WEBEL TECHNOLOGY LIMITED

CORRIGENDUM – I WTL/PC/CCTV/23-24/029 dated 21.09.2023

SI	Page	Section	Clause	Description as per Tender	To be read as
No.	No.		No.		
01	8	SECTION-B, ELIGIBILITY CRITERIA	13	The bidder should comply with the Rule 144(xi) of the GFR-2017 on Land Border Sharing. One Declaration on Bidder's letterhead to be submitted.	The bidder should comply with the Rule 144(xi) of the GFR- 2017 on Land Border Sharing. One Declaration on Bidder's and OEM's letterhead to be submitted.
02	9	SECTION-B, ELIGIBILITY CRITERIA	15	The bidder should have minimum annual business turnover in aggregate considering last three financial years ending 31st March 2023: Not less than Rs. 70 crores to bid for three Commissionarates (Three Zones) Not less than Rs. 45 crores to bid for two Commissionarates (Two Zones only) Not less than Rs. 20 crores to bid for one Commissionarate. (One Zone only)	The bidder should have minimum annual business turnover in aggregate considering last three financial years ending 31st March 2023: Not less than Rs. 60 crores to bid for three Commissionarates (Three Zones) Not less than Rs. 40 crores to bid for two Commissionarates (Two Zones only) Not less than Rs. 20 crores to bid for one Commissionarate. (One Zone only)
03		All Zones: 5MP IR Vari-Focal Bullet Network Camera (Certifications)	38	FCC, CE, UL, BIS, IK10, NEMA 4X	FCC, CE, UL, BIS, IK10
04		All Zones: 5MP IR Vari-Focal Bullet Network Camera (Network Protocol)	32	IPv4; IPv6; HTTP; TCP; UDP; RTSP; RTCP; SMTP; FTP; SFTP; DHCP; DNS; DDNS; NTP; Multicast; ICMP; IGMP; PPPoE; SNMP; TLS/ SSL; Telnet/ SSH.	HTTP; TCP; UDP; RTSP; RTCP; SMTP; FTP; SFTP; DHCP; DNS; DDNS; NTP; Multicast; ICMP; IGMP; PPPoE; SNMP; TLS/ SSL; Telnet/ SSH.
05		All Zones: 2MP 33x CMOS Sensor IR PTZ Network Camera (Electronic Shutter)	7	1/1s~1/100,000s or Better	1/1s~1/30,000s or Better

06	All Zones: 2MP 33x CMOS Sensor IR PTZ Network Camera (Back Light Compensation)	9	BLC, HLC, WDR (140dB)	WDR: 120dB or Better
07	All Zones: 2MP 33x CMOS Sensor IR PTZ Network Camera (Pan Travel)	12	$0^{\circ} \sim 360^{\circ}$ endless, Pan Speed: $0.1^{\circ} \sim 180^{\circ}/\text{sec}$	$0^{\circ} \sim 360^{\circ}$ endless, Pan Speed: $0.1^{\circ} \sim 120^{\circ}/\text{sec}$
08	All Zones: 2MP 33x CMOS Sensor IR PTZ Network Camera (Manual Speed)	14	Pan: 0.1° ~180° /s; Tilt: 0.1° ~120° /s	Pan: 0.1° ~160° /s; Tilt: 0.1° ~120° /s
09	All Zones: 2MP 33x CMOS Sensor IR PTZ Network Camera (Pre-sets & Pattern)	15	400 Preset, 5 Pattern, 8 Tour, Auto Pan, Auto Scanor Mode	300 Preset, 4 Pattern, 8 Patrols
10	All Zones: 2MP 33x CMOS Sensor IR PTZ Network Camera (Video Streaming)	22	Main stream: PAL: 50 fps (1920 x 1080, 1080 x 720, 704 x 576, 640 x 480); NTSC: 60 fps (1920 x 1080, 1280 x 720, 704 x 480, 640 x 480). Sub stream: PAL: 25 fps; NTSC: 30 fps. Third stream: PAL: 25 fps; NTSC: 30 fps.	Main stream: PAL: 25 fps (1920 x 1080, 1280 x 720); NTSC: 30 fps (1920 x 1080, 1280 x 720). Sub stream: PAL: 25 fps; NTSC: 30 fps. Third stream: PAL: 25 fps; NTSC: 30 fps.
11	All Zones: 2MP 33x CMOS Sensor IR PTZ Network Camera (Weather Proof Standard)	34	IP66/ IP67 & IK10 Vandal proof rating or better	IP66/ IP67
12	All Zones: ANPR Camera (Lens)	03	Built-in 10 mm – 50 mm motorized vari-focal lens or Better	Built-in 10 mm – 55 mm motorized vari-focal lens or Better
13	All Zones: ANPR Camera (Exposure Mode)	06	Full auto, customized auto, customized	Full auto/ manual/ customized auto/ customized
14	All Zones: ANPR Camera (Iris Control)	07	Fixed iris/ manual iris/ auto iris/ P iris	Fixed iris/manual iris/auto iris/P iris/ DC Drive

Camera (Video Resolution)				43.5 (2.600 1.520) (1.000)	() (D. (0.600 1.500) / (0.600
Camera (Video Frame Rate)	15	Resolution)	09	× 1200)/720P (1280 × 720)/D1 (704 × 576)/CIF (352 × 288)	, , ,
Camera (Storage) 256GB) 128GB 128GB	16	Camera (Video	10	stream (2688 × 1520@25fps), sub stream	Main Stream: 25fps (2688 × 1520, 1920 x 1080); Sub stream: 25 fps (1920 × 1080, 1280 x 720)
Channel Standalone Network Video Resolution Standalone Network Video Resolution Standalone Network Video Recorder (HDD) All Zones: Central Video Monitoring Software S	17		19		Support SD card (Minimum 128GB)
All Zones: 16 Channel Standalone Network Video Recorder (HDD) All Zones: Central Video Monitoring Software Video Monitoring Software All Zones: Central Video Monitoring Software Video Monitoring Software Video Monitoring Software Video Management Software with high scalable design and distributed deployment, easily expand the supported channels to 20,000 and central storage capacity to 4 PB. The multisite function allows to incorporate multiple VMS platforms into one, and conveniently show their All Zones: 16 TB for a single HDD. Video Management Softwith high scalable design distributed deployment, easily expand the support of the sup	18	Channel Standalone Network Video Recorder (Video	08	× 1080 , 1280 × 1024, 1280 × 720 , 1024 × 768 VGA1: 1920 × 1080 , 1280 × 1024, 1280 × 720 , 1024 × 768 ; HDMI2/VGA2: 1920 ×	1024 × 768 VGA1: 1920 × 1080, 1280 × 1024, 1280 ×
Software with high scalable design and distributed deployment, easily expand the supported channels to 20,000 and central storage capacity to 4 PB. The multisite function allows to incorporate multiple VMS platforms into one, and conveniently show their with high scalable design with high scalable design distributed deployne easily expand the supported channels to 20,000 and central storage capacity to 4 PB. multisite function allow incorporate multiple VMS platforms into one, conveniently show their information on one PC cl	19	Channel Standalone Network Video Recorder	13	2 SATA III ports, up to 10	2 SATA II ports, up to 10 TB for a single HDD.
client. With hot standby and N+1 redundancy. Available access live and recorded videos, real-time and historical events. AI capabilities that devices have, such as face recognition, automatic number plate recognition and video metadata, etc.	20 44	Video Monitoring	1	Software with high scalable design and distributed deployment, easily expand the supported channels to 20,000 and central storage capacity to 4 PB. The multisite function allows to incorporate multiple VMS platforms into one, and conveniently show their information on one PC client. With hot standby and N+1 redundancy. Available access live and recorded videos, real-time and historical events. AI capabilities that devices have, such as face recognition, automatic number plate recognition	easily expand the supported channels to 20,000 and central storage capacity to 4 PB. The multi-site function allows to incorporate multiple VMS platforms into one, and conveniently show their information on one PC client. With hot standby and N+1
	24	All Zones: Central	39	-	The software shall be able to

22	All Zones: Central Video Monitoring Software	43	based on the time recording was activated, the duration of recording, operator activated recording, event activated recording, scheduled recording. Software shall have the capacity to communicate with IP Cameras / Encoders using HTTPS secure protocol. It shall support any	based on the time recording was activated, the duration of recording, operator activated recording, event activated recording. Software shall have the capacity to communicate with IP Cameras / Encoders using HTTPS secure protocol. It shall support any form of IP
			form of IP network connectivity, including: LAN/ WAN/ VPN/ Internet/ Wireless technologies.	network connectivity, including: LAN/ WAN/ VPN/ Internet.
23	All Zones: Central Video Monitoring Software	49	ANPR	Removed
24	All Zones: Central Video Monitoring Software	50	Vehicle Blacklist	Removed
25	All Zones: Central Video Monitoring Software	69	Should Support Minimum 100 per second	Should support minimum 40 per second or more
26	All Zones: Central Video Monitoring Software	70	Should Support Minimum 100 per second	Should support minimum 20 per second or more
27	All Zones: Central Video Monitoring Software	71	Should Support 100 events per second	Removed
28	All Zones: 600VA Offline UPS (Physical)	-	Dimension, D X W X H (mm): 279 X 101 X 142 Net Weight (kgs): 4.2 Material: Semi Metallic	The Clause Removed
29	All Zones: UTM Firewall Hardware Device	-	The firewall should 5 x 1GbE RJ45 connectors, 1000 Base-TX (10/100/1000Mbps). 2 USB 3.0, 1 RJ45 RS232 console port. Wireless Radio Type and Frequency Band, (T25-W) - 2x2 802.11ax Wi-Fi 6 dual band radios, 2.4 GHz: Data rates up to 573 Mbps, 5 GHz: Date rates up to 1.2 Gbps	The firewall should 5 x 1GbE RJ45 connectors, 1000 Base-TX (10/100/1000Mbps). 2 USB 3.0, 1 RJ45 RS232 console port. Wireless Radio Type and Frequency Band, 2x2 802.11ax Wi-Fi 6 dual band radios, 2.4 GHz: Data rates up to 573 Mbps, 5 GHz: Date rates up to 1.2 Gbps

30	All Zones: UTM Firewall Hardware Device	-	• Memory/Flash: RAM: DDR4 4GB, eMMC 4GB Storage Power supply - Input Ratings: 100-240V AC, 0.9A Max, 50- 60Hz. Output Ratings: 12V DC, 2.5A, 30W Power Consumption - T25: 21 Watts, T25-W: 25 Watts	• Memory/Flash : RAM: DDR4 4GB, eMMC 4GB Storage Power supply - Input Ratings: 100-240V AC, 0.9A Max, 50- 60Hz. Output Ratings: 12V DC, 2.5A, Power Consumption - 25 Watts
31	16 Channel Standalone Network Video Recorder		Video Output : 1 × HDMI output	1 × VGA output, 1 × HDMI output, supports simultaneous video sources output for VGA and HDMI
32	All Zones & all Cameras :Image Sensor		1/1.8" CMOS or Better	1/2.8" CMOS or Better
33	General Surveillance Management Server & Storage system			Technical Specification newly added for Zone 1
34	17U Floor Mount Standing Rack			Technical Specification newly added for Zone – 1 & 2
35	12U Wall Mount Indoor Rack			Technical Specification newly added for Zone - 1
36	TECHNICAL SPECIFICATION WITH COMPLIANCE STATEMENT			Revised Technical specification is as enclosed in Section I

TECHNICAL SPECIFICATION TO BE ADDED:

17U F	17U Floor Mount Standing Rack					
Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes/No)			
1	19", 17U x 600mm width x 800mm depth Floor Standing Networking Rack					
2	It should confirm to DIN 41494 or equivalent ISO standard					
3	It should be welded construction with steel frame					
4	Single Lockable tough end glass front door					
5	Vented metal door at the back, Vented side panels					
6	Powdered coated standard finish					
7	4 sets of casters wheel					

General Surveillance Management Server & Storage system

SI. No		SPECIFICATIONS			
1	Controller	64-bit multi-core processor (Dual Controller)			
2	Cache	8GB or higher			
3	Network Protocol	isCSI , RTSP, ONVIF			
4	RAID level	RAID 0, 1, 5, 6, 10, JBOD, Hot-Spare			
5	HDD Hot-pluggable	24 -slot (Hot-pluggable); interface type-SSD			
6	Incoming bandwidth for camera's video recording	minimum 800Mbps or higher (or it should be capable of storing minimum 200 camera's recording @2MP resolution per single Storage/recording server.)			
7	Storage scalability	It should have provision for 240 TB storage capacity for future storage expansion			
8	Features	It shall support: - CPU load balance Auto fan tuning Supports direct IP camera/NVR streaming and recording Supports camera access through RTSP, ONVIF protocol Supports both Direct Streaming Mode and IPSAN Mode - RAID-based tamper-proof data technology Auto data synchronization between devices SAS interface for storage enclosure SAS interface for storage enclosure.			
9	Searching mode	Support search by time and event			
10	Network Interface	4 x 1000M Ethernet interface, network redundancy			
11	USB interface	2 x USB 3.0			
12	miniSAS expansion port	min. 1			
13	Working Temperature	-20°C ~ 60°C			
14	Working Humidity	5%-90% RH (non-condensing)			
15	Power Supply	Should have Redundant power supply			
16	Certification	CE, FCC, BIS/UL			
8	4 sets of adjustable levelers				
	Horizontal Cable Manager				
	OEM should have valid ISO 9001, ISO 14001 & ISO 45001:2018 certified for design and development of LAN and WAN products, all the relevant certificates must be submitted along with the bid.				
	Mounting Hardware set				
13	At least 2nos. Of FANs (1800	CFM) for cooling purpose			
l I	Make / Any globally repu	ated Manufacturer presence in India.			

12U Wall Mount Indoor Rack

Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes/No)
1	12U, 19" 600mm Width, 600mm Depth, Wall Mount Networking Enclosure.		
2	It should confirm to DIN 41494 or equivalent standard		
3	It should be welded /CKD construction with steel frame		
4	Lockable tough ended glass front door.		
5	19" mounting angle made of formed steel		
6	Powdered coated standard finish		
7	Top & Bottom welded cover with vented & cable entry exit cut outs.		
8	2 pair of 19" mounting rails.		
9	lU Cable Manager.		
10	Roof Mounted Fan Unit (2Nos.).		
11	230V AC, 6 way, 5/15 Amp Power Distribution Unit		
12	Mounting Hardware		
13	OEM should have valid ISO 9001 & ISO 14001 & ISO 45001 for		
	design & development of networking products. Documents need		
	to be submitted along with the tender.		

TECHNICAL SPECIFICATION WITH COMPLIANCE STATEMENT (Tender No. WTL/PC/CCTV/23-24/029)

Zone - 1 Minimum Specification of 5 MP IR Vari-Focal Bullet Network Camera

SI. No	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Image Sensor	1/2.8" CMOS Sensor or Better		
2	Resolution	Minimum 2592 (H) × 1944 (V)		
3	Scanning System	Progressive		
4	Electronic Shutter Speed	Auto/Manual 1/15 s-1/100,000 s		
5	Min. Illumination	0.01 lux@F1.4 (Color) or Better 0.01 lux@F1.4 (B/W) or Better 0 lux (Illuminator on)		
6	S/N Ratio	>52 dB		
7	IR Illumination Distance	50 meter or Better		
8	Illuminator On/Off Control	Auto / Manual		
9	Lens Type	Motorized vari-focal		
10	Focal Length	OEM fitted 2.8 mm-12 mm or Better		
11	Iris Control	Auto/ Mannual		
	Professional, intelligent			
12	IVS (Perimeter Protection)	Support Intrusion, tripwire		
13	Video Compression	H.265+/ H.265/ H.264/ MJPEG		
	•	Main stream: 2592 × 1944 @ 30 fps or Better		
14	Video Frame Rate	Sub stream 1: D1 @ 30 fps or Better		
		Sub stream 2: 2048 × 1536 @ 8 fps or Better		
15		Sub stream 3: 1980 × 1080 @ 30 fps or Better		
16	Stream Capability	4 streams or Higher		
17	Resolution	2592 × 1944; 2592 × 1520; 2048 × 1536; 1920×1080; 720p; D1; VGA; 2CIF; CIF.		
18	Bit Rate Control	CBR/VBR		
19	Day/Night	Auto(ICR)/Color/B/W		

20	BLC	Should Support	
21	WDR	120 dB or Higher	
22	White Balance	Auto/ Natural/ Street lamp/ Outdoor	
23	Gain Control	Auto	
24	Noise Reduction	3D NR	
25	Motion Detection	Should Support	
26	Region of Interest (RoI)	Should Support	
27	Mirror	Should Support	
28	Image Rotation	Should Support	
29	Privacy Masking	Should Support	
30	Alarm Event	Storage full; network disconnection; IP conflict; motion detection; video tampering; intrusion; tripwire; audio detection.	
31	SDK and API available	Yes	
32	Network Protocol	HTTP; TCP; UDP; RTSP; RTCP; SMTP; FTP; SFTP; DHCP; DNS; DDNS; NTP; Multicast; ICMP; IGMP; PPPoE; SNMP; TLS/ SSL; Telnet/ SSH.	
33	Interoperability	ONVIF (Profile S/Profile G/Profile T)	
34	Storage	Micro SD card (support minimum 256 GB)	
35	Mobile Client	iOS; Android	
36	Operation Temperature / Humidity	-10 °C to 55 °C / Less than 95% RH	
37	Weather Proof Standard	IP67	
38	Certifications	FCC, CE, UL, BIS, IK10	
39	Make / Brand	Any globally reputed Manufacturer presence in India & having manufacturing facility in India.	

2 Megapixel 33x CMOS Sensor IR PTZ Network Camera

Sl no.	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Image Sensor	1/2.8" CMOS or Better		
2	Effective Pixels	1920(H) x 1080(V) or Better		
3	Minimum Illumination	Colour: 0.001 Lux @F1.5; B/W: 0 Lux with IR		
4	Focal Length	The Camera should be provided with an OEM fitted 4.6~152 mm of focal length or Better		

5	White Balance	Auto, ATW, Indoor, Outdoor, Manual	
6	Focus Control	Auto / Manual	
7	Electronic Shutter	1/1s~1/30,000s or Better	
8	AGC control	Auto / Manual	
9	Back Light Compensation	WDR: 120dB or Better	
10	Optical Zoom	33x or Higher	
11	Digital Zoom	16x or Higher	
12	Pan Travel	0°~360° endless, Pan Speed: 0.1° ~ 120°/sec	
13	Tilt Travel	- 15° ~ 90° auto flip 180°, Tilt Speed: 0.1° ~120°/sec	
14	Manual Speed	Pan: 0.1° ~160° /s; Tilt: 0.1° ~120° /s	
15	Presents & Pattern	300 Preset, 4 Pattern, 8 Patrols	
16	Present Speed	Pan: 240° /s; Tilt: 180° /s	
17	IR Illumination Distance	200 meter or Better	
18	Privacy Masking	24 Areas or More	
19	Power up Action	Auto restore to previous PTZ and lens status after power failure	
20	Day/Night: IR Cut Filter	Auto (ICR) / Colour / B/W	
21	Video Compression	H.265+/H.265 & H.264+/H.264	
22	Video Streaming	Main stream: PAL: 25 fps (1920 x 1080, 1280 x 720); NTSC: 30 fps (1920 x 1080, 1280 x 720). Sub stream: PAL: 25 fps; NTSC: 30 fps. Third stream: PAL: 25 fps; NTSC: 30 fps.	
23	Audio Compression	G.711a/G.711M/ADPCM/ AAC_LC	
24	Motion Detection	Should Support	
25	ROI	Should Support	
26	Audio Streaming	1/1 channel In/Out	
27	Auto Tracking	Should Support	
28	IVS	Tripwire, Intrusion, bright lights etc.	
29	Networking	RJ-45/ RS485	
30	Protocols	IPv4; IPv6; HTTP; TCP; RTSP; SMTP; FTP/ SFTP; DHCP; DNS; DDNS; NTP; Multicast; IIGMP; PPPoE; SNMP.	

31	Event Trigger	Motion detection, Video tampering, Scene changing, Network disconnection, IP address conflict	
32	Alarm	6/2 channel In/Out	
33	Operating Temperature	-10°C ~ 55°C / Less than 95% RH	
34	Weather Proof Standard	IP66/ IP67	
35	Power Source	AC24V, PoE++ Both Support	
36	Certifications	FCC, CE, UL, BIS, IK10	
37	Make / Brand	Any globally reputed Manufacturer presence in India & having manufacturing facility in India.	

ANPR Camera

Sl no.	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Main Processor	High performance embedded processor to extract and analyse vehicle metadata		
2	Image Sensor	1/2.8" CMOS or Better		
3	Lens	Built-in 10 mm – 55 mm motorized vari-focal lens or Better		
4	Shutter Mode	Single shutter		
5	Electronic Shutter Speed	1/25 s-1/100000 s (manual/auto) or Better		
6	Exposure Mode	Full auto/ manual/ customized auto/ customized		
7	Iris Control	Fixed iris/manual iris/auto iris/P iris/ DC Drive		
8	Image Resolution	2688 × 1520 or Higher		
9	Video Resolution	4MP (2688 × 1520)/ 2MP (1920 × 1080)/ 720P (1280 × 720)/ 4CIF (704 × 576		
10	Video Frame Rate	Main Stream: 25fps (2688 × 1520, 1920 x 1080); Sub stream: 25 fps (1920 × 1080, 1280 x 720))		
11	Video Compression	H.265+/H.265/H.264M/H.264H/ H.264B/MJPEG		
12	Picture Encoding Format	JPEG		
13	WDR	Minimum 140dB		

14	White Balance	Auto/outdoor/manual/local white balance/natural	
L		,	
		light/street light	
15	Noise Reduction	2DNR/3DNR	
16	HLC	Should Support	
17	Bad Pixel Correction	Should Support	
18	Edge Enhancement	Should Support	
19	Storage	Support SD card (Minimum 128GB)	
20	Image Tampering Prevention	Should Support Watermark and verification are available for videos and pictures	
21	Security	Authorized username and password, MAC address binding, HTTPS encryption, and network access control	
22	License Plate Recognition	Adopts self-developed algorithm to recognize license plates combining numbers and letters	
23	Vehicle Type Recognition	Should Support	
24	Vehicle Color Recognition	Should Support	
25	Motor Vehicle Violation Capture	Should Support	
26	Video Metadata	Should Support Motor vehicle: License plate, vehicle type, vehicle color, license plate color, vehicle logo, and more. Non-motor vehicle: Type (two- wheelers, three-wheelers), color, wearing a helmet or not, passenger (1, 2, 3, or more passengers)	
27	Vehicle recognition rate	≥98%	
28	Network	1 RJ-45 Ethernet port, 10/100/1000M Network transmission	
29	Alarm Input & Output	1 channel In & 1 channel Out	
30	Audio Input & Output	1 channel In & 1 channel Out	
31	Illuminator Number	4 illuminators (850nm IR LED illuminators, brightness adjustable)	
32	Power Supply	12V DC, 24V DC, PoE	
33	Operating Temperature	-10°C to 55°C	
34	Protection Grade	IP67/IK10 or Better	
35	Certification	FCC, CE, BIS	

36	Make / Brand	Any globally reputed Manufacturer presence in India & having manufacturing facility	
		in India.	

16 Channel Standalone Network Video Recorder

Sl no.	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Processor	Industrial-grade embedded processor		
2	IP Camera Input	16 channel		
3	Operating System	Embedded LINUX		
4	Two-way Talk	1 channel Input, 1 channel Output, RCA		
5	User Interface	GUI		
6	Video Output	1 × VGA output, 1 × HDMI output, supports simultaneous video sources output for VGA and HDMI		
7	Compression	H.265/H.264/MJPEG		
8	Video Resolution	HDMI1: 3840 × 2160, 1920 × 1080, 1280 × 1024, 1280 × 720, 1024 × 768 VGA1: 1920 × 1080, 1280 × 1024, 1280 × 720, 1024 × 768		
9	Network Bandwidth	Uplink: 160 Mbps; Downlink: 160 Mbps		
10	Video Display Split	1, 4, 8, 9, 16 views		
11	Resolution	12MP		
12	Playback Function	1. Play/pause/stop/slow/quick/ba ckward/by frame 2. Full screen, backup (video clip/file), partial zoom in, and audio on/off		
13	HDD	2 SATA II ports, up to 10 TB for a single HDD.		
14	Alarm Input	Minimum 2 Ch.		
15	Alarm Output	1 Ch.		
16	Smart Phone	iPhone, iPad, Android Phone		
17	Recording Mode	Manual record; alarm recording; MD recording		
18	Search Mode	Time/Date, Alarm, MD & Exact search		
19	Backup Mode	USB storage device/ NAS/ FTP		
20	Interface Ports	2 (1 USB 2.0, 1 USB 3.0)		
21	Max User Account	128 users		
22	Ethernet	1 × RJ-45, 10/100/1000 Mbps self-adaptive Ethernet port		

23	Protocols	HTTP/HTTPS; TCP/IP; IPv4/IPv6; RTSP; UDP; SMTP; NTP; DHCP; DNS; IP Filter; DDNS; FTP; Alarm	
		Server; IP Search; Network Acceleration; P2P.	
25	Power Supply	12V DC, 5A or AC 100V ~ 240V	
26	Fan	Smart fan, automatically adjust running speed	
27	Working Temp	0 °C to 50 °C	
28	Make / Brand	Any globally reputed Manufacturer presence in India & having manufacturing facility in India.	

General Surveillance Management Server

SI. No	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Processor	Intel Xeon-Silver 4216 Processor or AMD EPYC 7282 or Higher		
2	No. of Core	16 Core or Higher		
	Processor speed	2.5 GHz or Higher		
7	Operating System	Microsoft Windows Server 2022 16 Core Standard loaded		
8	Generation	Gen10 or latest		
9	HDD	2 x 480GB SATA / SSD		
10	Power	500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit		
11	Storage controller	Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller		
12	Memory, standard	64 GB DDR4 3200MHz with 16 DIMMs		
13	Mouse	Optical Mouse		
14	Keyboard	Keyboard		
15	Ethernet	Ethernet 1Gb X 4-port 331T Adapter		
16	Mounting	1x CMA for rail kit		
17	Form Factor	Rack		
18	Make / Brand	Any globally reputed Manufacturer presence in India & having manufacturing facility in India.		

General Surveillance Management Server & Storage system

SI. No.	SPECIFICATIONS	
1	Controller 64-bit multi-core processor (Dual Controller)	
2	Cache	8GB or higher

3	Network Protocol	iscsi , rtsp, onvif
4	RAID level	RAID 0, 1, 5, 6, 10, JBOD, Hot-Spare
5	HDD Hot-pluggable	24 -slot (Hot-pluggable); interface type-SSD
6	Incoming bandwidth for camera's video recording	minimum 800Mbps or higher (or it should be capable of storing minimum 200 camera's recording @2MP resolution per single Storage/recording server.)
7	Storage scalability	It should have provision for 240 TB storage capacity for future storage expansion
8	Features	It shall support: - CPU load balance Auto fan tuning Supports direct IP camera/NVR streaming and recording Supports camera access through RTSP, ONVIF protocol Supports both Direct Streaming Mode and IPSAN Mode - RAID-based tamper-proof data technology Auto data synchronization between devices SAS interface for storage enclosure SAS interface for storage enclosure.
9	Searching mode	Support search by time and event
10	Network Interface	4 x 1000M Ethernet interface, network redundancy
11	USB interface	2 x USB 3.0
12	miniSAS expansion port	min. 1
13	Working Temperature	-20°C ~ 60°C
14	Working Humidity	5%-90% RH (non-condensing)
15	Power Supply	Should have Redundant power supply
16	Certification	CE, FCC, BIS/UL

Central Video Monitoring Software

	Sl. No	Feature	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
	1	Video Management Software with high scalable design and distributed deployment, easily expand the supported channels to 20,000 and central storage capacity to 4 PB. The multi-site function allows to incorporate multiple VMS platforms into one, and conveniently show their information on one PC client. With hot standby and N+1 redundancy.		
Ī	2	VMS Shall be based on Microsoft windows OS.		

