates.
5. The warranty shall be comprehensive and inclusive of:
 - a. Repair / replacement of defective parts
 - b. Spare parts, consumables, accessories
 - c. Firmware & software updates/upgrades
 - d. Reconfiguration, calibration, and optimization
 - e. All labor, logistics, transportation, insurance
6. No additional cost shall be borne by the India Government Mint Hyderabad during warranty period.
7. Service Level Agreement (SLA):
 - a. Complaint Registration 24x7 (Phone/Email/Web)
 - b. Response Time Within 4 Hours
 - c. Resolution Time (Critical Systems) Within 24 Hours
 - d. Resolution Time (Non-Critical) Within 48 Hours
 - e. Uptime Requirement $\geq 99\%$ system uptime
8. Critical Systems include: VMS Server, Storage, Core Switch, ANPR System
9. Preventive & Predictive Maintenance:
 - a. Monthly Preventive Maintenance (PM) shall be carried out. PM shall include:
 - i. Health check of cameras, servers, switches
 - ii. Cleaning, focusing, alignment
 - iii. Firmware/software updates
 - iv. Storage and backup verification
 - v. Earthing & power system inspection

b. Predictive Maintenance using logs, alerts, analytics to avoid failures.

10. Breakdown Maintenance :

a. All breakdowns shall be attended as per SLA timelines.

b. Standby arrangement / replacement must be provided if repair exceeds:

i. 24 hrs (critical)

ii. 48 hrs (non-critical)

11. Software & Cyber Security Support :

a. Free updates for:

i. VMS software

ii. ANPR & Analytics licenses

iii. Firmware of all devices

b. Patch updates for:

i. Cyber security vulnerabilities

ii. Endpoint security (as per OEM policy)

12. Power & Environmental Systems Coverage

a. Warranty shall include:

i. UPS, Batteries, DG Set, AMF Panel

ii. AC Units & Changeover Controller

iii. Earthing & Lightning Protection System

iv. SPD devices

b. Includes periodic testing, servicing, and replacement if required.

13. Cabling & Passive Infrastructure

a. Covered under warranty:

i. OFC, CAT6, Power cables

ii. LIU, Patch Panels, Racks

iii. Poles, Junction Boxes, Conduits

b. Includes fault detection, jointing, re-termination, and replacement.

14. Documentation & Reporting: Vendor shall provide:

a. PM Reports (Monthly)

b. Breakdown Reports

c. Uptime Reports (Monthly)

d. Spare replacement logs

e. Software update logs

15. Penalty Clause:

a. Penalty shall be levied for:

i. SLA violations

ii. System downtime

b. Suggested penalty:

i. 0.5% of equipment cost per day of delay (or as per tender norms)

ii. Maximum penalty: 10% of contract value

16. Exclusions (Limited) : Warranty excludes only Damage due to:

a. Fire, flood, natural disasters

b. Unauthorized tampering

c. Force majeure

d. However, vendor must assist in restoration on chargeable basis.

17. OEM Support & Back-to-Back Warranty: All equipment must have OEM-backed warranty, Bidder responsible for:

a. OEM coordination

b. Replacement & support

18. System must comply with STQC / ER / BIS standards (where applicable), Govt CCTV guidelines, Cyber security norms

19. The warranty shall be comprehensive, covering the entire system supplied, installed, and commissioned under this project. Any defect, malfunction, or degradation in performance shall be rectified by the bidder at no additional cost to the India Government Mint Hyderabad during the warranty period.

[12-P]. GENERAL TERMS AND CONDITIONS:

1. The CCTV Surveillance System shall be functional on a 24x7 basis (24 hours a day, all days) and shall have a minimum of 90 days data storage (retention) capacity for all cameras. The system shall be designed in such a manner that operational data/recording is not lost in case of any failure of equipment or communication network.

2. Wherever the quantity of any item/component/accessory is not specifically indicated in the BOQ, Technical Specifications, drawings or Schedule of Requirements, but the corresponding technical specification, functional requirement or performance requirement has been specified, the quantity of such item shall be determined by the Bidder/Contractor based on its detailed system design, engineering calculations, site survey and implementation methodology.

