OFFICE OF THE MUNICIPAL COUNCIL, BALANGIR

EXPRESSION OF INTEREST (EOI) FOR *"BALANGIR SAFE CITY PROJECT"*

FOR SELECTION OF AGENCY FOR INSTALLATION AND O&M OF CCTV

SURVILLIANCE SYSTEM ALONGWITH TRAFFIC LIGHTS OUT OF WODC GRANT

EOI NO. - 4284/BM/ DT.25.07.2022

EXECUTIVE OFFICER
BALANGIR MUNICIPALITY

OFFICE OF THE MUNICIPAL COUNCIL: BALANGIR

Address:-Office of the Municipal Council, Balangir, Opp of Rajendra Park, Balangir, Pin-767001,
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Letter No....4284......./BM/   /Dt.25.07.2022

TENDER CALL/EXPRESSION OF INTEREST

EOIs are invited from intending firms/ dealers /consultants/reputed agency having adequate previous experience in preparation of Detail Project Report & quoted rate for procurement, installation, testing and commissioning of C C TV surveillance system at vital points of Bolangir town as per the Detail Tender Call Notice.

The consultants/firm/agency should file their rates including preparation of DPR, Supervision charges etc with terms & conditions. The Quotationer should enclose the copy of documents in support of experience, registration, PAN/GST certificate with the quotations.

EOIs will be received up to Dt. 06.08.2022 by 5.00 PM through Registered/Speed post only and the same will be opened at 11.00 AM on Dt.07.08.2022 in presence of the quotationers or their authorized representatives. The rate should be quoted inclusive of all Tax, GST, Transportation charges, loading, unloading charges, Installation, commissioning etc. .

Blank Bid documents for the works will be available from the office of the undersigned on any working day during office hours (10.00 AM to 5.00 PM) from Dt. 27.07.2022 to Dt.06.08.2022 on payment of Rs. 10,000 /- (Rupees Ten Thousand) only towards cost of bid documents in shape of Demand Draft only from any Nationalised Bank drawn in favour of Executive Officer, Balangir Municipality payable at Balangir & the bidder in a position to complete the said project within 45 days of receipt of work order.

The Bidders have to submit the bid documents duly filled up along with attested photo copies of qualifying documents as indicated in eligibility criteria and the bidders shall have to produce original documents as per eligibility criteria if required for verification and the same will be verified by the Tender Committee constituted for the purpose on the date of the opening of the tender.

The undersigned reserves all the right to reject or cancel all the tender call notice without assigning any reason thereof.

25.07.2022
Executive Officer
Balangir Municipality

Memo No........1285..... Date.25.07.22....

Copy submitting to the Collector and District Magistrate, Balangir/ The Superintendent of Police Balangir/Project Director,D.U.D.A, Balangir /Project Director, D.R.D.A,Balangir/C.E.O. WODC, Balangir for information with a request to display the notice of their Office Notice Board.

25.07.2022
Executive Officer
Balangir Municipality

Memo No. 4286 Date 25.07.22

Copy to the Director, I & P R, Bhubaneswar with a request to publish the above advertisement in one english and one odia daily edition prior to 27.07.2022 and submit the conformation for necessary compliance and payment.

25.07.2022
Executive Officer
Balangir Municipality

Memo No. 4287 Date 25.07.2022

Copy to forwarded to the District Informatics Officer, N I C, Balangir for information with a request to host the tender in the District Portal for wide Publicity. Submit a copy of hosting to this office for necessary information for record and evidence.

25.07.2022
Executive Officer
Balangir Municipality

1. Introduction

The key objective of this project is to establish a collaborative frame work where input from local police stations will get monitored at the center location for smooth functioning of the town. The project is to be implemented by Balangir Municipality and maintained by Balangir Police Office, Odisha with the help of local police for smooth functioning of the Town operations. Command & Control System further will have to converted to actionable intelligence, which would be propagated to relevant stake holder sand citizens in coordinated and collaborative manner.The main objective of the solutions to provide simple, robust system and the key out comes expected to be achieved by the proposed interventions.

a. Improved visualization of emergency in the city
b. Efficient traffic management
c. Enhanced safety and security
d. Better management of utilities and quantification of services
e. Better Emergency Response
f. Efficiency in improvement in public service delivery
g. To integrate 2 or more remote police station to work in a collaborated environment.
h. Reduce time to close the cases with the surveillance-based video evidence.
i. System should be scalable and in future can be integrated with the state command & control room.

To meet the objective following systems proposed
j. Command and Control Centre
k. CCTV based Surveillance System
l. Automatic Number Plate Detection System
m. Automatic Face Detection System
n. Dedicated wired secured network
o. GPS system for vehicle tracking

1. Solution Components & services overview

The selected BIDDER shall ensure the successful implementation of the proposed Town Surveillance project implementation as per the scope of work detailed in this EOI. Any functionality not expressly stated in this document but required to meet the needs of the requirements of the project to ensure successful operation soft he system shall essentially be under the scope of BIDDER and for that no extra charges shall beadmissible. BIDDER shall deliver the systems and components as per the techno-functional specifications as per the Annexure-D BIDDER's scope of work shall include but will not be limited to the following broad areas.

a. Assessment, Scoping and Survey Study: Conduct a detailed assessment, survey and scoping study and develop a comprehensive project plan.
b. Design a dedicated wired and wireless secured and stable network, Network connectivity with in the city and the other sites for the scope items mentioned in this Volume of the EOI
   1. Conduct site survey for finalization of detailed technical architecture, final Bill of Quantities, and project implementation plan.
   2. Conduct Site Surveys to identify the need for the site preparation activities.
c. Design, Supply, Configuration, Installation, Implementation, Testing and Commissioning of the components/systems as mentioned in Tender Boq.
d. To separate setup and 2 remote control stations. These remote stationed will have viewing & recoding rights only and in case of any investigation their rights will be reevaluated with the situations.
e. BIDDER will be provided special field enclosures with cooling arrangement for mounting UPS, Switches, and other components with cooling arrangements.
f. BIDDER will have to make necessary survey to provide dedicated secured network for
   1. Surveillance cameras (In case of network failure, local storage should be available in the camera end and auto synchronization should happened when network resumes).
   2. Traffic Management System
   3. Public Management System
   4. Automatic Number Plate Detection System
   5. Automatic Face Detection System
g. BIDDER will have to handover operational manuals, training documents and support during warranty and comprehensive maintenance support. BIDDER should have their local office setup for smooth warranty operation. BIDDER will get additional weightage during evaluation if already having an experience in working on similar type of work with for Police department.

2. **Scope of Work**

<div align="center">

Annexure-A
Details of locations for supply and installation of assets

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Sl. No.	Locations	Face Detection	Bullet Camera	ANPR	PTZ	Traffic light
1	Little Flower School Chowk	02		02		
2	Medical College (VBMCH) Chowk	01	02			
3	Santipada Chowk	01	02	01		
4	Women College Chowk		03			
5	Women College		03			
6	Rajendra University Chowk (NH-42)		02		01	
7	Rajendra University New Hostel Chowk		03			
8	Sadeipali Chowk	01	01	02		
9	SITE College Chowk	01	03			
10	Chhuiban Chowk	01	02			
11	Raliway Station Chowk	01	02		01	
12	Fisheries Office Chowk		03			
13	Madhiapali Chowk		02			
14	Roshni Public School	01	02	02		
15	Mathkhai Chowk (Khujenpali)	01	02	01		
16	Sudpada Hanuman Mandir Chowk		03			
17	Hospital Chowk Main		02		01	

	Gate					
18	Sonepur Chowk		03			
19	Madangudia Chowk	01	03	01		
20	Gate Sarovar Para Chowk		02			
21	Suruchi Bazar Chowk		02			
22	Samaleswari Mandir Chowk		02			
23	Patna Chowk	03	02	03		01 (repair)
24	Gandhi Nagar Chowk		03			
25	Chimney Vati Para Chowk		03			
26	Hatdpada pada Chowk		03			
27	Brahmin Para Chowk	01	02	01		
28	Collector Office Chowk		03	03		01 (repair)
29	Bikram Chowk	01	02	02		
30	Bhagirathi Chowk	02	03	03		01 (new)
31	Circuit House Chowk		02			
32	Salepali Chowk	01	02	01		
33	Rajiv Nagar Chowk		02			
34	Indira Nagar Chowk		03			
35	RTO Chowk	01	02	01		01 (new)
36	Indian Oil Petrol Pump (Bijakhaman)		01	02		
	Total=	**20**	**82 (22 old to be used)**	**25**	**03**	**04**

Note:
1. The requirements and sites are for eye estimation; bidder can rearrange this and can explain during power point presentation.
2. Rates are to be quoted for supply, installation and commission inclusive cost of material and service charges exclusive of taxes but inclusive all other cost required to complete the same.

3. In respect of the evidence required by the Police Administration, the proposed solution will be able to store the data of 30 days. Accordingly, the storage capacity should be calculated and submitted an extra sheet.
4. Network and Connectivity: – All the surveillance equipment is connected in network, so that the video feeds are available at data center as well as viewing centers 24X7.
5. Already 22 Nos. of Bullet Cameras of CP-PLUS brand is functioning & should be reused.
6. Approx. 15 KM Optical Fiber Cable is also existing which covering the networking system to be reused.
7. Two sets of Traffic Light Systems are also exist & required some repairing which can be surveyed & repairing cost may be added in the DPR for functioning of both.

3. **Submission of Tender/EOI**

The EOI is to be submitted in two bid system i.e. Cover I- Technical Bid and Cover II- Financial bid. Please enclose the TECHNICAL BID in a separate sealed Envelope (Marked as Envelope-1) & FINANCIAL BID in a sealed Envelope (Marked as Envelope-2) andall the two sealed envelopes should be placed in a Third Envelope (Marked as Envelope – 3) sealed and submitted to the undersigned super scribing with "Tender for Supply, Installation and Commissioning of CCTV Surveillance System for BALANGIR SAFE CITY PROJECT, Odisha".

Note

i) The Tender Inviting Authority reserves all the rights to accept or reject any tender application without assigning any reason whatsoever.

ii) If any contractor is selected for qualifying tender, he/she has to submit original documents as required by the TIA for necessary verification.

iii) Tenders will be summarily rejected if any item in the statutory cover ismissing.

iv) Necessary deduction i.e. GST, IT, CESS etc. Will be made as per relevant Govt. order.

a. **Technical cover containing,**

i)   Up to date Professional Tax (PT) Clearance receipts and ITPAN, up to date Income Tax Return receipts valid up to the date of opening of the tenders. Application for Such clearance addressed to the competent authority may also be considered.

ii)   Up to date GST Registration Certificate and up to date and valid Return Certificate.

iii)   Registered Deed for Partnership Firm.

iv)   Work Order and Work Completion Certificate.

V)   Up to date audited balance sheet.

vii)   Experience profile should be furnished in given format in **Annexure-B** in the end of this page.

THE ABOVE STATED NON-STATUTORY TECHNICAL DOCUMENTS SHOULD BE ARRANGED IN THE FOLLOWING MANNER

Sl. No	Category Name	SubCategory Description	Details
A.	CERTIFICATES	CERTIFICATES (ALL CERTIFICATE SHOULDBE UP TO DATE)	1. GSTRegistration Certificate2.PANCard 3.P Tax Registration Certificate4.IncomeTax Returns
B.	COMPANY DETAILS	COMPANYDETAILS	1.Proprietorship Firm (Trade License) 2. Partnership Firm (Partnership Deed, Trade License) 3.LTD. Company (Registration Certificate, Trade License) 4. Co-Operative Society (Society Registration Certificate) Bye Laws, up to date Audited Balance Sheet. 5.PowerofAttorney(Registered)
C.	CREDENTIAL	Credential	1.Completion Certificate for SimilarNature ofWork Done

NOTE: FAILUREOFSUBMISSIONOFANY ONEOF THEABOVE-MENTIONEDDOCUMENTSWILL RENDERTHE TENDER LIABLETO REJECT.

b. Financial Proposal:

i) The Financial proposal should contain the following documents in one cover (folder) i.e. Bill of quantities (BoQ). The contractor is to quote the rate (item wise against the total items cost of the intended job through price bidding in the space marked for quoting Rate in the BOQ.

ii) Only signed copies of the above documents are to be submitted.

iii) If Bidder wish to submit any other prospective Plan and arrangement he can do so with a special cover bid other than the requirement.