	VMS shall be open to IP camera integration in that	
3	respects VMS should support IP Cameras from Multiple	
	OEM.	
4	The VMS shall be ONVIF compliant.	
5	VMS shall be open to any NAS (CIFS, SMB 2.0) integration.	
	VMS shall support H.264 and MJPEG stream for both live	
6	view and Recording independently. Compression rate shall be manageable.	
	The Video Management System shall support cameras	
7	with resolutions ranging from Standard Definition, High	
	Definition (HD) and higher resolution	
	The Video Management System shall show video across 4	
8	displays per workstation - each display can have up to 25	
	viewing panes.	
9	VMS shall be able to connect with video wall through multi-display client.	
	Users shall be able to move any image from one display	
10	screen to another via drag-and-drop	
11	The VMS shall allow the overlay of time and date	
11	information on live video panes	
12	Users shall be able to digitally zoom and also digitally	
	scroll live video from any camera using the mouse wheel	
13	Users shall be able to replay currently viewed live video for replays from 10, 15 or 30 seconds before current time	
13	or from alarm time.	
	The VMS shall allow users to reset the event count for a	
	camera It should be able to display camera information in	
14	the On-Screen Display (OSD).	
	a. Camera name	
	b. Date and time	
15	VMS shall be accessible using any desktop client utility for Live view and Archive search	
	VMS should support the two-way audio so that users shall be	
	able to listen audio from multiple cameras through PC	
16	speakers and may speak to one or more cameras through	
	a PC microphone	
	VMS shall allow managing initial client logon, system	
17	configurations, logging, remote administration of recording	
	servers, devices, security, rules, alerts and	
	logging. VMS shall support at least 2 levels of users with various	
	VMS shall support at least 3 levels of users with various privileges to access the system functionality. Each category	
10	of users shall have selectable rights to perform various	
18	operations like Camera add/delete, Change camera	
	settings, Configure storage, Control PTZ cameras,	
	User management, etc	
19	VMS shall maintain a continuous log of server status	

	messages, Camera connectivity, Storage status, Recording					
	ON/OFF, User activity log	s, etc which shall be accessed				
	from the Workstations us	ing different filters				
		individually and independently				
20		olution, frames and bandwidth				
-						
21	VMS shall support video str	eams up to at least 25/30fps				
	VMS shall support at least					
22	HD/Megapixel resolution	Cir, 2Cir, 4Cir/D1 allu				
	11D/ Wegapixer resolution	All PTZ control shall be user-				
		restricted				
		Users shall be able to zoom				
		a PTZ camera in or out using the PC mouse				
		Users shall be able to pan, tilt and zoom a PTZ camera				
		displayed in a video pane or				
		monitor using a joy stick on				
		one of the supported CCTV				
		keyboards				
23	PTZ Control	Users shall be able to adjust				
		the iris of a PTZ camera				
		using the on screen PTZ				
		controls or a CCTV				
		keyboard:-Open iris-Close-				
		Auto-iris				
		The Video Management				
		System shall support the				
		following for cameras using				
		the ONVIF interface or				
		Camera Gateway				
		a. Pan, tilt and zoom control				
		with mouse and joystick				
b. (Go to pre-set					
c. S	et pre-set					
		pability of operating in an				
24		multi-tasking, when using				
	multiple cameras spread	over a wide area				
25	VMS should have Pre and	Post Event Recording				
26	VMS should have Motion	-				
	Software provides remote interface with a full live feed					
		otions, control of PTZ cameras,				
27		ds, and image quality settings				
		to improve performance through bandwidth reduction				
		re to bring camera observation				
28		e a software on a mobile device				
	to view)					
0.0	Each camera setting can b	pe adjusted individually				
29	according to client's requi					
0.5						
30	Schedule operation - All cameras can be fully scheduled individually					
31	View and record multiple cameras					
	As many playback session					
32	displayed at once					
	1					

33	Automatic control of supported PTZ cameras	
34	Alerting by email (with images)	
	Software should have built in feature to bring camera	
35	observation to mobile devices (require a software on a	
	mobile device to view)	
36	The software shall allow:	
A	Live display of cameras.	
В	Live display of camera sequences.	
С	Control of PTZ cameras.	
D	Playback of archived video.	
Е	Retrieval of archived video.	
F	Instant Replay of live video.	
G	Configuration of system settings.	
	Configuration and programming of P/T/Z cameras,	
H	features like camera addressing, BLC, auto tours, pre-	
-	sets etc.	
I	Video Analytics	
	The software should be able to do video recording on any of the following options - inbuilt hard disks on the	
37	server, direct attached storage boxes attached to	
	servers, network attached storage, storage area network.	
	The software should be capable of handling camera and	
	alarm icons on area maps. The area map should be	
38	configurable to pop up upon the receipt of an alarm	
	received from a camera on the map. This can be on the	
	same or other monitors on the PC.	
	The software shall be able to select the required recording based on the time recording was activated,	
39	the duration of recording, operator activated recording,	
	event activated recording.	
	It shall be possible to search for recordings in the	
	software by camera, date and time. If a data and time is	
40	specified, playback shall commence from that date and	
	time. It shall be possible to playback more than one	
	camera simultaneously.	
	It Software shall allow operators to bookmark the	
	concern videos & browse through a list of all bookmarks	
41	created on the system and select any bookmarked event for viewing. Software shall support industry standard for	
	the interface of IP-based physical security products:	
	ONVIF and shall be based on a server/client model.	
	VMS should use two independent streams Camera or IP	
	encoders: One for Live View and other for recording. All	
42	settings for each stream including resolution, codecs,	
"-	frame rate and compression level may be choose	
	independently without affection overall system	
	performance and IP device functionality.	
	Software shall have the capacity to communicate with	
_	IP Cameras / Encoders using HTTPS secure protocol. It	
1	shall support any form of IP network connectivity,	
	including: LAN/ WAN/ VPN/ Internet.	
	All audio streams supplied from IP Camera / Encoders	
44	shall be digitally encoded in g711 (u-law)/ g721/ g723 or	
	AAC compression formats and recorded simultaneously	

	in real time.		
		nt architecture for recording	
		from one server to another	
45	without disturbing the regu	lar operations. To minimize	
		ust have ability to configure	
	the key frame interval (I-fran		
		from IP cameras / Encoders	
46		MPEG-4/MPEG-2/MJPEG and	
10	H.264 compression formats	and recorded	
	simultaneously in real time		
		e rate and resolution shall be	
47		iging these settings will not ay settings of other cameras.	
	affect the fecolumg and dispi	ay settings of other cameras.	
	Software shall support dy	namically switch the video	
		ile Size on Monitoring Screen.	
48		while watchingsingle camera	
	on screen and Low Resoluti	5 5	
	while watching Cameras in N		
	Removed		
49			
49			
	Removed		
50			
		Should Support Minimum	
51	Devices	2,000 devices Per Server	
F2	A to Design and Design	Should Support Minimum	
52	Auto-Registered Devices	1,000 devices Per Server	
	Video Devices and	Should Support Minimum	
53	Channels	1,000 devices; 2,000	
		channels Per Server	
	Devices Added by ONVIF	Should Support Minimum	
54	Protocol	1,000 devices; 2,000	
-		channels Should Support Minimum	
55	ANPR Channels	500 channels	
		Should Support Minimum	
56	Total Devices	10,000 locations; 65,000	
		cameras	
	maral Language B. 1 122	Should Support Minimum	
57	Total Incoming Bandwidth	600 Mbps	
EO	Incoming Vides Danderide	Should Support Minimum	
58	Incoming Video Bandwidth	600 Mbps	
59	Incoming Picture	Should Support Minimum	
39	Bandwidth	200 Mbps	
60	Total Outgoing Bandwidth	Should Support Minimum	
		600 Mbps	
61	Outgoing Video Bandwidth	Should Support Minimum	
		600 Mbps Should Support Minimum	
62	Outgoing Picture Bandwidth	200 Mbps	
L	Danuwiuui	200 MDh2	

63	Total Storage Bandwidth	Should Support Minimum 600 Mbps	
64	Video Storage Bandwidth	Should Support Minimum 600 Mbps	
65	Picture Storage Bandwidth	Should Support Minimum 200 Mbps	
66	Prerecording Bandwidth for Alarm Recordings	Should Support Minimum 400 Mbps	
67	Maximum Capacity of Central Storage (IPSAN)	Should Support Minimum 400 TB, depending upon server capacity	
68	Total Events	Should Support Minimum 100 per second	
69	Storage of Events or Alarms without Pictures	Should Support Minimum40 per second	
70	Alarms with Snapshots (Stored on Devices)	Should Support Minimum20 per second	
71	Removed		
·	Client Workst	ation PC	

SI. No	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Form factor	Tower Type		
2	Operating System	Win 11 SL/ Home 64 bit		
3	Processor & Chipset	Intel i7 12700/ AMD Ryzen 7 5700 or higher; Intel Q670/ AMD Pro 565 or higher		
4	RAM	32 GB DDR4 RAM		
5	Graphics Card	Minimum 4 GB		
6	Storage	512GB NVMe SSD or higher		
7	Power Supply	Min. 400W with 90% or higher efficiency		
8	I/O	Wireless Keyboard and Wireless Mouse, WiFi + BT, Total 10 USB ports, HDMI, DP/ VGA port		
9	Certifications	ISO 9001, 14001, 20001, 27001, EPEAT Gold, ROHS, CE, FCC, UL		
	8 Ethernet Port	PoE Switch		
Sl. No	Technical S	pecification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	No of Ports	8 10/100/1000 Base-T PoE ports & 2 Gigabit SFP ports		
2	Switching Capacity	20 Gbps or Better		
3	Forwarding Rate	Minimum 14.80 Mbps		
4	POE / POE+	IEEE 802.3af and 802.3at		

5	POE Power Budget	Minimum 130 W or Higher	
6	Power Supply	AC: 100V -240V, 50Hz ±10%	
7	Environment	Operating temperature/ Humidity: 0°C-45°C, 10%- 90% non-condensation Storage temperature/ Humidity: 0°C-70°C; 5%-	
		95% non-condensation Power Saving by: Link status, LED or Port Shutoff	
		Static configuration and dynamically learning of MAC address	
		Check and delete MAC address	
8	MAC Switching	Configuring of MAC address aging time	
0	MAC Switching	Up to 256 Static MAC entries	
		Limit on MAC address learning number	
		MAC address filtering function	
		MAC address size 8K	
		One-to-One, Many-to-One	
9	Port Mirroring	Supports Mirroring for Tx/Rx/Both	
		4K VLAN entries, 256 static VLAN	
10	TO I ANI	GVRP	
10	V LAN	1:1 and N:1 VLAN Mapping	
		Q-in-Q	
		Private VLAN, Voice VLAN	
		802.1D (STP), 802.1W (RSTP), 802.1S (MSTP)	
11	STP	BPDU protection, root protection and ring protection	
		IGMP v1/v2/v3	
		IGMP Snooping	
12	Multicast	IGMP Fast Leave	
		Multicast group policy and multicast number limit	
		ICMPv6, DHCPv6, ACLv6 and IPv6 Telnet	
13	IPv6	IPv6 Neighbor Discovery	
13	IPVO	MLD v1/v2	
		MLD Snooping	
14	QoS	Traffic classification of each field of L2/L3/L4 protocol	

		headers
		CAR traffic control
		802.1P/DSCP priority remark
		Multiple queuing algorithms such as SP, WRR or SP+WRR
		WRED
		Traffic supervision and traffic shaping
		Identification and filtering of L2/L3/L4 based ACL
	Security features	DOS or TCP attacks Prevention
		Suppression of broadcast, multicast and unknown unicast packet
15		Port isolation
		Port security, IP+MAC+port binding
		DHCP Snooping, DHCP Option 82
		IEEE 802.1x certification
		Radius and Tacacs+
16	Reliability	Static / LACP link aggregation
		Console, Telnet, SSH 2.0
		WEB based management
17	Management and Maintenance	SNMP v1/v2/v3
	Franceiune	TFTP
		RMON
18	Certification	CE, FCC, IEC 62368-1
19	Make / Brand	Any globally reputed Manufacturer presence in India.

17U I	Floor Mount Standing Rack		
Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes/No)
1	19", 17U x 600mm width x 800mm depth Floor Standing Networking Rack		
2	It should confirm to DIN 41494 or equivalent ISO standard		
3	It should be welded construction with steel frame		
4	Single Lockable tough end glass front door		
5	Vented metal door at the back, Vented side panels		
6	Powdered coated standard finish		

7	4 sets of casters wheel			
8	4 sets of adjustable levelers			
10	Horizontal Cable Manager			
11	OEM should have valid ISO 9001, ISO 14001 & ISO 45001:2018 certified for design and development of LAN and WAN products, all the relevant certificates must be submitted along with the bid.			
12	Mounting Hardware set			
13	At least 2nos. Of FANs (180CFM) for cooling purpose			
14	Make / Any globally reputed Manufacturer presence in India. Brand			

12U V	Wall Mount Indoor Rack		
Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes/No)
1	12U, 19" 600mm Width, 600mm Depth, Wall Mount Networking Enclosure.		
2	It should confirm to DIN 41494 or equivalent standard		
3	It should be welded /CKD construction with steel frame		
4	Lockable tough ended glass front door.		
5	19" mounting angle made of formed steel		
6	Powdered coated standard finish		
7	Top & Bottom welded cover with vented & cable entry exit cut outs.		
8	2 pair of 19" mounting rails.		
9	lU Cable Manager.		
10	Roof Mounted Fan Unit (2Nos.).		
11	230V AC, 6 way, 5/15 Amp Power Distribution Unit		
12	Mounting Hardware		
13	OEM should have valid ISO 9001 & ISO 14001 & ISO 45001 for design & development of networking products. Documents need to be submitted along with the tender.		

Smart Managed Switch`

Sl no.	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Interfaces	Should have 24 x 10/100/1000BASE-T ports, 4 x 100/1000 Mbps GbE/SFP combo ports from day one.		
2	Port Standards & Functions	Ports 1 to 24 should compliant with IEEE 802.3ab		
3	Other Port Standards & Functions	Must support IEEE 802.3i 10BASE-T Ethernet (twisted- pair copper) • IEEE 802.3u 100BASE-TX Fast Ethernet (twisted-pair copper) • IEEE 802.3ab 1000BASE-T Gigabit Ethernet (twisted- pair copper) • Auto-negotiation • IEEE 802.3x Flow Control • IEEE 802.3z 1000BASE-X Gigabit Fiber		
4	Full/Half-Duplex	Full/half-duplex for 10/100 Mbps speeds Full-duplex for 1000 Mbps speed		
5	Media Interface Exchange	Auto MDI/MDIX adjustment for all twisted-pair ports		
6	Switching Capacity	Minimum 56 Gbps		
7	Forwarding Method	Store-and-forward		
8	MAC Address Table Size	Minimum 8K entries		
9	MAC Address Update	Up to 256 static MAC entries		
10	64-byte Max. Forwarding Rate	Minimum 41.7 Mpps		
11	CPU Memory	Minimum 128 MB DDR3		
12	Packet Buffer	Minimum 4.1 Mbits		
13	Flash Memory	Minimum 32 MB		
14	MTBF	Minimum 992,594 hours		
15	Power Surge Protection	Minimum 6KV surge protection		
16	Operating Temperature	0 to 50 °C		
18	Operating Humidity	10% to 90% non-condensing		
19	All Core switches should be	from same make.		

All SFP Core Switch

Sl. No	Technical Specification	Specification (Quoted / Applicable – by	Complied (Yes / No)
		the bidder)	
1	Layer-3 Fully Managed Switch having 24x 1G SFP slots with 4x combo 10/100/1000BaseT ports & 4x 10G SFP+ slots.		
2	SFP slots should support IEEE 802.3z & IEEE 802.3u compliant transceivers & SFP+ slots should support IEEE 802.3z & IEEE 802.3ae compliant transceivers		
3	The switch should be 19" Rack Mount size.		
	THE SWITCH SHOULD HAVE FOLLOWING BASIC FEATURE FROM DAY ONE:		
4	The switch should have RJ45/mini-USB console port for Out of band CLI management & ethernet port for out of band IP management. It should have minimum one alarm port.		
5	The switch should have intelligent fans with sensor that provides different fan speed based on different temperature.		
6	The switch should have support for redundant power supply.		
7	The switch should have built-in hardware feature for both external event detection & alarm action		
8	The switch should have switching capacity at least 128Gbps & packet forwarding rate at least 95Mpps for 64-bytes packet size		
9	The switch should have non-blocking architecture & wirespeed performance under fully loaded condition.		
10	The switch should have virtual stacking capability of at least 25 switches in a stack.		
11	The switch should have physical stacking capability with at least 8 units per stack & at least 40Gbps of stacking bandwidth.		
12	The switch should have feature for flexible management of switch resources		
13	The switch should have 6kV Surge protection on all RJ45 access ports		
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-2 FEATURE FROM DAY ONE:		
14	a) At least 64K MAC address table size. At least 1K static MAC support.		
15	b) Jumbo frame support for at least 12KB frame size.		
16	c) Flow-control features: 802.3x for full duplex & Head-of-line blocking prevention.		
17	d) UDLD or equivalent features. e) IEEE 802.1D (STP), 802.1w (RSTP) & 802.1s (MSTP) with at least 64 MSTP instances, Root Guard or equivalent features.		
19	f) Avoidance of the loop occurring in a single port connected to an unmanaged switch/hub by shutting down the corresponding port or corresponding VLAN		
20	g) Ethernet Ring Protection Switching (ERPS) with maximum 50milli second recovery time.		

		1	
21	h) IEEE 802.1AX & 802.3ad Link aggregation with at least		
	32 groups per device & at least 8 ports per groups. LACP. i) Port mirroring with at least 4 mirroring sessions. Should		
22	support Tx, Rx & both based mirroring. Should support		
	one-to-one & many-to-one mirroring, flow-based		
	mirroring, RSPAN.		
	j) IGMP v1 v2 & v3 snooping with at least 8000 snooping		
23	groups. Should support IGMP snooping per VLAN, host-		
	based IGMP snooping fast leave, at least 128 static IGMP groups, L2 multicast filtering		
	k) MLD v1 & v2 snooping with at least 4000 snooping		
24	groups. Per VLAN MLD snooping. At least 128 static MLD		
	groups.		
	l) At least 4K VLAN groups, 802.1Q, 802.1v protocol based		
25	VLAN, Q-in-Q, GVRP with at least 4K dynamic VLANs,		
25	Voice VLAN, Port-based VLAN, MAC-based VLAN, private VLAN, VLAN trunking, MVR (Multicast VLAN Registration)		
	or equivalent feature.		
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-3		
	FEATURE FROM DAY ONE:		
26	a) At least 16K routing table entry size with at least 512		
	static route entry support.		
	b) Default route, RIPv1, RIPv2, RIPng, OSPFv2, OSPFv3, BGPv4, BGPv4+, Policy based route, Route preference,		
27	Route Redistribution, Bidirectional Forwarding Detection,		
	MSDP		
	c) Multicast forwarding table size: at least 2000,		
28	IGMPv1v2v3, MLDv1v2, IGMP filtering, static IP multicast		
	route, PIM-DM, PIM-SM, PIM-SSM, PIM-Sparse-Dense mode, DVMRPv3, PIM-SMv6.		
29	e) IPv6 tunnelling, VRRP, IP helper		
	THE SWITCH SHOULD HAVE FOLLOWING QOS FEATURE		
	FROM DAY ONE:		
30	a) IEEE 802.1p, DSCP, at least 8 queues per port.		
31	b) Queue handling methods: strict, weighted round robin,		
01	weighted deficit round robin, WRED		
	c) CoS & classification of packets based on following parameters: VLAN ID, 802.1p priority, MAC address, Ether		
32	type, DSCP, protocol type, IPv4 address, TCP/UDP port		
	number, IPv6 address, IPv6 traffic class		
33	d) Port & flow based bandwidth control with minimum		
	granularity 8Kbps.		
34	e) Time based QoS.		
	THE SWITCH SHOULD HAVE FOLLOWING SECURITY FEATURE FROM DAY ONE:		
\vdash	a) Access control list based on VLAN, MAC address,		
35	802.1p priority, DSCP, protocol type, TCP/UDP port, IPv4		
	address, IPv6 address, IPv6 traffic class		
36	b) Time based ACL.		
	c) Binding of IP address & MAC address with the interface.		
37	Dynamic ARP Inspection. IP Source Guard. DHCPv6 Guard,		
	IPv6 Route Advertisement Guard, IPv6 Neighbour Discovery Inspection, Duplicate Address Detection		
	d) SSHv2 for both IPv4 & IPv6, SSL (TLS 1.2) for both IPv4 &		
38	IPv6, Port security with at least 12K MACs per port.		
39	e) Broadcast, multicast & unicast storm control.		

40	f) Protection of the CPU from protocol control packet attack.	
41	g) DHCP server screening, DHCP client filtering, ARP spoofing prevention, BPDU attack prevention, DoS attack prevention	
42	h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting.	
43	i) Authentication supported based on : Local data base, RADIUS server	
44	j) Web based access control for IPv6	
45	k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access.	
	THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE:	
46	a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), TFTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog. sFlow, ICMPv6.	
47	b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61.	
48	c) Multiple images & configurations, SNTP, debug	
49	d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp.	
50	e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az	
51	Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4- 1: 2018 standard for cyber security capability	
52	All type of switches & transceivers should be from same make.	
53	All Core switches should be from same make.	

Copper Core Switch

Sl. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Core Switch - Layer-3 Fully Managed Switch having 20 X 1Gbps Copper Ports with 4x combo 1G SFP slots & 4x 10G SFP+ slots		
2	SFP slots should support IEEE 802.3z & IEEE 802.3u compliant transceivers & SFP+ slots should support IEEE 802.3z & IEEE 802.3ae compliant transceivers		
3	The switch should be 19" Rack Mount size.		
	THE SWITCH SHOULD HAVE FOLLOWING BASIC FEATURE FROM DAY ONE:		
4	The switch should have RJ45/mini-USB console port for Out of band CLI management & ethernet port for out of band IP management. It should have minimum one alarm port.		
5	The switch should have intelligent fans with sensor that provides different fan speed based on different temperature.		
6	The switch should have support for redundant power		

I	annals.
	supply.
7	The switch should have built-in hardware feature for both
	external event detection & alarm action
	The switch should have switching capacity at least
8	128Gbps & packet forwarding rate at least 95Mpps for 64-
	bytes packet size
9	The switch should have non-blocking architecture & wire-
	speed performance under fully loaded condition.
10	The switch should have virtual stacking capability of at
	least 25 switches in a stack.
	The switch should have physical stacking capability with at
11	least 8 units per stack & at least 40Gbps of stacking
	bandwidth.
12	The switch should have feature for flexible management of
<u> </u>	switch resources
13	The switch should have 6kV Surge protection on all RJ45
	access ports
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-2
	FEATURE FROM DAY ONE:
14	a) At least 64K MAC address table size. At least 1K static
	MAC support.
15	b) Jumbo frame support for at least 12KB frame size.
16	c) Flow-control features: 802.3x for full duplex & Head-of-
	line blocking prevention.
17	d) UDLD or equivalent features.
	e) IEEE 802.1D (STP), 802.1w (RSTP) & 802.1s (MSTP) with
18	at least 64 MSTP instances, Root Guard or equivalent
	features.
	f) Avoidance of the loop occurring in a single port
19	connected to an unmanaged switch/hub by shutting down
	the corresponding port or corresponding VLAN
20	g) Ethernet Ring Protection Switching (ERPS) with
	maximum 50milli second recovery time.
21	h) IEEE 802.1AX & 802.3ad Link aggregation with at least
<u> </u>	32 groups per device & at least 8 ports per groups. LACP.
	i) Port mirroring with at least 4 mirroring sessions. Should
22	support Tx, Rx & both based mirroring. Should support
	one-to-one & many-to-one mirroring, flow-based
-	mirroring, RSPAN.
	j) IGMP v1 v2 & v3 snooping with at least 8000 snooping
23	groups. Should support IGMP snooping per VLAN, host-
	based IGMP snooping fast leave, at least 128 static IGMP
-	groups, L2 multicast filtering
24	k) MLD v1 & v2 snooping with at least 4000 snooping
24	groups. Per VLAN MLD snooping. At least 128 static MLD
-	groups. l) At least 4K VLAN groups, 802.1Q, 802.1v protocol based
	VLAN, Q-in-Q, GVRP with at least 4K dynamic VLANs,
25	VLAN, Q-In-Q, GVRP with at least 4K dynamic VLANs, Voice VLAN, Port-based VLAN, MAC-based VLAN, private
23	VLAN, VLAN trunking, MVR (Multicast VLAN Registration)
	or equivalent feature.
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-3
	FEATURE FROM DAY ONE:
26	a) At least 16K routing table entry size with at least 512
20	a) he least 10h 10uting table entry size with at least 312

	static route entry support.	
	b) Default route, RIPv1, RIPv2, RIPng, OSPFv2, OSPFv3,	
27	BGPv4, BGPv4+, Policy based route, Route preference,	
27	Route Redistribution, Bidirectional Forwarding Detection,	
	MSDP.	
	c) Multicast forwarding table size: at least 2000,	
28	IGMPv1v2v3, MLDv1v2, IGMP filtering, static IP multicast	
20	route, PIM-DM, PIM-SM, PIM-SSM, PIM-Sparse-Dense	
	mode, DVMRPv3, PIM-SMv6.	
29	e) IPv6 tunnelling, VRRP, IP helper	
	THE SWITCH SHOULD HAVE FOLLOWING QOS FEATURE	
	FROM DAY ONE:	
30	a) IEEE 802.1p, DSCP, at least 8 queues per port.	
31	b) Queue handling methods: strict, weighted round robin,	
	weighted deficit round robin, WRED	
	c) CoS & classification of packets based on following	
32	parameters: VLAN ID, 802.1p priority, MAC address, Ether	
	type, DSCP, protocol type, IPv4 address, TCP/UDP port	
	number, IPv6 address, IPv6 traffic class	
33	d) Port & flow based bandwidth control with minimum	
	granularity 8Kbps.	
34	e) Time based QoS.	
	THE SWITCH SHOULD HAVE FOLLOWING SECURITY	
	FEATURE FROM DAY ONE:	
0.5	a) Access control list based on VLAN, MAC address,	
35	802.1p priority, DSCP, protocol type, TCP/UDP port, IPv4	
26	address, IPv6 address, IPv6 traffic class	
36	b) Time based ACL.	
	c) Binding of IP address & MAC address with the interface.	
37	Dynamic ARP Inspection. IP Source Guard. DHCPv6	
	Guard, IPv6 Route Advertisement Guard, IPv6 Neighbor Discovery Inspection, Duplicate Address Detection	
	d) SSHv2 for both IPv4 & IPv6, SSL (TLS 1.2) for both IPv4 &	
38	IPv6, Port security with at least 12K MACs per port.	
39	e) Broadcast, multicast & unicast storm control.	
3,	f) Protection of the CPU from protocol control packet	
40	attack.	
	g) DHCP server screening, DHCP client filtering, ARP	
41	spoofing prevention, BPDU attack prevention, DoS attack	
'	prevention	
	h) IEEE 802.1x RFC 3580, web-based access control,	
42	MAC based access control, guest VLAN, Microsoft NAP,	
'-	RADIUS accounting.	
4.0	i) Authentication supported based on : Local data base,	
43	RADIUS server	
44	j) Web based access control for IPv6	
	k) At least 4 level user account for management access.	
45	RADIUS & TACACS+ authentication for management	
	access.	
	THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT	
	FEATURE FROM DAY ONE:	
	a) Web based -GUI (IPv4 & IPv6), CLI, telnet server &	
46	client (IPv4 & IPv6), TFTP client (IPv4 & IPv6), FTP client	
	(IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3,	

	Syslog. sFlow, ICMPv6.
47	b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61.
48	c) Multiple images & configurations, SNTP, debug
49	d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp.
50	e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az
51	Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4- 1: 2018 standard for cyber security capability
52	All type of switches & transceivers should be from same make.
53	All Core switches should be from same make.