3. The Bidder shall, as part of its Technical Bid, identify, quantify and include all such items in its detailed Bill of Materials (BOM)/System Design Schedule, in the quantities required for complete, safe, reliable and technically compliant implementation of the CCTV Surveillance System.

4. The quantities expressly mentioned in the BOQ shall be treated as the minimum specified quantities wherever the specification does not expressly state otherwise. Where additional quantities of any equipment, component, accessory or infrastructure are required to meet the specified functional, performance, redundancy, safety, capacity, reliability or statutory requirements, such additional quantities shall be designed, supplied, installed, tested and commissioned by the Contractor without any additional cost to the India Government Mint Hyderabad, unless specifically approved as a change in scope by the India Government Mint Hyderabad.

5. The Contractor shall be solely responsible for determining the final quantities required for the complete SITC implementation, including but not limited to mounting accessories, poles, junction boxes, PDBs, PJBs, PoE switches, uplink modules, SFPs, racks, patch panels, fibre accessories, copper/fibre cables, conduits, HDPE pipes, power cables, earthing materials, surge protection devices, UPS distribution equipment, network equipment, servers, storage, licences, software, workstations, video-wall equipment and all other necessary accessories.

6. No claim shall be entertained on the ground that a particular item or its required quantity was not separately mentioned in the BOQ, provided that such item is reasonably necessary for successful completion and

d operation of the specified CCTV system.

7. The Contractor shall not reduce, omit or under-quantify any item necessary for achieving the specified system performance merely because its quantity has not been expressly stated in the BOQ. The minimum technical specifications specified in the tender shall be complied with in all cases. Where the Contractor's approved design requires a higher capacity, higher rating, greater quantity or superior specification than the stated minimum requirement, the Contractor shall provide the same without compromising the specified performance.

8. The Contractor shall be responsible for the completeness and adequacy of the system design. Approval of drawings, calculations, BOMs, quantities or technical submissions by the India Government Mint Hyderabad shall not relieve the Contractor of responsibility for the proper functioning, capacity, reliability, safety and performance of the complete CCTV Surveillance System. Any omission, error, mismatch, under-sizing or inadequacy in the Contractor's design shall be rectified by the Contractor at its own cost where such rectification is necessary to achieve the contractual requirements.

9. Contractor's Detailed Quantity Schedule: The Bidder shall submit, along with its Technical Bid, a Detailed System Design and Quantity Schedule identifying the proposed quantity of every major equipment item and all significant accessories required for complete implementation.

The schedule shall clearly distinguish between:

- A. India Government Mint Hyderabad-specified minimum quantities;
- B. Quantities proposed by the Bidder based on its design;
- C. Additional quantities required for redundancy/future expansion; and
- D. Optional items, if any.

The Bidder shall provide technical justification/calculation for quantities determined by design.

10. The quantity of PoE switches, industrial switches, Layer-3 switches, SFP/SFP+ modules, uplink ports, patch panels and associated network accessories shall be determined by the Contractor based on the final camera distribution, PoE budget, bandwidth calculation, fibre topology, redundancy requirements and approved network architecture. The Contractor shall provide sufficient additional ports and uplink capacity to ensure reliable operation and the specified future expansion capability.

11. Cable quantities indicated in the BOQ, if any, shall be treated as indicative unless specifically stated as fixed quantities. The Contractor shall determine the actual cable quantities based on the approved routing, site survey, equipment locations and installation methodology. All cables, including power, copper network, optical fibre, HDPE/conduit and associated termination accessories required for complete implementation shall be supplied and installed by the Contractor. Any additional cable quantity required due to the Contractor's approved routing/design shall be included in the Contract Price and shall not constitute a variation.