4. **Penalty for suppression /distortion of facts:**

If any Tenderer fails to produce the Original hard copies of the documents or any other documents ondemand of the Tender Inviting Authority within a specified time frame or if any deviation is detected in the hard copies or if there is any suppression, the Tenderer will be suspended from participating in the tenders one-Tender platform for a period of 3(Three) years. In addition, his user ID will be deactivated, and it will stand forfeited. Besides, the Tender Committee may take appropriate legal action against such defaulting Tenderer.

5. **Rejection of Bid**

   The employer (Tender accepting authority) receives the right to accept or reject any bid and to cancel the bidding process and reject all bids at any time prior to the award of contract without there by incurring any liability to the affected Tenderers or any obligation to inform the affected Tenderer or Tenderers.

6. **Award of Contract**

   The Tenderer whose Bid has been accepted will be notified by the Tender Inviting & Accepting Authority. The notification of award will constitute the formation of the Contract. The Agreement in Municipal Tender Form with incorporation of all the required documents, including all its addenda & corrigendum, Application and Financial Offer on Bill of Quantities (BOQ) will be executed between the Tender Accepting Authority and the successful Tenderer. The Tender Inviting Authority may ask for submission of the hard copy of all the uploaded documents of all eligible tenderers along with original, before awarding contract.

7. **Formalities**
   During execution if any approval from the competent authorities is required the same has to be obtained by the tenderer/agency.

8. **Specification**
   Before quotation of rate the tenderer should inspect the site and get fully acquainted with all physical and technical parameters related to the successful completion of the work.

9. **Submission of DPR**
   After qualifying the tender, the L1 bidder has to submit the complete Detail Project Report (DPR) to the tender inviting authority.

10. **Mode of Payment**
    Payment will be made as per the availability of the fund from the Municipality office for the respective project.

11. **Security Deposit**
    The successful bidder has to submit the Performance Security Deposit amounting to 10% (ten percent) of the bidding value of the work in form of Bank Guarantee prior to signing of the agreement.

12. **Warranty**
    All the items of this tender should be under warranty for 24 months with Comprehensive maintenance of Two year.

13. All disputes will be settled within the jurisdiction of the Court of Balangir.

14. **Supplementary/Additional items of Works:**

Notwithstanding the provisions made in the related printed tender form, any item of work which can legitimately be considered as not stipulated in the specific price schedule of probable items of work but has become necessary as a reasonable contingent item during actual execution of work will have to be done by the Contractor, if so directed by the Engineer-in-Charge and the rates will be fixed in the manner as stated below-

(a) Rate of Supplementary items shall be analyzed in the 1st instant extended possible from the rates of the allied items of work appearing in the tender schedule.

(b) If the rates of the supplementary items cannot be computed even after application of clauses stated above, the same shall be determined by analysis from market rates of material, Labour and carriage cost prevailing at the time of execution of such items of work. Profit and overhead charges (both together) @ 10% (ten percent) will be allowed only. The contractual percentage will not be applicable.

(c) Black market rates shall never be allowed.

(d) It may be noted that the cases of supplementary items of claim shall not be entertained unless supported by entries in the Work Order Book or any written order from the tender accepting authority.

15. **Technical Evaluation Sheet: -**

Sl. No.	Documents	Marks
1	Valid Registration certificate	**10**
2	GST Clearance Certificate	**10**
3	Annual Turnover of minimum 3.00cr from last 3 years	**10**
4	Layout Map	**10**
5	The bidder must have completed similar nature of work costing minimum Rs. 50.00 Lakhs with a single employer in any Financial year completed in last 5 years.	**20**
6	Presentation (Maximum 10 Mins)	**40**
	TOTAL	**100**

Note: The bidders have to get minimum 70 marks out of 100 for qualifying the Technical evaluation.

16. **Cost of Bidding: -**

The bidder will bear all costs associated with the preparation & submission of its bid & the authority will in no event or circumstance be held responsible or liable for these costs.

17.   **Amendment of Tender Documents: -**

At any time before the deadline for submission of bids, the authority may, for any reason where at its own initiative or in response to a clarification requested by a prospective bidder, modify the tender documents by amending, modifying or supplementing the same. Any amendment or modification in the tender document would be published in the same web site: www.balangir.nic.in where the notice for EIO will be published. Bidders are requested to visit the site regular for such kind of updates.

18.   **Site Visit: -**

The bidder may wish to visit & examine the sites of the Project & obtain for itself, at its own responsibility & risk, all information that may be necessary for preparing the bid and entering into the contract. The Cost of Visiting the site (s) shall be borne by the bidder. Tendring authority will not responsible to schedule/coordinate with the client for the bidders site visit and details assessment of the requirement.

19.   **Eligibility criteria for participation in tender:**
The technical evaluation will be done on the following parameters and offers fromfirms not conforming to any of these parameters will be rejected.

1. The bidder should have valid GST Registration Certificate, P Tax & PAN. Bidder shall have to submit photocopy of thedocuments.
2. The bidder should have at least 5 years' experience of CCTV Surveillance System installing in major urban areas. Necessary documents (Work Order/Completion Certificate of Govt. Organization / PSUs) has to be submitted.
3. The bidder should have executed at least three or more similar nature projects not less than 4 Cr commutative in last 5years.
4. Bidder's experience working with Police Department of any state will be preferred.
5. The bidder should have total turnover of not less than Rs. 3 Crore in the last three financial years. Bidder shall have to Audited Balance Sheet of minimum 3 financial years (2019-20, 2020- 2021,2021-2022).
6. **Manufacturer's tender specific authorizations (MAF) for main items   i.e., Recoding Server, Camera, ANPR, Video Display, Field Switches, SPD,   All   Traffic Items, UPS, Active & Passive Network components.**
7. Cameras & Analytics servers should be UL listed, CE and FCCCertified.
8. Camera Test Report of UL accredited lab with lab accreditationcertificate.
9. The biddershouldbeanISOCertifiedorganization.CopyofvalidCertificateis to be submitted.
10. The bidder should be MSME Registeredunit.
11. The bidder shall not have been blacklisted by any State/Central Government or PSU Organization or bilateral/multilateral funding agencies for breach of ethical conduct or fraudulent practices as on date of submission of the proposal. Declaration on bidder's letter head to be submitted.
12. MSME/NSIC Registered units should have Relevant Documents to be submitted along with TechnicalBid.
13. Analytics server, Camera & Field switch should be from same OEM for better

performance and seamless integration

14. All technical compliance to be signed & stamp by OEM on their letterhead.
15. Camera OEM should be in Top 5 CCTV Brand Globally as per HIS Report, Documentary Proof Required.
16. Camera OEM should have direct presence in India from last 5 years or more, Documentary ProofRequired.
17. Camera OEM should have factory in India or any third-party arrangement for Manufacturing, Documentary ProofRequired.
18. Camera & NVR OEM should have supplied 5000 + Cameras in Government sector / PSUs, Documentary ProofRequired.
19. OEM should have own dedicated CCTV support center available during working hours and a fully equipped repair and maintenance office in India.
20. CCTV OEM should have its own service center (not through joint venture, partnership firms or through any other association). Only 100% Subsidiary will be considering for direct presence.
21. Quoted CCTV OEM should be full time member of ONVIF and same will cross heck online in ONVIF website.
22. MAC address of camera should be registered in the name of OEM supplying the cameras.
23. The CCTV OEM should be CMMI level 5 Certified. Necessary document should be attached.
24. OEM should be ISO 9001:2015 and ISO14001:2015
25. OEM should have local sales representative and service Centre at customer state.
26. OEM should be a Company registered in India under the Indian Companies Act.
27. All Passive & Active (OLT, ONU) components should be same the OEM for better performance.
28. Bidders need to submit Bid Specific MAF (ForDisplay)
29. OEM must have Service Centre in Odisha from last 10 years. (ForDisplay)
30. OEM must have 9001: 14001 certificates. (ForDisplay)
31. OEM must have facility of color calibration using mobile technology. (For Display)
32. Product should not be manufactured in any country sharing land border with India. (For Display)
33. OEM Should have toll free call Centre number for service call registration. (For Display)
34. Bidder Should Provide 24 months warranty from the date of handover.

Executive Officer
Balangir Municipality

ANNEXURE- B

Experience profile (in technical cover)

List of projects completed that are similar in nature to the works executed for the last 5 (five) financial years i.e. from FY 2017-18 to2021-2022

Name of Work	Name & Address of Agency	Value of the Work	Date of Completion

**Signature of Bidder
with Seal**

ANNEXURE- C
BILLS OF QUANTITY (BOQ)

SL. NO.	ITEMS	UNIT	QUANTITY	UNIT PRICE	AMOUNT WITH OUT GST
1	5Mp V/F Bullet Camera as per the lens 7-35mm specification support micro storage 256GB (can store footage in case of network failure) and in build analytics like face Detection/ recognitions	Nos	20		
2	4MP IP Bullet varifocal (Audio) camera with 2.7-13mm lens, 120db WDR , inbuilt mic with 256 micro SD for local storage in case of network failure- Refer Technical Spec	Nos	60		
3	2Mp 45x PTZ Camera with micro storage 256GB (can store footage in case of network failure) @ 50/60 fps, Poe+ Supported, WDR 120db, IR Distance 250Mtr.	Nos	3		
4	Storage / Server, Analytic software, Up to 50 face databases with 5,00,000 face picture in total, with Red 10 and above, 12ch AI IVS. Total IP camera Supported 220 (40no ANPR Camera, 40 no Face Recognitions camera) , HDD support 256TB and above	Set	1		
5	6TB Surveillance HDD For 30 days backup	Nos	20		
6	24 Port L2/L3 Fully Manageable Switch	Nos	1		
7	L2 Fully Manageable Optical Line Terminal, 4no Gigabit Pon port	Nos	1		
8	Epon OLT SFP (Pon) Module Gigabit Interface	Nos	8		
9	Optical Network Unit with 10/100/1000 copper port, 1 Gigabit OFC Port	Nos	45		
10	4Mp ANPR/Enforcement Camera Real time capture, support multi lane detection, capturing Speed up-to 120kmph, with necessary software and analytics License	Set	25		
11	8 port 10/100mbps intelligent POE Switch with 1 port Gigabit 10/100/1000 Uplink port , inbuilt power, Power budget 96W	Nos	40		
12	Enclosure for outdoor UPS & Switch with Proper cooling arrangement and Temperature Controller	Nos	35		
13	22U Rack Fully Loaded	Nos	1		
14	IP66 Junction Box For camera	Nos	100		
15	16 Port Fully loaded Raceable LIU	Nos	1		
16	Workstation i7 10th generations, 8GB Ram, HDD 1TB, widows Professional with 24" full HD monitors and all required software's/ License as per solution requirements	Set	1		
17	6core Armour OFC cable with Laying & Termination	Lot	18000		

18	Cat6 UTP Network Cable	Lot	2200		
19	2sqmm 3core Copper Power Cable as per the system requirements.	Mtr.	2100		
20	12 core x 1.5 sqmm flexible multithread Copper cable	Mtr.	On Actual		
21	6 core x 1.5 sqmm flexible multithread Copper cable	Mtr.	On Actual		
22	32-40mm HDP pipe with road cutting, Soil excavation, refilling and road repairing	Mtr.	On Actual		
23	SPD (Surge Protector Device)	Nos	45		
24	Chemical Earthing as per IS standard	Nos	10		
25	Poles/Gantry/Bullet camera stand with foundation as per approved design for CCTV & ANPR	Lot	1		
26	Advance Traffic signal Controller Fully automatic and multi programmable with mild steel cabinet including components,	Nos	4		
27	12"(300mm diameter) Traffic Signal Aspects (Red / Amber/Green Straight/Green Right) in polycarbonate molded compact & sim designed signal head housing Including smart LED retrofit kit, visibility distance Minimum 500mtr	Nos	14		
28	Count Down timer 199 seconds display capacity in Mild steel housing including electronic system Smart LED	Nos	6		
29	Ms Standard with anti-corrosive paint 7.5 Mtrs Cantilever Pole with overhang arm 4.5 Mtrs included Foundation & transportation	Nos	6		
30	Ms Standard with anti-corrosive paint 6 Mtrs Pole with Foundation & transportation	Nos	6		
31	1 KVA UPS with Battery Backup Two Hours	Nos	35		
32	2 KVA UPS with two hours battery backup	Nos	3		
33	6 KVA Online UPS with battery Backup as per the specifications For Server Room full backup	Nos	1		
34	65" 24 x 7 UHD 4K Display For Control Room as per the specifications and Bracket	Set	4		
35	Standalone Facial Based Access Control with 600LVS EM Lock with all accessories	Set	1		
36	Installation & Commissioning with all accessories Charges	Lot	Lot		

Note:- The above assessment is tentative only. Quantity may change as per actual execution.