600 VA Offline UPS

	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
	Voltage	220/230 VAC		
INPUT	Voltage Range	140-300 VAC		
	Frequency Range	50 Hz		
	AC Voltage Regulation (Battery Mode)	±10%		
	Frequency Range (Battery Mode)	50 Hz ±1 Hz		
OUTPUT	Transfer Time	Typical 2-6 ms		
	Waveform (Battery Mode)	Simulated Sine Wave		
	Overload	110% +/-10% Shutdown after 5 minutes		
BATTERY	Battery Type & Number	12 V/7 Ah x 1		
DATIENT	Typical Recharge Time	6-8 hours up to 90% capacity		
TRANSFER TIME	Minimum line break for transfer to battery	Typical 4-8 msec		
	AC Mode	Green lighting		
INDICATORS	Battery Mode	Green flashing		
	Fault	Red lighting		
ALARMS	Battery Mode, Low Battery, Overload, Battery replacement, fault	Audible alarm		
PROTECTION	Full Protection	Overload, discharge, and overcharge protection		

	Operating Environment	0-40 Deg C.	
	Storage Temp	-15℃ to 50℃	
ENVIRONMENT	Humidity	0-95 % RH @ 0- 40°C (non-condensing)	
	Noise Level	Less than 40dB	
	BIS registration	Require	
Test reports	NABL Approved government lab test report.	Require	

Make / Brand : Any globally reputed Manufacturer presence in India

3 KVA Online UPS`

Sl. No.	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Capacity	3kVA/2.4 kW.		
2	Design	True online double conversion design		
Input Cha	aracteristics.			
3	Nominal Input Voltage	230Vrms		
4	Nominal Input Frequency	50Hz.		
5	Input Power Factor	0.99		
6	Type of Rectifier	IGBT Based PWM Rectifier		
7	Input Voltage Range	110 VAC to 300 VAC		
8	Voltage Detection Tolerance ±3% Calibration	±3% Calibration		
9	Input Frequency Range	40-70Hz		
10	Inrush Limitation	7*IRMS_Nom		
11	Current Protection	With Fuse.		
Battery P	arameters.			
12	Charging Method	Constant voltage constant current (CVCC)		
13	Charging current Capacity	Settable 1/2/4/6		
14	Type of Batteries	SMF VRLA, Li-ion, Tubular		
15	Back up time	2 Hours		
16	Minimum VAH required	4680		
17	Maximum Battery Leakage Current	500uA		

20	Nominal Output voltage	VAC Settable Frequency Range	
	Trommar output voltage	Frequency Range	
		(Battery Mode): 50 Hz ± 0.1 Hz; Frequency	
		Range (Synchronized	
0.4		Range): 46Hz ~ 54 Hz @	
21	Output Frequency	50Hz system	
22	Output Waveform	Pure sine wave	
	Total Harmonic distortion	Less than 3% for Linear Load and Less than 6%	
23	(THD)	for RCD Load	
		IGBT based PWM with	
24	Inverter	Instantaneous Sine wave control	
25	Power Rating	3kVA/2.4 kW.	
23	1 ower naming	IEC62040-3	
26	Dynamic response	Classification 1	
27	Crest factor	3:1	
28	Duty.	Continuous duty	
		AC mode:105%~110%:	
29	Overload Capacity	10min、110%~130%: 1min、>130%: 1sec;	
	Frequency synchronization	1111111, >150% : 1Sec;	
30	Band for Static. Bypass	46 - 54Hz	
31	Transfer (Inverter to Bypass)	0 ms	
22	Retransfer (Bypass to		
32	Inve <u>rt</u> er)	0 ms	
33	Automatic Bypass	Inbuilt	
34	Overall efficiency (AC to AC)	90%.	
	nneous Function	D .	
35	Intelligent Fans Speed Control	Require	
36	Auto Restart Function	Require	
Physica	l and Environmental Characteris	Less than 58dB @ 1	
37	Acoustic Noise Level	Meter	
38	Ambient Temperature	0 - 50 Deg C	
39	Storage Temperature	-15°C~60°C	
		<95 % and non-	
40	Humidity	condensing	
41	Altitude	<1000m	
42	Enclosure Protection Grade	IP 20	
43	Cooling	Forced Air	
	Input voltage	Advanced LCD based	

45	Battery voltage	Display System, able to	
46	Output voltage	monitor Input	
47	Output current	- Voltage/Battery Voltage/ Output	
48	Output frequency	Voltage / Output	
49	Input Frequency	Frequency/ Input	
50	Heat sink temperature	- Frequency/ Ambient - Temperature.	
	ndicated on Digital Display	LED indication display	
51	input fail		
52	Battery Low	Inbuilt and accessible	
53	Transfer to bypass and system fault	on LCD Display.	
54	LED Indications		
55	Protection	Overload/ Short Circuit/ Battery Deep Discharge/ Low Battery/ Reverse Battery/ Inverter Current Limitation/ Over Temperature/ Output Overvoltage.	
		RS 232 communication	
56	Optional features	port for interfacing, Remote monitoring	
Standa	rds		
	Low freq Conducted	VTG (1000 0 0	
57	disturbance	IEC61000-2-2	
Other S	Standards		
58	Continuous Electromagnetic Susceptibility	IEC 61000-4-3	
	Electrical Fast Transient		
59	Compatibility	IEC 61000-4-4	
60	Surge	EN 61000-4-5: 2005	
61	CRFI	IEC61000-4-6	
62	Magnetic Field Immunity	IEC 61000-4-8	
63	Transportation	IEC 60068-2-32,IEC 60068-2-64,IEC 60068.2-27	
64	Protection	IP-20	
65	NABL approved Government lab test certificate	Require	
66	ISO certifications	ISO 9001, ISO14001, ISO27001, ISO 45001:2018	
67	BIS registration	Require	

Make / Brand : Any globally reputed Manufacturer presence in India

UTM Firewall Hardware Device

Handarana Diatforms	Specification (Quoted / Applicable – by	Complied (Yes / No)
Hardware Platform:	the bidder)	
No built-in mechanical moving parts. Classification of the state		
Should be Hardened OS based firewall Should have flock based configuration storage with NO built in		
Should have flash based configuration storage with NO built in HDD		
The firewall should 5 x 1GbE RJ45 connectors, 1000 Base-TX (10/100/1000Mbps). 2 USB 3.0, 1 RJ45 RS232 console port. Wireless Radio Type and Frequency Band, 2x2 802.11ax Wi-Fi 6 dual band radios, 2.4 GHz: Data rates up to 573 Mbps, 5 GHz: Date rates up to 1.2 Gbps		
Memory/Flash : RAM: DDR4 4GB, eMMC 4GB Storage		
Power supply - Input Ratings: 100-240V AC, 0.9A Max, 50-		
60Hz. Output Ratings: 12V DC, 2.5A, Power Consumption - 25		
Watts Following IP Address Assignment should be supported by the		
device:		
• Static		
PPPoE Client		
DHCP Client		
Firewall should support internal DHCP Server		
Firewall should be able to act as DHCP Relay Agent		
Performance:		
The firewall should support minimum 3.14 Gbps Gbps Firewall throughput		
The firewall should support minimum 403 Mbps UTM(fullscan) throughput		
The firewall should support minimum 1.02 Gbps VPN (UDP 1518) throughput		
The firewall should support minimum 472 Mbps GAV throughput		
The firewall should support minimum 525 Mbps IPS (fullscan)		
throughput The firewall should support minimum 1,300,000 concurrent		
sessions(Bidirectional)		
New session per second should me minimum 16,000		
Authentication servers/processes:		
Support for user authentication services such as Active Directory, LDAP, RADIUS, Secure ID, Digital certificates, Local user group authentications.		
Should Support Single-Sign-On Feature		
Should be able to support Terminal Services client / Citrix Client		
Networking:		
Firewall should support port independence		
Firewall should support Link Failover (Active - Active and Active - Passive)		
Firewall should be able to operate in Routing mode or Bridge		

(Transparent) mode	
Should support automatic WAN failover as well as load sharing for	
outbound traffic.	
Should be able to support VPN Failover	
Should support Server Load Balancing	
Firewall must support VLAN Tagging (IEEE 802.1Q)	
Should support Policy-Based Routing	
Firewall should support Dynamic Routing (RIP v1 & v2, OSPF & BGP)	
The Firewall must provide NAT functionality, including dynamic and	
static NAT translations.	
Firewall should be able to support Port Forwarding.	
Should have option to configure traffic shaping / QOS	
Compatible to Centralized Management	
The firewall must support Active-Active as well as Active-Passive	
redundancy.	
Actibve/Active as well as Active/Passive HA Clustering can be	
achieved	
The cluster should support simple and minimal downtime during	
Should have option to create ALIASES to identify group of Hosts or	
networks with one Unique Name	
Should have option to create Customized Aliases based on	
User/Group , Host IP/IP Range & Interface	
VPN function:	
The VPN should be integrated with firewall and support the full	
Encryption & other standards and protocols:	
(a) DES, 3DES, AES	
(b) MD5 and SHA-1 authentication	
(c) Diffie-Hellman Group 1, Group 2, Group 5 ,Group14, Group 15,	
Group 19 and Group 20	
(d) Internet Key Exchange (IKE) algorithm	
(f) The new encryption standard AES 128, 192 & 25 (Advanced	
Encryption Standard) Should support IPSec, PPTP, L2TP & SSL VPN	
Should support 75 Site-to-Site Tunnels (BOVPN)	
Should support minimum 75 Mobile VPN tunnels (IPSec, SSL, L2TP)	
(IFSec, 35L, L21F)	
Security:	
Should support Reputation based Cloud Security feature	
Denial of Service (DoS) attacks such as ping of death, syn flood, UDP bomb, Land attack, Smurf, Fraggle and ICMP unreachable	
Should support Auto Blocking of Source IP address based on	
should support real time spam detection & also supports proactive	
virus detection technology which detects and blocks the new outbreaks immediately and accurately.	
The following actions should be supported for SMTP traffic	
• Tagging	
	<u> </u>

, Dwon	
• Drop	
• Deny	
• Quarantine	
Should support of blocking attachments based of file names or extension	
Should support of blacklisting / whitelisting Should support Language independent anti-spam solution	
Advance Recurring Pattern Detection - anti-spam technology, that	
rely on RBL and scoring.	
Support for quarantine feature	
Web URL filtering with 100+ category based database, with option	
to refer Online or can be stored on Local Management Station	
Should be able to define specific URL's to be Allowed/Blocked	
Users should be able to allow blocked website using password	
override feature	
IPS and AV signature database keep on updating with hourly basis	
Should have a built-in Signature IPS engine on the same unit for IPS	
Should have Server/Client Quota based Distributed Denial of	
Service Prevention Should have the feature to exclude certain hosts' traffic (IP	
addresses) to be scanned by IPS for particular signatures	
Gateway AV should be supported for real-time detection of viruses	
and malicious code for HTTP, HTTPS, FTP, SMTP, POP3, SIP.	
Should have configurable policy options to select what traffic to scan	
for viruses	
Should support Application control for Web 2.0 applications	
Should not have inhouse security services for AV, IPS, Antispam	
Administration:	
Dedicated Application based GUI management program for robust	
configuration and management.	
Option for Remote management, through WEBUI, CLI & Secure Management Software	
Administrative TCP/IP ports should be other than TCP 80 and TCP	
443 to prevent brute-force attack.	
Should support only single administrative login for integrity	
purpose and deny consecutive administrative login attempts Support for role based administration of firewall	
Configurable connection timeout for the management interface.	
Real-time network connection map for connection status.	
Drag-and-drop VPN configuration capability.	
Comprehensive reporting suite without any additional cost.	
Offline policy files configuration and modification.	
The Firewall must send SNMP traps to Network Management Servers (NMS) in response to System failures.	
Ability to make a full backup of the entire flash disk as image file.	
Ability to make/edit configuration file offline for better	
administrative management, without connecting to the operating security device.	
Should have option to Change Default Web UI Port	
	ı

Should have option to schedule rebooting	
Monitoring, Logging and Reporting	
Live Traffic Monitor	
Real-time reporting with Drill Down Feature	
System Services Status Monitor	
Authenticated User List Monitor	
VPN Connections Monitoring	
IP/Host/User based Traffic Watch with option Block Source/Destination from the monitoring tool itself	
Protocol based Traffic Watch	
PDF Audit Reporting	
Remote Logging Support	
Remote Reporting Support	
Remote Monitoring Support	
Encrypted Log Channel	
Provision to generate automatic alerts via mails / syslog	
The Firewall must send SNMP traps to Network Management Servers (NMS) in response to System failures.	
Multi-Appliance Log Aggregation	
Logging and reporting solution should be provided at no extra cost and shouldn't need any license renewal	
1 day of data (reports) retention should be provided at no extra cost on cloud	
Make / Brand : Any globally reputed Manufacturer presence in India	

49" DISPLAY

Sl. No	Section	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1		Screen Size	49" or higher		
2		Panel Technology	IPS or VA		
3		Aspect Ratio	16:09		
4		Native Resolution	3,840 x 2,160 (UHD)		
5		Backlight Unit Type	Edge		
6		Brightness (cd/m2)	500nit or higher		
7	Panel	Dynamic Contrast Ratio	1,000,000:1 or higher		
8		Viewing Angle (H x V)	178 x 178 or higher		
9		Response Time	8ms(G to G) or better		
10		Surface Treatment (Haze)	Haze 28% or higher		
11		Operation Hours	24x7 Hrs		
12		Orientation	Landscape & Portrait		
13	Connectivity	Input	HDMI (3), DP, DVI- D, Audio, USB (2)		

14		Output	HDMI/DP, Audio	
15		External Control	RS232C In/out, RJ45 (LAN) In, IR In	
16	Specification	VESA	200 x 200 or as per OEM	
17	Key Feature	2GB DDR3-2133 (64 GPU-ARM Mali-T820 M Wi-Fi, Temperature So sensor, Acceleration (Key Operation, Embe & Play, Fail over, Bac Mode, Multi-screen (Share, Play via UR Rotation, External Inp Playback, Tile Mode Setting Data Cloni Manager, 3rd Party (Connected), Power (5)	dded CMS, USB Plug ckground Image, Sync PIP, PBP (4)), Screen RL, Rotation (Screen put Rotation), Gapless setting (Max. 15 × 15),	
18	Environmental	Operation Temperature	0°C to 40°C	
19	Conditions	Operation Humidity	10% to 80%	
20		Power Supply	100-240V~, 50/60Hz	
21		Power Type	Built-In Power	
22	Power	Consumption: Smart Energy Saving / Max.	100W / 140W	
23	Software	Content Management Software	SuperSign CMS	
24	Compatibility	Control and Monitoring Software	SuperSign Control / Control+	
25		Safety	СВ	
26	Certification	EMC	FCC Class "A" / CE / KC	
27		ErP / Energy Star	Yes / Yes	
28	Special	Tilt (Facedown)	Max. 15°	
29	Feature	IP Rating	IP5x	

42U Floor Mount Standing Rack

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	19", 42U x 800mm width x 1000mm depth Floor Standing Networking Rack		

2	It should confirm to DIN 41494 or equivalent ISO standard	
3	It should be welded construction with steel frame	
4	Single Lockable tough end glass front door	
5	Vented dual metal door at the back, Vented side panels	
6	Powdered coated standard finish	
7	4 sets of casters wheel	
8	4 sets of adjustable levellers	
9	Horizontal Power Distribution Unit with 12 x 5/15A sockets Round Pin, 230 Volts AC, 32 Amp with Plug	
10	Horizontal Cable Manager	
11	Mounting Hardware set	
12	At least 4nos. Of FANs (360CFM) for cooling purpose	
13	Make / Brand : Any globally reputed Manufacturer presence in India	

27U Floor Mount Standing Rack

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	19", 27U x 800mm width x 800mm depth Floor Standing		
	Networking Rack		
2	It should confirm to DIN 41494 or equivalent ISO standard		
3	It should be welded construction with steel frame		
4	Single Lockable tough end glass front door		
5	Vented dual metal door at the back, Vented side panels		
6	Powdered coated standard finish		
7	4 sets of casters wheel		
8	4 sets of adjustable levellers		
10	Horizontal Cable Manager		
11	Mounting Hardware set		
12	At least 2nos. Of FANs (180CFM) for cooling purpose		
13	Make / Brand : Any globally reputed Manufacturer presence in India		

24 Port LIU

Sl. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	24 Port Rack Mount LIU Fully Loaded with Single Mode LC		
1	Adapters and Pigtail (1 mtr)		
2	Aluminum & Cold Steel based material with powder coating		
	for light mounting.		
3	Snap-in locker design, easy to change the adapter panels		
4	Should manage both splices and terminations		
5	Should have plastic Splice Tray capable of 24 fibers		
6	Should have 6 fiber magic sticker provision inside for 900um		
	tight buffered fiber storing		
7	Accessory kit consists of cable ties, mounting ear screw		
8	Front-Mounted Cable Saddles for jumper management		

9	Removable Top & Front cover for better access to interior of LIU	
10	Rubber grommet allow for pre-terminated fiber trunk installation, protects cable and minimizes dust build-up	
11	Adapter panel - Cold steel	
12	Adapters should have compact design & high precision	
13	which perform well under various circumstances & maintain good plug retention strength.	
14	All fiber items should be from same make.	
15	Make / Brand : Any globally reputed Manufacturer presence in India	

1Gbps FO Transceiver

Sl. No	Technical Specification	
1	1 Gbps Single Mode Fibre Optic Transceiver (For Core Switch)	
2	1000BASE-LX Single Mode SFP Transceiver with Duplex LC Connector	
3	Support IEEE 802.3z standard	
4	At least 10Km distance support on single mode fiber interface	
5	Transceiver module should be hot pluggable. MSA Compliant	
6	TTL signal detect indicator, Metal enclosure for lower EMI	
7	Operating wavelength: 1310nm	
8	It should be of same make as Core Switches	
9	Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability	
10	All type of switches & transceivers should be from same make.	
11	All Core switches should be from same make.	
12	Make / Brand : Any globally reputed Manufacturer presence in India	

10Gbps FO Transceiver

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	10 Gbps Single Mode Fiber Optic Transceiver		
2	10GBASE-LR Single Mode SFP+ Transceiver with Duplex LC Connector		
3	Support IEEE 802.3ae standard		
4	At least 10Km distance support on single mode fiber interface		
5	Transceiver module should be hot pluggable. MSA Compliant		
6	Operating wavelength: 1310nm		

	7	Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1:		
		2018 standard for cyber security capability		
	8	All type of switches & transceivers should be from same		
	0	make.		
	9	All Core switches should be from same make.		
	10	Make / Brand : Any globally reputed Manufacturer presence		
-	10	in India	•	

LC-LC Fibre Optic Patch Cord

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	LC - LC SM FO Duplex Patch Cord 5 Meter Length		
	The optical fiber patch cords shall comply with the following specifications:		
2	Optical Fiber – Single mode - OS1		
3	Connector: Zirconia ceramic ferrule		
4	Pre-radiuses and pre-polished ferrule		
5	Duplex Type		
6	Color-coded Yellow for Single mode		
7	Insertion Loss: <0.3 db		
8	Cable: 9/125, SM		
9	Return Loss: >/= 50dB for UPC		
10	Durability: 1000 mating cycle		
11	Working Temp: (0 deg. C to 60 deg. C)		
12	Length: 5 Meter		
13	All fiber items should be from same make.		
14	Make / Brand: Any globally reputed Manufacturer presence in India.		
	LC-LC Fibre Optic Patch Cord		

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	LC - LC SM FO Duplex Patch Cord 2 Meter Length		
	The optical fiber patch cords shall comply with the		
	following specifications		
2	Optical Fiber – Single mode - OS1		
3	Connector: Zirconia ceramic ferrule		
4	Pre-radiuses and pre-polished ferrule		
5	Duplex Type		
6	Color-coded yellow for Single mode		
7	Insertion Loss: <0.3 db		
8	Cable: 9/125, SM		
9	Return Loss: >/= 50dB for UPC		
10	Durability: 1000 mating cycle		
11	Working Temp: (- 10 deg. C to + 60 deg. C)		
12	Length: 2 Meter		

13	All fiber items should be from same make.		
14	Make / Brand: Any globally reputed Manufacturer presence		
	in India. UTP CAT-6 Outdoor Cable		
	UTP CAT-6 Outdoor Cable	Cification	Committed
Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Category 6 Outdoor cable shall be compliant with ANSI/TIA/EIA-568-C.2 & and ISO/IEC 11801 channel performance up to 85 mtr.		
2	Category 6 Outdoor cable shall be capable of enhanced performance for transmission of high-speed data, digital and analogue voice and video (RGB) signals on LANs.		
3	All Category 6 Outdoor cables shall meet or exceed the following characteristics:		
4	Construction: 4 twisted pairs separated by internal X shaped, 4 channel, full separator. Half shall not be accepted.		
5	Category 6 Outdoor cable shall be UV Resistant		
6	Conductor dia: 23 AWG		
7	Insulation: Polyethylene		
8	Insulation Diameter: 1.04 ± 0.05 mm		
9	Sheath Thickness: 0.5 ± 0.15 mm		
10	Pairing: Two insulated conductor twisted together		
11	No. of Pair: 4 pair separated by a separator		
12	Sequential meter marking should be available		
13	Color of Jacket: Black		
14	Outer Jacket: PE		
15	Inner Jacket: PVC		
16	Filler : Central Slit Film Cross Filler		
17	Outer Diameter: 7.1 mm		
18	BEND RADIUS: 8 X CABLE DIAMETER		
19	Thickness of Inner Jacket: 0.45 mm ± 0.05 mm		
20	Thickness of Outer Jacket: 0.55 mm ± 0.05 mm		
21	Electrical Parameters		
22	CONDUCTOR RESISTANCE (DC): 9.38Ω ohms /100mtr@20°C. MAX.		
23	RESISTANCE UNBALANCE: 5%MAX		
24	MUTUAL CAPACITANCE: 5.6 nF/100 mtrs MAX.		
25	CAPACITANCE UNBALANCE PAIR/GROUND: 330pF/100M MAX		
26	DELAY SKEW: ≤45 nS/100M		
27	NORMAL VELOCITY OF PROPAGATION: 69%		
28	IMPEDANCE: $100 \pm 15\% \Omega$		
29	Temperature Rating: (- 20 to +60 C)		
30	Packing: 305 Mtrs.		
31	Generally confirming to EIA/TIA 568-C.2 and IEC/ISO 11801		
32	All Network Cable should be from same make.		
33	Make / Brand: Any globally reputed Manufacturer presence in India		
6	Core SM 9/125 Outdoor Fibre Optic Armoured Cable		·

Sl. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	6 Core Single Mode Outdoor Armored Fiber Optic Cable		
2	Electro Chromium Coated Corrugated Steel Tape (ECCS)		
3	Central loose tube with jelly compound		
4	Sequential meter marking		
5	Armoured Design with Steel music Wire		
6	Outer Diameter: 7.2±0.5mm (for 6 Core Cable)		
7	Thickness of HDPE Jacket: 1.8±0.2mm		
8	Pulling Tension: Short Term (1000N)		
9	Crush Load: 2000N/100mm		
10	Bend Radius: Short Term (20D)		
11	The fiber type is a Matched Cladding Single Mode		
12	The fiber is optimized for operation at 1310 nm and at 1550		
	nm.		
13	Nominal Mode Field Diameter: 9.3 μm		
14	Cladding Diameter: 125 μm		
15	PMD (ps/km): ≤ 0.2		
16	Cable Cut-off Wavelength: 1260nm		
	Attenuation (of cable with fibers):		
17	At 1310 nm: 0.34 dB/km		
	At 1550 nm : 0.24 dB/km		
18	Operating Temperature should be within -20°C to +60°C		
19	Make / Brand: Any globally reputed Manufacturer presence in India.		
1	2 Core SM 9/125 Outdoor Fibre Optic Armoured Cable		
Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	12 Core Single Mode Outdoor Armored Fiber Optic Cable.		
2	Corrugated steel tape armoured		
3	Central loose tube with jelly compound		
4	Glass Yarns between steel tape & loose tube		
5	Sequencial meter marking		
6	The fiber should fulfill the requirement of ITU-T REC G.652D		
7	Outer Diameter: 9 ± 0.3mm (for 12 Core Cable)		
8	Thickness of HDPE Jacket: 1.8±0.2mm		
9	Pulling Tension: Short Term (2000N)		
10	Crush Load: 3000N/100mm		
11	Bend Radius: (20D)		
12	The fiber type is a Matched Cladding Single Mode		
13	The fiber is optimized for operation at 1310 nm and at 1550 nm.		
14	Nominal Mode Field Diameter: 9.2 μm		
15	Cladding Diameter: 125 µm		
16	PMD (ps/km): 0.2		
17	Cable Cut-off Wavelength: <= 1260nm		

Sl.	Feature	Technical Specification	Specification (Quoted /	Complied (Yes / No)
	Outdoor Weatherproo	f Customized Rack		
19	Make / Brand: Any globally rein India			
	At 1550 nm : 0.22 dB/km			
	At 1310 nm: 0.36 dB/km			
18	Attenuation (of cable with fib	ers):		
17	Cable Cut-off Wavelength: <=	1260nm		
16	PMD (ps/km): 0.2			
15	Cladding Diameter: 125 μm			
14	Nominal Mode Field Diameter	9.2 μm		
13	nm.			
	The fiber is optimized for operation	0 0		
12	The fiber type is a Matched Cl	adding Single Mode		
11	Bend Radius: (20D)			
10	Crush Load: 3000N/100mm			
9	Pulling Tension: Short Term (2)			
8	Thickness of HDPE Jacket: 1.8			
7	Outer Diameter: 9.5 ± 0.3mm			
6	The fiber should fulfill the requ	uirement of ITIL-T REC G 652D		
5	Sequential meter marking	C & 1003C tubC		
4	Glass Yarns between steel tap	-		
3	Central loose tube with jelly co			
2	Corrugated steel tape armour			
1	24 Core Single Mode Outdoor	Armoured Fiber Ontic Cable	the bidder)	
SI. No		Specification	Specification (Quoted / Applicable - by	Complied (Yes / No)
	24 Core SM	9/125 Outdoor Fibre Optic Ari	noured Cable	
19	Make / Brand: Any globally in India	reputed Manufacturer presence		
	At 1550 nm : 0.22 dB/km			
	At 1310 nm: 0.36 dB/km			
18	Attenuation (of cable with fib	ers):		

SI. No	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Metal Guage	18 SWG or Better		
2	Colour	Off White / Gray / Cream		
3	Colour Coating	Powder Coated		
	Dimension	As Per Requirement (Weather		
4	(W X H X D)	Proof Design with cooling arrangement)		
5	Lock Facility	Double Lock facility		
	Double Door DB Box			

Sl. No	Feature	Technical Specification	
1	Type	8 Way SPN MCB DB	
2	Enclosure	Double Door with IP42/43 protection	
3	Isolator	1 No. 32 Amp Double Pole (Loaded)	
4	МСВ	6 Nos. 10 Amp / 6 Amp Single Pole (loaded)	
5	Supply	Single Phase 250V AC	
6	Brand / Make	Any globally reputed Manufacturer presence in India.	

- Bidder should submit all relevant data sheet/brochure of all quoted items and should also availablein respective OEM's official website.
- Bidder should indicate items mentioned in the OEM data sheet / brochure by marketing as mentioned in minimum specification in the RFP

Authorized Signatory (Signature In full):
Name and title of Signatory:
2 ,
Stamp of the Company:
1 1 /

Zone - 2 (Bidhannagar)

Minimum Specification of 5 MP IR Vari-Focal Bullet Network Camera

Sl. No	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Image Sensor	1/2.8" CMOS Sensor or Better	_	
2	Resolution	Minimum 2592 (H) × 1944 (V)		
3	Scanning System	Progressive		
4	Electronic Shutter Speed	Auto/Manual 1/15 s-1/100,000 s		
		0.01 lux@F1.4 (Color) or Better		
5	Min. Illumination	0.01 lux@F1.4 (B/W) or Better		
		0 lux (Illuminator on)		
6	S/N Ratio	>52 dB		
7	IR Illumination Distance	50 meter or Better		
8	Illuminator On/Off Control	Auto / Manual		
9	Lens Type	Motorized vari-focal		
10	Focal Length	OEM fitted 2.8 mm-12 mm or Better		
11	Iris Control	Auto/ Mannual		
	Professional, intelligent			
12	IVS (Perimeter Protection)	Support Intrusion, tripwire		
13	Video Compression	H.265+/ H.265/ H.264/ MJPEG		
14	Video Frame Rate	Main stream: 2592 × 1944 @ 30 fps or Better Sub stream 1: D1 @ 30 fps or Better Sub stream 2: 2048 × 1536 @ 8 fps or Better		
15		Sub stream 3: 1980 × 1080 @ 30 fps or Better		
16	Stream Capability	4 streams or Higher		
17	Resolution	2592 × 1944; 2592 × 1520; 2048 × 1536; 1920×1080; 720p; D1; VGA; 2CIF; CIF.		
18	Bit Rate Control	CBR/VBR		
19	Day/Night	Auto(ICR)/Color/B/W		
20	BLC	Should Support		
21	WDR	120 dB or Higher		
22	White Balance	Auto/ Natural/ Street lamp/ Outdoor		
23	Gain Control	Auto		
24	Noise Reduction	3D NR		
25	Motion Detection	Should Support		
26	Region of Interest (RoI)	Should Support		
27	Mirror	Should Support		
28	Image Rotation	Should Support		
29	Privacy Masking	Should Support		

30	Alarm Event	Storage full; network disconnection; IP conflict; motion detection; video tampering; intrusion; tripwire; audio detection.	
31	SDK and API available	Yes	
32	Network Protocol	HTTP; TCP; UDP; RTSP; RTCP; SMTP; FTP; SFTP; DHCP; DNS; DDNS; NTP; Multicast; ICMP; IGMP; PPPoE; SNMP; TLS/ SSL; Telnet/ SSH	
33	Interoperability	ONVIF (Profile S/Profile G/Profile T)	
34	Storage	Micro SD card (support minimum 256 GB)	
35	Mobile Client	iOS; Android	
36	Operation Temperature / Humidity	-10 °C to 55 °C / Less than 95% RH	
37	Weather Proof Standard	IP67	
38	Certifications	FCC, CE, UL, BIS, IK10	
39	,	lly reputed Manufacturer presence inufacturing facility in India.	