12. The proposed CCTV Surveillance System shall mandatorily comply with the latest Essential Requirements (ER) issued by Standardisation Testing and Quality Certification (STQC), Ministry of Electronics & Information Technology (MeitY), Government of India. and all offered components including IP Cameras (Bullet, Dome, PTZ, ANPR), Video Management Software (VMS), Recording Servers (NVR/Servers) and Storage Systems (SAN/NAS) shall be STQC certified and ER compliant, supported by valid certificates, test reports and compliance declarations at the time of bid submission, failing which the bid shall be rejected; the system shall ensure secure architecture with features such as secure boot, signed Successful firmware, role-based access control, strong password policy, encryption using HTTPS/SSL/TLS, secure communication protocols (SFTP, SSH, SNMPv3), protection against unauthorized access and cyber threats, audit logs with time synchronization, tamper-proof recording, and secure data storage, while the VMS and servers shall operate on hardened platforms with controlled access, logging of all administrative and user activities, and protection against common vulnerabilities, and the storage system shall provide secure, redundant and fault-tolerant architecture with RAID support and access control; further, all APIs and integrations shall be secured, no backdoor access shall be permitted, and the OEM/bidder shall ensure regular security updates, patch management and continued compliance with STQC ER throughout the warranty period, along with submission of necessary undertakings confirming adherence to these requirements.

13. Once the Purchase Order is placed, it shall be the vendor's responsibility to make the project fully functional. Any additional cost incurred for completing the project, which the vendor has not accounted for at the time of submission of the final offer, shall be borne by the vendor.

14. After commissioning the Video Surveillance System, the same shall be demonstrated for all its capabilities to the relevant user department to make them familiar with the system on mutually agreed dates.
15. Bidders are advised to visit the site before quoting in order to fully understand the scope, requirements, and site conditions.
16. Before submission of the bid, the bidder should inspect and examine the site and its surroundings. The bidder shall satisfy himself regarding the nature of the ground and sub-soil, building layout and design, quantities and nature of work, availability of materials, means of access to the site, and all other necessary information as to risks, contingencies, and other circumstances which may influence or affect the offer. No extra claim on account of any misunderstanding or otherwise shall be allowed.
17. All works shall be executed in strict compliance with latest editions of relevant BIS / IS standards (IS 3043 for earthing, IS 7098 for cables, IEC 60364 for electrical installations, TIA/EIA-568 for structured cabling, IEEE 802.3 for Ethernet), CPWD specifications, and best industry practices for industrial-grade IP-based CCTV systems. The entire system shall be designed for 24x7 fail-safe operation with N+1 redundancy wherever applicable.
18. No old passive or active components of the existing IP network (such as old cameras, OFC cable network, power and LAN cables, switches, media converters, patch cables, hard drives, memory cards, etc.) shall be reused. Bidders are strongly advised to visit the site for a better estimation of the quantum of work involved.
19. Any additional equipment, components, design modifications, or enhancements required to meet operational, performance, or statutory requirements (even if not explicitly mentioned) shall be provided by the bidder at no extra cost.
20. The bidder organization shall be ISO 27001, ISO 14001 and ISO 9001 certified.
21. The tenderer/person/company shall demonstrate competence with the equipment (software & hardware) being tendered.
22. The tenderer shall obtain a certificate from the OEM stating the name of the company and confirming that it has sufficient competence in software and hardware to install the tendered equipment.
23. The tenderer shall provide proof in the form of training certificates from the OEM for the VMS, server, and storage hardware.
24. The vendor must submit the requisite documents for claiming experience in the integration of different security systems.
25. Vendor has to provide a list of APIs along with the SDK of the proposed system for future integration.
26. The Video Surveillance System shall be an end-to-end IP-based solution with ONVIF-enabled IP cameras as per site requirements. All IP cameras shall be freely accessible and programmable from the control room.
27. All IP cameras and VMS software shall be ONVIF conformant. All claimed ONVIF conformant products shall be cross-checked on the official ONVIF website.
28. The CCTV solution shall be based on open architecture. Proprietary products/solutions are not acceptable.
29. The entire system shall be based on non-proprietary open architecture where the Video Management Software can work and integrate with any make of IT hardware.
30. The recording of video shall be on an open architecture, non-embedded recording server from reputed manufacturers such as HP, Dell, or equivalent.
31. All video cameras shall be connected on a high-bandwidth (10 Gbps) fiber optic network for video transmission to the central control room.
32. The system shall be scalable and it should be possible to integrate other security systems such as Fire Alarm, PIDS, Intrusion Detection System, Access Control System, etc for future requirements of IGMH. Vendor shall submit declaration in this regard.
33. The system shall work in offline mode. When operating offline (due to unavailability of network connectivity), all activities/transactions shall be stored in the camera memory and shall be automatically synchro

nized to the server upon resumption of network connectivity.