Place: **Signature of Bidder**

Date: **with Seal**

Minimum Techno-Functional Requirements

Annexure – D.1
Bullet Camera with Face Detection

Category	Parameter	Description	Compliance Yes/No
Camera	Image Sensor	1/2.7" 5 Megapixel progressive scan CMOS	
	Effective Pixels	2592 (H) × 1944 (V)	
	Electronic Shutter Speed	Auto/Manual, 1/3 s–1/100000 s	
	Video Frame Rate	Outputs max. 5MP (2592 × 1944)@20 fps, (1920 x 1080) @ 50/60 fps	
	Min. Illumination	0.003 Lux@F1.3	
	IR Distance	120 m (394 ft)	
Lens	Lens Type	Motorized vari-focal	
	Mount Type	Board-in	
	Focal Length	7 mm–35 mm	
	Field of View	H: 31°–9°, V: 23°–7° (2592 × 1944)	
	Aperture Type	Auto (HALL)	
Video	Video Compression	H.265; H.264; H.264H; H.264B; MJPEG	
	Smart Codec	Smart H.265+, Smart H.264+	
	Stream Capability	3 streams	
	WDR	120 dB or Better	
	HLC	Supported	
	Defog	Supported	
	Smart Illumination	Supported	
	EIS	Supported	
	Noise Reduction	3D DNR	
	Privacy Masking	4 areas	
Audio	Audio Input& Output	1/1 channel In/Out	
	Audio Compression	G.711a, G.711Mu, AAC, G.726, G.723	
Network	Network	RJ-45 (10/100 Base-T)	
	Protocol	IPv4; IPv6; HTTP; HTTPS; TCP; UDP; ARP; RTP; RTSP;RTCP;RTMP;SMTP;FTP;SFTP;DHCP;DNS;DDNS; QoS; UPnP; NTP; Multicast ; ICMP;IGMP;NFS;PPPoE;802.1x;SNMP	
	Interoperability	ONVIF(Profile S/Profile G/Profile T), CGI, Milestone, Genetec	
	Edge Storage	NAS; FTP; SFTP; Micro SD card 256	

Alarm	Alarm Event Trigger	Motion detection, Video tampering, Scene changing, Network disconnection, IP address conflict, Illegal Access, Storage anomaly,	
Power	Power Supply	DC 12V (±30%), PoE (802.3af)	
Environment	Operating Temperature	-30° C to +60° C (-22° F to +140° F)/Less than 95% RH	
	Protection	IP67, IK10	
Intelligent function	Face Detection	Face detection; track; optimization; snapshot; report high quality picture; face enhancement; face exposure; face attribute extract, 6 attributes and 8 expressions: Gender, age, glasses, expressions (anger, calm, happiness, sadness, disgust, surprise, confusion, and fear), mask, beard; face matting setting: face, single inch photo; three snapshot methods: real-time snapshot, optimization snapshot, quality priority; face angle filter; optimization time setting	
Intelligent function	People Counting	Support the counting of enter number, leave number, and pass number, and displaying and outputting yearly/ monthly/ daily reports. Support the counting of number in area, and 4 rules configuration. Count number of people or stay time and link alarm.	
General Intelligence	Event Triggering	Motion detection, video tampering, scene changing, network disconnection, IP address conflict, Illegal Access, storage anomaly.	
	General Intelligence	Object Abandoned/ missing	
Intelligent function	Perimeter Protection	Tripwire; intrusion; fast moving (the three functions support the classification and accurate detection of vehicle and human); loitering detection; people gathering; parking detection	
Certificate	CE	CE-LVD: EN62368-1 CE-EMC: Electromagnetic Compatibility Directive 2014/30/EU	
	FCC	FCC: 47 CFR FCC Part 15, Subpart B	
	UL	UL/CUL: UL60950-1 CAN/CSA C22.2 No.60950-1-07	
	Approved Brand	Dahua / Honeywell / Hanwa	

**Signature of Bidder
with Seal**

Annexure- D.2.
Bullet Camera

Category	Parameter	Description	Compliance
Camera	Image Sensor	1/3"CMOS	
	Max. Resolution	2688(H)×1520(V)	
	ROM	128 MB	
	RAM	128 MB	
	Scanning System	Progressive	
	Electronic Shutter Speed	Auto/Manual 1/3 s–1/100,000 s	
	Min. Illumination	0.008 Lux @ F1.5	
	Illumination Distance	60 m (IR)	
	Illuminator On/Off Control	Auto/Manual	
	Illuminator Number	4 (IR LED)	
	Pan/Tilt/Rotation Range	Horizonal: 0°–360° Vertical: 0°–90° Rotation: 0°–360°	
Lens	Lens Type	Motorized Vari-focal	
	Lens Mount	φ14	
	Focal Length	2.7-13.5mm	
	Max. Aperture	F1.5	
	Field of View	Horizontal: 104°–27°Vertical: 55°–15°Diagonal: 124°–31°	
	Iris Control	Fixed	
	Close Focus Distance	0.8 m–0.8 m	
	DORI Distance	W: D: 64 m; O: 25.6 m; R: 12.8 m; I: 6.4 m T: D: 220 m; O: 88 m; R: 44 m; I: 22 m	
Smart Event	IVS	Intrusion; tripwire	
Video	Video Compression	H.265; H.264; H.264B; MJPEG	
	Smart Codec	H.264: Yes H.265: Yes	
	Video Frame Rate	50Hz Main stream (2560 × 1440 @ 25 fps); sub stream (704 × 576 @ 25 fps) Main stream (2688 × 1520 @ 20 fps); sub stream (704 × 576 @ 20 fps); Third stream: CIF@1fps 60Hz Main stream (2560 × 1440 @ 30 fps); sub stream (704 × 480 @ 30 fps) Main stream (2688 × 1520 @ 20 fps); sub stream (704 × 480 @ 20 fps); Third stream: CIF@1fps	
	Stream Capability	3 streams	
	Resolution	2688 × 1520 (2688 × 1520); 2560 × 1440 (2560 × 1440); 2304 × 1296 (2304 × 1296); 1080p (1920 × 1080); 1.3M (1280 × 960); 720p (1280 × 720); D1 (704 × 576/704 × 480); VGA (640 ×480); CIF (352 × 288/352 × 240)	
	Bit Rate Control	CBR/VBR	
	Video Bit Rate	H.264: 32 kbps–6144 kbps H.265: 12 kbps–6144 kbps	
	Day/Night	Auto(ICR)/Color/B/W	
	BLC	Yes	
	HLC	Yes	
	WDR	120 dB	
	White Balance	Auto/Natural/Street Lamp/Outdoor/Manual/Regional Custom	
	Gain Control	Auto/Manual	

	Image Rotation	0°/90°/180°/270° (Support 90°/270° with 2688 ×1520 resolution.)	
	Mirror	Yes	
	Privacy Masking	4 areas	
Audio	Audio Compression	G.711a; G.711Mu; G.726	
Network	Network Port	RJ-45 (10/100 Base-T)	
	Network Protocol	HTTP; TCP; ARP; RTSP; RTP; UDP; RTCP; SMTP; FTP; DHCP; DNS; DDNS; PPPoE; IPv4/v6; QoS; UPnP; NTP; RTMP; Multicast; HTTPS; SFTP; 802.1x; ICMP; IGMP	
	Interoperability	ONVIF (Profile S/Profile G); CGI; Milestone; Genetec	
	User/Host	20	
	Storage	Cloud; FTP; Micro SD card (max. 256 GB); NFS	
	Browser	IE Google Firefox	
	Management Software	Smart PSS;DSS;DMSS	
	Mobile Client	iOS; Android	
Port	Audio Input	1 channel (RCA port)	
	Audio Output	1 channel (RCA port)	
	Alarm Input	1 channel in: 5mA 3V–5V DC	
	Alarm Output	1 channel out: 300mA 12V DC	
Power	Power Supply	DC12V/PoE(802.3af)	
	Power Consumption	Basic power consumption: 2W (12V DC); 2.7W (POE) Max power consumption: (H.265, Max resolution, Max stream, WDR, IR full intensity, IVS): 8.2W (12V DC), 9.6W (POE)	
Environment	Operating Temperature	-30°C to +60°C (-22°F to +140°F)	
	Operating Humidity	≤95%	
	Storage Temperature	-40°C to +60°C (-40°F to +140°F)	
	Protection	IP67;IK10(optional)	
Structure	Casing	Metal	
	Product Dimensions	Φ244.1 mm × 90.4 mm	
	Approved Brand	Dahua / Honeywell / Hanwa	

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Annexure – D.3.
Enforcement /ANPR Camera

Category	Parameter	Description	Compliancee Yes/No
Basic	Main processor	High-performance embedded processor	
	Image Sensor	1/1.8" CMOS	
	Image Resolution	2688 × 1520	
	Electronic Shutter Speed	1/25 s–1/100000 s (manual/auto)	
	Video Frame Rate	Maximum 25fps; main stream (2688 × 1520 @ 25fps), (1920 x 1080 @ 50/60fps)	
	IRIS Control	Fixed iris/manual iris/auto iris/P iris	
	Lens Type	Vari-Focal	
	Mount Type	On-Boards	
	Focal Length	10 ~ 40 mm or better	
	Video Bit rate	32kbps–32767kbps	
	Picture Encoding Format	JPEG	
	Video Compression	H.265/H.264M/H.264H/H.264B/MJPE GG	
	White Balance	Auto/ outdoor/ manual/ local white balance/ natural light/ street light	
	Bad Pixel Correction	Supported	
	WDR	90 dB or better	
	Edge Enhancement	Supported	
	Noise Reduction	2DNR/3DNR	
	Composite Image	Supports composing 1, 2, 3, or 4 pictures	
	OSD Overlay	Motor vehicles: Time, location (video channel location), lane (number, direction), plate (number and color), speed, region, vehicle color, vehicle logo, vehicle type Non-motor vehicles: Helmet, passenger overloading	
	Automatic Network Replenishment (ANR)	Platform, FTP (TF card is required)	
	Image Tampering Prevention	Yes. Watermark and verification are available for videos and pictures	
	Drawing Detection Line	Supports automatically drawing detection lines	
	Auto Registration	Supported	
	Target Detection	Motor vehicles and non-motor vehicles	

Intelligence	License Plate Recognition	Adopts self-developed algorithm to recognize license plates combining numbers and letters	
	Vehicle Type Recognition	Vehicle head: Coach bus, medium bus, SUV, MPV, pickup, heavy truck, medium truck, car, van, and light truck Vehicle tail: SUV, car, van, coach bus, pickup, cargo truck, mini truck, tank truck, and mixer truck	
	Motor Vehicle Violation Capture	Over speed, under speed, wrong-way	
	Traffic Flow Detection	Statistics of vehicle flow, average speed, vehicle type, lane occupancy, average time headway, average queue length, road status, and more; statistics can be exported in Excel	
Ports	Storage	FTP, TF card (maximum 256GB@Class10)	
	Network	1 RJ-45 Ethernet port, 10/100/1000M network transmission	
	RS-485	1 Port	
	RS-232	2 Ports	
	Alarm Input & Output	3/2 Channel Input/ Output	
	Audio Input& Output	1/1 Channel Input/ Output	
Power	Power Supply	12V DC, 36V DC, PoE	
	Operating Temperature	−40°C to +60°C (−40°F to +149°F) or better	
	Ingress Protection	IP67 ;	
Certificate	Certifications	CE, FCC, UL	
	Approved Brand	Dahua / Honeywell / Hanwa	