2 Megapixel 33x CMOS Sensor IR PTZ Network Camera

Sl no.	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Image Sensor	1/2.8" CMOS or Better		
2	Effective Pixels	1920(H) x 1080(V) or Better		
3	Minimum Illumination	Colour: 0.001 Lux @F1.5; B/W: 0 Lux with IR		
4	Focal Length	The Camera should be provided with an OEM fitted 4.6~152 mm of focal length or Better		
5	White Balance	Auto, ATW, Indoor, Outdoor, Manual		
6	Focus Control	Auto / Manual		
7	Electronic Shutter	1/1s~1/30,000s or Better		
8	AGC control	Auto / Manual		
9	Back Light Compensation	WDR: 120dB or Better		
10	Optical Zoom	33x or Higher		
11	Digital Zoom	16x or Higher		
12	Pan Travel	0°~360° endless, Pan Speed: 0.1° ~ 120°/sec		
13	Tilt Travel	- 15° ~ 90° auto flip 180°, Tilt Speed: 0.1° ~120°/sec		

14	Manual Speed	Pan: 0.1° ~160° /s; Tilt: 0.1° ~120° /s	
15	Presents & Pattern	300 Preset, 4 Pattern, 8 Patrols	
16	Present Speed	Pan: 240° /s; Tilt: 180° /s	
17	IR Illumination Distance	200 meter or Better	
18	Privacy Masking	24 Areas or More	
19	Power up Action	Auto restore to previous PTZ and lens status after power failure	
20	Day/Night: IR Cut Filter	Auto (ICR) / Colour / B/W	
21	Video Compression	H.265+/H.265 & H.264+/H.264	
22	Video Streaming	Main stream: PAL: 25 fps (1920 x 1080, 1280 x 720); NTSC: 30 fps (1920 x 1080, 1280 x 720). Sub stream: PAL: 25 fps; NTSC: 30 fps. Third stream: PAL: 25 fps; NTSC: 30 fps.	
23	Audio Compression	G.711a/G.711M/ADPCM/ AAC_LC	
24	Motion Detection	Should Support	
25	ROI	Should Support	
26	Audio Streaming	1/1 channel In/Out	
27	Auto Tracking	Should Support	
28	IVS	Tripwire, Intrusion, bright lights etc.	
29	Networking	RJ-45/ RS485	
30	Protocols	IPv4; IPv6; HTTP; TCP; RTSP; SMTP; FTP/ SFTP; DHCP; DNS; DDNS; NTP; Multicast; IIGMP; PPPoE; SNMP.	
31	Event Trigger	Motion detection, Video tampering , Scene changing, Network disconnection, IP address conflict	
32	Alarm	6/2 channel In/Out	
33	Operating Temperature	-10°C ~ 55°C / Less than 95% RH	
34	Weather Proof Standard	IP66/ IP67	
35	Power Source	AC24V, PoE++ Both Support	
36	Certifications	FCC, CE, UL, BIS, IK10	
39		ally reputed Manufacturer presence nanufacturing facility in India.	

ANPR Camera

Sl no.	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Main Processor	High performance embedded processor to extract and analyse vehicle metadata		
2	Image Sensor	1/2.8" CMOS or Better		
3	Lens	Built-in 10 mm – 55 mm motorized vari-focal lens or Better		
4	Shutter Mode	Single shutter		
5	Electronic Shutter Speed	1/25 s-1/100000 s (manual/auto) or Better		
6	Exposure Mode	Full auto/ manual/ customized auto/ customized		
7	Iris Control	Fixed iris/manual iris/auto iris/P iris/ DC Drive		
8	Image Resolution	2688 × 1520 or Higher		
9	Video Resolution	4MP (2688 × 1520)/ 2MP (1920 × 1080)/ 720P (1280 × 720)/ 4CIF (704 × 576		
10	Video Frame Rate	Main Stream: 25fps (2688 × 1520, 1920 x 1080); Sub stream: 25 fps (1920 × 1080, 1280 x 720)		
11	Video Compression	H.265+/H.265/H.264M/H.264H/H.2 64B/MJPEG		
12	Picture Encoding Format	JPEG		
13	WDR	Minimum 140dB		
14	White Balance	Auto/outdoor/manual/local white balance/natural light/street light		
15	Noise Reduction	2DNR/3DNR		
16	HLC	Should Support		
17	Bad Pixel Correction	Should Support		
18	Edge Enhancement	Should Support		
19	Storage	Support SD card (Minimum 128GB)		
20	Image Tampering Prevention	Should Support Watermark and verification are available for videos and pictures		
21	Security	Authorized username and password, MAC address binding, HTTPS encryption, and network access control		
22	License Plate Recognition	Adopts self-developed algorithm to recognize license plates combining numbers and letters		

23	Vehicle Type Recognition	Should Support	
24	Vehicle Color Recognition	Should Support	
25	Motor Vehicle Violation Capture	Should Support	
26	Video Metadata	Should Support Motor vehicle: License plate, vehicle type, vehicle color, license plate color, vehicle logo, and more. Non-motor vehicle: Type (two-wheelers, three-wheelers), color, wearing a helmet or not, passenger (1, 2, 3, or more passengers)	
27	Vehicle recognition rate	≥98%	
28	Network	1 RJ-45 Ethernet port, 10/100/1000M Network transmission	
29	Alarm Input & Output	1 channel In & 1 channel Out	
30	Audio Input & Output	1 channel In & 1 channel Out	
31	Illuminator Number	4 illuminators (850nm IR LED illuminators, brightness adjustable)	
32	Power Supply	12V DC, 24V DC, PoE	
33	Operating Temperature	-10°C to 55°C	_
34	Protection Grade	IP67/IK10 or Better	
35		FCC, CE, BIS ally reputed Manufacturer presence nanufacturing facility in India.	

General Surveillance Management Server

SI. No	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Processor	Intel Xeon-Silver 4216 Processor or AMD EPYC 7282 or Higher		
2	No. of Core	16 Core or Higher		
	Processor speed	2.5 GHz or Higher		
7	Operating System	Microsoft Windows Server 2022 16 Core Standard loaded		
8	Generation	Gen10 or latest		
9	HDD	2 x 480GB SATA / SSD		
10	Power	500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit		
11	Storage controller	Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller		

12	Memory, standard	64 GB DDR4 3200MHz with 16 DIMMs	
13	Mouse	Optical Mouse	
14	Keyboard	Keyboard	
15	Ethernet	Ethernet 1Gb X 4-port 331T Adapter	
16	Mounting	1x CMA for rail kit	
17	Form Factor	Rack	

Central Video Monitoring Software

Sl. No	Feature	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Video Management Software with high scalable design and distributed deployment, easily expand the supported channels to 20,000 and central storage capacity to 4 PB. The multi-site function allows to incorporate multiple VMS platforms into one, and conveniently show their information on one PC client. With hot standby and N+1 redundancy.		
2	VMS Shall be based on Microsoft windows OS.		
3	VMS shall be open to IP camera integration in that respects VMS should support IP Cameras from Multiple OEM.		
4	The VMS shall be ONVIF compliant.		
5	VMS shall be open to any NAS (CIFS, SMB 2.0) integration.		
6	VMS shall support H.264 and MJPEG stream for both live view and Recording independently. Compression rate shall be manageable.		
7	The Video Management System shall support cameras with resolutions ranging from Standard Definition, High Definition (HD) and higher resolution		
8	The Video Management System shall show video across 4 displays per workstation - each display can have up to 25 viewing panes.		
9	VMS shall be able to connect with video wall through multi-display client.		
10	Users shall be able to move any image from one display screen to another via drag-and-drop		
11	The VMS shall allow the overlay of time and date information on live video panes		
12	Users shall be able to digitally zoom and also digitally scroll live video from any camera using the mouse wheel		
13	Users shall be able to replay currently viewed live video for replays from 10, 15 or 30 seconds before current time or from alarm time.		
14	The VMS shall allow users to reset the event count for a camera It should be able to display camera information in the On-Screen Display (OSD).		
	a. Camera name		

1	b. Date and time			
		sing any desktop client utility for		
15	Live view and Archive sea			
		way audio so that users shall be able		
1.6		e cameras through PC speakers and		
16	may speak to one or more			
	PC microphone			
	_	ing initial client logon, system		
17		mote administration of recording		
	servers, devices, security, r			
		st 3 levels of users with various		
		stem functionality. Each category ctable rights to perform various		
18		d/delete, Change camera settings,		
		PTZ cameras, User management,		
	etc	,		
		ontinuous log of server status		
19		ctivity, Storage status, Recording		
17		, etc which shall be accessed from		
	the Workstations using diffe			
20		be individually and independently plution, frames and bandwidth		
21	_	eams up to at least 25/30fps		
	VMS shall support at least (
22	HD/Megapixel resolution			
	, 36 F	All PTZ control shall be user-		
		restricted		
		Users shall be able to zoom a		
		PTZ camera in or out using the		
		PC mouse		
		Users shall be able to pan, tilt and zoom a PTZ camera		
		displayed in a video pane or		
		monitor using a joy stick on one		
		of the supported CCTV		
23	PTZ Control	keyboards		
23	P1Z Control	Users shall be able to adjust		
		the iris of a PTZ camera using		
		the on screen PTZ controls or		
		a CCTV keyboard:-Open iris- Close-Auto-iris		
		The Video Management System		
		shall support the following for		
		cameras using the ONVIF		
		interface or Camera Gateway		
		a. Pan, tilt and zoom control		
		with mouse and joystick		
	Go to pre-set			
c. S	et pre-set	1. 124		
24		pability of operating in an multi-tasking, when using		
44	-	_		
25	multiple cameras spread over a wide area VMS should have Pre and Post Event Recording			
26	VMS should have Motion I			
	20 This should have riodish betection technology			

	Software provides remote interface with a full live feed view,	
27	with digital zoom options, control of PTZ cameras, multiple	
2/	simultaneous feeds, and image quality settings to improve	
	performance through bandwidth reduction	
	Software has built in feature to bring camera observation to	
28	mobile devices (require a software on a mobile device to	
	view)	
29	Each camera setting can be adjusted individually according	
	to client's requirement	
30	Schedule operation - All cameras can be fully scheduled	
	individually	
31	View and record multiple cameras	
32	As many playback sessions as are required can be	
	displayed at once	
33	Automatic control of supported PTZ cameras	
34	Alerting by email (with images)	
	Software should have built in feature to bring camera	
35	observation to mobile devices (require a software on a	
0.6	mobile device to view)	
36	The software shall allow:	
A	Live display of cameras.	
В	Live display of camera sequences.	
С	Control of PTZ cameras.	
D	Playback of archived video.	
Е	Retrieval of archived video.	
F	Instant Replay of live video.	
G	Configuration of system settings.	
Н	Configuration and programming of P/T/Z cameras, features	
- 11	like camera addressing, BLC, auto tours, pre-sets etc.	
I	Video Analytics	
	The software should be able to do video recording on any of	
37	the following options - inbuilt hard disks on the server,	
	direct attached storage boxes attached to servers, network	
	attached storage, storage area network.	
	The software should be capable of handling camera and	
20	alarm icons on area maps. The area map should be	
38	configurable to pop up upon the receipt of an alarm received from a camera on the map. This can be on the	
	same or other monitors on the PC.	
	The software shall be able to select the required recording	
	based on the time recording was activated, the duration of	
39	recording, operator activated recording, event activated	
	recording.	
	It shall be possible to search for recordings in the software	
	by camera, date and time. If a data and time is specified,	
40	playback shall commence from that date and time. It shall	
	be possible to playback more than one camera	
	simultaneously.	
	It Software shall allow operators to bookmark the concern	
	videos & browse through a list of all bookmarks created on	
41	the system and select any bookmarked event for viewing.	
71	Software shall support industry standard for the interface of	
	IP-based physical security products: ONVIF and shall be	
	based on a server/client model.	

42	rate and compression level			
43	Software shall have the car Cameras / Encoders using I	pacity to communicate with IP HTTPS secure protocol. It shall twork connectivity, including:		
44	All audio streams supplied f be digitally encoded in g71	rom IP Camera / Encoders shall 1 (u-law)/ g721/ g723 or AAC ecorded simultaneously in real		
45	server. Roles shall move from disturbing the regular oper	ant architecture for recording in m one server to another without ations. To minimize network ability to configure the key frame d.		
46	All video streams supplied f be digitally encoded in MPI compression formats and re time			
47	Each camera's bit rate, frame rate and resolution shall be set			
48	Software shall support of resolution according to the High Resolution Video feed viscreen and Low Resolution Cameras in Multiple tiles.			
49	Removed			
50	Removed			
51	Devices	Should Support Minimum 2,000 devices Per Server		
52	Auto-Registered Devices	Should Support Minimum 1,000 devices Per Server		
53	Video Devices and Channels	Should Support Minimum 1,000 devices; 2,000 channels Per Server		
54	Devices Added by ONVIF Protocol	Should Support Minimum 1,000 devices; 2,000 channels		
55	ANPR Channels	Should Support Minimum 500 channels		
56	Total Devices	Should Support Minimum 10,000 locations; 65,000 cameras		
57	Total Incoming Bandwidth	Should Support Minimum 600 Mbps		

58	Incoming Video Bandwidth	Should Support Minimum 600 Mbps	
59	Incoming Picture Bandwidth	Should Support Minimum 200 Mbps	
60	Total Outgoing Bandwidth	Should Support Minimum 600 Mbps	
61	Outgoing Video Bandwidth	Should Support Minimum 600 Mbps	
62	Outgoing Picture Bandwidth	Should Support Minimum 200 Mbps	
63	Total Storage Bandwidth	Should Support Minimum 600 Mbps	
64	Video Storage Bandwidth	Should Support Minimum 600 Mbps	
65	Picture Storage Bandwidth	Should Support Minimum 200 Mbps	
66	Prerecording Bandwidth for Alarm Recordings	Should Support Minimum 400 Mbps	
67	Maximum Capacity of Central Storage (IPSAN)	Should Support Minimum 400 TB, depending upon server capacity	
68	Total Events	Should Support Minimum 100 per second	
69	Storage of Events or Alarms without Pictures	Should Support Minimum 40 per second	
70	Alarms with Snapshots (Stored on Devices)	Should Support Minimum 20 per second	
71	Removed		

	Client Workstation PC					
Sl. No	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)		
1	Form factor	Tower Type				
2	Operating System	Win 11 SL/ Home 64 bit				
3	Processor & Chipset	Intel i7 12700/ AMD Ryzen 7 5700 or higher; Intel Q670/ AMD Pro 565 or higher				
4	RAM	32 GB DDR4 RAM				
5	Graphics Card	Minimum 4 GB				
6	Storage	512GB NVMe SSD or higher				
7	Power Supply	Min. 400W with 90% or higher efficiency				
8	1/0	Wireless Keyboard and Wireless Mouse, WiFi + BT, Total 10 USB ports, HDMI, DP/ VGA port				
9	Certifications	ISO 9001, 14001, 20001, 27001, EPEAT Gold, ROHS, CE, FCC, UL				
	8 Ethernet	Port PoE Switch				

SI. No	Tech	nical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	No of Ports	8 10/100/1000 Base-T PoE ports & 2 Gigabit SFP ports	-	
2	Switching Capacity	20 Gbps or Better		
3	Forwarding Rate	Minimum 14.80 Mbps		
4	POE / POE+	IEEE 802.3af and 802.3at		
5	POE Power Budget	Minimum 130 W or Higher		
6	Power Supply	AC: 100V -240V, 50Hz ±10%		
		Operating temperature/ Humidity: 0°C-45°C, 10%-90% non-condensation		
7	Environment	Storage temperature/ Humidity: 0°C-70°C; 5%-95% non-condensation		
		Power Saving by: Link status, LED or Port Shutoff		
		Static configuration and dynamically learning of MAC address		
		Check and delete MAC address Configuring of MAC address		
8	MAC Switching	aging time Up to 256 Static MAC entries		
		Limit on MAC address learning number		
		MAC address filtering function		
		MAC address size 8K		
		One-to-One, Many-to-One		
9	Port Mirroring	Supports Mirroring for Tx/Rx/Both		
		4K VLAN entries, 256 static VLAN		
10	V LAN	GVRP		
10	VLAN	1:1 and N:1 VLAN Mapping		
		Q-in-Q		
		Private VLAN, Voice VLAN		
11	STP	802.1D (STP), 802.1W (RSTP), 802.1S (MSTP)		
		BPDU protection, root protection and ring protection		
		IGMP v1/v2/v3		
		IGMP Snooping		
12	Multicast	IGMP Fast Leave		
		Multicast group policy and multicast number limit		
13	IPv6	ICMPv6, DHCPv6, ACLv6 and		

		IPv6 Telnet		
		IPv6 Neighbor Discovery		
		MLD v1/v2		
		MLD Snooping		
		Traffic classification of each field of L2/L3/L4 protocol headers		
		CAR traffic control		
14	QoS	802.1P/DSCP priority remark		
17	Q03	Multiple queuing algorithms such as SP, WRR or SP+WRR		
		WRED		
		Traffic supervision and traffic shaping		
		Identification and filtering of L2/L3/L4 based ACL		
		DOS or TCP attacks Prevention		
		Suppression of broadcast, multicast and unknown unicast packet		
15	Security features	Port isolation		
	•	Port security, IP+MAC+port binding		
		DHCP Snooping, DHCP Option 82		
		IEEE 802.1x certification		
		Radius and Tacacs+		
16	Reliability	Static / LACP link aggregation		
		Console, Telnet, SSH 2.0		
		WEB based management		
17	Management and	SNMP v1/v2/v3		
	Maintenance	TFTP		
		RMON		
18	Certification	CE, FCC, IEC 62368-1		
-		Any globally reputed		
19	Make / Brand	Manufacturer presence in		
		India.		
	16 Bay Video	Storage Device	Chasification	Comuliad
Sl. No	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Main Processor	64-bit high-performance Intel processor or Higher		
2	Memory	Minimum 4GB		
3	Operating System	Embedded LINUX / Windows		
4	Video Stream Mode	640Mbps incoming and recording		
ı		320Mbps forwarding,		

		64Mbps playback	
		Storage bandwidth ≤2.7Gbps	
5	IP SAN Mode	Write-through: 320Mbps;	
		Write-back: 480Mbps	
6	Storage	Should Support 16 HDDs, 10TB or higher capacity for each	
	btorage	SATA HDD.	
7	miniSAS	1 miniSAS ports, for storage	
		extension Additional HDD bracket,	
8	HDD Installation	HDD hot-swap, HDD online	
		replacement	
9	HDD Mode	Single, RAID 0/1/5/6/10/50/60, hot spare	
		Non-working HDD hibernation	
		to guarantee	
10	HDD Manager	sound ventilation, reduce power consumption and	
10	TIDD Manager	enhance HDD life span	
		HDD bad track mapping to	
		enhance HDD life span Dynamically adjust RAID	
11	RAID Rebuild	rebuild speed to guarantee	
		system load balance	
	Logic Volume	Support iSCSI volume management,	
12	Manager	NAS(SMB/NFS/FTP) volume	
		management	
13	Snapshot	Support snapshot function, create user volume toback	
15	Shapshot	data.	
		Support extracting P frame	
14	Extract Frame	function. Customized extracting period and frame	
		rate setup	
15	Cluster Service	N+M cluster service	
		After disconnection, system can download the record file	
16	ANR	from the SD card on the	
		network camera to maintain the	
		full record file. 2 data RJ-45 ports	
17	Interface	(10/100/1000Mbps)	
	_	Multi-address, Fault-tolerance,	
18	Network Mode	Load balance, Link aggregation	
		HTTP, HTTPs, TCP/IP,	
		IPv4/IPv6, UPnP, RTP, RTCP,	
19	Network Function	RTSP, UDP, SMTP, NTP, DHCP,	
		DDNS, IP Filter, PPPoE,DDNS, iSCSI, SMB, NFS, FTP.	
20	Interoperability	ONVIF	

21	Power Supply	AC100V ~ 240V,1 + 1 Redundant power	
22	Working Conditions	0°C ∼ +40°C	
23	Certification	FCC, CE, UL, BIS, IK10	
24	Make / Brand	Any globally reputed Manufacturer presence in India.	

	1	Standing Rack			
Sl. No	Technical	l Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes/No)	
1	19", 17U Networki	x 600mm width x 800mm depth Floor Standing ng Rack			
2	It should	confirm to DIN 41494 or equivalent ISO standard			
3	It should	be welded construction with steel frame			
4	Single Lo	ckable tough end glass front door			
5	Vented m	netal door at the back, Vented side panels			
6	Powdere	d coated standard finish			
7	4 sets of c	casters wheel			
8	4 sets of a	adjustable levelers			
10	Horizonta	ıl Cable Manager			
11	certified	uld have valid ISO 9001, ISO 14001 & ISO 45001:2018 for design and development of LAN and WAN products, evant certificates must be submitted along with the bid.			
12	Mounting Hardware set				
13	At least 2nos. Of FANs (180CFM) for cooling purpose				
14	Make / Brand	Any globally reputed Manufacturer presence in India.			

All SFP Core Switch

Sl. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Layer-3 Fully Managed Switch having 24x 1G SFP slots with 4x combo 10/100/1000BaseT ports & 4x 10G SFP+ slots.		
2	SFP slots should support IEEE 802.3z & IEEE 802.3u compliant transceivers & SFP+ slots should support IEEE 802.3z & IEEE 802.3ae compliant transceivers		
3	The switch should be 19" Rack Mount size.		

	THE SWITCH SHOULD HAVE FOLLOWING BASIC FEATURE FROM DAY ONE:	
4	The switch should have RJ45/mini-USB console port for Out of band CLI management & ethernet port for out of band IP management. It should have minimum one alarm port.	
5	The switch should have intelligent fans with sensor that provides different fan speed based on different temperature.	
6	The switch should have support for redundant power supply.	
7	The switch should have built-in hardware feature for both external event detection & alarm action	
8	The switch should have switching capacity at least 128Gbps & packet forwarding rate at least 95Mpps for 64-bytes packet size	
9	The switch should have non-blocking architecture & wirespeed performance under fully loaded condition.	
10	The switch should have virtual stacking capability of at least 25 switches in a stack.	
11	The switch should have physical stacking capability with at least 8 units per stack & at least 40Gbps of stacking bandwidth.	
12	The switch should have feature for flexible management of switch resources	
13	The switch should have 6kV Surge protection on all RJ45 access ports	
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-2 FEATURE FROM DAY ONE:	
14	a) At least 64K MAC address table size. At least 1K static MAC support.	
15	b) Jumbo frame support for at least 12KB frame size.	
16	c) Flow-control features: 802.3x for full duplex & Head-of-	

1 1	line blocking prevention.	
17	d) UDLD or equivalent features.	
17	e) IEEE 802.1D (STP), 802.1w (RSTP) & 802.1s (MSTP) with	
18	at least 64 MSTP instances, Root Guard or equivalent	
10	features.	
	f) Avoidance of the loop occurring in a single port	
19	connected to an unmanaged switch/hub by shutting	
19	down the corresponding port or corresponding VLAN	
	g) Ethernet Ring Protection Switching (ERPS) with	
20	maximum 50milli second recovery time.	
	h) IEEE 802.1AX & 802.3ad Link aggregation with at least	
21	32 groups per device & at least 8 ports per groups. LACP.	
	i) Port mirroring with at least 4 mirroring sessions. Should	
	support Tx, Rx & both based mirroring. Should support	
22	one-to-one & many-to-one mirroring, flow-based	
	mirroring, RSPAN.	
	j) IGMP v1 v2 & v3 snooping with at least 8000 snooping	
22	groups. Should support IGMP snooping per VLAN, host-	
23	based IGMP snooping fast leave, at least 128 static IGMP	
	groups, L2 multicast filtering	
	k) MLD v1 & v2 snooping with at least 4000 snooping	
24	groups. Per VLAN MLD snooping. At least 128 static MLD	
	groups.	
	l) At least 4K VLAN groups, 802.1Q, 802.1v protocol	
	based VLAN, Q-in-Q, GVRP with at least 4K dynamic	
25	VLANs, Voice VLAN, Port-based VLAN, MAC-based	
	VLAN, private VLAN, VLAN trunking, MVR (Multicast	
	VLAN Registration) or equivalent feature.	
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-3	
	FEATURE FROM DAY ONE:	
26	a) At least 16K routing table entry size with at least 512	
	static route entry support. b) Default route, RIPv1, RIPv2, RIPng, OSPFv2, OSPFv3,	
	BGPv4, BGPv4+, Policy based route, Route preference,	
27	Route Redistribution, Bidirectional Forwarding Detection,	
	MSDP	
	c) Multicast forwarding table size: at least 2000,	
	IGMPv1v2v3, MLDv1v2, IGMP filtering, static IP multicast	
28	route, PIM-DM, PIM-SM, PIM-SSM, PIM-Sparse-Dense	
	mode, DVMRPv3, PIM-SMv6.	
29	e) IPv6 tunnelling, VRRP, IP helper	
	THE SWITCH SHOULD HAVE FOLLOWING QOS FEATURE	
	FROM DAY ONE:	
30	a) IEEE 802.1p, DSCP, at least 8 queues per port.	
21	b) Queue handling methods: strict, weighted round	
31	robin, weighted deficit round robin, WRED	
	c) CoS & classification of packets based on following	
32	parameters: VLAN ID, 802.1p priority, MAC address,	
] 32	Ether type, DSCP, protocol type, IPv4 address, TCP/UDP	
	port number, IPv6 address, IPv6 traffic class	
33	d) Port & flow based bandwidth control with minimum	
	granularity 8Kbps.	
34	e) Time based QoS.	
	THE SWITCH SHOULD HAVE FOLLOWING SECURITY	

1 1	FEATURE FROM DAY ONE:	
\vdash		
35	a) Access control list based on VLAN, MAC address, 802.1p priority, DSCP, protocol type, TCP/UDP port, IPv4 address, IPv6 address, IPv6 traffic class	
36	b) Time based ACL.	
37	c) Binding of IP address & MAC address with the interface. Dynamic ARP Inspection. IP Source Guard. DHCPv6 Guard, IPv6 Route Advertisement Guard, IPv6 Neighbour Discovery Inspection, Duplicate Address Detection	
38	d) SSHv2 for both IPv4 & IPv6, SSL (TLS 1.2) for both IPv4 & IPv6, Port security with at least 12K MACs per port.	
39	e) Broadcast, multicast & unicast storm control.	
40	f) Protection of the CPU from protocol control packet attack.	
41	g) DHCP server screening, DHCP client filtering, ARP spoofing prevention, BPDU attack prevention, DoS attack prevention	
42	h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting.	
43	i) Authentication supported based on : Local data base, RADIUS server	
44	j) Web based access control for IPv6	
45	k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access.	
	THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE:	
46	a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), TFTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog. sFlow, ICMPv6.	
47	b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61.	
48	c) Multiple images & configurations, SNTP, debug	
49	d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp.	
50	e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az	
51	Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443- 4-1: 2018 standard for cyber security capability	
52	All type of switches & transceivers should be from same make.	
53	All Core switches should be from same make.	