34. Only industrial-grade, high-endurance microSDXC cards specifically designed for surveillance applications shall be accepted. Consumer-grade memory cards shall not be permitted. The offered memory cards shall be tested and certified for compatibility with the proposed camera system and shall support continuous 24x7 recording without performance degradation.

35. LAN management activities (Core & Access switch configuration, VLAN assignment, routing, SNMP monitoring, router configuration if required) shall be carried out by the bidder and handed over with complete configuration backup and documentation.

36. All the PC/Workstations/Server systems etc. shall be protected by server-client based Anti-Virus software valid throughout the complete warranty period.

37. All software and Successful Firmware upgrades shall be provided without any additional cost during the entire warranty period.

38. Bidders should share all relevant Successful Firmware, OS patches, etc., as and when released by the OEM during the entire warranty period at no cost to India Government Mint Hyderabad (IGMH).

39. Licenses: All hardware and software components supplied by the bidder shall be licensed and valid for the lifetime of the CCTV system. All licenses shall be in the name of India Government Mint Hyderabad only.

40. All AI licenses shall be perpetual, transferable to IGM Hyderabad, and remain valid throughout the system lifecycle without recurring subscription.

41. All software supplied (VMS, Video Analytics, Video Wall controller, client software, etc.) shall be perpetual enterprise licenses issued in the name of "India Government Mint, Hyderabad". Licenses shall be non-expiring and transferable only to IGMH.

42. The system shall implement tamper-proof recording using hardware-level Write-Once-Read-Many (WORM) storage or equivalent digital signing/watermarking technology. Once recorded, video footage and metadata shall not be alterable or deletable by any user or administrator. A complete, immutable audit trail (including user access logs, export logs, and timestamped events) must be maintained for evidentiary and forensic purposes.

43. Original OEM media, license keys, activation certificates, and administrator passwords shall be handed over in sealed envelopes along with detailed documentation.

44. Any replacement or upgradation activity during warranty period shall be carried out by the bidder without any loss of existing archival CCTV footage. Hot-swap / parallel migration methodology shall be used.

45. The supplier and the offered system must adhere to the SPMCIL IT Policy.

46. Password Policy : The contractor shall configure:

- a) Minimum 12-character passwords.
- b) Combination of upper-case, lower-case, numbers, and special characters.
- c) No default passwords after commissioning.
- d) Password expiry as per India Government Mint Hyderabad policy.
- e) Account lockout after repeated failed login attempts.
- f) Unique administrator credentials for all critical devices.

47. Role-Based Access Control (RBAC): Separate user roles shall be configured, including:

- a) System Administrator
- b) CCTV Administrator
- c) Security Supervisor
- d) Operator

- e) Viewer
- f) Maintenance Engineer
- g) Audit User
- h) Each role shall have only the minimum privileges required for its responsibilities.

48. Firmware Management: The contractor shall:

- a) Maintain a register of firmware versions.
- b) Ensure only OEM-approved firmware is installed.
- c) Verify firmware integrity before installation.
- d) Document all firmware upgrades.
- e) Retain rollback procedures for each firmware update.

49. Patch Testing: Before deployment:

- a) Test patches on a representative system.
- b) Verify camera connectivity.
- c) Verify recording.
- d) Verify AI analytics.
- e) Verify VMS functionality.
- f) Verify storage.
- g) Verify integrations.
- h) Only successful patches shall be deployed to the production environment.

50. Emergency Security Patches: Where the OEM issues an emergency security advisory for actively exploited vulnerabilities, the contractor shall:

- o Notify IGM Hyderabad within 48 hours.
- o Provide a risk assessment.
- o Recommend mitigation measures.
- o Deploy the emergency patch after approval and testing.

51. Vulnerability Management: During the warranty period, the contractor shall:

- a) Monitor OEM security advisories.
- b) Monitor relevant national cybersecurity advisories (e.g., CERT-In).
- c) Assess applicability to the installed system.
- d) Maintain a Vulnerability Register.
- e) Submit quarterly vulnerability status reports to the India Government Mint Hyderabad.