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Annexure – D.4.
PTZ Camera

Sl. No	Category	Parameter	Description	Compliance Yes/No
1	Camera	Image Sensor	1/2.8″ CMOS	
		Scanning System	Progressive	
		Effective Pixels	2MP, 1920(H) x 1080(V) or better	
		Electronic Shutter Speed	1/1s~1/30,000s	
		Rom	4GB or better	
		RAM	1GB or better	
		Video Frame Rate	Max outputs 2MP (1920×1080) @50/60 fps	
		Min. Illumination	Color: 0.005Lux@F1.6; or better B/W: 0.0005Lux@F1.6; or better 0Lux (IR on)	
2		IR Distance	250m (820ft) or better	
		Optical Zoom	45X or better	
		Digital Zoom	16X or better	
		Focal Length	3.95mm~177.75mm or better	
		Field of View	H:65.7°~1.9°; V:39.4°~1.1°; D:73.1°~2.1° or better	
3	PTZ	Iris Control	Auto/Manual	
		Wavelength	850nm	
		Pan/Tilt Range	Pan: 0° ~ 360° endless; Tilt: -20° ~+90°, auto flip 180°	
		Preset Speed	Pan: 300°/s; Tilt: 200°/s	
		Presets	300	
		Power up Action	Auto restore to previous PTZ and lens status after power failure	
		Video Compression	H.265/ H.264/ MJPEG	
		Smart Codec	Smart H.265+, Smart H.264+	
		Stream Capability	3 streams	
		WDR	120 dB or better	
4		Bit Rate	H.265/H.264: 3Kbps ~ 20480Kbps	
		White Balance	Auto, ATW, Indoor, Outdoor, Manual	
5		Noise Reduction	Ultra DNR (2D/3D)	
		EIS	Supported	
		Defog	Supported	
		Privacy Masking	24 areas	

6	Audio	Audio Compression	G.711a/G.711Mu/AAC/G.722 / G.726/ G.729/ MPEG2-L2	
		AudioInput& Output	1/1 channel In/Out	
7	Network	Network	RJ-45 (10/100 Base-T)	
8		Protocol	IPv4/IPv6, HTTP, HTTPS, SSL, TCP/IP, UDP, UPnP, ICMP, IGMP, SNMPv1/v2c/v3(MIB-2), ARP, RTCP, RTSP, RTP, SMTP, NTP, DHCP, DNS,PPPOE,DDNS,FTP, IP Filter, QoS, Bonjour, 802.1x	
		Interoperability	ONVIF Profile S&G&T, API	
		Multicast	Supported	
		Edge Storage	NAS (Network Attached Storage),Local PC for instant recording,MicroSDcard256GB	
9	Interface	Alarm Input & Output	7/2 Alarm Input/ Output	
10		Event Trigger	Motion detection,Video tampering, Scene changing, Network disconnection, IP address conflict, Illegal Access, Storage anomaly	
		Power Supply	AC24V/3A(±25%), PoE+(802.3at)	
		Operating Temperature	-40°C~70°C(-40°F~+158°F)/Less than 95% RH	
		Ingress Protection	IP67;IK10	
11	General Intelligence	General Intelligence	Object Abandoned/Missing	
12	Artificial Intelligence	Perimeter Protection	Smart Motion Detection Intelligent detection: Intrusion, tripwire (support the classification and accurate detection of vehicle and human)	
		Auto Tracking	Supported	
13	Certificate	CE	CE: EN55032/EN55024/EN50130-4	
		FCC	FCC: Part15 sub-part-B,ANSI C63.4-2014	
		UL	UL-60950-1 & CAN/CSA C22.2 No.60950-1-07	
14	Approved Brand		Honeywell / Dahua / Hanwa	

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Annexure-D.5.
Analytics Server Cum Recorder

Sl. No	Category	Parameter	Description
System	Main Processor	Industry embedded micro-controller Or Better	
	Operating System	Embedded Linux OS Or Windows or better	
	Operating Interface	Web (PCAPP), local GUI	
Face Detection	Face Detection	1. AI by camera: Supports. 2. AI by device: Supports. Supports detection zone settings, the event can trigger record, snapshot storage (full image), local alarm output, IPC external alarm output, access control, audio prompt, buzzer, preset, email.	
	Face Attributes	Supports 6 properties: Gender, age, glasses, expression, mouth mask, and beard.	
	Face Detection Performance of AI by Recorder (Number of Channels)	12-channel	
	Face Detection Performance of AI by Camera (Image per Second)	40.0	
	Live (Face Detection)	1. Rule detection box: Supports on/off function. 2. AI panel: Displays event type, event triggered time, human face snapshot. 3. Face total: 24-hour human face image database. 4. Panel filter: Filter by type.	
Search By Picture	Playback (Face Detection)	1. Search criteria: Searches image by channel, event type, time, and face properties. 2. Search by image: Search for face images by using the face database/passer by database /local pictures and then setting similarity (60%–100%). Supports 2nd filter based on the properties. Sorts search results by date. Displays the first 1000 images according to similarity. One client supports uploading 50 images and searching 10 images each time. 3. Functions: Displays the previous/post 10- second video when the corresponding event occurs, quickly adds the image to the human face database, and supports exporting search results to Excel, video, and image. 4. History database: 10 million.	
	Search by Picture in the Face Database	Search for face images by using the face database/passer by database/local pictures and then setting similarity (60%–100%). Supports searching the face database and the passer by database.	
	Search by Picture in History Database	1. For the image on human face database/external image, set similarity (60-100%) to search. Supports the 2nd filter by properties. 2. Sorts search results by date. Displays the first 1000 images according to similarity. 3. Each client uploads 50 images, search 10 images each time. 4. Displays the previous/post 10-second video when the corresponding event occurs, quickly export the image and then add to the database.	

	Human-Search by Image in History Database	1. Upload a human picture to search for the similar people. The similarity can be set from 60% to 100%. 2. Supports sorting search results by time and viewing the latest 1 thousand results. 3. Upload up to 50 pictures for search on one PCAPP, 10 pictures for each search. 4. Supports viewing and exporting the video 10 s before and after the event. The search results can be quickly added to the database.	
Face Recognition	Face Database Management	1. Import mode: Imports human face image one by one or in batches via USB drive, PCAPP, browser. 2. Copy one or more images from one database to another database. 3. Human face information: Name, gender, birthday, Region, province, Address, ID type, ID number. 4. Image requirements: .jpg file, 4 MB per image, pixels: 100*100–3840*2160. 5. Export or import encrypted face database bin file. 6. Add, edit, delete and module face database of the cameras; import in batches.	
	Face Database Capacity	1. Up to 50 human face databases with maximally 500 thousand face images in total, which means that one face database can contain up to 500 thousand face images. 2. Up to 5 passer by databases with maximally 500 thousand face images in total, which means that one passer by database can contain up to 500 thousand face images. The human face database and the passer by database share the total capacity and number of face damages.	
	Face Recognition	1. Recognition mode: front FR, front FD+ Back FR, front FR+ back FR, back FD+ back FR. 2. AI by Camera: Supports. 3. AI by Device: Function configurations: Supports arming face database and passer by database. Supports enabling general/stranger mode. Supports	
		not reach the (stranger) threshold, the client software can generate the alarm prompt and trigger record, snapshot storage (full image), local alarm output, IPC external alarm output, access & control, audio prompt,buzzer, log, pre-set, email.	
	Face Recognition Performance of AI by Recorder (Number of Channels)	12-channel with normal IPC 40-channel with face detection IP camera (Totally 40 face pictures analyzed per second)	
	Face Recognition Performance of AI by Camera (Image per Second)	40-channel with face detection IP camera (Totally 40 face pictures analyzed per second)	
	Live (Face Recognition)	1. Rule detection box: Supports on/off. Changes box color according to the face recognition results. 2. AI panel: Displays event type, event triggered time, human face snapshot, similarity, human face database name. 3. Face total : 24-hour human face image amount statistics, maximally displays 50 images. Displays the previous/post 10-seconds video when the corresponding event occurs, exports the image and then quickly adds to the human face database. 4. Supports panel filter by type and attribute.	

	Playback (Face Recognition)	1. Search criteria: Searches image by channel, event type, time, face properties, similarity, recognition mode (Stranger mode/general mode). 2. Functions: Displays the previous/post 10-second video when the corresponding event occurs, quickly adds the images to the human face database, and supports exporting search results to Excel, video, and image. 3. History database: 10 million.	
Vehicle License Plate Comparison	License Plate Database Management	1. Import mode: Enter contents on the Excel template and then import, or enter plate information one by one. 2. Plate information: region, plate, name, Logo, Driver ID, vehicle colour, plate colour, cell phone, email, address, type.	
	License Plate Database Capacity	1. Max. 50 plate databases. One database contains up to 5 hundred thousand plate numbers. 2. Supports black list/white list.	
	Vehicle License Plate Comparison	Enables plate recognition after adding the ITC camera. Function settings: Deploys several plate databases, once the device detects the plate is matching the information on the plate database (black list/white list), the client can output alarm prompt and then trigger record, snapshot (full image), local alarm output, IPC external alarm output, access and control, audio prompt, buzzer, log, pre-set, email.	
	ANPR by Camera (Number of Channels)	32-channel	
	Live (Vehicle License Plate Comparison)	1. Rule detection box: on/off. 2. AI panel: Displays event type, plate number, event triggered time, plate image matting. 3. Statistics: Vehicle interface displays vehicle information, supports black list/white list filter. Maximally displays 50 images. Displays the previous/post 10-second video when the corresponding event occurs, supports export one by one. 4. Panel filter: Supports panel type filter.	
	Comparison)	colour, Region, ornament, calling, seatbelt 2. Function: Displays the previous/post 10-second video when the corresponding event occurs. Exports Excel, video, image (matting, full image) 3. History database: 10 million.	
	Human Detection	1. AI by device: Supports. 2. AI by camera: Supports. Sets detection zone, and object size. Triggers recording by default. The triggered action cannot be configured.	
	Human Attributes	Gender, age, sleeves length, top colour, bottom type, Bottom colour, bag, rain coat, umbrella, hat, hairstyle, direction, hold a baby, mouth mask.	
	Live (Human Detection)	1. Detection rule box: Supports on/off. 2. AI panel: Displays event type, event triggered time, body snapshot, and face snapshot. 3. Statistics: People total displays people counting images within the 24-hour. Maximally displays the 50 history images. Double click to display the previous/post 10-second video when the corresponding event occurs. Quickly add the face image to the human face database. 4. Panel filter: Filter bypanel type or properties.	