Copper Core Switch

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Core Switch - Layer-3 Fully Managed Switch having 20 X 1Gbps Copper Ports with 4x combo 1G SFP slots & 4x 10G SFP+ slots		
2	SFP slots should support IEEE 802.3z & IEEE 802.3u compliant transceivers & SFP+ slots should support IEEE 802.3z & IEEE 802.3ae compliant transceivers		
3	The switch should be 19" Rack Mount size. THE SWITCH SHOULD HAVE FOLLOWING BASIC FEATURE FROM DAY ONE:		
4	The switch should have RJ45/mini-USB console port for Out of band CLI management & ethernet port for out of band IP management. It should have minimum one alarm port.		
5	The switch should have intelligent fans with sensor that provides different fan speed based on different temperature.		
6	The switch should have support for redundant power supply.		
7	The switch should have built-in hardware feature for both external event detection & alarm action		
8	The switch should have switching capacity at least 128Gbps & packet forwarding rate at least 95Mpps for 64-bytes packet size		
9	The switch should have non-blocking architecture & wire-speed performance under fully loaded condition.		
10	The switch should have virtual stacking capability of at least 25 switches in a stack.		
11	The switch should have physical stacking capability with at least 8 units per stack & at least 40Gbps of stacking bandwidth.		
12	The switch should have feature for flexible management of switch resources		
13	The switch should have 6kV Surge protection on all RJ45 access ports		
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-2 FEATURE FROM DAY ONE:		
14	a) At least 64K MAC address table size. At least 1K static MAC support.		
15	b) Jumbo frame support for at least 12KB frame size.		
16	c) Flow-control features: 802.3x for full duplex & Head-of-line blocking prevention.		
17	d) UDLD or equivalent features.		
18	e) IEEE 802.1D (STP), 802.1w (RSTP) & 802.1s (MSTP) with at least 64 MSTP instances, Root Guard or equivalent features.		
19	f) Avoidance of the loop occurring in a single port		

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	connected to an unmanaged switch/hub by shutting		
	down the corresponding port or corresponding VLAN		
20	g) Ethernet Ring Protection Switching (ERPS) with		
20	maximum 50milli second recovery time.		
	h) IEEE 802.1AX & 802.3ad Link aggregation with at least		
21	32 groups per device & at least 8 ports per groups.		
	LACP.		
	i) Port mirroring with at least 4 mirroring sessions.		
22	Should support Tx, Rx & both based mirroring. Should		
22	support one-to-one & many-to-one mirroring, flow-based		
	mirroring, RSPAN.		
	j) IGMP v1 v2 & v3 snooping with at least 8000 snooping		
	groups. Should support IGMP snooping per VLAN, host-		
23	based IGMP snooping fast leave, at least 128 static IGMP		
	groups, L2 multicast filtering		
	k) MLD v1 & v2 snooping with at least 4000 snooping		
24	groups. Per VLAN MLD snooping. At least 128 static MLD		
27	groups.		
	l) At least 4K VLAN groups, 802.1Q, 802.1v protocol		
	based VLAN, Q-in-Q, GVRP with at least 4K dynamic		
25	VLANs, Voice VLAN, Port-based VLAN, MAC-based		
25	VLAN, private VLAN, VLAN trunking, MVR (Multicast		
-	VLAN Registration) or equivalent feature.		
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-3		
	FEATURE FROM DAY ONE:		
26	a) At least 16K routing table entry size with at least 512		
	static route entry support.		
	b) Default route, RIPv1, RIPv2, RIPng, OSPFv2, OSPFv3,		
27	BGPv4, BGPv4+, Policy based route, Route preference,		
	Route Redistribution, Bidirectional Forwarding		
	Detection, MSDP.		
	c) Multicast forwarding table size: at least 2000,		
28	IGMPv1v2v3, MLDv1v2, IGMP filtering, static IP multicast		
20	route, PIM-DM, PIM-SM, PIM-SSM, PIM-Sparse-Dense		
	mode, DVMRPv3, PIM-SMv6.		
29	e) IPv6 tunnelling, VRRP, IP helper		
	THE SWITCH SHOULD HAVE FOLLOWING QOS		
	FEATURE FROM DAY ONE:		
30	a) IEEE 802.1p, DSCP, at least 8 queues per port.		
24	b) Queue handling methods: strict, weighted round		
31	robin, weighted deficit round robin, WRED		
	c) CoS & classification of packets based on following		
	parameters: VLAN ID, 802.1p priority, MAC address,		
32	Ether type, DSCP, protocol type, IPv4 address, TCP/UDP		
	port number, IPv6 address, IPv6 traffic class		
25	d) Port & flow based bandwidth control with minimum		
33	granularity 8Kbps.		
34	e) Time based QoS.		
—	THE SWITCH SHOULD HAVE FOLLOWING SECURITY		
	FEATURE FROM DAY ONE:		
-	a) Access control list based on VLAN, MAC address,		
25			
35	802.1p priority, DSCP, protocol type, TCP/UDP port, IPv4 address, IPv6 address, IPv6 traffic class		
1	Lauvi ess. Te vo auvi ess. Te vo (Lallic Class	i .	
36	b) Time based ACL.		

37	c) Binding of IP address & MAC address with the interface. Dynamic ARP Inspection. IP Source Guard. DHCPv6 Guard, IPv6 Route Advertisement Guard, IPv6 Neighbor Discovery Inspection, Duplicate Address Detection
38	d) SSHv2 for both IPv4 & IPv6, SSL (TLS 1.2) for both IPv4 & IPv6, Port security with at least 12K MACs per port.
39	e) Broadcast, multicast & unicast storm control.
40	f) Protection of the CPU from protocol control packet attack.
41	g) DHCP server screening, DHCP client filtering, ARP spoofing prevention, BPDU attack prevention, DoS attack prevention
42	h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting.
43	i) Authentication supported based on : Local data base, RADIUS server
44	j) Web based access control for IPv6
45	k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access.
	THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE:
46	a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), TFTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog. sFlow, ICMPv6.
47	b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61.
48	c) Multiple images & configurations, SNTP, debug
49	d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp.
50	e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az
51	Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443- 4-1: 2018 standard for cyber security capability
52	All type of switches & transceivers should be from same make.
53	All Core switches should be from same make.

600 VA Offline UPS

Feature		Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
	Voltage	220/230 VAC		
INPUT	Voltage Range	140-300 VAC		
	Frequency Range	50 Hz		
OUTPUT	AC Voltage Regulation (Battery Mode)	±10%		

	Frequency Range (Battery Mode)	50 Hz ±1 Hz	
	Transfer Time	Typical 2-6 ms	
	Waveform (Battery Mode)	Simulated Sine Wave	
	Overload	110% +/-10% Shutdown after 5 minutes	
BATTERY	Battery Type & Number	12 V/7 Ah x 1	
DATIENT	Typical Recharge Time	6-8 hours up to 90% capacity	
TRANSFER TIME	Minimum line break for transfer to battery	Typical 4-8 msec	
	AC Mode	Green lighting	
INDICATORS	Battery Mode	Green flashing	
	Fault	Red lighting	
ALARMS	Battery Mode, Low Battery, Overload, Battery replacement, fault	Audible alarm	
PROTECTION	Full Protection	Overload, discharge, and overcharge protection	
	Operating Environment	0-40 Deg C.	
	Storage Temp	-15°C to 50°C	
ENVIRONMENT	Humidity	0-95 % RH @ 0- 40°C (non- condensing)	
	Noise Level	Less than 40dB	
	BIS registration	Require	
Test reports	NABL Approved government lab test report.	Require	

Make / Brand : Any globally reputed Manufacturer presence in India

3 KVA Online UPS`

Sl. No.	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Capacity	3kVA/2.4 kW.		
2	Design	True online double		

		conversion design	
Input	Characteristics.		
3	Nominal Input Voltage	230Vrms	
4	Nominal Input Frequency	50Hz.	
5	Input Power Factor	0.99	
6	Type of Rectifier	IGBT Based PWM Rectifier	
7	Input Voltage Range	110 VAC to 300 VAC	
8	Voltage Detection Tolerance ±3%	±3% Calibration	
	Calibration		
9	Input Frequency Range	40-70Hz	
10	Inrush Limitation	7*IRMS_Nom	
11	Current Protection	With Fuse.	
Batte	ry Parameters.		
12	Charging Method	Constant voltage constant current (CVCC)	
13	Charging current Capacity	Settable 1/2/4/6	
14	Type of Batteries	SMF VRLA, Li-ion, Tubular	
15	Back up time	2 Hours	
	•	4680	
16	Minimum VAH required Maximum Battery Leakage	4000	
17	Current	500uA	
18	Charge Voltage Accuracy	±1%	
Outpu	ıt Parameters.		
19	Load power factor	0.8	
20	Nominal Output voltage	208/ 220/ 230/ 240 VAC Settable	
21	Output Engguera	Frequency Range (Battery Mode): 50 Hz ± 0.1 Hz; Frequency Range (Synchronized Range): 46Hz ~ 54 Hz @ 50Hz	
21	Output Frequency	system	
22	Output Waveform	Pure sine wave Less than 3% for Linear	
23	Total Harmonic distortion (THD)	Load and Less than 6% for RCD Load	
24	Inverter	IGBT based PWM with Instantaneous Sine wave control	
25	Power Rating	3kVA/2.4 kW.	
26	Dynamic response	IEC62040-3 Classification 1	
27	Crest factor	3:1	
28	Duty.	Continuous duty	

20		AC mode:105%~110%:	
29	Overload Capacity	10min、110%~130%: 1min、>130%: 1sec;	
	Frequency	1111111, >150%: 1sec;	
	synchronization Band for		
30	Static. Bypass	46 - 54Hz	
31	Transfer (Inverter to Bypass)	0 ms	
	Retransfer (Bypass to		
32	Inve <u>rt</u> er)	0 ms	
33	Automatic Bypass	Inbuilt	
24	Overall efficiency (AC to	000/	
34	AC)	90%.	
Misce	ellaneous Function		
35	Intelligent Fans Speed Control	Require	
36	Auto Restart Function	Require	
Phys	ical and Environmental Cha		
		Less than 58dB @ 1	
37	Acoustic Noise Level	Meter	
38	Ambient Temperature	0 - 50 Deg C	
39	Storage Temperature	-15°C~60°C	
40	77 . 10.	<95 % and non-	
40	Humidity	condensing	
41	Altitude	<1000m	
42	Enclosure Protection Grade	IP 20	
43	Cooling	Forced Air	
	ring (Digital display)	1	
44	Input voltage	A.I. I. LCD. I. I.	
45	Battery voltage	Advanced LCD based Display System, able to	
46	Output voltage	monitor Input	
47	Output current	Voltage/Battery Voltage/	
48	Output frequency	Output Voltage / Output Frequency/ Input	
49	Input Frequency	Frequency/ Ambient	
50	Heat sink temperature	Temperature.	
	Trout omit temperature		
	indicated on Digital		
-	ay Alarms	LED indication display	
51	input fail	_	
52	Battery Low	Inbuilt and accessible on	
53	Transfer to bypass and system fault	LCD Display.	
54	LED Indications		
55	Protection	Overload/ Short Circuit/ Battery Deep Discharge/ Low Battery/ Reverse Battery/ Inverter Current Limitation/ Over	
55	1100000001	Limitation, Over	

		Temperature/ Output Overvoltage.	
56	Optional features	RS 232 communication port for interfacing, Remote monitoring	
Stand	lards		
57	Low freq Conducted disturbance	IEC61000-2-2	
Othe	r Standards		
58	Continuous Electromagnetic Susceptibility	IEC 61000-4-3	
59	Electrical Fast Transient Compatibility	IEC 61000-4-4	
60	Surge	EN 61000-4-5: 2005	
61	CRFI	IEC61000-4-6	
62	Magnetic Field Immunity	IEC 61000-4-8	
63	Transportation	IEC 60068-2-32,IEC 60068-2-64,IEC 60068.2- 27	
64	Protection	IP-20	
65	NABL approved Government lab test certificate	Require	
66	ISO certifications	ISO 9001, ISO14001, ISO27001, ISO 45001:2018	
67	BIS registration	Require	
	Make / Brand : Any globall presence in India	y reputed Manufacturer	
68			

6 KVA Online UPS

Feature		Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
	Rating	6KVA/ 6kw 1In-1out		
System	Technology	IGBT based Double conversion PWM based online UPS		
parameter	Parallel mode	4 (N+1)		
	Installation mode	Rack/ Tower		
	Rated voltage	230vac 1-Phase ,3 wire		
Input	Voltage Range	176VAC -287VAC at full load, 100VAC to 287VAC		

		at half load	
	Rated Frequency	50Hz/60Hz	
	Frequency Range	40Hz ~ 70Hz	
	Power factor	0.99	
	Rated power	6KVA/ 6kw	
	Voltage	Single phase, 230VAC	
	Frequency synchronization range	Rated frequency±3Hz. Configurable range: ±0.5Hz ~ ±5Hz	
	Rated Power Factor	Unity	
	Crest Factor	3:1'	
OUTPUT	Voltage harmonic distortion	< 2% (linear load)	
	Voltage Regulation	1%	
	Dynamic response recovery time	60ms	
	Inverter Overload Capability on utility mode	At 25°C: 105% ~ 125%- 5min; 125% ~ 150%-1min; 150%- more than 200ms	
	Programmable Outlet	Require	
	Inverter Overload Capability on battery mode	At 25°C:105% ~125%-60~ 30 s; >125%- more than 200ms	
Bypass	Static bypass	Inbuilt	
	ECO Mode	96%	
Efficiency	Online mode (AC-AC)	> 95%	
	Inverter Efficiency(DC-AC)	>92%	
BATTERY	Туре	Sealed, lead-acid, Tubular, LI-ION	
backup 5 kw	back up 120 min	minimum 12480 VAH	
(unity)	Battery charging capacity	5A	
	Mains - Battery	0ms	
Transfer Time	Inverter-Bypass	Synchronous transfer: ≤0ms	
	J. T. T. J. T.	Asynchronous transfer (default): ≤20ms	
Noise		<65db	
Danel diamless	Display type	Gravity sensor display	
Panel display mode	No of events stored	Max 256	
	Orientation	Gravity sense	
	Operating temperature	0°C ~ 50°C	
Environmental parameter	Storage temperature	-40°C ~ +70°C (battery excluded); -25°C ~ +55°C (battery included)	
parameter	Relative humidity	5%RH ~ 95%RH, non- condensing	
	Altitude	≤3000m; derating when higher than 3000m	

	W*D*H (mm)	430 X 450 X 85	
	Weight (Kg)	11	
	Ventilation	Forced -air cooled	
Mechanical parameter	Ingress protection level	IP20	
	Color	Powder coated Black Texture finish	
	Cable entry	Rear	
	Smart RS232/USB	Supports Windows, Linux, Unix and MAC	
	SNMP	Inbuilt for web monitoring	
	MODBUS	Inbuilt for BMS connectivity	
Network Management	Remote alarm	Inbuilt	
	Optional SNMP	Power management from SNMP manager and web browser	
	Management software	Site monitor	
	Modbus	Inbuilt via multifunction port	
	Safety (CE)	IEC/EN62040-1-1	
	Electromagnetic Compatibility(EMC)	IEC/EN62040-2, IEC/EN61000-3-11, IEC/EN61000-3-12, YD/T1095-2008	
	Surge Protection	IEC/EN62040-2, meeting IEC/EN61000-4-5	
Certifications	Energy star	Approved	
	ROHS	Require	
	ISO Certifications	ISO 9001, ISO 14001, ISO 45001, ISO 27001	
	NABL Approved Government lab test report	Require	

Make / Brand : Any globally reputed Manufacturer presence in India

UTM Firewall Hardware Device

Hardware Platform:	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
No built-in mechanical moving parts.		
Should be Hardened OS based firewall		
Should have flash based configuration storage with NO built in HDD		
The firewall should 5 x 1GbE RJ45 connectors, 1000 Base-TX (10/100/1000Mbps). 2 USB 3.0, 1 RJ45 RS232 console port. Wireless Radio Type and Frequency Band, 2x2 802.11ax Wi-Fi 6 dual band radios, 2.4 GHz: Data rates up to 573 Mbps, 5 GHz: Date rates up to 1.2 Gbps		

Memory/Flash: RAM: DDR4 4GB, eMMC 4GB Storage Power supply - Input Ratings: 100-240V AC, 0.9A Max, 50-60Hz. Output Ratings: 12V DC, 2.5A, Power Consumption - 25 Watts	
Following IP Address Assignment should be supported by the device:	
• Static	
PPPoE Client	
DHCP Client	
Firewall should support internal DHCP Server	
Firewall should be able to act as DHCP Relay Agent	
Performance:	
The firewall should support minimum 3.14 Gbps Gbps Firewall throughput	
The firewall should support minimum 403 Mbps UTM(fullscan) throughput	
The firewall should support minimum 1.02 Gbps VPN (UDP 1518) throughput	
The firewall should support minimum 472 Mbps GAV throughput	
The firewall should support minimum 525 Mbps IPS (fullscan) throughput	
The firewall should support minimum 1,300,000 concurrent sessions(Bidirectional)	
New session per second should me minimum 16,000	
Authentication servers/processes:	
Support for user authentication services such as Active Directory, LDAP, RADIUS, Secure ID, Digital certificates, Local user group authentications.	
Should Support Single-Sign-On Feature	
Should be able to support Terminal Services client / Citrix Client	
Networking:	
Firewall should support port independence	
Firewall should support Link Failover (Active - Active and Active - Passive)	
Firewall should be able to operate in Routing mode or Bridge (Transparent) mode	
Should support automatic WAN failover as well as load sharing for outbound traffic.	
Should be able to support VPN Failover	
Should support Server Load Balancing	
Firewall must support VLAN Tagging (IEEE 802.1Q)	
Should support Policy-Based Routing Firewall should support Dynamic Routing (RIP v1 & v2, OSPF &	
The Firewall must provide NAT functionality, including	
dynamic and static NAT translations.	
Firewall should be able to support Port Forwarding. Should have option to configure traffic shaping / QOS	

Compatible to Centralized Management	
The firewall must support Active-Active as well as Active-	
Passive redundancy.	
Actibve/Active as well as Active/Passive HA Clustering can	
be achieved	
The cluster should support simple and minimal downtime during upgrade	
Should have option to create ALIASES to identify group of	
Hosts or networks with one Unique Name	
Should have option to create Customized Aliases based on	
User/Group, Host IP/IP Range & Interface	
VPN function:	
The VPN should be integrated with firewall and support the	
full Encryption & other standards and protocols:	
(a) DES, 3DES, AES	
(b) MD5 and SHA-1 authentication	
(c) Diffie-Hellman Group 1, Group 2, Group 5 ,Group14, Group 15, Group 19 and Group 20	
1 1 1	
(d) Internet Key Exchange (IKE) algorithm	
(f) The new encryption standard AES 128, 192 & 25 (Advanced	
Encryption Standard)	
Should support IPSec, PPTP, L2TP & SSL VPN	
Should support 75 Site-to-Site Tunnels (BOVPN)	
Should support minimum 75 Mobile VPN tunnels	
(IPSec, SSL, L2TP)	
Security:	
Should support Reputation based Cloud Security feature	
Denial of Service (DoS) attacks such as ping of death, syn	
Demai of Service (DOS) attacks such as phily of death, Syll	
flood, UDP bomb, Land attack, Smurf, Fraggle and ICMP	
flood, UDP bomb, Land attack, Smurf, Fraggle and ICMP unreachable	
flood, UDP bomb, Land attack, Smurf, Fraggle and ICMP	
flood, UDP bomb, Land attack, Smurf, Fraggle and ICMP unreachable Should support Auto Blocking of Source IP address based on triggers	
flood, UDP bomb, Land attack, Smurf, Fraggle and ICMP unreachable Should support Auto Blocking of Source IP address based on triggers should support real time spam detection & also supports	
flood, UDP bomb, Land attack, Smurf, Fraggle and ICMP unreachable Should support Auto Blocking of Source IP address based on triggers should support real time spam detection & also supports proactive virus detection technology which detects and	
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Station		
Should be able to define specific URL's to be Allowed/Blocked		
Users should be able to allow blocked website using password override feature		
IPS and AV signature database keep on updating with hourly		
basis		
Should have a built-in Signature IPS engine on the same unit for IPS		
Should have Server/Client Quota based Distributed Denial of Service Prevention		
Should have the feature to exclude certain hosts' traffic (IP		
addresses) to be scanned by IPS for particular signatures		
Gateway AV should be supported for real-time detection of viruses and malicious code for HTTP, HTTPS, FTP, SMTP, POP3, SIP.		
Should have configurable policy options to select what traffic to scan for viruses		
Should support Application control for Web 2.0 applications		
Should not have inhouse security services for AV, IPS, Antispam		
Administration:		
Dedicated Application based GUI management program for robust configuration and management.		
Option for Remote management, through WEBUI, CLI & Secure Management Software		
Administrative TCP/IP ports should be other than TCP 80 and		
TCP 443 to prevent brute-force attack.		
Should support only single administrative login for integrity		
purpose and deny consecutive administrative login attempts		
Support for role based administration of firewall		
Configurable connection timeout for the management interface.		
Real-time network connection map for connection status.		
Drag-and-drop VPN configuration capability.		
Comprehensive reporting suite without any additional cost.		
Offline policy files configuration and modification.		
The Firewall must send SNMP traps to Network Management		
Servers (NMS) in response to System failures.		
Ability to make a full backup of the entire flash disk as image		
file. Ability to make/edit configuration file offline for better		
administrative management, without connecting to the		
operating security device.		
Should have option to Change Default Web UI Port		
Should have option to schedule rebooting		
Monitoring, Logging and Reporting		
Live Traffic Monitor		
Real-time reporting with Drill Down Feature		
System Services Status Monitor		
Authenticated User List Monitor		
nationicated osci bist monitor	<u> </u>	

VPN Connections Monitoring	
IP/Host/User based Traffic Watch with option Block Source/Destination from the monitoring tool itself	
Protocol based Traffic Watch	
PDF Audit Reporting	
Remote Logging Support	
Remote Reporting Support	
Remote Monitoring Support	
Encrypted Log Channel	
Provision to generate automatic alerts via mails / syslog	
The Firewall must send SNMP traps to Network Management Servers (NMS) in response to System failures.	
Multi-Appliance Log Aggregation	
Logging and reporting solution should be provided at no extra cost and shouldn't need any license renewal	
1 day of data (reports) retention should be provided at no extra cost on cloud	
Make / Brand : Any globally reputed Manufacturer presence in India	

49" DISPLAY

Sl. No	Section	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1		Screen Size	49" or higher		
2		Panel Technology	IPS or VA		
3		Aspect Ratio	16:09		
4		Native Resolution	3,840 x 2,160 (UHD)		
5		Backlight Unit Type	Edge		
6		Brightness (cd/m2)	500nit or higher		
7	Panel	Dynamic Contrast Ratio	1,000,000:1 or higher		
8		Viewing Angle (H x V)	178 x 178 or higher		
9		Response Time	8ms(G to G) or better		
10		Surface Treatment (Haze)	Haze 28% or higher		
11		Operation Hours	24x7 Hrs		
12		Orientation	Landscape & Portrait		
13		Input	HDMI (3), DP, DVI- D, Audio, USB (2)		
14	Connectivit	Output	HDMI/DP, Audio		
15	У	External Control	RS232C In/out, RJ45 (LAN) In, IR In		
16	Specificatio	VESA	200 x 200 or as per		

	n		OEM	
17	Key Feature	RAM-2GB DDR3-213 16GB, GPU-ARM (650MHz), Built-in Sensor, Auto E Acceleration(Gyro) Operation, Embedde Play, Fail over, Back Mode, Multi-screen Screen Share, Play (Screen Rotation, Rotation), Gapless I Setting (Max. 15	via URL, Rotation External Input Playback, Tile Mode (15), Setting Data ntrol Manager, 3rd bility (Creston r (Smart Energy	
18	Environmen tal	Operation Temperature	0°C to 40°C	
19	Conditions	Operation Humidity	10% to 80%	
20		Power Supply	100-240V~, 50/60Hz	
21	Power	Power Type	Built-In Power	
22	Tower	Consumption: Smart Energy Saving / Max.	100W / 140W	
23	Software	Content Management Software	SuperSign CMS	
24	Compatibili ty	Control and Monitoring Software	SuperSign Control / Control+	
25		Safety	СВ	
26	Certification	EMC	FCC Class "A" / CE / KC	
27		ErP / Energy Star	Yes / Yes	
28	Special	Tilt (Facedown)	Max. 15°	
29	Feature	IP Rating	IP5x	

42U Floor Mount Standing Rack

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	19", 42U x 800mm width x 1000mm depth Floor Standing		
	Networking Rack		
2	It should confirm to DIN 41494 or equivalent ISO		
	standard		

3	It should be welded construction with steel frame
4	Single Lockable tough end glass front door
5	Vented dual metal door at the back, Vented side panels
6	Powdered coated standard finish
7	4 sets of casters wheel
8	4 sets of adjustable levellers
9	Horizontal Power Distribution Unit with 12 x 5/15A sockets Round Pin, 230 Volts AC, 32 Amp with Plug
10	Horizontal Cable Manager
11	Mounting Hardware set
12	At least 4nos. Of FANs (360CFM) for cooling purpose
13	Make / Brand : Any globally reputed Manufacturer presence in India

27U Floor Mount Standing Rack

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	19", 27U x 800mm width x 800mm depth Floor Standing		
2	Networking Rack It should confirm to DIN 41494 or equivalent ISO standard		
3	It should be welded construction with steel frame		
4	Single Lockable tough end glass front door		
5	Vented dual metal door at the back, Vented side panels		
6	Powdered coated standard finish		
7	4 sets of casters wheel		
8	4 sets of adjustable levellers		
10	Horizontal Cable Manager		
11	Mounting Hardware set		
12	At least 2nos. Of FANs (180CFM) for cooling purpose		
13	Make / Brand : Any globally reputed Manufacturer presence in India		

24 Port LIU

Sl. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	24 Port Rack Mount LIU Fully Loaded with Single Mode LC Adapters and Pigtail (1 mtr)		
2	Aluminum & Cold Steel based material with powder coating for light mounting.		
3	Snap-in locker design, easy to change the adapter panels		
4	Should manage both splices and terminations		
5	Should have plastic Splice Tray capable of 24 fibers		
6	Should have 6 fiber magic sticker provision inside for 900um tight buffered fiber storing		
7	Accessory kit consists of cable ties, mounting ear screw		

8	Front-Mounted Cable Saddles for jumper management
9	Removable Top & Front cover for better access to
9	interior of LIU
10	Rubber grommet allow for pre-terminated fiber trunk
10	installation, protects cable and minimizes dust build-up
11	Adapter panel - Cold steel
12	Adapters should have compact design & high precision
13	which perform well under various circumstances &
13	maintain good plug retention strength.
14	All fiber items should be from same make.
15	Make / Brand : Any globally reputed Manufacturer
15	presence in India

1Gbps FO Transceiver

Sl. No	Technical Specification	
1	1 Gbps Single Mode Fibre Optic Transceiver (For Core Switch)	
2	1000BASE-LX Single Mode SFP Transceiver with Duplex LC Connector	
3	Support IEEE 802.3z standard	
4	At least 10Km distance support on single mode fiber interface	
5	Transceiver module should be hot pluggable. MSA Compliant	
6	TTL signal detect indicator, Metal enclosure for lower EMI	
7	Operating wavelength: 1310nm	
8	It should be of same make as Core Switches	
9	Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability	
10	All type of switches & transceivers should be from same make.	
11	All Core switches should be from same make.	
12	Make / Brand : Any globally reputed Manufacturer presence in India	

10Gbps FO Transceiver

Sl. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	10 Gbps Single Mode Fiber Optic Transceiver		
2	10GBASE-LR Single Mode SFP+ Transceiver with Duplex LC Connector		
3	Support IEEE 802.3ae standard		
4	At least 10Km distance support on single mode fiber interface		
5	Transceiver module should be hot pluggable. MSA		