52. Antivirus & Endpoint Protection: Where applicable:

- a) Antivirus software shall be installed on servers and workstations.
- b) Signature databases shall be kept current.
- c) Real-time protection shall remain enabled unless approved otherwise.
- d) Scheduled full-system scans shall be performed at least monthly.

53. Network Security: The contractor shall implement:

- a) Dedicated CCTV VLANs.
- b) Port security.
- c) 802.1X authentication where supported.
- d) Access Control Lists (ACLs).
- e) Secure management interfaces.
- f) Disabled unused ports.
- g) Time synchronisation using authenticated NTP where feasible.

54. Configuration Backup: The contractor shall maintain secure backups of:

- a) Camera configurations.
- b) VMS configuration.
- c) Switch configuration.
- d) Server configuration.
- e) AI configuration.
- f) User database.
- g) Licence information.
- h) Backups shall be taken before major changes and after successful implementation.

55. Audit Logging: The system shall record:

- a) User logins.
- b) Failed logins.
- c) Configuration changes.
- d) Firmware upgrades.
- e) Camera additions/removals.
- f) Recording configuration changes.
- g) AI configuration changes.
- h) Export of video evidence.
- i) Audit logs shall be protected from unauthorized modification.

56. Incident Response: Upon detection of a cybersecurity incident, the contractor shall:

- a) Inform IGM Hyderabad within 4 hours.
- b) Isolate the affected component where appropriate.
- c) Preserve logs and evidence.
- d) Restore normal operations after approval.
- e) Submit a Root Cause Analysis (RCA) report within 7 working days.

57. Security Review shall be conducted by contractor every quarter. The contractor shall conduct:

- a) Quarterly security health checks.
- b) Verification of firmware versions.

- c) Review of password policy compliance.
- d) Review of user accounts.
- e) Verification of patch status.
- f) Review of audit logs.
- g) A report shall be submitted after each review.

58. The Contractor shall implement and maintain a comprehensive Configuration Backup and Disaster Recovery (DR) mechanism for the entire CCTV Surveillance System. Configuration backups shall be taken at the prescribed frequency, securely stored, periodically verified through restoration testing, and updated after every approved configuration change. The Contractor shall successfully demonstrate restoration of selected devices during the Final Acceptance Test (FAT) and complete at least one Disaster Recovery Drill before Final Acceptance. All backup files, recovery procedures, software, licences, and documentation shall be handed over to IGM Hyderabad at project completion without additional cost.

59. The power supply available at the IGMH is 230V / 50 Hz AC, which may vary from 160 Volts to 270 Volts.

60. All cables (OFC, CAT6, Electrical/Power cables) shall have LSZH and fire-retardant insulation.

61. Minimum two numbers of copper plate earthing shall be provided for the entire installation, including all electronic and power gadgets in the control room/server room.

62. Centralized DG Set connectivity and 1-hour UPS backup for the whole system shall be under the service and maintenance scope of the supplier during the warranty period.

63. The Original Equipment Manufacturer (OEM) of the video surveillance system shall have an office in India. The OEM or its authorized representative shall have service facilities in India.

64. A Genuinity/Authenticity certificate shall be provided from the OEM for all major components used in the system at the time of supply.

65. Proof of Concept (POC): Qualified bidders must demonstrate use cases including ONVIF conformance, IR features, and limited Analytics at IGM Hyderabad.

66. The Successful Bidder shall carry out detailed engineering, preparation, and submission of all drawings as per tender specifications. This includes preparation and submission of area-wise bill of materials, layout, and erection drawings showing the location of all system equipment and components, power and data cables for the IP network, cable tray/rack, and conduit routing.

67. Numbering of each camera with appropriate visible size and colour paint or waterproof stickers for easy identification shall be the responsibility of the vendor.

68. After erection and commissioning work is completed, the seller shall clear all kinds of waste and debris from the site at the respective units.

69. The seller shall dismantle and remove all old infrastructure of the existing CCTV system and shift all old cameras, switches, cabling, etc., to the designated area as suggested by IGMH.