Video Metadata	Playback (Human Detection)	1. Search criteria: Search image by channel, event type, time, and human body properties . 2. Functions: Quickly add the image on the human body panel to the human face database. Double click the search results to display the previous/post 10-second video when the corresponding event occurs. Exports search results to Excel, video, image.	
	Motor Vehicle Detection	1. AI by device: Supports. 2. AI by camera: Supports. Sets detection zone, and object size. Triggers recording by default. The triggered action cannot be configured.	
	Motor Vehicle Attributes	Vehicle type, vehicle colour, plate colour, Logo, calling, seatbelt, ornament, region	
	Live (Motor Vehicle Detection)	1. Rule detection box: Supports on/off. 2. AI panel: Displays event type, event triggered time, vehicle body image matting, plate image matting. 3 Statistics: Vehicle total displays vehicle images within the 24-hour. Maximally displays the 50 history images. Double click to display the previous/post 10-second video when the corresponding event occurs. Export. Quickly adds to the vehicle database. 4. Panel filter: Filter by panel type or properties.	
	Playback (Motor Vehicle Detection)	1. Search criteria: Search image by channel, event type, time, vehicle properties. 2. Functions: Double click the search results to display the previous/post 10-second video when the corresponding event occurs. Exports search results to Excel, video, image (matting).	
	Non-motor Vehicle Detection	1. AI by device: Supports. 2. AI by camera: Supports. Sets detection zone, and object size. Triggers recording by default. The triggered action cannot be configured.	
	Non-motor Vehicle Attributes	non-motor Vehicle type, non-motor vehicle colour, number of passengers, umbrella, rain coat, bag , sleeve length, top colour, hat, hair style, mouth mask.	
	Live (Non-motor Vehicle)	1. Rule detection box: Supports on/off. 2. AI panel: Displays event type, event triggered time, vehicle body image matting. 3. Statistics: Non motor total displays Non-motor vehicle images within the 24-hour. Maximally displays the 50 history images. Double click to display the previous/post 10-second video when the corresponding event occurs. Supported export. 4. Panal filter : Filter by panel type or properties	
	Playback (Non-motor Vehicle)	1. Search criteria: Search image by channel, event type, time, and non-motor vehicle properties. 2. Functions: Double click the search results to display the previous/post 10-second video when the corresponding event occurs. Exports search results to Excel, video,image.	
	Metadata Performance of AI by Recorder (Number of Channels)	12-channel	
	Metadata Performance of AI by Camera (Number of Channels)	32-channel	

IVS Analytics	IVS	1. AI by camera: Tripwire, intrusion, abandoned object, missing object, fast moving, crowd gathering, loitering, parking, and fence-crossing. 2. AI by device: The general model supports tripwire and intrusion. The advanced model supports tripwire, intrusion, crowd gathering, parking detection, loitering. 10 rules at most. Configuration: When the relevant alarms are triggered, the system responses with linked actions such as PCAPP client message notification, video recording, snapshot storage (background picture), alarm output from IPC or the device, access control, audible warning, buzzer, logs,PTZ preset, and email.	
	Live (general IVS analytics)	1. Bounding boxes: Can be enabled or disabled. 2. Intelligent panel: Displays event type, time, and snapshot. 3. Statistics: Supports 24-hour statistics of targets including human, vehicle, and non-motor vehicles, involving tripwire detection, intrusion detection, fast-moving detection, and fence-crossing detection. Displays up to 50 history snapshots, and the 10-second video before and after the event. Snapshots can be quickly added to the database. 4. Filter: Filter by features panel type and attributes.	
	Playback (general IVS analytics)	1. Search conditions: Channel, event type, target type and time. 2. Functions: Search for the video 10 s before and after the event and export the records by excel,video, and picture (target image, and background picture). 3. History database: 5 million.	
	IVS Analytics of AI by Camera(Number of Channels)	64-channel	
	IVS Analytics of AI by Device (Number of Channels)	12-channel	
Intelligent Task Analytics	Intelligent Task Analytics	1. Video source: Local video records. 2. Execution time: Set the start and end time of the task for each day. 3. Result search: Support searching by attributes, by image and by task. 4. Performance: 1-channel analytics at one time.	
Thermal	Thermal	1. Alarms: Fire alarm, temperature alarm, temperature difference alarm, hot spot alarm, cold spot alarm, smoking, calling. 2. Search: Supports searching for thermal alarms. 3. Linkage actions: Video recording, snapshot storage, alarm output from IPC or the device, audible warning, buzzer, logs, PTZ preset, and email.	
		report by day or month. Supports searching for reports by area, type, and stay time. Reports can be exported.	
Bullet-PTZ Smart Track	Bullet-PTZ Smart Track	Manual tracking, automatic tracking, positioning by click, positioning by frame selection.	
Cluster	Cluster	Supports N+M cluster.	
AI	AI by Camera	Human face detection, human face recognition, video metadata (person, vehicle, non-motor vehicle), IVS, number plate recognition, people counting, in-area people counting, queue alarm, smoking detection, call detection, face and body detection.	

	AI by Recorder	Human face detection, human face recognition, video metadata (person, vehicle, non-motor vehicle), IVS, number plate recognition.	
Audio and Video	Access Channel	128-channel	
	Network Bandwidth	Incoming bandwidth: 400Mbps, recording bandwidth: 320Mbps, outgoing bandwidth: 96Mbps	
	Resolution	32MP/24MP/16MP/12MP/8MP/6MP/5MP/4MP/3MP/1080P/960P/720P/D1/CIF/QCIF	
	Decoding Capability	1-channel 32MP/1-channel 24MP/2-channel 16MP/5- channel 12MP (20fps)/6-channel 12MP (15fps)/5- channel 8MP (30fps)/10-channel 8MP (15fps)/6- channel6MP(30fps)/8-channel 5MP(30fps)/9-channel 5MP (25fps)/10-channel 4MP (30fps)/15-channel 4MP (20fps)/16-channel 3MP (25fps)/10-channel 1080P (60fps)/20-channel 1080P (30fps)/30-channel 720P (30fps)	
	Video Output	1-channel VGA output, 4-channel HDMI output, VGA 1/HDMI 1 outputs the same video source. Supports 4K output.	
	Multi-screen Display	Customized display. Max. 36-channel local live view. Max.16-channel PCAPP live view.	
	Third-party Camera Access	Onvif, RTSP, Sony, Panasonic, Axis, Arecont, Pelco, Canon, Samsung, Honeywell	
Compression Standard	Video Compression	Smart H.265+;H.265;Smart H.264+;H.264	
	Audio Compression	G.711a;G.711u;PCM;G.726	
Network	Network Protocol	HTTP;HTTPS;TCP/IP;IPv4;RTSP;UDP;SMTP;NTP;DHCP;DN S;DDNS;P2P;iSCSI	
	Mobile Phone Access	Supported	
	Interoperability	ONVIF (profile S), CGI, SDK	
	Browser	Chrome, PCAPP, IE9 or higher, Firefox	
	Network Mode	NIC binding mode such as multiple-address mode, load balance, fault-tolerance, etc.	
Recording Playback	Multi-channel Playback	Max. 16-channel playback	
	Record Mode	Search video detection/manual record/IO alarm/intelligent event/all record file.	
	Storage Method	Internal HDD	
	Backup Method	HDD, peripheral USB storage device	
	Playback Function	1. Play/pause/stop/fast forward/fast backward/reverse play/frame by frame play. 2. Full-screen, backup (clip/file), snapshot, digital zoom, audio on/off.	
Storage	Disk Group	8	
	RAID	RAID 0/1/5/6/10/50/60	
	Record Management	Supports record control (continuous, event-based, scheduled, scheduled & event-based).	
	General Alarm	Motion detect, tampering, local alarm, IPC external alarm, fire alarm, temperature alarm, temperature	
		MAC conflict, login lock, AI module temperature alarm, AI module offline, fan malfunction, no HDD, network security exception, and power exception.	
	Intelligent Alarm	Human face detection, human face recognition, video metadata (person/vehicle/Non-motor vehicle), IVS, plate recognition, people counting, in area No., queue alarm, smoking, call, human face & body detection.	

	Alarm Linkage	Record, snapshot (full image), local external alarm output, IPC external alarm output, access & control, audio prompt, buzzer, log, pre-set, email , smart tracking.	
Port	Audio Input	1-channel, RCA port (reserved)	
	Audio Output	2-channel, RCA port, speaker output, audio linkage output.	
	Alarm Input	16-channel	
	Alarm Output	8-channel	
	eSATA	1 port	
	RS-232	1 port, for debug or COM data transmission.	
	RS-485	1 port, control peripheral PTZ and so on. Supports various protocols.	
	USB	4 ports. 2 USB2.0 port at the front panel and 2 USB3.0 port a the rear panel.	
	HDMI	4 ports. Support 4K output.	
	VGA	1 ports.	
	Network Port	4 RJ-45 10/100/1000Mbps self-adaptive Ethernet ports.	
	Power	1 port.	
General	Power Supply	AC100V～AC240V 50±2%Hz	
	Power Consumption	38W (without HDD, idling) 105W(all HDDs connected)	
	Operating Temperature	0℃ to 45℃	
	Storage Temperature	0℃ to 40℃	
	Operating Humidity	10%–90%	
	Storage Humidity	30%–85%	
	Installation	Desktop/rack	
Certification		CE: CE-LVD: EN 60950- 1/IEC 60950-1 CE-EMC: EN55024, EN55035, EN50130-4, EN60950-1 FCC: Part 15Subpart A UL: 60950-1 and CAN/CSA C22.2 No. 60950-1-07	
Approved Brand		HP/Dell / Dahua/ Honeywell / Hanwa	

Signature of Bidder
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Annexure- D.6.
Field Switch

Category	Parameter	Description	Compliance Yes/No
Hardware	PoE	Supported	
	Ethernet Port	8 PoE Ports (10/100/1000 Mbps)+ 1 Non-PoE Port(10/100/1000 Mbps)	
	Layer	L2	
	Switching Capacity	3.6 Gbps	
	Packet forwarding Rate	2.678 Mpps	
	Packet Buffer Memory	1 Mbit	
	MAC Table Size	2K	
	Long Distance PoE Transmission	Supported	
	Poe Assignment	Whole 8Core of Network cable	
	Flow control	Enable By-default	
	Antitheft Lock Hole	Supported	
	Power Supply	Extremal Power Adapter: 53V DC	
	Operating Temperature	−10 °C to +55°C (14 °F to 131°F)	
	Operating Humidity	5% - 95%	
	ESD	Air Discharge: 8KV Contact Discharge: 6KV	
	Thunder proof	Common mode: 4 kV Differential mode: 2 kV	
	Approved Brand	Dahua / Honeywell / Hanwa	

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Annexure- D.7.
Display for Control Room

Parameter	Description	Compliance Yes/No
Diagonal Size	65" Inch	
Panel Technology	SVA or Equivalent	
Resolution	3840*2160	
Brightness(Typ.)	500 nit	
Static Contrast Ratio(Typ)	4000:1	
Viewing Angle	178/178	
Dynamic Contrast Ratio	Mega	
Response Time(G to G)	8ms or less	
Display Colors	16.7 True Colour	
Haze	25%	
Operational Hour	24*7	
Connectivity Input	Video input- HDMI 2.0 (2)	
	Display Port 1.2(1)	
	HDCP input-HDCP 2.2	
	Audio input- Stereo Mini Jack	
	Audio out- Stereo Mini Jack	
External Control	RS232C(in/out) , RJ45	
Power Supply	AC 100 - 240 V~ (+/- 10 %), 50/60 Hz	
Power consumption (Typ)	131 or less	
Operating Temperature	0 ℃ ~ 40 ℃	
Humidity	10 % ~ 80 %	
Key Features	Auto Source Switching & Recovery,LFD Home ,Button Lock,Hot Key Option, Plug & Play (InitialSetting)	
Certification	"BIS, CE, FCC, UL	

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Annexure - D.8.
SPD (Surge Protection Device)

SL No.	Configuration	Description	Compliance
Specification of single phase Type1+2 SPD		
1	Description of SPD Type	Type1+2	
2	Network Voltage	230/400 V	
3	Maximum Continuous Operating Voltage (Uc)	320 VAC	
4	Temporary overvoltage withstand (Ut)	440 Vac	
4	Nominal Discharge Current, 15 X 8/20 µs (In)	30 kA	
5	Maximum Discharge Current, 8/20 µs (Imax)	100 KA	
6	Lightning impulse current (10/350 µs) (Iimp)	8 KA /Pole	
8	Protection Level (Up)	0.9 KV	
9	Technology	MOV	
10	Thermal Disconnector	Internal	
11	Operating Temperature	-40/+85 °C	
12	Protection Class	IP20	
13	Housing Materials	Thermoplastic UL94-V0	
14	Remote signaling of disconnection	Optional	
15	Standards Compliance	IEC 61643-11 / EN 61643-11 / UL1449 ed.4	
16	Approved Brand	CITEL/ OBO/DHEN	

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Annexure - D.9.
TENDER SPECIFICATION FOR SINGLE MODE UNITUBE ARMOURED FIBER CABLE