	Compliant		
6	Operating wavelength: 1310nm		
	Secure Product Development Lifecycle Process		
7	Requirement Certification in accordance with IEC		
	62443-4-1: 2018 standard for cyber security capability		
8	All type of switches & transceivers should be from same		
8	make.		
9	All Core switches should be from same make.		
10	Make / Brand : Any globally reputed Manufacturer		
10	presence in India	•	

LC-LC Fibre Optic Patch Cord

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	LC - LC SM FO Duplex Patch Cord 5 Meter Length		
	The optical fiber patch cords shall comply with the		
	following specifications:		
2	Optical Fiber – Single mode - OS1		
3	Connector: Zirconia ceramic ferrule		
4	Pre-radiuses and pre-polished ferrule		
5	Duplex Type		
6	Color-coded Yellow for Single mode		
7	Insertion Loss: <0.3 db		
8	Cable: 9/125, SM		
9	Return Loss: >/= 50dB for UPC		
10	Durability: 1000 mating cycle		
11	Working Temp: (0 deg. C to 60 deg. C)		
12	Length: 5 Meter		
13	All fiber items should be from same make.		
14	Make / Brand: Any globally reputed Manufacturer presence in India.		
	LC-LC Fibre Optic Patch Cord		

SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	LC - LC SM FO Duplex Patch Cord 2 Meter Length		
	The optical fiber patch cords shall comply with the		
	following specifications		
2	Optical Fiber – Single mode - OS1		
3	Connector: Zirconia ceramic ferrule		
4	Pre-radiuses and pre-polished ferrule		
5	Duplex Type		
6	Color-coded yellow for Single mode		
7	Insertion Loss: <0.3 db		
8	Cable: 9/125, SM		
9	Return Loss: >/= 50dB for UPC		
10	Durability: 1000 mating cycle		

11	Working Temp: (- 10 deg. C to + 60 deg. C)		
12	Length: 2 Meter		
13	All fiber items should be from same make.		
4.4	Make / Brand: Any globally reputed Manufacturer		
14	presence in India.		
	UTP CAT-6 Outdoor Cable		
Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Category 6 Outdoor cable shall be compliant with ANSI/TIA/EIA-568-C.2 & and ISO/IEC 11801 channel performance up to 85 mtr.		
2	Category 6 Outdoor cable shall be capable of enhanced performance for transmission of high-speed data, digital and analogue voice and video (RGB) signals on LANs.		
3	All Category 6 Outdoor cables shall meet or exceed the following characteristics:		
4	Construction: 4 twisted pairs separated by internal X shaped, 4 channel, full separator. Half shall not be accepted.		
5	Category 6 Outdoor cable shall be UV Resistant		
6	Conductor dia: 23 AWG		
7	Insulation: Polyethylene		
8	Insulation Diameter: 1.04 ± 0.05 mm		
9	Sheath Thickness: 0.5 ± 0.15 mm		
10	Pairing: Two insulated conductor twisted together		
11	No. of Pair: 4 pair separated by a separator		
12	Sequential meter marking should be available		
13	Color of Jacket: Black		
14	Outer Jacket: PE		
15	Inner Jacket: PVC		
16	Filler : Central Slit Film Cross Filler		
17	Outer Diameter: 7.1 mm		
18	BEND RADIUS: 8 X CABLE DIAMETER		
19	Thickness of Inner Jacket: 0.45 mm ± 0.05 mm		
20	Thickness of Outer Jacket: 0.55 mm ± 0.05 mm		
21	Electrical Parameters		
22	CONDUCTOR RESISTANCE (DC): 9.38Ω ohms /100mtr@20°C. MAX.		
23	RESISTANCE UNBALANCE: 5%MAX		
24	MUTUAL CAPACITANCE: 5.6 nF/100 mtrs MAX.		
25	CAPACITANCE UNBALANCE PAIR/GROUND:		
25	330pF/100M MAX		
26	DELAY SKEW: ≤45 nS/100M		
27	NORMAL VELOCITY OF PROPAGATION: 69%		
28	IMPEDANCE: $100 \pm 15\% \Omega$		
29	Temperature Rating: (- 20 to +60 C)		
30	Packing: 305 Mtrs.		
31	Generally confirming to EIA/TIA 568-C.2 and IEC/ISO 11801		

32	All Network Cable should be from same make.			
20	Make / Brand: Any globally reputed Manufacturer			
33	presence in India			
6 C	Core SM 9/125 Outdoor Fibre Optic Armoured Cable			
SI. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)	
1	6 Core Single Mode Outdoor Armored Fiber Ontic			
2	Electro Chromium Coated Corrugated Steel Tape (ECCS)			
3	Central loose tube with jelly compound			
4	Sequential meter marking			
5	Armoured Design with Steel music Wire			
6	Outer Diameter: 7.2±0.5mm (for 6 Core Cable)			
7	Thickness of HDPE Jacket: 1.8±0.2mm			
8	Pulling Tension: Short Term (1000N)			
9	Crush Load: 2000N/100mm			
10	Bend Radius: Short Term (20D)			
11	The fiber type is a Matched Cladding Single Mode			
12	The fiber is optimized for operation at 1310 nm and at			
	1550 nm.			
13	Nominal Mode Field Diameter: 9.3 μm			
14	Cladding Diameter: 125 μm			
15	PMD (ps/km): ≤ 0.2			
16	Cable Cut-off Wavelength: 1260nm			
	Attenuation (of cable with fibers):			
17	At 1310 nm: 0.34 dB/km			
	At 1550 nm : 0.24 dB/km			
18	Operating Temperature should be within -20°C to +60°C			
19	Make / Brand: Any globally reputed Manufacturer presence in India.			
12 (Core SM 9/125 Outdoor Fibre Optic Armoured Cable			
Sl. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)	
1	12 Core Single Mode Outdoor Armored Fiber Optic Cable.			
2	Corrugated steel tape armoured			
3	Central loose tube with jelly compound			
4	Glass Yarns between steel tape & loose tube			
5	Sequencial meter marking			
6	The fiber should fulfill the requirement of ITU-T REC G.652D			
7	Outer Diameter: 9 ± 0.3mm (for 12 Core Cable)			
8	Thickness of HDPE Jacket: 1.8±0.2mm			
9	Pulling Tension: Short Term (2000N)			
4.0	C			
10	Crush Load: 3000N/100mm Bend Radius: (20D)			

	12	The fiber type is a Matched Cladding Single Mode	
	13	The fiber is optimized for operation at 1310 nm and at	
	13	1550 nm.	
	14	Nominal Mode Field Diameter: 9.2 µm	
	15	Cladding Diameter: 125 µm	
	16	PMD (ps/km): 0.2	
	17	Cable Cut-off Wavelength: <= 1260nm	
	18	Attenuation (of cable with fibers):	
		At 1310 nm: 0.36 dB/km	
		At 1550 nm : 0.22 dB/km	
ĺ		Make / Brand: Any globally reputed Manufacturer	
	19	presence in India	
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Specification Complied (Quoted / Applicable - by the bidder)		24 Core SM 9/125 Outdoor Fibre Optic Armoured Cable				
Cable. Corrugated steel tape armoured Central loose tube with jelly compound		Technical Sp	oecification	Applicable - by	Complied (Yes / No)	
3 Central loose tube with jelly compound 4 Glass Yarns between steel tape & loose tube 5 Sequential meter marking 6 G.652D 7 Outer Diameter: 9.5 ± 0.3mm (for 24 Core Cable) 8 Thickness of HDPE Jacket: 1.8±0.2mm 9 Pulling Tension: Short Term (2000N) 10 Crush Load: 3000N/100mm 11 Bend Radius: (20D) 12 The fiber type is a Matched Cladding Single Mode 13 The fiber is optimized for operation at 1310 nm and at 1550 nm. 14 Nominal Mode Field Diameter: 9.2 μm 15 Cladding Diameter: 125 μm 16 PMD (ps/km): 0.2 17 Cable Cut-off Wavelength: <= 1260nm 18 Attenuation (of cable with fibers): At 1310 nm: 0.36 dB/km At 1550 nm: 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack SI. No Feature Technical Specification Technical Specification Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	1	_	r Armoured Fiber Optic			
4 Glass Yarns between steel tape & loose tube 5 Sequential meter marking 6 The fiber should fulfill the requirement of ITU-T REC G.652D 7 Outer Diameter: 9.5 ± 0.3mm (for 24 Core Cable) 8 Thickness of HDPE Jacket: 1.8±0.2mm 9 Pulling Tension: Short Term (2000N) 10 Crush Load: 3000N/100mm 11 Bend Radius: (20D) 12 The fiber type is a Matched Cladding Single Mode 13 The fiber is optimized for operation at 1310 nm and at 1550 nm. 14 Nominal Mode Field Diameter: 9.2 μm 15 Cladding Diameter: 125 μm 16 PMD (ps/km): 0.2 17 Cable Cut-off Wavelength: <= 1260nm 18 Attenuation (of cable with fibers): At 1310 nm: 0.36 dB/km At 1550 nm: 0.22 dB/km Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack Si. No Feature Technical Specification (Quoted / Applicable - by the bidder) 1 Metal Guage 18 SWG or Better	2	Corrugated steel tape armou	red			
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10 Crush Load: 3000N/100mm 11 Bend Radius: (20D) 12 The fiber type is a Matched Cladding Single Mode 13 The fiber is optimized for operation at 1310 nm and at 1550 nm. 14 Nominal Mode Field Diameter: 9.2 μm 15 Cladding Diameter: 125 μm 16 PMD (ps/km): 0.2 17 Cable Cut-off Wavelength: <= 1260nm 18 Attenuation (of cable with fibers): At 1310 nm: 0.36 dB/km At 1550 nm : 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack Sl. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	8	Thickness of HDPE Jacket: 1.8	8±0.2mm			
11 Bend Radius: (20D) 12 The fiber type is a Matched Cladding Single Mode 13 The fiber is optimized for operation at 1310 nm and at 1550 nm. 14 Nominal Mode Field Diameter: 9.2 μm 15 Cladding Diameter: 125 μm 16 PMD (ps/km): 0.2 17 Cable Cut-off Wavelength: <= 1260nm 18 Attenuation (of cable with fibers):	9	Pulling Tension: Short Term (2	2000N)			
12 The fiber type is a Matched Cladding Single Mode 13 The fiber is optimized for operation at 1310 nm and at 1550 nm. 14 Nominal Mode Field Diameter: 9.2 μm 15 Cladding Diameter: 125 μm 16 PMD (ps/km): 0.2 17 Cable Cut-off Wavelength: <= 1260nm 18 Attenuation (of cable with fibers): At 1310 nm: 0.36 dB/km At 1550 nm: 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack Sl. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	10	-				
The fiber is optimized for operation at 1310 nm and at 1550 nm. 14 Nominal Mode Field Diameter: 9.2 μm 15 Cladding Diameter: 125 μm 16 PMD (ps/km): 0.2 17 Cable Cut-off Wavelength: <= 1260 nm 18 Attenuation (of cable with fibers): At 1310 nm: 0.36 dB/km At 1550 nm: 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack Sl. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better		()				
15	12	The fiber type is a Matched (Cladding Single Mode			
15 Cladding Diameter: 125 μm 16 PMD (ps/km): 0.2 17 Cable Cut-off Wavelength: <= 1260nm 18 Attenuation (of cable with fibers): At 1310 nm: 0.36 dB/km At 1550 nm: 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack Sl. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	13		ration at 1310 nm and at			
16 PMD (ps/km): 0.2 17 Cable Cut-off Wavelength: <= 1260nm 18 Attenuation (of cable with fibers): At 1310 nm: 0.36 dB/km At 1550 nm: 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack Sl. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	14	Nominal Mode Field Diamete	r: 9.2 μm			
17 Cable Cut-off Wavelength: <= 1260nm 18 Attenuation (of cable with fibers):	15	Cladding Diameter: 125 µm				
At 1310 nm: 0.36 dB/km At 1550 nm: 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack SI. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	16	PMD (ps/km): 0.2				
At 1310 nm: 0.36 dB/km At 1550 nm: 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack Sl. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	17					
At 1550 nm : 0.22 dB/km 19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack Sl. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	18	Attenuation (of cable with fi	bers):			
19 Make / Brand: Any globally reputed Manufacturer presence in India Outdoor Weatherproof Customized Rack SI. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better		At 1310 nm: 0.36 dB/km				
Outdoor Weatherproof Customized Rack Sl. No Feature Technical Specification (Quoted / Applicable – by the bidder) Metal Guage 18 SWG or Better		,				
Outdoor Weatherproof Customized Rack SI. No Feature Technical Specification (Quoted / Applicable – by the bidder) Metal Guage 18 SWG or Better	19		outed Manufacturer			
SI. No Feature Technical Specification (Quoted / Applicable – by the bidder) 1 Metal Guage 18 SWG or Better	17	1				
SI. No Feature Technical Specification (Quoted / Applicable – by the bidder) (Yes / No) 1 Metal Guage 18 SWG or Better		Outdoor Weatherproof	Customized Rack			
SI. No Feature Technical Specification (Quoted / Applicable – by the bidder) (Yes / No) 1 Metal Guage 18 SWG or Better						
		Feature	Technical Specification	(Quoted / Applicable – by	_	
2 Colour Off White / Gray / Cream	1	Metal Guage	18 SWG or Better			
	2	Colour	Off White / Gray / Cream			

3	Colour Coating	Powder Coated	
	Dimension	As Per Requirement	
4	(W X H X D)	(Weather Proof Design with cooling arrangement)	
5	Lock Facility	Double Lock facility	
	Double Door I	OB Box	
Sl. No	Feature	Technical Specification	
1	Туре	8 Way SPN MCB DB	
2	Enclosure	Double Door with IP42/43 protection	
3	Isolator	1 No. 32 Amp Double Pole (Loaded)	
4	МСВ	6 Nos. 10 Amp / 6 Amp Single Pole (loaded)	
5	Supply	Single Phase 250V AC	
6	Brand / Make	Any globally reputed Manufacturer presence in India.	

- Bidder should submit all relevant data sheet/brochure of all quoted items and should also available in respective OEM's official website.
- Bidder should indicate items mentioned in the OEM data sheet / brochure by marketing as mentioned in minimum specification in the RFP

Authorized Signatory (Signature In full): _	
Name and title of Signatory:	
Stamp of the Company:	

Zone - 3

Minimum Specification of 5 MP IR Vari-Focal Bullet Network Camera

Sl. No	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Image Sensor	1/2.8" CMOS Sensor or Better		
2	Resolution	Minimum 2592 (H) × 1944 (V)		
3	Scanning System	Progressive		
4	Electronic Shutter Speed	Auto/Manual 1/15 s-		

		1/100,000 s	
		0.01 lux@F1.4 (Color) or	
		Better	
5	Min. Illumination	0.01 lux@F1.4 (B/W) or	
		Better	
		0 lux (Illuminator on)	
6	S/N Ratio	>52 dB	
7	IR Illumination Distance	50 meter or Better	
	Illuminator On/Off		
8	Control	Auto / Manual	
9	Lens Type	Motorized vari-focal	
10	Focal Length	OEM fitted 2.8 mm-12 mm	
10	-	or Better	
11	Iris Control	Auto/ Mannual	
	Professional, intelligent		
	IVS (Perimeter	Support Intrusion, tripwire	
12	Protection)	- apport merusion, empression	
12	Video Communication	H.265+/ H.265/ H.264/	
13	Video Compression	MJPEG	
		Main stream: 2592 × 1944 @	
		30 fps or Better	
14	Video Frame Rate	Sub stream 1: D1 @ 30 fps or	
	video i fame Rate	Better	
		Sub stream 2: 2048 × 1536 @	
		8 fps or Better	
15		Sub stream 3: 1980 × 1080 @ 30 fps or Better	
16	Stream Capability	4 streams or Higher	
10	on cam capability	2592 × 1944; 2592 × 1520;	
17	Resolution	2048 × 1536; 1920×1080;	
'	1.001441011	720p; D1; VGA; 2CIF; CIF.	
18	Bit Rate Control	CBR/VBR	
19	Day/Night	Auto(ICR)/Color/B/W	
20	BLC	Should Support	
21	WDR	120 dB or Higher	
		Auto/ Natural/ Street lamp/	
22	White Balance	Outdoor	
23	Gain Control	Auto	
24	Noise Reduction	3D NR	
25	Motion Detection	Should Support	
26	Region of Interest (RoI)	Should Support	
27	Mirror	Should Support	
28	Image Rotation	Should Support	
29	Privacy Masking	Should Support	
		Storage full; network	
		disconnection; IP conflict;	
30	Alarm Event	motion detection; video	
		tampering; intrusion;	
24	CDIZ I ADI I I I	tripwire; audio detection.	
31	SDK and API available	Yes	

32	Network Protocol	HTTP; TCP; UDP; RTSP; RTCP; SMTP; FTP; SFTP; DHCP; DNS; DDNS; NTP; Multicast; ICMP; IGMP; PPPoE; SNMP; TLS/ SSL; Telnet/SSH.	
33	Interoperability	ONVIF (Profile S/Profile G/Profile T)	
34	Storage	Micro SD card (support minimum 256 GB)	
35	Mobile Client	iOS; Android	
36	Operation Temperature / Humidity	-10 °C to 55 °C / Less than 95% RH	
37	Weather Proof Standard	IP67	
38	Certifications	FCC, CE, UL, BIS, IK10, NEMA 4X	
39	Make / Brand	Any globally reputed Manufacturer presence in India & having manufacturing facility in India.	

2 Megapixel 33x CMOS Sensor IR PTZ Network Camera

Sl no.	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Image Sensor	1/2.8" CMOS or Better		
2	Effective Pixels	1920(H) x 1080(V) or Better		
3	Minimum Illumination	Colour: 0.001 Lux @F1.5; B/W: 0 Lux with IR		
4	Focal Length	The Camera should be provided with an OEM fitted 4.6~152 mm of focal length or Better		
5	White Balance	Auto, ATW, Indoor, Outdoor, Manual		
6	Focus Control	Auto / Manual		
7	Electronic Shutter	1/1s~1/30,000s or Better		
8	AGC control	Auto / Manual		
9	Back Light Compensation	WDR: 120dB or Better)		
10	Optical Zoom	33x or Higher		
11	Digital Zoom	16x or Higher		
12	Pan Travel	0°~360° endless, Pan Speed: 0.1° ~ 120°/sec		
13	Tilt Travel	- 15° ~ 90° auto flip 180°, Tilt Speed: 0.1° ~120°/sec		
14	Manual Speed	Pan: 0.1° ~160° /s; Tilt: 0.1° ~120° /s		

15	Presents & Pattern	300 Preset, 4 Pattern, 8 Patrols	
16	Present Speed	Pan: 240° /s; Tilt: 180° /s	
17	IR Illumination Distance	200 meter or Better	
18	Privacy Masking	24 Areas or More	
19	Power up Action	Auto restore to previous PTZ and lens status after power failure	
20	Day/Night: IR Cut Filter	Auto (ICR) / Colour / B/W	
21	Video Compression	H.265+/H.265 & H.264+/H.264	
22	Video Streaming	Main stream: PAL: 25 fps (1920 x 1080, 1280 x 720); NTSC: 30 fps (1920 x 1080, 1280 x 720). Sub stream: PAL: 25 fps; NTSC: 30 fps. Third stream: PAL: 25 fps; NTSC: 30 fps.	
23	Audio Compression	G.711a/G.711M/ADPCM/ AAC_LC	
24	Motion Detection	Should Support	
25	ROI	Should Support	
26	Audio Streaming	1/1 channel In/Out	
27	Auto Tracking	Should Support	
28	IVS	Tripwire, Intrusion, bright lights etc.	
29	Networking	RJ-45/ RS485	
30	Protocols	IPv4; IPv6; HTTP; TCP; RTSP; SMTP; FTP/ SFTP; DHCP; DNS; DDNS; NTP; Multicast; IIGMP; PPPoE; SNMP.	
31	Event Trigger	Motion detection, Video tampering, Scene changing, Network disconnection, IP address conflict	
32	Alarm	6/2 channel In/Out	

33	Operating Temperature	-10°C ~ 55°C / Less than 95% RH	
34	Weather Proof Standard	IP66/ IP67	
35	Power Source	AC24V, PoE++ Both Support	
36	Certifications	FCC, CE, UL, BIS, IK10	
37	Make / Brand	Any globally reputed Manufacturer presence in India & having manufacturing facility in India.	

ANPR Camera

Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
Main Processor	High performance embedded processor to extract and analyse vehicle metadata		
Image Sensor	1/2.8" CMOS or Better		
Lens	Built-in 10 mm – 50 mm motorized vari-focal lens or Better		
Shutter Mode	Single shutter		
Electronic Shutter Speed	1/25 s-1/100000 s (manual/auto) or Better		
Exposure Mode	Full auto/ manual/ customized auto/ customized		
Iris Control	Fixed iris/manual iris/auto iris/P iris/ DC Drive		
Image Resolution	2688 × 1520 or Higher		
Video Resolution	4MP (2688 × 1520)/ 2MP (1920 × 1080)/ 720P (1280 × 720)/ 4CIF (704 × 576		
Video Frame Rate	Main Stream: 25fps (2688 × 1520, 1920 x 1080); Sub stream: 25 fps (1920 × 1080, 1280 x 720)		
Video Compression	H.265+/H.265/H.264M/H.264H /H.264B/MJPEG		
Picture Encoding Format	JPEG		
WDR	Minimum 140dB		
	Main Processor Image Sensor Lens Shutter Mode Electronic Shutter Speed Exposure Mode Iris Control Image Resolution Video Resolution Video Frame Rate Video Compression Picture Encoding Format	Main Processor High performance embedded processor to extract and analyse vehicle metadata Image Sensor 1/2.8" CMOS or Better Built-in 10 mm - 50 mm motorized vari-focal lens or Better Shutter Mode Electronic Shutter Speed Exposure Mode Iris Control Image Resolution Video Resolution Video Frame Rate Pull auto/ manual/ customized auto/ customized iris/P iris/ DC Drive 4MP (2688 × 1520 or Higher 4MP (2688 × 1520)/ 2MP (1920 × 1080)/ 720P (1280 × 720)/ 4CIF (704 × 576) Main Stream: 25 fps (2688 × 1520, 1920 × 1080, 1280 x 720) Video Compression Picture Encoding Format High performance embedded processor to extract and analyse vehicle metadata Image Resolution motorized vari-focal lens or Better 1/25 s-1/100000 s (manual/auto) or Better Full auto/ manual/ customized auto/ customized auto/ customized Fixed iris/manual iris/auto iris/P iris/ DC Drive 4MP (2688 × 1520) / 2MP (1920 × 1080)/ 720P (1280 × 720)/ 4CIF (704 × 576) Main Stream: 25 fps (1920 × 1080, 1280 x 720) Video Compression Picture Encoding Format Picture Encoding JPEG	Main Processor

14	White Balance	Auto/outdoor/manual/local white balance/natural	
		light/street light	
15	Noise Reduction	2DNR/3DNR	
16	HLC	Should Support	
17	Bad Pixel Correction	Should Support	
18	Edge Enhancement	Should Support	
19	Storage	Support SD card (Minimum 128GB)	
20	Image Tampering Prevention	Should Support Watermark and verification are available for videos and pictures	
21	Security	Authorized username and password, MAC address binding, HTTPS encryption, and network access control	
22	License Plate Recognition	Adopts self-developed algorithm to recognize license plates combining numbers and letters	
23	Vehicle Type Recognition	Should Support	
24	Vehicle Color Recognition	Should Support	
25	Motor Vehicle Violation Capture	Should Support	
26	Video Metadata	Should Support Motor vehicle: License plate, vehicle type, vehicle color, license plate color, vehicle logo, and more. Non-motor vehicle: Type (two-wheelers, three-wheelers), color, wearing a helmet or not, passenger (1, 2, 3, or more passengers)	
27	Vehicle recognition rate	≥98%	
28	Network	1 RJ-45 Ethernet port, 10/100/1000M Network transmission	
29	Alarm Input & Output	1 channel In & 1 channel Out	
30	Audio Input & Output	1 channel In & 1 channel Out	
31	Illuminator Number	4 illuminators (850nm IR LED illuminators, brightness adjustable)	
32	Power Supply	12V DC, 24V DC, PoE	

	33	Operating Temperature	-10°C to 55°C	
Ī	34	Protection Grade	IP67/IK10 or Better	
	35	Certification	FCC, CE, BIS	

General Surveillance Management Server

Sl. No	Feature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Processor	Intel Xeon-Silver 4216 Processor or AMD EPYC 7282 or Higher		
2	No. of Core	16 Core or Higher		
	Processor speed	2.5 GHz or Higher		
7	Operating System	Microsoft Windows Server 2022 16 Core Standard loaded		
8	Generation	Gen10 or latest		
9	HDD	2 x 480GB SATA / SSD		
10	Power	500W Flex Slot Platinum Hot Plug Low Halogen Power Supply Kit		
11	Storage controller	Smart Array E208i-a SR Gen10 (8 Internal Lanes/No Cache) 12G SAS Modular LH Controller		
12	Memory, standard	64 GB DDR4 3200MHz with 16 DIMMs		
13	Mouse	Optical Mouse		
14	Keyboard	Keyboard		
15	Ethernet	Ethernet 1Gb X 4-port 331T Adapter		
16	Mounting	1x CMA for rail kit		
17	Make / Brand	Any globally reputed Manufacturer presence in India.		

Central Video Monitoring Software

SI. No	Feature	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Video Management Software with high scalable design and distributed deployment, easily expand the supported channels to 20,000 and central storage capacity to 4 PB. The multi-site function allows to incorporate multiple VMS platforms into one, and conveniently show their information on one PC client. With hot standby and N+1 redundancy.		