70. The warranty period for the complete system shall start from the date of issue of the Final Acceptance Certificate (FAC).

71. Final Acceptance shall be based upon successful completion of Factory Acceptance Test (FAT), Performance Trial Run of 30 days, and submission of all documentation.

72. Comprehensive Warranty: 02 years from the date of Final Acceptance Certificate (FAC).

73. The bidder shall submit complete as-built drawings (in AutoCAD & PDF), cable schedule, test reports, O&M manuals, training manuals, and soft copies of all software before system acceptance. Final acceptance shall be after successful 30-day performance trial run.

74. The successful Bidder shall provide the escalation matrix for their service personnel.

75. Centralized DG Set connectivity and 1 Hr UPS backup for the whole system shall remain under the service and maintenance scope of the supplier during the warranty period.

76. Other Conditions:

- a) Any other items which may not be specially mentioned in the technical specifications but which are necessary for completeness of the work are to be provided by the contractor without any extra charge.
- b) Replacement of faulty component /Equipment pertaining to complete system and auxiliary equipment supplied would be free of Cost in the entire warranty period.
- c) On account of security consideration, some restrictions may be imposed by the security staff on the working and/ movement of men and materials etc. The successful bidder shall be bound to follow all such restrictions/ instructions and he shall organize his work accordingly.
- d) Installation of the equipment and cabling work will be done with due diligence and care, so as not to damage or alter the basic structure and aesthetics of the factory. Damage to structure, if inevitable, shall be done only after taking due clearance from the IGMH representative. Restoration of damages to its original shape shall be done immediately thereafter at the cost of the contractor.
- e) Area cleaning and smoothing of surface will be in the scope of Bidder
- f) Bidder shall ensure no voltage fluctuation in the centralized power system proposed, necessary electrical equipment arrangements for keeping supply without power fluctuations throughout the proposed CCTV Surveillance system shall be in the scope of Bidder only.
- g) Laying of power cables and end termination will be in the scope of bidder.
- h) Loading, unloading and shifting of item up to desired place will be in the scope of bidder.

अस्वीकरण/**Disclaimer**

The Additional Terms and Conditions (ATC) have been incorporated by the Buyer after approval of their Competent Authority. The Buyer is solely responsible for the impact of these clauses on the bidding process, its outcome, and consequences thereof including any restriction arising in the bidding process due to these ATCs and including the modification of technical specifications and / or terms and conditions governing the bid. All representations / grievances pertaining to the ATC clauses shall be raised with the buyer organization directly and not with GeM. If any of the clause(s) is/are incorporated by the Buyer regarding the following, the bid & resultant contract shall be treated as null & void. Further, GeM reserves the right, at its sole discretion, to cancel the bid forthwith, without issuance of any prior notice or intimation :-

1. Publishing Custom / BOQ bids for items for which regular GeM categories are available (unless such Custom / BOQ item is bunched with the major regular product Category Item).
2. Mandating procurement of / from specific Brand / Make / Model / Manufacturer / Dealer except in case of Single Bid / Proprietary Article Certificate (PAC) Buying.
3. Inclusion of disqualification criteria related to suspension of seller / service provider, where such suspension period has already expired.
4. Mandating submission of documents (other than EMD and signed Integrity Pact - which can be submitted within 5 days of bid opening) in physical form as a pre-requisite to qualify bidders.
5. Publishing bids on GeM for procurement of works.
6. Procurement of Goods by creating a Service bid on GeM & vice-versa.
7. Seeking sample with bid or approval of samples during bid evaluation process. However, trial / sample, as the case may be, shall be permitted in cases where trial / sample are allowed as per approved and published procurement policy of the Buyers' controlling Ministry / Department / State / Public Sector Enterprises Headquarters. If there is any violation of trial / sample clause with regard to approved policy of the Buyers' Ministry / Department / State / Public Sector Enterprises Headquarters, then this is to be determined and redressed by the concerned Buyer Organisation only.
8. Seeking experience from specific organization / department / institute only or from foreign / export experience.
9. Creating bid for items from incorrect categories.
10. Reference of conditions published on any external site or reference to external documents/clauses.
11. Asking for any Tender fee / Bid Participation fee, as the case may be.