SR. NO.	SPECIFICATION / QUALITATIVE REQUIREMENT	COMPLIANCE (YES/NO)
1	06/08/12/24-Core, Single mode 9/125micron primary coated buffers, 10G Ethernet OS2, Armoured Loose Tube, ECCS (Electrolytic Chrome Coated Steel) Tape, JellyFilled Loose Tube.	
2	Two Steel Wires/Rods embedded in outer periphery of the jacket as strength members. UV Stabilized jacket and protected from Rodent attacks	
3	Complying to ANSI/TIA-568-C.3, ISO/IEC 11801, Telcordia GR-20 Core, ITU-T REC G.652D, IEC 60793-1/60794-1, EN 50173, RoHS Compliant	
4	Suitable for use in indoor/outdoor ducts, direct burial and backbone cabling	
5	Loose tube material : Polybutylene Terephthalate (PBT) with Natural/White Colour having Inner Diameter/Outer Diameter 1.7/2.5 ± 0.1 mm	
6	Peripheral strength member as two steel wires/rods having dimensions as 0.6 ± 0.05 mm	
	Moisture Barrier as Water Swellable Tape, Armouring ≥ 0.150 mm (ECCS Tape),	

SR. NO.	SPECIFICATION / QUALITATIVE REQUIREMENT	COMPLIANCE (YES/NO)
8	Outer sheath material as HDPE/LSZH with diameter as 7.5/8.5 ± 0.5 mm having thickness of 1.5mm nominal	
9	Weight of the cable for 04/06/0812 core (HDPE/LSZH): 65.0/75.0 ± 10 kg/km, for 24 core (HDPE/LSZH): 75.0/95.0 ± 5 kg/km	
10	Fiber colour and Loose tube colour as per ANSI/TIA standards.	
11	Tensile Strength : 1000 N, Crush Resistance : 4000 N/100mm	
12	Minimum bend radius : 20 x Diameter (during installation), Minimum bend radius : 10 x Diameter (during full load)	
13	Fiber Type : G. 652D (OS2)	
14	Attenuation : ≤ 0.38 dB/km (@1310 nm), ≤ 0.25 dB/km (@1550 nm)	
15	Chromatic Dispersion : ≤ 3.5 ps/nm.km (@1285 - 1330 nm), ≤ 18 ps/nm.km (@1550 nm)	
16	Zero Dispersion Wavelength : 1300 - 1324 nm	
17	Zero Dispersion Slope : ≤ 0.092 ps/nm².km	
18	Polarisation Mode Dispersion : ≤ 0.2 ps/√km	
19	Cut-off Wavelength : ≤ 1260 nm	
20	Mode Field Diameter : 9.2 ± 0.4 µm (@1310 nm) , 10.4 ± 0.4 µm (@1550 nm)	
21	Core Cladding Concentricity Error : ≤ 0.8 µm	
22	Cladding Diameter : 125 ± 1 µm , Coating Diameter : 245 ± 10 µm	
23	Cladding Non-circularity : ≤ 1 %	
24	Installation Temperature : -20 °C to +70° C, Operating Temperature : -20 °C to +60° C	
25	Cable Size and Standard Length: 4F to 12F : 4.0 kms ± 10% 24F : 2.0 kms ± 10%	
26	Approved Brand: Digisol / Legrand / CommScope	

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Annexure - D.10.

TENDER SPECIFICATION FOR SOLID CABLE CATEGORY 6 UTP FR-PVC

SR. NO.	SPECIFICATION / QUALITATIVE REQUIREMENT	COMPLIANCE (YES/NO)
1	The 4 pair Unshielded Twisted Pair cable shall be UL□Listed.	
2	This cable well exceeds the requirements of ANSI/TIA-568-C.2 and ISO/IEC 11801 Class E	
3	Nominal Outer Diameter of Cable should be 5.6 ± 0.2 mm and Conductor Diameter 23 AWG	
4	Construction: 4 twisted pairs separated by internal PE Cross Separator. Full separator. Half shall not be accepted. RipCord is must.	
5	Conductor: Solid bare Copper, Outer jacket sheath: FRPVC with UL approved CM/CMR rated cable. Jacket color: Grey	
6	Insulation Material: High Density Polyethylene (HDPE) withInsulation Diameter : 0.89 ± 0.01 mm	
7	Dielectric Strength of cable should be 2.5 KVDC for 2seconds	
8	Bending Radius : < 4X Cable Diameter at -20°C ± 1°C Pulling Force: 25.35 lbs	
9	Electrical Parameters: Insertion loss (Attenuation), NEXT, PSNEXT, ELFEXT (ACRF), PSELFEXT (PSACRF), Return Loss, ACR and PS ACR.	
10	Insertion Loss of 32.8 db/100m at 250 MHz	
11	Cable should support operating temperature from -20° to +70°C	
12	Cable support Conductor Resistance ≤ 9.38 Ω/100m Max.	
13	Mutual Capacitance of cable should be < 5.6 nF/100m Max.	
14	Resistance Unbalance of cable should be 5% Max.	
15	Capacitance Unbalance of cable should Max. 330 pF/100m	
16	Cable support Delay Skew: < 45 ns/100m, OperatingVoltage: 72V	
17	Nominal Voltage of Propagation (NVP): 69% and CurrentRating: 1.5 A Max.	
18	Impedance: 100 ± 15 Ω @100 MHz. and Propagation Delay @250 MHz : 536 ns/100m	
19	Approved Brand: Digisol / Legrand / CommScope	

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Annexure - D.11.

TENDER SPECIFICATION FOR FIBER RACK MOUNT LIU LOADED DRAWER TYPE 06/12/24 PORT

SR. NO.	SPECIFICATION / QUALITATIVE REQUIREMENT	COMPLIANCE (YES/NO)
1	The Fiber Rack mount LIU loaded having Adapter panel fixedon drawer base frame, with Adapters and with Pigtails and assembled with splice tray as per the Loaded fiber port requirement and their applicable accessories.	
2	Suitable to mount at different positions (depth wise) on standard 1U 19 inch racks. Drawer type to pull out for easy maintenance when assembled in racks.	
3	Cold Rolled Steel material with black powder coating	
4	Three types of cable entry holes for different size cables through cable glands, covered with rubber cable grommets/covers.	
5	Splicing of 24 fibers in each plastic fiber splicing trays with integrated cable spool design.	
6	Non removable top cover and no rear cover. Drawer type to pull out for better access of interior.	
7	As per the Loaded fiber port requirement, Loaded 16 (SC Simplex) adapters with SC SIMPLEX Pigtails on rack mount ports.	
8	As per the Loaded fiber port requirement Accessories kit consists of Cable management rings/Cable saddles, Cable glands (PG13.5, 2 nos), Splice rods, Blanking clips, Velcro ties, Cable ties, Cable inlet/outlet hole covers (2 types, 2 nos each)	
9	Cable management rings/Cable saddles can be mounted inside the rack mount, no provision to mount outside in front of the adapter panel.	
10	Suitable for storing up to 1 meter of 900 µm tight buffered fiber pigtail per adapter.	
11	Panel Dimensions: 482 x 220 x 44.3 mm (Length x Width x Height)	
12	Splice Tray Dimensions: 220 x 90 x 15 mm (Length x Width x Height)	
13	Port identification numbers printed on the Adapter panel	
14	Standards: Comply as per ANSI/TIA-568-C.3, ISO/IEC11801, RoHS Compliant.	
15	Operating Temperature: -20 °C to +70° C Installation Temperature: -20 °C to +70° C	
16	Approved Brand: Digisol / Legrand / CommScope	

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Annexure - D.12.
UPS 6KVA

Minimum Technical Specifications		Compliance Yes/No	Remarks
Capacity (in kVA / kW)	**6kVA 1-Phase Input / 6 KW 1-Phase Output DSP Controlled IGBT Rectifier**		
Input			
Voltage Range:	100 – 280 VAC (Load Dependent)		
Frequency range	40Hz – 70Hz		
Power factor	Greater than 0.95 at full load.		
Output			
Nominal voltage:	220/230/240 VAC		
Crest factor	3:1 On Full Load (Minimum)		
N+X Upto 4 Systems	Require		
AC-AC Efficiency	95% .		
Battery VAH	Min.4992VAH		
Protection	IP-20		
Communication Port	REPO , USB Port, RS-232 Port,		
Display Panel (In-build LC Display & LED)			
Measurements (On LCD)	Input: Voltage & Frequency, Bypass: Voltage & Frequency, Output: Voltage, frequency, Kilowatt & kVA, Battery: Remaining time & Battery Level Indicator, Load Percentage & Load Level Indicator, Ambient temperature.		
Fault Indication (On LCD)	Inverter O/P voltage abnormal, Overload shutdown, Charge voltage too high, Damaged Batteries, Battery missing, Battery voltage to low & Over temperature Protection.		
Battery Backup / Battery Bank & Charger			
Backup Required	240min at 1000Watt Load		
Battery Bank Voltage	192 VDC		
Certifications			
Manufacturer	QMS: As per ISO 9001: 2008		
	EMS: As per ISO 14001: 2004		
	OHSAS: As per ISO 18001: 2007		
Product Safety Certifications (Mandatory)	SURGE: IEC61000-4-5:level4		
	CS: IEC61000-4-6: level3		
	IEC61000-4-8		
	IEC 61000-2-2		
	EN 62040-2:2006		
	EN 61000-3-2:2009		
	CE & RoHS		
2 Years for UPS Warranty and 2 Years for Battery .OEM should have Min.400Cr. Turn over for last 3years			
Approved Brand: Delta / Numeric / APC			

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Annexure - D.13. 2KVA UPS

Sl. No.		Minimum Technical Specifications	Compliance Yes/No
1	Capacity (in kVA / kW)	2kVA/1.6kW 1-Phase Input / 1-Phase Output with IGBT Rectifier	
2	Input Voltage Range	110-300VAC	
3	Input Frequency Range	40 - 70Hz	
4	Nominal Output voltage	200/208/220/230/240 VAC	
5	O/P Voltage	200/208/220/230/240Vac	
6	Charging Current	6 A	
7	Efficiency(Min)	89%	
8	Output Socket	Output Socket. Minimum 2 nos - Indian Socket & 1 Terminal Block inbuilt to the UPS back	
9	Backup Required	Min.4680 VAH (for 800Watt Load)	
10	Battery Bank Voltage	72 VDC	
11	USB Port should be available	Require	
12	RS232 Port & SNMP enabled	RS232 port require & SNMP for Remote monitoring.	
13	Product IP	IP 20	
14	Inbuilt Automatic Bypass	Require	
15	Intelligent Battery Management	Require	
16	Battery Deep Discharge Protection	Require	
17	ECO Mode	Require	
18	Manufacturer	QMS: As per ISO 9001: 2008 EMS: As per ISO 14001: 2004 OSHAS: As per ISO 18001: 2007 TL9000 Factory calibration lab of manufacturer shall be NABL accredited in India	
19	ROHS	Require	
20	2 Years Warranty for UPS & 2year on Battery. OEM should have Turnover more than 400Crores for last 3 years.		
21	Approved Brand: Delta/ Numeric / APC		

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Annexure - D.14.