2	VMS Shall be based on Microsoft windows OS.	
	VMS shall be open to IP camera integration in that	
3	respects VMS should support IP Cameras from Multiple	
	OEM.	
4	The VMS shall be ONVIF compliant.	
5	VMS shall be open to any NAS (CIFS, SMB 2.0)	
3	integration.	
	VMS shall support H.264 and MJPEG stream for both live	
6	view and Recording independently. Compression rate	
	shall be manageable. The Video Management System shall support cameras	
7	with resolutions ranging from Standard Definition, High	
7	Definition (HD) and higher resolution	
	The Video Management System shall show video across	
8	4 displays per workstation - each display can have up to	
	25 viewing panes.	
9	VMS shall be able to connect with video wall through	
	multi-display client.	
10	Users shall be able to move any image from one display screen to another via drag-and-drop	
	The VMS shall allow the overlay of time and date	
11	information on live video panes	
12	Users shall be able to digitally zoom and also digitally	
12	scroll live video from any camera using the mouse wheel	
10	Users shall be able to replay currently viewed live video	
13	for replays from 10, 15 or 30 seconds before current time	
	or from alarm time. The VMS shall allow users to reset the event count for a	
	camera It should be able to display camera information	
14	in the On-Screen Display (OSD).	
11	a. Camera name	
	b. Date and time	
1 [VMS shall be accessible using any desktop client utility	
15	for Live view and Archive search	
	VMS should support the two-way audio so that users shall be	
16	able to listen audio from multiple cameras through PC	
	speakers and may speak to one or more cameras through a PC microphone	
	VMS shall allow managing initial client logon, system	
4-	configurations, logging, remote administration of	
17	recording servers, devices, security, rules, alerts and	
	logging.	
	VMS shall support at least 3 levels of users with various	
	privileges to access the system functionality. Each	
18	category of users shall have selectable rights to perform	
	various operations like Camera add/delete, Change camera settings, Configure storage, Control PTZ	
	cameras, User management, etc	
	VMS shall maintain a continuous log of server status	
19	messages, Camera connectivity, Storage status,	
13	Recording ON/OFF, User activity logs, etc which shall	
	be accessed from the Workstations using different filters	

1 1	Each wides streets al	-11 h- : d:: d 11 d		
20	Each video streams shall be individually and			
20	independently configurable in term of resolution, frames and bandwidth			
21	VMS shall support video streams up to at least 25/30fps			
21				
22	VMS shall support at least HD/Megapixel resolution	CIF, 2CIF, 4CIF/DI and		
	HD/Megapixei resolution	All PTZ control shall be		
		user-restricted		
		Users shall be able to zoom		
		a PTZ camera in or out		
		using the PC mouse		
		Users shall be able to pan,		
		tilt and zoom a PTZ camera		
		displayed in a video pane		
		or monitor using a joy stick		
		on one of the supported		
		CCTV keyboards		
		Users shall be able to		
23	PTZ Control	adjust the iris of a PTZ		
		camera using the on		
		screen PTZ controls or a		
		CCTV keyboard:-Open		
		iris-Close-Auto-iris		
		The Video Management		
		System shall support the		
		following for cameras using the ONVIF interface		
		or Camera Gateway		
		a. Pan, tilt and zoom		
		control with mouse and		
		joystick		
b. 0	Go to pre-set			
c. S	et pre-set			
	The VMS shall have the cap	oability of operating in an		
24	environment that requires i	nulti-tasking, when using		
	multiple cameras spread ov			
25	VMS should have Pre and P	ost Event Recording		
26	VMS should have Motion D	etection technology		
		nterface with a full live feed		
27		ions, control of PTZ cameras,		
-		s, and image quality settings		
	to improve performance the			
20	Software has built in featur	e to bring camera ces (require a software on a		
28	mobile device to view)	a no enaviroz a surupen, ce-		
	Each camera setting can be	adjusted individually		
29	according to client's require			
	Schedule operation - All car			
30	scheduled individually			
31	View and record multiple c	ameras		
	As many playback sessions			
32	displayed at once	1		
33	Automatic control of suppor	ted PTZ cameras		
34	Alerting by email (with ima			
			1	1

	Software should have built in feature to bring camera	
35	observation to mobile devices (require a software on a	
	mobile device to view)	
36	The software shall allow:	
A	Live display of cameras.	
В	Live display of camera sequences.	
С	Control of PTZ cameras.	
D	Playback of archived video.	
Е	Retrieval of archived video.	
F	Instant Replay of live video.	
G	Configuration of system settings.	
	Configuration and programming of P/T/Z cameras,	
Н	features like camera addressing, BLC, auto tours, pre-	
	sets etc.	
I	Video Analytics	
	The software should be able to do video recording on	
	any of the following options - inbuilt hard disks on the	
37	server, direct attached storage boxes attached to	
	servers, network attached storage, storage area network.	
	The software should be capable of handling camera	
	and alarm icons on area maps. The area map should be	
38	configurable to pop up upon the receipt of an alarm	
	received from a camera on the map. This can be on the	
	same or other monitors on the PC.	
	The software shall be able to select the required	
39	recording based on the time recording was activated,	
	the duration of recording, operator activated	
	recording, event activated recording.	
	It shall be possible to search for recordings in the	
40	software by camera, date and time. If a data and time is specified, playback shall commence from that date and	
40	time. It shall be possible to playback more than one	
	camera simultaneously.	
	It Software shall allow operators to bookmark the	
	concern videos & browse through a list of all	
	bookmarks created on the system and select any	
41	bookmarked event for viewing. Software shall support	
	industry standard for the interface of IP-based physical	
	security products: ONVIF and shall be based on a	
	server/client model.	
	VMS should use two independent streams Camera or IP	
	encoders: One for Live View and other for recording. All settings for each stream including resolution,	
42	codecs, frame rate and compression level may be	
	choose independently without affection overall system	
	performance and IP device functionality.	
	Software shall have the capacity to communicate with	
1	IP Cameras / Encoders using HTTPS secure protocol.	
1 117	It shall support any form of IP network connectivity,	
	including: LAN/ WAN/ VPN/ Internet.	T
44	All audio streams supplied from IP Camera / Encoders	
	shall be digitally encoded in g711 (u-law)/ g721/ g723	

	or AAC compression	formats and recorded	
	simultaneously in real time.		
	Software shall offer red		
45	recording in server. Roles shall move from one server to another without disturbing the regular operations. To		
43	minimize network traffic, So		
	configure the key frame inter		
	All video streams supplied fi		
46	shall be digitally encoded i		
40	and H.264 compression for	mats and recorded	
	simultaneously in real time		
	Each camera's bit rate, frame		
47	set independently and chang		
	affect the recording and discameras.	splay settings of other	
	Software shall support dyn	amically switch the video	
	resolution according to the		
48	Screen. High Resolution Video		
	camera on screen and Low F		
	watching Cameras in Multipl		
	Removed		
49			
	Removed		
50			
30			
F.1	Deltas	Should Support Minimum	
51	Devices	2,000 devices Per Server	
52	Auto-Registered Devices	Should Support Minimum	
52	Auto Registered Devices	1,000 devices Per Server	
	Video Devices and	Should Support Minimum	
53	Channels	1,000 devices; 2,000	
		channels Per Server	
54	Devices Added by ONVIF	Should Support Minimum 1,000 devices; 2,000	
Jr	Protocol	channels	
	AMPD CL	Should Support Minimum	
55	ANPR Channels	500 channels	
		Should Support Minimum	
56	Total Devices	10,000 locations; 65,000	
		cameras	
57	Total Incoming Bandwidth	Should Support Minimum	
		600 Mbps	
58	Incoming Video Bandwidth	Should Support Minimum 600 Mbps	
	Incoming Picture	Should Support Minimum	
59	Bandwidth	200 Mbps	
		Should Support Minimum	
60	Total Outgoing Bandwidth	600 Mbps	
61	Outgoing Vide - Desder 101	Should Support Minimum	
61	Outgoing Video Bandwidth	600 Mbps	
62	Outgoing Picture	Should Support Minimum	

	Bandwidth	200 Mbps	
63	Total Storage Bandwidth	Should Support Minimum 600 Mbps	
64	Video Storage Bandwidth	Should Support Minimum 600 Mbps	
65	Picture Storage Bandwidth	Should Support Minimum 200 Mbps	
66	Prerecording Bandwidth for Alarm Recordings	Should Support Minimum 400 Mbps	
67	Maximum Capacity of Central Storage (IPSAN)	Should Support Minimum 400 TB, depending upon server capacity	
68	Total Events	Should Support Minimum 100per second	
69	Storage of Events or Alarms without Pictures	Should Support Minimum 40 per second	
70	Alarms with Snapshots (Stored on Devices)	Should Support Minimum 20 per second	
71	Removed		
	Client Worksta	ition PC	

Sl. No	Feature	Technical Specification	
1	Form factor	Tower Type	
2	Operating System	Win 11 SL/ Home 64 bit	
3	Processor & Chipset	Intel i7 12700/ AMD Ryzen 7 5700 or higher; Intel Q670/ AMD Pro 565 or higher	
4	RAM	32 GB DDR4 RAM	
5	Graphics Card	Minimum 4 GB	
6	Storage	512GB NVMe SSD or higher	
7	Power Supply	Min. 400W with 90% or higher efficiency	
8	I/O	Wireless Keyboard and Wireless Mouse, WiFi + BT, Total 10 USB ports, HDMI, DP/ VGA port	
9	Certifications	ISO 9001, 14001, 20001, 27001, EPEAT Gold, ROHS, CE, FCC, UL	
Sl. No	Feature	Technical Specification	
1	Main Processor	64-bit high-performance Intel processor or Higher	
2	Memory	Minimum 4GB	
3	Operating System	Embedded LINUX / Windows	
4	Video Stream Mode	640Mbps incoming and recording 320Mbps forwarding, 64Mbps playback	
5	Storage	Should Support 16 HDDs,	

1		16TD on high on game situ	I	I
		16TB or higher capacity for each SATA HDD.		
		1 miniSAS ports, for		
6	miniSAS	storage extension		
		Additional HDD bracket,		
7	HDD Installation	HDD hot-swap, HDD		
'	TIDD Instanation	online replacement		
		Single, RAID		
8	HDD Mode	0/1/5/6/10/50/60,		
		hotspare		
		Non-working HDD		
		hibernation to guarantee		
		sound ventilation, reduce		
9	HDD Manager	power consumption and		
	-	enhance HDD life span		
		HDD bad track mapping		
		to enhance HDD life span		
		Dynamically adjust RAID		
10	RAID Rebuild	rebuild speed to		
10	KAID Kebulu	guarantee system load		
		balance		
		Support iSCSI volume		
11	Logic Volume Manager	management,		
	88	NAS(SMB/NFS/FTP)		
		volume management		
		Support snapshot		
12	Snapshot	function, create user volume to		
		volume to back data.		
		Support extracting P		
		frame function.		
13	Extract Frame	Customized		
	Darrace Frame	extracting period and		
		frame rate setup		
14	Cluster Service	N+M cluster service		
		After disconnection,		
		system can download the		
4.5	AND	record file from the SD		
15	ANR	card on the network		
		camera to maintain the		
		full record file.		
16	Interface	2 data RJ-45 ports		
10	interiace	(10/100/1000Mbps)		
		Multi-address, Fault-		
17	Network Mode	tolerance, Load balance,		
1,	11.cowork Prode	Link		
		aggregation		
		HTTP, HTTPs, TCP/IP,		
		IPv4/IPv6, UPnP, RTP,		
18	Network Function	RTCP, RTSP, UDP, SMTP,		
		NTP, DHCP, DDNS, IP		
		Filter, PPPoE,DDNS, iSCSI, SMB, NFS, FTP.		
19	Interoperability	ONVIF		
20	Power Supply	AC100V ~ 240V,1 + 1		

		Redundant power	
21	Working Conditions	5°C ~ 40°C	
22	Certification	FCC, CE, UL, BIS, IK10	
23	Make / Brand	Any globally reputed Manufacturer presence in India.	
	8 Ethernet Port	PoE Switch	
Sl. No	Technical	Specification	
1	No of Ports	8 10/100/1000 Base-T PoE ports & 2 Gigabit SFP ports	
2	Switching Capacity	20 Gbps or Better	
3	Forwarding Rate	Minimum 14.80 Mbps	
4	POE / POE+	IEEE 802.3af and 802.3at	
5	POE Power Budget	Minimum 130 W or Higher	
6	Power Supply	AC: 100V -240V, 50Hz ±10%	
		Operating temperature/ Humidity: 0°C-45°C, 10%- 90% non-condensation	
7	Environment	Storage temperature/ Humidity: 0°C-70°C; 5%- 95% non-condensation	
		Power Saving by: Link status, LED or Port Shutoff Static configuration and	
		dynamically learning of MAC address Check and delete MAC	
		address Configuring of MAC	
		address aging time	
8	MAC Switching	Up to 256 Static MAC entries	
		Limit on MAC address learning number	
		MAC address filtering function	
		MAC address size 8K	
9	Port Mirroring	One-to-One, Many-to- One	
		Supports Mirroring for Tx/Rx/Both	
		4K VLAN entries, 256 static VLAN	
		GVRP	
10	V LAN	1:1 and N:1 VLAN Mapping	
		Q-in-Q	
		Private VLAN, Voice	

		VLAN	
		802.1D (STP), 802.1W	
11	STP	(RSTP), 802.1S (MSTP)	
		BPDU protection, root protection and ring	
		protection	
		IGMP v1/v2/v3	
		IGMP Snooping	
12	Multicast	IGMP Fast Leave	
		Multicast group policy	
		and multicast number limit	
		ICMPv6, DHCPv6, ACLv6	
		and IPv6 Telnet	
13	IPv6	IPv6 Neighbor Discovery	
		MLD v1/v2	
		MLD Snooping	
		Traffic classification of each field of L2/L3/L4	
		protocol headers	
		CAR traffic control	
		802.1P/DSCP priority	
14	QoS	remark	
		Multiple queuing algorithms such as SP,	
		WRR or SP+WRR	
		WRED	
		Traffic supervision and	
		traffic shaping Identification and filtering	
		of L2/L3/L4 based ACL	
		DOS or TCP attacks	
		Prevention	
		Suppression of broadcast, multicast and unknown	
		unicast packet	
15	Security features	Port isolation	
		Port security,	
		IP+MAC+port binding DHCP Snooping, DHCP	
		Option 82	
		IEEE 802.1x certification	
		Radius and Tacacs+	
	Reliability	Static / LACP link	
16		aggregation	
		Console, Telnet, SSH 2.0	
47	Management and	WEB based management	
17	Maintenance	SNMP v1/v2/v3	
		TFTP	
		RMON	

18	Certification	CE, FCC, IEC 62368-1	
19	Make / Brand	Any globally reputed Manufacturer presence in India.	

All SFP Core Switch

Sl. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	Layer-3 Fully Managed Switch having 24x 1G SFP slots with 4x combo 10/100/1000BaseT ports & 4x 10G SFP+ slots.		
2	SFP slots should support IEEE 802.3z & IEEE 802.3u compliant transceivers & SFP+ slots should support IEEE 802.3z & IEEE 802.3ae compliant transceivers		
3	The switch should be 19" Rack Mount size.		
	THE SWITCH SHOULD HAVE FOLLOWING BASIC FEATURE FROM DAY ONE:		
4	The switch should have RJ45/mini-USB console port for Out of band CLI management & ethernet port for out of band IP management. It should have minimum one alarm port.		
5	The switch should have intelligent fans with sensor that provides different fan speed based on different temperature.		
6	The switch should have support for redundant power supply.		
7	The switch should have built-in hardware feature for both external event detection & alarm action		
8	The switch should have switching capacity at least 128Gbps & packet forwarding rate at least 95Mpps for 64-bytes packet size		
9	The switch should have non-blocking architecture & wirespeed performance under fully loaded condition.		
10	The switch should have virtual stacking capability of at least 25 switches in a stack.		
11	The switch should have physical stacking capability with at least 8 units per stack & at least 40Gbps of stacking bandwidth.		
12	The switch should have feature for flexible management of switch resources		
13	The switch should have 6kV Surge protection on all RJ45 access ports		
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-2 FEATURE FROM DAY ONE:		
14	a) At least 64K MAC address table size. At least 1K static MAC support.		
15	b) Jumbo frame support for at least 12KB frame size.		
16	c) Flow-control features: 802.3x for full duplex & Head-of-line blocking prevention.		
17	d) UDLD or equivalent features.		
18	e) IEEE 802.1D (STP), 802.1w (RSTP) & 802.1s (MSTP) with		

	at least 64 MSTP instances, Root Guard or equivalent features.
	f) Avoidance of the loop occurring in a single port
19	connected to an unmanaged switch/hub by shutting
17	down the corresponding port or corresponding VLAN
	g) Ethernet Ring Protection Switching (ERPS) with
20	
-	maximum 50milli second recovery time.
21	h) IEEE 802.1AX & 802.3ad Link aggregation with at least
	32 groups per device & at least 8 ports per groups. LACP.
	i) Port mirroring with at least 4 mirroring sessions. Should
22	support Tx, Rx & both based mirroring. Should support
	one-to-one & many-to-one mirroring, flow-based
	mirroring, RSPAN.
	j) IGMP v1 v2 & v3 snooping with at least 8000 snooping
23	groups. Should support IGMP snooping per VLAN, host-
23	based IGMP snooping fast leave, at least 128 static IGMP
	groups, L2 multicast filtering
	k) MLD v1 & v2 snooping with at least 4000 snooping
24	groups. Per VLAN MLD snooping. At least 128 static MLD
	groups.
	l) At least 4K VLAN groups, 802.1Q, 802.1v protocol
	based VLAN, Q-in-Q, GVRP with at least 4K dynamic
25	VLANs, Voice VLAN, Port-based VLAN, MAC-based
23	VLAN, private VLAN, VLAN trunking, MVR (Multicast
	VLAN Registration) or equivalent feature.
	VLAN Registration of equivalent reacure.
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-3
	FEATURE FROM DAY ONE:
	a) At least 16K routing table entry size with at least 512
26	static route entry support.
	b) Default route, RIPv1, RIPv2, RIPng, OSPFv2, OSPFv3,
	BGPv4, BGPv4+, Policy based route, Route preference,
27	Route Redistribution, Bidirectional Forwarding
	Detection, MSDP
	c) Multicast forwarding table size: at least 2000,
28	IGMPv1v2v3, MLDv1v2, IGMP filtering, static IP
	multicast route, PIM-DM, PIM-SM, PIM-SSM, PIM-
20	Sparse-Dense mode, DVMRPv3, PIM-SMv6.
29	e) IPv6 tunnelling, VRRP, IP helper
	THE SWITCH SHOULD HAVE FOLLOWING QOS
	FEATURE FROM DAY ONE:
30	a) IEEE 802.1p, DSCP, at least 8 queues per port.
31	b) Queue handling methods: strict, weighted round
31	robin, weighted deficit round robin, WRED
	c) CoS & classification of packets based on following
32	parameters: VLAN ID, 802.1p priority, MAC address,
32	Ether type, DSCP, protocol type, IPv4 address,
	TCP/UDP port number, IPv6 address, IPv6 traffic class
33	d) Port & flow based bandwidth control with minimum
	granularity 8Kbps.
34	e) Time based QoS.
	THE SWITCH SHOULD HAVE FOLLOWING SECURITY
	FEATURE FROM DAY ONE:
25	a) Access control list based on VLAN, MAC address,
35	802.1p priority, DSCP, protocol type, TCP/UDP port,

b) Time based ACL. c) Binding of IP address & MAC address with the interface. Dynamic ARP Inspection. IP Source Guard. DHCPv6 Guard, IPv6 Route Advertisement Guard, IPv6 Neighbour Discovery Inspection, Duplicate Address Detection d) SSHv2 for both IPv4 & IPv6, SSL (TLS 1.2) for both IPv4 & IPv6, Port security with at least 12K MACs per port. g) e) Broadcast, multicast & unicast storm control. f) Protection of the CPU from protocol control packet attack. g) DHCP server screening, DHCP client filtering, ARP spoofing prevention, BPDU attack prevention, DoS attack prevention h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting. i) Authentication supported based on: Local data base, RADIUS server j) Web based access control for IPv6 k) At least 4 level user account for management access. RADIUS & TACACS's authentication for management access. RADIUS & TACACS's authentication for management access. THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE: a) Web based -GUI (IPv4 & IPv6), Lt, telnet server & client (IPv4 & IPv6), FTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog, sFlow, ICMPv6. b) RMONV1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. 48 c) Multiple images & configurations, SNTP, debug d) 802.3ab cthermet link OAM, 802.1ag CFM, Dying gasp. e) Inbuilt power saving technique on all Gigabit RJ-45 ports. IEEE 802.3az Secure Product Development Lifecycle Process Requirement certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches stransceivers should be from same make.		IPv4 address, IPv6 address, IPv6 traffic class	
interface. Dynamic ARP Inspection. IP Source Guard. DHCPv6 Guard, IPv6 Route Advertisement Guard, IPv6 Neighbour Discovery Inspection, Duplicate Address Detection d) SSHv2 for both IPv4 & IPv6, SSL (TLS 1.2) for both IPv4 & IPv6, Port security with at least 12K MACs per port. 9 e) Broadcast, multicast & unicast storm control. f) Protection of the CPU from protocol control packet attack. g) DHCP server screening, DHCP client filtering, ARP spoofing prevention, BPDU attack prevention, DoS attack prevention h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting. i) Authentication supported based on: Local data base, RADIUS server j) Web based access control for IPv6 k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access. THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE: a) Web based -GUI (IPv4 & IPv6), CLL, telnet server & client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog, sFlow, ICMPv6. b) RMON1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. 48 c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. 50 e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability	36	b) Time based ACL.	
1Pv4 & 1Pv6, Port security with at least 12K MACs per port.	37	interface. Dynamic ARP Inspection. IP Source Guard. DHCPv6 Guard, IPv6 Route Advertisement Guard, IPv6 Neighbour Discovery Inspection, Duplicate Address	
1) Protection of the CPU from protocol control packet attack. g) DHCP server screening, DHCP client filtering, ARP spoofing prevention, BPDU attack prevention, DoS attack prevention h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting. 1) Authentication supported based on: Local data base, RADIUS server 44 j) Web based access control for IPv6 k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access. THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE: a) Web based -GUI (IPv4 & IPv6), CIL, telnet server & client (IPv4 & IPv6), FTP server, Zmodem, SNMPv1v2cv3, Syslog, SPlow, ICMPv6. b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches & transceivers should be from same make.	38	IPv4 & IPv6, Port security with at least 12K MACs per	
attack. g) DHCP server screening, DHCP client filtering, ARP spoofing prevention, BPDU attack prevention, DoS attack prevention h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting. i) Authentication supported based on : Local data base, RADIUS server i) Web based access control for IPv6 k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access. THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE: a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog. sFlow, ICMPv6. b) RMONV1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches & transceivers should be from same make.	39		
spoofing prevention, BPDU attack prevention, DoS attack prevention h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting. i) Authentication supported based on : Local data base, RADIUS server 44 j) Web based access control for IPv6 k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access. THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE: a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), FTP client (IPv4 & IPv6), Syslog, sFlow, ICMPv6. b) RMONV1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. c) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches & transceivers should be from same make.	40	attack.	
MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting. i) Authentication supported based on: Local data base, RADIUS server 44 j) Web based access control for IPv6	41	spoofing prevention, BPDU attack prevention, DoS	
## RADIUS server ## ADIUS server Adaptable RADIUS	42	MAC based access control, guest VLAN, Microsoft NAP,	
k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access. THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE: a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), FTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog, sFlow, ICMPv6. b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. 48 c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches & transceivers should be from same make.	43		
45 RADIUS & TACACS+ authentication for management access. THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE: a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), FTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog. sFlow, ICMPv6. b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. 48 c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. 50 e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability 52 All type of switches & transceivers should be from same make.	44	j) Web based access control for IPv6	
MANAGEMENT FEATURE FROM DAY ONE: a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), FTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog. sFlow, ICMPv6. b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. 48 c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. 50 e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability 52 All type of switches & transceivers should be from same make.	45	RADIUS & TACACS+ authentication for management	
client (IPv4 & IPv6), TFTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog. sFlow, ICMPv6. b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches & transceivers should be from same make.		THE SWITCH SHOULD HAVE FOLLOWING	
client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61. 48 c) Multiple images & configurations, SNTP, debug d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability 52 All type of switches & transceivers should be from same make.	46	client (IPv4 & IPv6), TFTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3,	
d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp. e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches & transceivers should be from same make.	47	client supporting both IPv4 & IPv6, DHCP relay option	
gasp. e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches & transceivers should be from same make.	48		
Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability All type of switches & transceivers should be from same make.	49		
S1 Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability S2 All type of switches & transceivers should be from same make.	50		
make.	51	Requirement Certification in accordance with IEC	
make.			
	52		
	53		

Copper Core Switch

Sl. No	Technical Specification	Specification (Quoted / Applicable - by	Complied (Yes / No)
_	Technical Specification	,	

		I	
	Core Switch - Layer-3 Fully Managed Switch having 20 X		
1	1Gbps Copper Ports with 4x combo 1G SFP slots & 4x		
	10G SFP+ slots		
	SFP slots should support IEEE 802.3z & IEEE 802.3u		
2	compliant transceivers & SFP+ slots should support IEEE		
	802.3z & IEEE 802.3ae compliant transceivers		
3	The switch should be 19" Rack Mount size.		
3			
	THE SWITCH SHOULD HAVE FOLLOWING BASIC		
	FEATURE FROM DAY ONE:		
	The switch should have RJ45/mini-USB console port for		
	Out of band CLI management & ethernet port for out of		
4	band IP management. It should have minimum one alarm		
	port.		
	The switch should have intelligent fans with sensor that		
5	provides different fan speed based on different		
	temperature.		
	The switch should have support for redundant power		
6			
	supply.		
7	The switch should have built-in hardware feature for both		
	external event detection & alarm action		
	The switch should have switching capacity at least		
8	128Gbps & packet forwarding rate at least 95Mpps for		
	64-bytes packet size		
0	The switch should have non-blocking architecture &		
9	wire-speed performance under fully loaded condition.		
4.0	The switch should have virtual stacking capability of at		
10	least 25 switches in a stack.		
	The switch should have physical stacking capability with		
11	at least 8 units per stack & at least 40Gbps of stacking		
**	bandwidth.		
	The switch should have feature for flexible management		
12	of switch resources		
13	The switch should have 6kV Surge protection on all RJ45		
	access ports		
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-2		
	FEATURE FROM DAY ONE:		
14	a) At least 64K MAC address table size. At least 1K static		
1-7	MAC support.		
15	b) Jumbo frame support for at least 12KB frame size.		
4.5	c) Flow-control features: 802.3x for full duplex & Head-		
16	of-line blocking prevention.		
17	d) UDLD or equivalent features.		
	e) IEEE 802.1D (STP), 802.1w (RSTP) & 802.1s (MSTP)		
18	with at least 64 MSTP instances, Root Guard or equivalent		
10	features.		
10	f) Avoidance of the loop occurring in a single port		
19	connected to an unmanaged switch/hub by shutting		
	down the corresponding port or corresponding VLAN		
20	g) Ethernet Ring Protection Switching (ERPS) with		
	maximum 50milli second recovery time.		
	h) IEEE 802.1AX & 802.3ad Link aggregation with at least		
21	32 groups per device & at least 8 ports per groups.		
	LACP.		
22	i) Port mirroring with at least 4 mirroring sessions.		
	,	<u> </u>	ı

	Should support Tx, Rx & both based mirroring. Should support one-to-one & many-to-one mirroring, flow-based mirroring, RSPAN.	
23	j) IGMP v1 v2 & v3 snooping with at least 8000 snooping groups. Should support IGMP snooping per VLAN, host-based IGMP snooping fast leave, at least 128 static IGMP groups, L2 multicast filtering	
24	k) MLD v1 & v2 snooping with at least 4000 snooping groups. Per VLAN MLD snooping. At least 128 static MLD groups.	
25	l) At least 4K VLAN groups, 802.1Q, 802.1v protocol based VLAN, Q-in-Q, GVRP with at least 4K dynamic VLANs, Voice VLAN, Port-based VLAN, MAC-based VLAN, private VLAN, VLAN trunking, MVR (Multicast VLAN Registration) or equivalent feature.	
	THE SWITCH SHOULD HAVE FOLLOWING LAYER-3 FEATURE FROM DAY ONE:	
26	a) At least 16K routing table entry size with at least 512 static route entry support.	
27	b) Default route, RIPv1, RIPv2, RIPng, OSPFv2, OSPFv3, BGPv4, BGPv4+, Policy based route, Route preference, Route Redistribution, Bidirectional Forwarding Detection, MSDP.	
28	c) Multicast forwarding table size: at least 2000, IGMPv1v2v3, MLDv1v2, IGMP filtering, static IP multicast route, PIM-DM, PIM-SM, PIM-SSM, PIM-Sparse-Dense mode, DVMRPv3, PIM-SMv6.	
29	e) IPv6 tunnelling, VRRP, IP helper	
	THE SWITCH SHOULD HAVE FOLLOWING QOS FEATURE FROM DAY ONE:	
30	a) IEEE 802.1p, DSCP, at least 8 queues per port.	
31	b) Queue handling methods: strict, weighted round robin, weighted deficit round robin, WRED	
32	c) CoS & classification of packets based on following parameters: VLAN ID, 802.1p priority, MAC address, Ether type, DSCP, protocol type, IPv4 address, TCP/UDP port number, IPv6 address, IPv6 traffic class	
33	d) Port & flow based bandwidth control with minimum granularity 8Kbps.	
34	e) Time based QoS.	
	THE SWITCH SHOULD HAVE FOLLOWING SECURITY FEATURE FROM DAY ONE:	
35	a) Access control list based on VLAN, MAC address, 802.1p priority, DSCP, protocol type, TCP/UDP port, IPv4 address, IPv6 address, IPv6 traffic class	
36	b) Time based ACL.	
37	c) Binding of IP address & MAC address with the interface. Dynamic ARP Inspection. IP Source Guard. DHCPv6 Guard, IPv6 Route Advertisement Guard, IPv6 Neighbor Discovery Inspection, Duplicate Address Detection	
38	d) SSHv2 for both IPv4 & IPv6, SSL (TLS 1.2) for both IPv4 & IPv6, Port security with at least 12K MACs per port.	