12. Buyer added ATC Clauses which are in contravention of clauses defined in bid detail section, including specifications, EMD Detail, ePBG Detail and MII and MSE Purchase Preference sections of the bid, unless otherwise allowed by the applicable GeM GTC.
13. Any ATC clause in contravention with GeM GTC Clause 4 (xiii) (h) will be invalid. In case of multiple L1 bidders against a service bid, the buyer shall place the Contract by selection of a bidder amongst the L-1 bidders through a Random Algorithm executed by GeM system.
14. In a category based bid, adding additional items, through buyer added, additional scope of work/ additional terms and conditions/or any other document. If buyer needs more items along with the main item, the same must be added through bunching category based items or by bunching custom catalogues or bunching a BoQ with the main category based item, the same must not be done through ATC or Scope of Work.

Further, if any seller has any objection/grievance against these additional clauses or otherwise on any aspect of this bid, they can raise their representation against the same by using the Representation window provided in the bid details field in Seller dashboard after logging in as a seller. Buyer is duty bound to reply to all such representations and would not be allowed to open bids if he fails to reply to such representations.

All GeM Sellers/Service Providers shall ensure full compliance with all applicable labour laws, including the provisions, rules, schemes and guidelines under the four Labour Codes i.e. the Code on Wages, 2019; the Industrial Relations Code, 2020; the Occupational Safety, Health and Working Conditions Code, 2020; and the Code on Social Security, 2020 as and when notified and brought into force by the Government of India.

For all provisions of the Labour Codes that are pending operationalisation through rules, schemes or notifications, the corresponding provisions of the pre-existing labour enactments (such as The Minimum Wages Act, 1948, The Payment of Wages Act, 1936, The Payment of Bonus Act, 1965, The Equal Remuneration Act, 1976, The Payment of Gratuity Act, 1972, etc. and relevant State Rules) shall continue to remain applicable.

The Seller/ Service Providers shall, therefore, be responsible for ensuring compliance under:

- **All notified and enforceable provisions of the new Labour Codes as mentioned hereinabove; and**
- **All operative provisions of the erstwhile Labour Laws until their complete substitution.**

All obligations relating to wages, social security, safety, working conditions, industrial relations etc. and any other statutory requirements shall be strictly met by the Seller/ Service Provider. Any non-compliance shall constitute a breach of the contract and shall entitle the Buyer to take appropriate action in accordance with the contract and applicable law.

This Bid is governed by the General Terms and Conditions, conditions stipulated in Bid and Service Level Agreement specific to the Service, as the case may be, as provided in the Marketplace.

However, in case of Service, if any condition specified in General Terms and Conditions is contradicted by the conditions stipulated in Service Level Agreement specific to said Service, then it will over-ride the conditions in the General Terms and Conditions.

[यह बिड सामान्य शर्तों के अंतर्गत भी शासित है /This Bid is also governed by the General Terms and Conditions](#)

जेम की सामान्य शर्तों के खंड 26 के संदर्भ में भारत के साथ भूमि सीमा साझा करने वाले देश के बिडर से खरीद पर प्रतिबंध के संबंध में भारत के साथ भूमि सीमा साझा करने वाले देश का कोई भी बिडर इस निविदा में बिड देने के लिए तभी पात्र होगा जब वह बिड देने वाला सक्षम प्राधिकारी के पास पंजीकृत हो। बिड में भाग लेते समय बिडर को इसका अनुपालन करना होगा और कोई भी गलत घोषणा किए जाने व इसका अनुपालन न करने पर अनुबंध को तत्काल समाप्त करने और कानून के अनुसार आगे की कानूनी कार्रवाई का आधार होगा।/In terms of GeM GTC clause 26 regarding Restrictions on procurement from a bidder of a country which shares a land border with India, any bidder from a country which shares a land border with India will be eligible to bid in this tender only if the bidder is registered with the Competent Authority. While participating in bid, Bidder has to undertake compliance of this and any false declaration and non-compliance of this would be a ground for immediate termination of the contract and further legal action in accordance with the laws.

---धन्यवाद/Thank You---