Optical Line Terminal

SI No	Feature	Specification	Compliance Y/N
1	Key Features	1U 19 inch standard box EPON OLT with 4 PON ports	
s2		Support DN, IPv6 Ping, IPv6 Telnet	
3		Support ACL based on source IPv6 address, destination IPv6 address, L4 port, protocol type,etc.	
4		Support MLD v1/v2 snooping	
5		Friendly EMS/Web/Telnet/CLI/SSH management	
6		CLI command style similar to mainstream manufacturers	
7		Support APP management	
8		Support port-based rate limitation and bandwidth control;	
9		In compliant with IEEE802.3ah standard	
10		Support data encryption, multi-cast, port VLAN, separation, RSTP, etc	
11		Support Dynamic Bandwidth Allocation (DBA)	
12		Support ONU auto-discovery/link detection/remote upgrade of software	
13		Support VLAN division and user separation to avoid broadcast storm	
14	EPON Port	QTY 4	
15		Physical Interface SFP SLOT	
16		Connector Type PX20+	
17		Max splitting ratio 1:64	
18	Management Ports	1*10/100BASE-T out-band port, 1*CONSOLE port	
19	PON Port Specification (PX20+ module)	Transmission Distance 20KM	
20		EPON port speed Upstream 1.25G	
21		Downstream 1.25G	
22		wavelength TX 1490nm, RX 1310nm	
23		Connector SC/UPC	
24		Fiber Type 9/125μm SMF	
25		TX Power +2~+7dBm(PX20+)	
26		Rx Sensitivity -30dB(PX20+)	
27		Saturation Optical Power -6dBm	
28	AC Power Supply	AC:100～240V, 47/63Hz	
29	DC Power Supply	DC:-48V	
30	Operating Environment	Working Temperature 0～+50℃	
31		Storage Temperature -40～+85℃	
32		Relative Humidity 5~90%(non-conditioning)	
		Approved Brand: Digisol / Zyxel / Belden	

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Annexure - D.15.
L3 Full Manageable Core Switch

Sl. No.	Technical Specifications	Compliance Y/N
1	Layer-2 Fully Managed Stackable Switch having 24x 10/100/1000BaseT ports, 2x 10GBASE-T ports & 4x 10G SFP+ slots	
2	Switching Capacity should be at least 168Gbps	
3	Packet Forwarding Rate should be at least 125Mpps for 64-byte packet size	
4	The switch should have non-blocking architecture & wire-speed performance under fully loaded condition from day one	
5	The switch should have smart fans with sensor IC that provides different fan speed based on different temperature	
6	The switch should have support for physical stacking with atleast 8 units per stack.	
7	The switch should have support for virtual stacking with atleast 25 units per stack.	
8	The Switch should have support for reduandant power supply.	
9	**The Switch should have following L2 features from day one**	
10	1. MAC Address Table size: At least 16000	
11	2. Flow Control: IEEE 802.3x in full duplex, back pressure in half duplex & HoL blocking prevention	
12	3. Jumbo Frame Support (At least 9K bytes)	
13	4. IGMP v1 v2 v3 snooping with at least 1024 IGMP snooping groups, Per VLAN IGMP Snooping, host based IGMP snooping fast leave	
14	5. MLD v1 v2 snooping with at least 1024 MLD snooping groups, Per VLAN MLD Snooping, host based MLD fast leave	
15	6. IEEE802.1D STP, 802.1w RSTP,802.1s MSTP with atleast 16 MSTP instances, Root guard or equivalent feature. G.8032 ERPS features.	
16	7. The switch should be able to avoid the loop occuring in a single port connected to an unmanaged switch/hub by shutting down the corresponding port or corresponding VLAN	
17	8. IEEE 802.3ad & IEEE 802.1AX Link Aggregation with at least 8 ports per groups & 32 groups per switch.	
18	9. Port mirroring & VLAN mirroring for Tx/Rx/Both. One-to-One mode, Many-to-one mode, Flow based mirroring.	
19	10. IEEE 802.1Q VLAN, at least 4000 Static VLANs, 4000 Dynamic VLANs Groups, GVRP, Voice-VLAN, asymmetric VLAN, 802.1v protocol VLAN, MAC based VLAN, Private VLAN.	
20	The switch should have 802.1p support with 8 queues per port. Support strict, WRR queue handling technique. trTCM, srTCM.	

21	The switch should support CoS based on VLAN, IP address, MAC address, DSCP, TCP/UDP port number, 802.1p priority queues, user defined packet content, IPv6 address	
22	The switch should have Port-based ingress & egress bandwidth control with minimum granularity of at least 8Kbps. Flow-based ingress & egress bandwidth control with minimum granularity of at least 8Kbps defined packet content, IPv6 address. Time based ACL.	
23	The switch should have the following security features from day one: SSHv2 for IPv4 & v6, Broadcast/Multicast & Unicast storm control, port security feature with atleast 64 MAC per port, traffic segmentation, ARP spoofing prevention, IEEE 802.1x port based authentication, authentication database failover, DHCP server screening, DAI (Dynamic ARP Inspection), BPDU attack protection, DoS attack prevention, Binding of IP address & MAC address with physical port. Web based Access Control, MAC based Access Control, Dynamic VLAN assignment, Guest VLAN, RADIUS & TACACS+. Atleast four level of user account control.	
24	The switch should have feature to protect the CPU from protocol control packet attack.	
25	The switch should have feature of at least 512 static routes, default root, RIPv1v2, RIPng, OSPF, Policy Based Routing, at least 128nos. Of IP interfaces, IPv6 Neighbor Discovery, VRRP, policy based route from first day	
26	The Switch should have following Management features from day one: Web-based GUI, CLI, Telnet Server, TFTP Client, SFTP server, SNMPv1v2cv3, SNMP trap, BooTP/DHCP Client, SNTP, NTP, debug command, RMONv1, RMONv2, Syslog, ICMPv6, DHCP server, DHCP Relay Option 60,61,61,125, LLDP, LLDP-MED, Multiple Image support, sflow, trusted host, Physical console port for Out of band management.	
27	All type of switches & transceivers should be from same make.	

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Annexure - D.16

TECHNICAL SPECIFICATION FOR ROAD TRAFFIC SIGNAL CONTROLLER

Sl. No	SPECIFICATION	Description	Compliance
1.	CPU	Multiple 8 Bit Micro-controller Advance controller	
2.	PROGRAM MEMORY	Minimum of 512K Flash and 128K RAM	
3.	REAL TIME CLOCK (RTC)	Onboard RTC with 10 Years of Battery Backup and tolerance of +/- 1 sec per day.	
4.	CONTROLLER TYPE	Fixed Time	
5.	USER INTERFACE (DISPLAY & SWITCH)	• Minimum of 2 Line 16 Character LCD Display for showing the current working status and to view the Configured parameters • Minimum of a single Push button Switch for Navigating to the next page for displaying	
6.		Configured Traffic Plan parameters. • By Default, controller displays current running status page on display • For every key press display should show next pages with configured parameters till the last page then roll over. • If key is inactive for certain configured time period, it should show the default page of current running status.	
7.	CONTROLLER	• 24 VDC 5A MOSFET based	
8.	NO OF OUTPUTS	10 to 40 Scalable in group of 10	
9.	POLICE CONTROL PANEL KEYS	• Lamp OFF • Forced Flash • Manual selection • Manual Advance	
10.	WORKING VOLTAGE	24 V DC +-10%	
11.	OPERATING MODES	• Pre–timed (TOD) • Lamps OFF • Forced Flash • Manual	
12.	CYCLE TRANSITIONS	Minimum of 24 cycle transitions per day in Pre–timed mode	
13.	SAFETY FEATURES	• Inter/Intra Lamp Group Conflict Monitoring	
14.	SELF DIAGNOSTIC	• RTC check • Memory check • Plan validity check If any of the above check got failed system should halt the operation and indicate the failure on LCD display	

15	POWER SAVING FEATURES	• Pulse Width Modulation (PWM) based Intensity control • Configurable Dim time and Bright time • Configurable 4 level of intensity
16.	CABINET CONSTRU CTION	• MS powder coated with industrial gray colour and IP 54 protections • Pedestal or Pole Mountable
17.	ENVIRONMENTAL CONDITIONS	• Temperature : 0°C to +55°C • Relative Humidity: 95% • RH Non- condensing at +40 degree C
18.	CERTIFICATION	ISO 9001 , CE and applicable standard
19.	ADDITIONAL FEATURES	Contractor may specify any Additional features if any.
20.	Brand	Microtrans / Keltron / BEL

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Annexure - D.17

Technical Specifications of Road Traffic Signal Aspects [Vehicular and Pedestrian]

Technical specs	RED	AMBER	GREEN Arrow	GREEN Ball	P.RED	P. GREEN	Compliance
			OPTICAL CHARACTERISTICS				
Technology	LEDs						
TYPE	Power LED						
Color	Red	Amber	Bluish Green	Bluish Green	Red	Bluish Green	
Color Wave length	615 – 635nm	580 – 595nm	490 – 500nm	490 – 500nm	615 – 635nm	490 – 500nm	
LED Aspect diameter	300mm diameter						
Minimum luminous Intensity of LED Aspects	400cd						
			TECHNICAL CHARACTERISTICS				
Operating Voltage	230V AC +/- 10% / 12V DC / 24V DC						
Operating Frequency	50Hz ± 5%						
Maximum power consumption	< 12Watt						
LED Operating Temperature	0°C to +60° C						
LED module ingress	IP 65						
Constructional integrity	Comply						
GENERAL							
Signal head color	BLACK / Grey or as required by customer						
Signal head Material	Ultra Violet stabilized molded Poly Carbonate or Mild Steel as required by Customer						
Lens	Ultra Violet stabilized molded Poly Carbonate						
Dimming	Auto dimming (Optional) on demand						
			TEST, DECLARATIONS & MARKING				
LED manufacturer and Signal head manufacturer	ISO 9001 : 2015 Certificate						
Marking and labelling	CE marking (EN 12368) Certificate						
LED Module	IP65 Test Report						
Brand	Microtrans / Keltron / BEL						

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Annexure - D .18

Technical Specifications of Vehicular Count Down Timer [Vehicular and Pedestrian]

Technical specs	Full Color Count Down Timer	Compliance
Technology	LEDs	
TYPE	Power LED	
Color	Dual Color	
Display	199seconds (Max).	
TECHNICAL CHARACTERISTICS		
Operating Voltage	230V AC +/- 10% / 12V DC / 24V DC	
Operating Frequency	50Hz ± 5%	
Maximum power consumption	< 25 Watt	
LED Operating Temperature	0°C to +60° C	
LED module ingress	IP 65	
Constructional integrity	Comply	
FUNCTIONAL CHARACTERISTICS		
Operating Mode	Self-Learning – Count down timer is equipped with micro controller. It automatically senses traffic signals, and learn timing, verify and display reverse counting from 3rd cycle onward unless there is no change in timings or switched OFF traffic signals.	
GENERAL		
Enclosure color	BLACK / Grey or as required by customer	
Enclosure Material	Mild Steel with black colour powder coating for outdoor application	
Lens	No Lens,	
Dimming	Auto dimming (Optional) on demand	
TEST, DECLARATIONS & MARKING		
Count Down Timer Manufacturer	ISO 9001 : 2015 Certificate	
Marking and labelling	CE marking (EN 12368) Certificate	
Count Down Timer	IP65 Test Report	
Brand	Microtrans / Keltron / BEL	

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Annexure - D.19

1. Technical Specifications of Standard Pole

Material		Compliance
Material	GI Class 'B' Pipe	
Standard	ISI mark	
Dimensions		
Height	4000mm	
Diameter	114mm	
Wall thickness	4.5mm +/- 10%	
Base plate		
Size	300mm x 300mm	
Wall thickness	12mm	
Colour		
Colour	Yellow colour recommended or as per client's requirement.	
Paint	Spray paint (Outdoor application) with two coats of primer	
Foundation		
Foundation type	Surface mount on RCC foundation	
Foundation Accessories	J Bolt 4 x 500 mm	

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Annexure - D.20

2. Technical Specifications of Cantilever Pole

Material		Compliance
Material	GI Class 'B' Pipe	
Standard	ISI mark	
Dimensions		
Height	6000mm	
Diameter	141mm	
Wall thickness	4.5mm +/- 10%	
Overhang Arm Length	3000 - 4500mm	
Overhang Arm Diameter	115mm	
Base plate		
Size	500mm x 500mm	
Wall thickness	20mm	
Colour		
Colour	Yellow colour recommended or as per client's requirement.	
Paint	Spray paint (Outdoor application) with two coats of primer	
Foundation		
Foundation type	Surface mount on RCC foundation	
Foundation Accessories	J Bolt 6 x 750mm	

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Annexure- D.21
Standalone Access Control:

	Tender Specification	Compliance Yes/No
Main Processor	Embedded Processor	
Network Protocol	IPv4, RTSP, RTP, TCP, UDP, P2P	
OSDP Protocol	Support	
Interoperability	CGI	
SDK	Support	
Display Screen	4.3-inch TFT screen	
Screen Type Capacitive screen Resolution	480 × 272	
Camera 2MP CMOS high definition camera		
Voice Prompt Yes		
Casing	PC+ABS	
Card Type	IC card	
Network Update	Yes	
Peripheral Card Reader	1 RS-485	
Real-Time Surveillance	Yes	
Multiple Authentication	Yes	
Take Face Images after Swiping Cards	Yes	
Auto-Registration	Yes	
Attendance Record Export	USB flash drive export	
Attendance Mode	Fixed attendance; free attendance	
Attendance Statistics	Statistics by personnel, month, anomaly	
Department Setting	20 departments	
Shift Setting	24 shifts	
User Capacity 500	500	
Face Capacity	500	
Card Capacity	500	
Password Capacity	500	
Record Capacity 150,000		
RS-485	1	
USB	1 USB2.0 port	
Network	1 RJ-45, 10 Mbps/100 Mbps self-adaption	
Alarm Input	1	
Alarm Linkage	Yes	
Exit Button	1	
Door Status Detection	1	
Lock Control	1	
Certification	CE/FCC	
Brand	Honeywell/ Dahua / Matrix	

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INSTALLATION,TESTING & COMMISSIONING OF CCTV SURVILANCE ALONG WITH TRAFFIC LIGHT FOR BALANGIR SAFE CITY PROJECT AT BALANGIR TOWN

EOI Reference No.–4 2 8 4 /BM-2022,   Dated:25.07.2022

<u>**TENDERFORMS**</u>

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│       TECHNICALBID          │
│                             │
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Check List (Technical Bid)

Please check whether the following have been enclosed in the respectivecover, namely, Technical Bid: (Please arrange the documents serially in the following order**)**

1	Form T1 (In Letter Head of the firm)	Yes/No	
2	Form T2	Yes/No	
3	Copy of the company / Firm Registration Certificate	Yes/No	
4	Copy of PAN	Yes/No	
5	Copy of GST registration certificate	Yes/No	
6	DD of Rs10,000 /- towards tender paper cost (non-refundable)	Yes/No	
7	Copy of Income Tax return for F.Y.2018 to 2021	Yes/No	
8	Company specification of the equipment's / instruments(make)	Yes/No	

Authorized Signatory [In full and initials]   :
Name and Title of Signatory   :

Name of firm:
(Company seal)

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FORM–T1
(To be submitted with Technical Bid)
Technical Tender Submission Form

</div>

To

      The Executive Officer,
      Balangir Municipality
      Balangir -767001
      Orissa

Dear Sir,

We, the undersigned offer to **INSTALLATION,TESTING& COMMISSIONING OF CCTV SURVILANCE ALONGWITH TRAFFIC LIGHT FOR "BALANGIR SAFE CITY PROJECT" AT BALANGIR TOWN.** We are hereby submitting our bid, which includes the Technical bid, and a Price bid sealed under a separate envelope**.**

We hereby declare that all the information and statements made in this bid are true and accept that any of our misrepresentations contained in it may lead to our disqualification. Our bid is valid for a period of one year after the date of bid opening, subject to the modification result from Contract negotiations you may subsequently carry out with usto accept ourtender.

I/We do hereby declare I/We have not been de-recognized /black listed by any State Govt./Union Territory /Govt. of India /Govt. Organization for supply of not of Standard Quality (NSQ) items / Part-supply / non-supply.

I/We agree that the Tender inviting Authority can forfeit the Security Deposit and black list me/us if, any information furnished by us proved to be false at the time of inspection/Verification and not complying with the Tender terms & Conditions.

 I/We further declare that I/We possess valid manufacturing license/ authorized distribution bearing no_____Valid   up to_____.If we are assigned the work during the period of validity of the bid, we undertake to carry out the same as per the terms and conditions of this tender document.

We have carefully gone through the Terms &conditions contained in the tender document and I declare that all the provisions of this tender document are acceptable to my company/firm.

I further certify that I am an authorized signatory of my company and am, therefore, competent to make this declaration.

Yourstruly,

Authorized Signatory [In full and initials]   **: Name**
and Title of Signatory   **:**
Name of firm:
(Company seal)

FORM T2

(To be submitted with Technical Bids)

GeneralinformationaboutFirm/Company

Sl. No	Particulars	Detailstobefurnished		
DetailsoftheBidder(firm/company)				
1	Name			
2	Address			
3	Telephone		Fax	
4	E-Mail			
DetailsofAuthorizedperson				
5	Name			
6	Address			
7	Telephone			
Detailsoflocalofficeaddress				
8	ContactPerson			
9	Address			
10	Telephone			
11	Functioningsincewhen			
Informationaboutthecompany				
12	Status of company(Public Ltd./Pvt.Ltd./Proprietor/ Partnership)			
13	Details of Registration of Firm /Company (enclose the necessary documentary proff)	Date		
		Ref#	Furnish the copy of the certificate of incorporation/Registration certificate	
		Year of Experience		
14	Name&AddressofBankerswith Full address & Telephone no.			
15	Furnish copy of work experience If any.			
16	Copy of Balance Sheet for 3 years to be enclosed			

17	Details of 1 project MIM VALUE Rs. 50.00 lakhs executed in The last 5years(Govt./Semi Govt./ Corporate)	
18	GSTRegistrationNo.	(Enclosethecopyofthecertificate)
19	IncometaxReturn	(EnclosethecopyoftheIT return)
20	PAN.	(EnclosethecopyofthePAN)
21	Tenderpapercost(DD/ofRs10000/-)	(mentiontheDDnumber)

**Authorized Signatory [In full and initials]: Name
and Title of signatory   :
Name of Firm   :
(Company seal)**

INSTALLATION,TESTING & COMMISSIONING OF CCTV SURVILANCE ALONG WITH TRAFFIC LIGHT FOR BALANGIR SAFE CITY PROJECT AT BALANGIR TOWN

EOI Reference No.–4 2 8 4 /BM-2022,   Dated:25.07.2022

TENDER FORMS

FINANCIALBID

Check List (Financial Bid)

Please check whether the followings have been enclosed in the respective cover, namely, financial bid: (Please arrange the documents serially in the following order)

1.   Form F1 (In letter Head of the Firm)   Yes/No

2.   Form F2   Yes/No

Authorized Signatory [In full and initials]   :_____

Name and Title of signatory   :_____

Name of Firm   :_____

Address   :   _____

(Company seal)

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FORM–F1
(To be furnished in the Financial Bid)

FINANCIAL BID Submission Form
(On the letter head of the firm)

</div>

To

The Executive Officer,
Balangir Municipality
Balangir -767001
Orissa

Ref:-Bid reference No._____

DearSir,

We, the undersigned, offer to **INSTALLATION,TESTING& COMMISSIONING OF CCTV SURVILANCE ALONGWITH TRAFFIC LIGHT FOR "BALANGIR SAFE CITY PROJECT" AT BALANGIR TOWN** in accordance with your tender referenced above and our Technical proposal.

Our proposal is valid for a period of one year after the date of Bid opening, subject to the modifications resulting fromcontract negotiations you may subsequently carry out with us to accept our tender. If we are assigned the work during the period of validity of the proposal, we undertake to carry out the same as per the terms and conditions of this tender document.

We understand you are not bound to accept any proposal you receive.

We remain,

Yourssincerely,

Authorized Signatory [In full and initials]   :_____

Name and Title of signatory   :_____
Name of Firm   :_____

Address: _____

(Companyseal)

BILL OF QUANTITIES–FINANCIAL BID FORMAT
FORM F2
(To be submitted with Price Bid)

Tender for installation, testing & commissioning of CCTV surveillance along with traffic light for Balangir Safe City Project at Balangir Town.

SL. NO.	ITEMS	UNIT	QUANTITY	UNIT PRICE	AMOUNT WITH OUT GST
1	5Mp V/F Bullet Camera as per the lens 7-35mm specification support micro storage 256GB (can store footage in case of network failure) and in build analytics like face Detection/ recognitions	Nos	20		
2	4MP IP Bullet varifocal (Audio) camera with 2.7-13mm lens, 120db WDR , inbuilt mic with 256 micro SD for local storage in case of network failure- Refer Technical Spec	Nos	60		
3	2Mp 45x PTZ Camera with micro storage 256GB (can store footage in case of network failure) @ 50/60 fps, Poe+ Supported, WDR 120db, IR Distance 250Mtr.	Nos	3		
4	Storage / Server, Analytic software, Up to 50 face databases with 5,00,000 face picture in total, with Red 10 and above, 12ch AI IVS. Total IP camera Supported 220 (40no ANPR Camera, 40 no Face Recognitions camera) , HDD support 256TB and above	Set	1		
5	6TB Surveillance HDD For 30 days backup	Nos	20		
6	24 Port L2/L3 Fully Manageable Switch	Nos	1		
7	L2 Fully Manageable Optical Line Terminal, 4no Gigabit Pon port	Nos	1		
8	Epon OLT SFP (Pon) Module Gigabit Interface	Nos	8		
9	Optical Network Unit with 10/100/1000 copper port, 1 Gigabit OFC Port	Nos	45		
10	4Mp ANPR/Enforcement Camera Real time capture, support multi lane detection, capturing Speed up-to 120kmph, with necessary software and analytics License	Set	25		
11	8 port 10/100mbps intelligent POE Switch with 1 port Gigabit 10/100/1000 Uplink port , inbuilt power, Power budget 96W	Nos	40		
12	Enclosure for outdoor UPS & Switch with Proper cooling arrangement and Temperature Controller	Nos	35		
13	22U Rack Fully Loaded	Nos	1		
14	IP66 Junction Box For camera	Nos	100		
15	16 Port Fully loaded Raceable LIU	Nos	1		
16	Workstation i7 10th generations, 8GB Ram, HDD 1TB, widows Professional with 24" full HD monitors and all required software's/ License as per solution requirements	Set	1		
17	6core Armour OFC cable with Laying & Termination	Lot	18000		

18	Cat6 UTP Network Cable	Lot	2200			
19	2sqmm 3core Copper Power Cable as per the system requirements.	Mtr.	2100			
20	12 core x 1.5 sqmm flexible multithread Copper cable	Mtr.	On Actual			
21	6 core x 1.5 sqmm flexible multithread Copper cable	Mtr.	On Actual			
22	32-40mm HDP pipe with road cutting, Soil excavation, refilling and road repairing	Mtr.	On Actual			
23	SPD (Surge Protector Device)	Nos	45			
24	Chemical Earthing as per IS standard	Nos	10			
25	Poles/Gantry/Bullet camera stand with foundation as per approved design for CCTV & ANPR	Lot	1			
26	Advance Traffic signal Controller Fully automatic and multi programmable with mild steel cabinet including components,	Nos	4			
27	12"(300mm diameter) Traffic Signal Aspects (Red / Amber/Green Straight/Green Right) in polycarbonate molded compact & sim designed signal head housing Including smart LED retrofit kit, visibility distance Minimum 500mtr	Nos	14			
28	Count Down timer 199 seconds display capacity in Mild steel housing including electronic system Smart LED	Nos	6			
29	Ms Standard with anti-corrosive paint 7.5 Mtrs Cantilever Pole with overhang arm 4.5 Mtrs included Foundation & transportation	Nos	6			
30	Ms Standard with anti-corrosive paint 6 Mtrs Pole with Foundation & transportation	Nos	6			
31	1 KVA UPS with Battery Backup Two Hours	Nos	35			
32	2 KVA UPS with two hours battery backup	Nos	3			
33	6 KVA Online UPS with battery Backup as per the specifications For Server Room full backup	Nos	1			
34	65" 24 x 7 UHD 4K Display For Control Room as per the specifications and Bracket	Set	4			
35	Standalone Facial Based Access Control with 600LVS EM Lock with all accessories	Set	1			
36	Installation & Commissioning with all accessories Charges	Lot	Lot			

AMC (Annual Maintenance Cost) cost year wise after expiry of the warranty period.

1st Year	2nd year	3rd Year
Rs.	Rs.	Rs.

Signature of Bidder with Seal

1. The cable length per branch may vary from place to place. The bidder will pay the cost of cable based on actual consumption only at the rate finalized. Total No. of cameras will be as per physical survey layout. The system for entire town should provide a minimum of 30 days recording / Back-up facility.   .

2. Installation, testing & commissioning of the total system. This work includes every work and materials related to the job. As this is a turnkey job, no extra payment shall be made on any account.

Authorized Signatory [In full and initials]   :   _____

NameandTitleofsignatory   :   _____

NameofFirm   :   _____

Address:_____

(Company seal)