39	e) Broadcast, multicast & unicast storm control.	
40	f) Protection of the CPU from protocol control packet attack.	
41	g) DHCP server screening, DHCP client filtering, ARP spoofing prevention, BPDU attack prevention, DoS attack prevention	
42	h) IEEE 802.1x RFC 3580, web-based access control, MAC based access control, guest VLAN, Microsoft NAP, RADIUS accounting.	
43	i) Authentication supported based on : Local data base, RADIUS server	
44	j) Web based access control for IPv6	
45	k) At least 4 level user account for management access. RADIUS & TACACS+ authentication for management access.	
	THE SWITCH SHOULD HAVE FOLLOWING MANAGEMENT FEATURE FROM DAY ONE:	
46	a) Web based -GUI (IPv4 & IPv6), CLI, telnet server & client (IPv4 & IPv6), TFTP client (IPv4 & IPv6), FTP client (IPv4 & IPv6), SFTP server, Zmodem, SNMPv1v2cv3, Syslog. sFlow, ICMPv6.	
47	b) RMONv1 & v2, LLDP, LLDP-MED, BooTP & DHCP client supporting both IPv4 & IPv6, DHCP relay option 82, DHCP relay option 60 & 61.	
48	c) Multiple images & configurations, SNTP, debug	
49	d) 802.3ah ethernet link OAM, 802.1ag CFM, Dying gasp.	
50	e) Inbuilt power saving technique on all Gigabit RJ-45 ports, IEEE 802.3az	
51	Secure Product Development Lifecycle Process Requirement Certification in accordance with IEC 62443-4-1: 2018 standard for cyber security capability	
52	All type of switches & transceivers should be from same make.	
53	All Core switches should be from same make.	

600 VA Offline UPS

F	'eature	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
	Voltage	220/230 VAC		
INPUT	Voltage Range	140-300 VAC		
	Frequency Range	50 Hz		
	AC Voltage Regulation (Battery Mode)	±10%		
	Frequency Range (Battery Mode)	50 Hz ±1 Hz		
	Transfer Time	Typical 2-6 ms	_	

	Waveform (Battery Mode)	Simulated Sine Wave	
	Overload	110% +/-10% Shutdown after 5 minutes	
BATTERY	Battery Type & Number	12 V/7 Ah x 1	
	Typical Recharge Time	6-8 hours up to 90% capacity	
TRANSFER TIME	Minimum line break for transfer to battery	Typical 4-8 msec	
	AC Mode	Green lighting	
INDICATORS	Battery Mode	Green flashing	
	Fault	Red lighting	
ALARMS	Battery Mode, Low Battery, Overload, Battery replacement, fault	Audible alarm	
PROTECTION	Full Protection	Overload, discharge, and overcharge protection	
	Operating Environment	0-40 Deg C.	
	Storage Temp	-15°C to 50°C	
ENVIRONMENT	Humidity	0-95 % RH @ 0- 40°C (non- condensing)	
	Noise Level	Less than 40dB	
	BIS registration	Require	
Test reports	NABL Approved government lab test report.	Require	

3 KVA Online UPS`

Sl. No.	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Capacity	3kVA/2.4 kW.		
2	Design	True online double conversion design		
Input Cha	Input Characteristics.			

3	Nominal Input Voltage	230Vrms	
4	Nominal Input Frequency	50Hz.	
5	Input Power Factor	0.99	
6	Type of Rectifier	IGBT Based PWM Rectifier	
7	Input Voltage Range	110 VAC to 300 VAC	
8	Voltage Detection Tolerance ±3% Calibration	±3% Calibration	
9	Input Frequency Range	40-70Hz	
10	Inrush Limitation	7*IRMS_Nom	
11	Current Protection	With Fuse.	
Battery	Parameters.		
12	Charging Method	Constant voltage constant current (CVCC)	
13	Charging current Capacity	Settable 1/2/4/6	
14	Type of Batteries	SMF VRLA, Li-ion, Tubular	
15	Back up time	2 Hours	
16	Minimum VAH required	4680	
17	Maximum Battery Leakage Current	500uA	
18	Charge Voltage Accuracy	±1%	
Output	Parameters.		
19	Load power factor	0.8	
20	Nominal Output voltage	208/ 220/ 230/ 240 VAC Settable	
21	Output Frequency	Frequency Range (Battery Mode): 50 Hz ± 0.1 Hz; Frequency Range (Synchronized Range): 46 Hz ~ 54 Hz @ 50 Hz system	
22	Output Waveform	Pure sine wave	
23	Total Harmonic distortion (THD)	Less than 3% for Linear Load and Less than 6% for RCD Load	
24	Inverter	IGBT based PWM with Instantaneous Sine wave control	
25	Power Rating	3kVA/2.4 kW.	
26	Dynamic response	IEC62040-3 Classification 1	
27	Crest factor	3:1	
28	Duty.	Continuous duty	
29	Overload Capacity	AC mode:105%~110%:	

1	1	10min, 110%~130%:	
		1min, >130%: 1sec	
		;	
30	Frequency synchronization Band for Static. Bypass	46 - 54Hz	
31	Transfer (Inverter to Bypass)	0 ms	
32	Retransfer (Bypass to Inve <u>rt</u> er)	0 ms	
33	Automatic Bypass	Inbuilt	
34	Overall efficiency (AC to AC)	90%.	
Miscella	neous Function		
35	Intelligent Fans Speed Control	Require	
36	Auto Restart Function	Require	
Physical	and Environmental Characteris	-	
		Less than 58dB @ 1	
37	Acoustic Noise Level	Meter	
38	Ambient Temperature	0 - 50 Deg C	
39	Storage Temperature	-15°C~60°C	
40	Humidity	<95 % and non- condensing	
41	Altitude	<1000m	
42	Enclosure Protection Grade	IP 20	
43	Cooling	Forced Air	
Metering	g (Digital display)		
44	Input voltage	Advanced LCD	
45	Battery voltage	based Display	
46	Output voltage	System, able to monitor Input	
47	Output current	Voltage/Battery	
48	Output frequency	Voltage/ Output	
49	Input Frequency	Voltage / Output Frequency/ Input	
		Frequency/ Ambient	
50	Heat sink temperature	Temperature.	
Fault ind	licated on Digital Display	LED indication display	
51	input fail	1 2	
52	Battery Low	Inbuilt and	
53	Transfer to bypass and system fault	accessible on LCD Display.	
54	LED Indications		
		Overload/ Short Circuit/ Battery Deep Discharge/ Low Battery/ Reverse Battery/ Inverter Current Limitation/ Over Temperature/	
55	Protection	Output Overvoltage.	

56	Optional features	RS 232 communication port for interfacing, Remote monitoring	
Standa	rds		
57	Low freq Conducted disturbance	IEC61000-2-2	
Other S	Standards		
58	Continuous Electromagnetic Susceptibility	IEC 61000-4-3	
59	Electrical Fast Transient Compatibility	IEC 61000-4-4	
60	Surge	EN 61000-4-5: 2005	
61	CRFI	IEC61000-4-6	
62	Magnetic Field Immunity	IEC 61000-4-8	
63	Transportation	IEC 60068-2-32,IEC 60068-2-64,IEC 60068.2-27	
64	Protection	IP-20	
65	NABL approved Government lab test certificate	Require	
66	ISO certifications	ISO 9001, ISO14001, ISO27001, ISO 45001:2018	
67	BIS registration	Require	
68	Make / Brand	Any globally reputed Manufacturer presence in India.	

UTM Firewall Hardware Device

	Specification (Quoted / Applicable -	Complied (Yes / No)
Hardware Platform:	by the bidder)	
No built-in mechanical moving parts.		
Should be Hardened OS based firewall		
• Should have flash based configuration storage with NO built in HDD		
The firewall should 5 x 1GbE RJ45 connectors, 1000 Base-TX (10/100/1000Mbps). 2 USB 3.0, 1 RJ45 RS232 console port.		
Wireless Radio Type and Frequency Band, 2x2 802.11ax Wi-Fi 6 dual band radios, 2.4 GHz: Data rates up to 573 Mbps, 5		
GHz: Date rates up to 1.2 Gbps		
• Memory/Flash: RAM: DDR4 4GB, eMMC 4GB Storage Power supply - Input Ratings: 100-240V AC, 0.9A Max, 50-		
60Hz. Output Ratings: 12V DC, 2.5A, Power Consumption - 25 Watts		
Following IP Address Assignment should be supported by the device:		

• Static	
• PPPoE Client	
DHCP Client	
Firewall should support internal DHCP Server	
Firewall should be able to act as DHCP Relay Agent	
Performance:	
The firewall should support minimum 3.14 Gbps Gbps Firewall	
throughput	
The firewall should support minimum 403 Mbps UTM(fullscan)	
throughput The firewall should support minimum 1.02 Gbps VPN (UDP 1518)	
throughput	
The firewall should support minimum 472 Mbps GAV throughput	
The firewall should support minimum 525 Mbps IPS (fullscan) throughput	
The firewall should support minimum 1,300,000 concurrent sessions(Bidirectional)	
New session per second should me minimum 16,000	
Authentication servers/processes:	
Support for user authentication services such as Active Directory, LDAP, RADIUS, Secure ID, Digital certificates, Local user group authentications.	
Should Support Single-Sign-On Feature	
Should be able to support Terminal Services client / Citrix Client	
Networking:	
Firewall should support port independence	
Firewall should support Link Failover (Active - Active and Active - Passive)	
Firewall should be able to operate in Routing mode or Bridge (Transparent) mode	
Should support automatic WAN failover as well as load sharing for outbound traffic.	
Should be able to support VPN Failover	
Should support Server Load Balancing	
Firewall must support VLAN Tagging (IEEE 802.1Q)	
Should support Policy-Based Routing	
Firewall should support Dynamic Routing (RIP v1 & v2, OSPF & BGP)	
The Firewall must provide NAT functionality, including dynamic and static NAT translations.	
Firewall should be able to support Port Forwarding.	
Should have option to configure traffic shaping / QOS	
Compatible to Centralized Management	
The firewall must support Active-Active as well as Active-Passive	
redundancy.	
Actibve/Active as well as Active/Passive HA Clustering can be achieved	
The cluster should support simple and minimal downtime during upgrade	

Charld have antique to supply ALIACEC to identify anyons of Harts	
Should have option to create ALIASES to identify group of Hosts or networks with one Unique Name	
Should have option to create Customized Aliases based on	
User/Group , Host IP/IP Range & Interface	
VPN function:	
The VPN should be integrated with firewall and support the full	
Encryption & other standards and protocols:	
(a) DES, 3DES, AES	
(b) MD5 and SHA-1 authentication	
(c) Diffie-Hellman Group 1, Group 2, Group 5 ,Group14, Group 15, Group 19 and Group 20	
(d) Internet Key Exchange (IKE) algorithm	
(f) The new encryption standard AES 128, 192 & 25 (Advanced Encryption Standard)	
Should support IPSec, PPTP, L2TP & SSL VPN	
Should support 75 Site-to-Site Tunnels (BOVPN)	
Should support minimum 75 Mobile VPN tunnels (IPSec, SSL, L2TP)	
Security:	
Should support Reputation based Cloud Security feature	
Denial of Service (DoS) attacks such as ping of death, syn flood, UDP bomb, Land attack, Smurf, Fraggle and ICMP unreachable	
Should support Auto Blocking of Source IP address based on	
triggers	
should support real time spam detection & also supports proactive virus detection technology which detects and blocks the new outbreaks immediately and accurately.	
The following actions should be supported for SMTP traffic	
• Tagging	
• Drop	
• Deny	
• Quarantine	+
Should support of blocking attachments based of file names or	
extension	
Should support of blacklisting / whitelisting	
Should support Language independent anti-spam solution	
Advance Recurring Pattern Detection - anti-spam technology,	
that rely on RBL and scoring.	
Support for quarantine feature	
Web URL filtering with 100+ category based database, with	
option to refer Online or can be stored on Local Management Station	
Should be able to define specific URL's to be Allowed/Blocked	
Users should be able to allow blocked website using password	
override feature	
IPS and AV signature database keep on updating with hourly basis	
Should have a built-in Signature IPS engine on the same unit for IPS	

Should have Server/Client Quota based Distributed Denial of Service Prevention Should have the feature to exclude certain hosts' traffic (IP addresses) to be scanned by IPS for particular signatures Gateway AV should be supported for real-time detection of viruses and malicious code for HTTP, HTTPS, FTP, SMTP, POP3, SIP. Should have configurable policy options to select what traffic to scan for viruses Should support Application control for Web 2.0 applications Should not have inhouse security services for AV, IPS, Antispam Administration: Dedicated Application based GUI management program for robust configuration and management. Option for Remote management, through WEBUI, CLI & Secure Management Software Administrative TCP/IP ports should be other than TCP 80 and TCP 433 to prevent brute-force attack. Should support only single administrative login for integrity purpose and deny consecutive administrative login for integrity purpose and deny consecutive administrative login for method in the program for role based administrative login for method in the program for program for role based administrative login for integrity purpose and deny consecutive administrative login for method in the program for role based administrative login for method in the program for role based administrative of firewall Configurable connection timeout for the management interface. Real-time network connection map for connection status. Prag-and-drop VPN configuration and modification. The Firewall must send SNMP traps to Network Management Servers (MKS) in response to System failures. Ability to make a full backup of the entire flash disk as image file. Ability to make/edit configuration file offline for better administrative management, without connecting to the operating security device. Should have option to Change Default		1
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Real-time reporting with Drill Down Feature System Services Status Monitor Authenticated User List Monitor VPN Connections Monitoring IP/Host/User based Traffic Watch with option Block Source/Destination from the monitoring tool itself Protocol based Traffic Watch	Monitoring, Logging and Reporting	
System Services Status Monitor Authenticated User List Monitor VPN Connections Monitoring IP/Host/User based Traffic Watch with option Block Source/Destination from the monitoring tool itself Protocol based Traffic Watch	Live Traffic Monitor	
Authenticated User List Monitor VPN Connections Monitoring IP/Host/User based Traffic Watch with option Block Source/Destination from the monitoring tool itself Protocol based Traffic Watch	Real-time reporting with Drill Down Feature	
VPN Connections Monitoring IP/Host/User based Traffic Watch with option Block Source/Destination from the monitoring tool itself Protocol based Traffic Watch	System Services Status Monitor	
IP/Host/User based Traffic Watch with option Block Source/Destination from the monitoring tool itself Protocol based Traffic Watch	Authenticated User List Monitor	
Source/Destination from the monitoring tool itself Protocol based Traffic Watch	VPN Connections Monitoring	
Protocol based Traffic Watch		
PDF Audit Reporting		
Remote Logging Support		
Remote Reporting Support	Remote Reporting Support	
Remote Monitoring Support	Remote Monitoring Support	
Encrypted Log Channel	Encrypted Log Channel	

Provision to generate automatic alerts via mails / syslog	
The Firewall must send SNMP traps to Network Management	
Servers (NMS) in response to System failures.	
Multi-Appliance Log Aggregation	
Logging and reporting solution should be provided at no extra	
cost and shouldn't need any license renewal	
1 day of data (reports) retention should be provided at no extra	
cost on cloud	

49" DISPLAY

Sl. No	Section	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1		Screen Size	49" or higher		
2		Panel Technology	IPS or VA		
3		Aspect Ratio	16:09		
4		Native Resolution	3,840 x 2,160 (UHD)		
5	1	Backlight Unit Type	Edge		
6		Brightness (cd/m2)	500nit or higher		
7	Panel	Dynamic Contrast Ratio	1,000,000:1 or higher		
8		Viewing Angle (H x V)	178 x 178 or higher		
9		Response Time	8ms(G to G) or better		
10		Surface Treatment (Haze)	Haze 28% or higher		
11		Operation Hours	24x7 Hrs		
12		Orientation	Landscape & Portrait		
13		Input	HDMI (3), DP, DVI-D, Audio, USB (2)		
14	Connectivity	Output	HDMI/DP, Audio		
15		External Control	RS232C In/out, RJ45 (LAN) In, IR In		
16	Specification	VESA	200 x 200 or as per OEM		
17	Key Feature	2133 (64bit), Memory- MP2 (650MHz), Built-in Auto Brightness sensor, Local Key Operation, Emborall over, Background Ima (PIP, PBP (4)), Screen St (Screen Rotation, Extern	GHz Quad, RAM-2GB DDR3- 16GB, GPU-ARM Mali-T820 Wi-Fi, Temperature Sensor, Acceleration(Gyro) Sensor, edded CMS, USB Plug & Play, ge, Sync Mode, Multi- screen hare, Play via URL, Rotation hal Input Rotation), Gapless ting (Max. 15 × 15), Setting		
		_	entrol Manager, 3rd reston Connected), Power		

		(Smart Energy Saving, Beacon, HDMI-CEC	PM mode, Wake on LAN,	
18	Environmental	Operation Temperature	0°C to 40°C	
19	Conditions	Operation Humidity	10% to 80%	
20		Power Supply	100-240V~, 50/60Hz	
21	Power	Power Type	Built-In Power	
22	Tower	Consumption: Smart Energy Saving / Max.	100W / 140W	
23	Software	Content Management Software	SuperSign CMS	
24	Compatibility	Control and Monitoring Software	SuperSign Control / Control+	
25		Safety	СВ	
26	Certification	EMC	FCC Class "A" / CE / KC	
27		ErP / Energy Star	Yes / Yes	
28	Special	Tilt (Facedown)	Max. 15°	
29	Feature	IP Rating	IP5x	

42U Floor Mount Standing Rack

Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	19", 42U x 800mm width x 1000mm depth Floor Standing		
	Networking Rack		
2	It should confirm to DIN 41494 or equivalent ISO standard		
3	It should be welded construction with steel frame		
4	Single Lockable tough end glass front door		
5	Vented dual metal door at the back, Vented side panels		
6	Powdered coated standard finish		
7	4 sets of casters wheel		
8	4 sets of adjustable levellers		
9	Horizontal Power Distribution Unit with 12 x 5/15A sockets Round Pin, 230 Volts AC, 32 Amp with Plug		
10	Horizontal Cable Manager		
11	Mounting Hardware set		·
12	At least 4nos. Of FANs (360CFM) for cooling purpose		

27U Floor Mount Standing Rack

SI. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	19", 27U x 800mm width x 800mm depth Floor Standing		
	Networking Rack		
2	It should confirm to DIN 41494 or equivalent ISO standard		
3	It should be welded construction with steel frame		
4	Single Lockable tough end glass front door		
5	Vented dual metal door at the back, Vented side panels		
6	Powdered coated standard finish		
7	4 sets of casters wheel		
8	4 sets of adjustable levellers		
10	Horizontal Cable Manager		
11	Mounting Hardware set		
12	At least 2nos. Of FANs (180CFM) for cooling purpose		

24 Port LIU

Sl. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	24 Port Rack Mount LIU Fully Loaded with Single Mode LC Adapters and Pigtail (1 mtr)		
2	Aluminum & Cold Steel based material with powder coating for light mounting.		
3	Snap-in locker design, easy to change the adapter panels		
4	Should manage both splices and terminations		
5	Should have plastic Splice Tray capable of 24 fibers		
6	Should have 6 fiber magic sticker provision inside for 900um tight buffered fiber storing		
7	Accessory kit consists of cable ties, mounting ear screw		
8	Front-Mounted Cable Saddles for jumper management		
9	Removable Top & Front cover for better access to interior of LIU		
10	Rubber grommet allow for pre-terminated fiber trunk installation, protects cable and minimizes dust build-up		
11	Adapter panel - Cold steel		
12	Adapters should have compact design & high precision		
13	which perform well under various circumstances & maintain good plug retention strength.		
14	All fiber items should be from same make.		

l 15 「	Make / Brand: Any globally ropus	ted Manufacturer presence in India.		
12	make / branu: Any giobany repu	teu manufacturer presence in India.		
1Gbp	s FO Transceiver			
Sl.	m. J. i	1.6		
No	Technic	al Specification		
1	1 Gbps Single Mode Fibre Op	otic Transceiver (For Core Switch)		
2		FP Transceiver with Duplex LC		
	Connector	,		
3	Support IEEE 802.3z standard			
4		ort on single mode fiber interface		
5		be hot pluggable. MSA Compliant		
6		Metal enclosure for lower EMI		
7	Operating wavelength: 1310			
8	It should be of same make as			
9	1	t Lifecycle Process Requirement ith IEC 62443-4-1: 2018 standard		
9	for cyber security capability	itii 1EC 62443-4-1: 2018 Standard		
10		eivers should be from same make.		
11	All Core switches should be			
12		uted Manufacturer presence in India.		
		· · · · · · · · · · · · · · · · · · ·		
		F		
10Gb	ps F0 Transceiver	,		
10Gb	ps FO Transceiver	· · · · · · · · · · · · · · · · · · ·		
10Gb	ps FO Transceiver	,	Specification	Complied
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LC-LC Fibre Optic Patch Cord

SI. No	Technic	al Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	LC - LC SM FO Duplex Patch	Cord 5 Meter Length		
	The optical fiber patch cor	ds shall comply with the		
	following specifications:			
2	Optical Fiber – Single mode			
3	Connector: Zirconia ceramic			
4	Pre-radiuses and pre-polishe	ed ferrule		
5	Duplex Type			
6	Color-coded Yellow for Sing	gle mode		
7	Insertion Loss: <0.3 db			
8	Cable: 9/125, SM			
9	Return Loss: >/= 50dB for UF	PC		
10	Durability: 1000 mating cycl	e		
11	Working Temp: (0 deg. C to	60 deg. C)		
12	Length: 5 Meter			
13	All fiber items should be from	n same make.		
14	Make / Brand	Any globally reputed Manufacturer presence in India.		
	LC-LC Fibre Op	tic Patch Cord		

Sl. No	Technic	al Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	LC - LC SM FO Duplex Patch	<u>~</u>		
	The optical fiber patch cor following specifications	ds shall comply with the		
2	Optical Fiber – Single mode	- OS1		
3	Connector: Zirconia ceramic	ferrule		
4	Pre-radiuses and pre-polish	ed ferrule		
5	Duplex Type			
6	Color-coded yellow for Sing	le mode		
7	Insertion Loss : <0.3 db			
8	Cable: 9/125, SM			
9	Return Loss: >/= 50dB for UI	PC		
10	Durability: 1000 mating cycl	e		
11	Working Temp: (- 10 deg. C	to + 60 deg. C)		
12	Length: 2 Meter			
13	All fiber items should be fro	m same make.		
14	Make / Brand	Any globally reputed		

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Manufacturer presence in India.	
Manufacturer presence in illuia.	1

UTP CAT-6 Outdoor Cable

Sl. No	Technical Specification		Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Category 6 Outdoor cable sh ANSI/TIA/EIA-568-C.2 & and performance up to 85 mtr.			
2	analogue voice and video (R	n of high-speed data, digital and GB) signals on LANs.		
3	All Category 6 Outdoor cable following characteristics:	es shall meet or exceed the		
4	channel, full separator. Half			
5	Category 6 Outdoor cable sh	all be UV Resistant		
6	Conductor dia: 23 AWG			
7	Insulation: Polyethylene			
8	Insulation Diameter: 1.04 ± 0	.05 mm		
9	Sheath Thickness: 0.5 ± 0.15	mm		
10	Pairing: Two insulated condu	ctor twisted together		
11	No. of Pair: 4 pair separated	by a separator		
12	Sequential meter marking sl	ould be available		
13	Color of Jacket: Black			
14	Outer Jacket: PE			
15	Inner Jacket: PVC			
16	Filler : Central Slit Film Cros	s Filler		
17	Outer Diameter: 7.1 mm			
18	BEND RADIUS: 8 X CABLE DI	AMETER		
19	Thickness of Inner Jacket: 0.4	15 mm ± 0.05 mm		
20	Thickness of Outer Jacket: 0	55 mm ± 0.05 mm		
21	Electrical Parameters			
22	CONDUCTOR RESISTANCE (MAX.	DC): 9.38Ω ohms /100mtr@20°C.		
23	RESISTANCE UNBALANCE: 5%MAX			
24	MUTUAL CAPACITANCE: 5.6	•		
25	CAPACITANCE UNBALANCE PAIR/GROUND: 330pF/100M MAX			
26	DELAY SKEW: ≤45 nS/100M			
27	NORMAL VELOCITY OF PROPAGATION: 69%			
28	IMPEDANCE: $100 \pm 15\% \Omega$			
29	Temperature Rating: (- 20 to +60 C)			
30	Packing: 305 Mtrs.			
31	Generally confirming to EIA/TIA 568-C.2 and IEC/ISO 11801			
32	All Network Cable should be from same make.			
33	Make / Brand Any globally reputed Manufacturer presence in India.			

6 Core SM 9/125 Outdoor Fibre Optic Armoured Cable	
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SI. No	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	6 Core Single Mode Outdoor Armored Fiber Optic Cable		
2	Electro Chromium Coated Corrugated Steel Tape (ECCS)		
3	Central loose tube with jelly compound		
4	Sequential meter marking		
5	Armoured Design with Steel music Wire		
6	Outer Diameter: 7.2±0.5mm (for 6 Core Cable)		
7	Thickness of HDPE Jacket: 1.8±0.2mm		
8	Pulling Tension: Short Term (1000N)		
9	Crush Load: 2000N/100mm		
10	Bend Radius: Short Term (20D)		
11	The fiber type is a Matched Cladding Single Mode		
12	The fiber is optimized for operation at 1310 nm and at 1550 nm.		
13	Nominal Mode Field Diameter: 9.3 μm		
14	Cladding Diameter: 125 μm		
15	PMD (ps/km): ≤ 0.2		
16	Cable Cut-off Wavelength: 1260nm		
	Attenuation (of cable with fibers):		
17	At 1310 nm: 0.34 dB/km		
	At 1550 nm : 0.24 dB/km		
18	Operating Temperature should be within -20°C to +60°C		
19	Make / Brand Any globally reputed		
-	Manufacturer presence in India. 12 Core SM 9/125 Outdoor Fibre Optic Armoured Cable		
SI. No	Technical Specification	Specification (Quoted / Applicable – by the bidder)	Complied (Yes / No)
1	12 Core Single Mode Outdoor Armored Fiber Optic Cable.		
2	Corrugated steel tape armoured		
3	Central loose tube with jelly compound		
4	Glass Yarns between steel tape & loose tube		
5	Sequencial meter marking		
6	The fiber should fulfill the requirement of ITU-T REC G.652D		
7	Outer Diameter: 9 ± 0.3mm (for 12 Core Cable)		
8	Thickness of HDPE Jacket: 1.8±0.2mm		
9	Pulling Tension: Short Term (2000N)		
10	Crush Load: 3000N/100mm		
11	Bend Radius: (20D)		
12	The fiber type is a Matched Cladding Single Mode		
13	The fiber is optimized for operation at 1310 nm and at 1550 nm.	1	
14	Nominal Mode Field Diameter: 9.2 µm		

24 CO	16 3M 7/123 Outdoor Fit	ore optic Armoured Cable	Specification	Complied
24 Core SM 9/125 Outdoor Fibre Optic Armoured Cable				
1)	Make / Brand	Manufacturer presence in India.		
19	Make / Brand	Any globally reputed		
	At 1550 nm : 0.22 dB/km			
	At 1310 nm: 0.36 dB/km			
18	Attenuation (of cable wit			
17	Cable Cut-off Wavelength: <= 1260nm			·
16	PMD (ps/km): 0.2			

SI. No	Technical Specification		Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	24 Core Single Mode Outdoo	Armoured Fiber Optic Cable.		
2	Corrugated steel tape armou	ed		
3	Central loose tube with jelly o	compound		
4	Glass Yarns between steel tap	e & loose tube		
5	Sequential meter marking			
6	The fiber should fulfill the req	uirement of ITU-T REC G.652D		
7	Outer Diameter: 9.5 ± 0.3mm	(for 24 Core Cable)		
8	Thickness of HDPE Jacket: 1.8			
9	Pulling Tension: Short Term (2000N)			
10	Crush Load: 3000N/100mm			
11	Bend Radius: (20D)			
12	The fiber type is a Matched Cladding Single Mode			
13	The fiber is optimized for operation at 1310 nm and at 1550 nm.			
14	Nominal Mode Field Diameter	r: 9.2 μm		
15	Cladding Diameter: 125 µm			
16	PMD (ps/km): 0.2			
17	Cable Cut-off Wavelength: <= 1260nm			
18	Attenuation (of cable with fibers):			
	At 1310 nm: 0.36 dB/km			
	At 1550 nm : 0.22 dB/km			
19	Make / Brand Any globally reputed Manufacturer presence in India.			

Outdoor Weatherproof Customized Rack

SI. No	Feature	Technical Specification	Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)
1	Metal Guage	18 SWG or Better		
2	Colour	Off White / Gray / Cream		
3	Colour Coating	Powder Coated		
	Dimension	As Per Requirement (Weather Proof Design with cooling arrangement)		
4	(WXHXD)			
5	Lock Facility	Double Lock facility		
	Double Door DB Box			

Sl. Feature Technical Specification		Specification (Quoted / Applicable - by the bidder)	Complied (Yes / No)	
1	Туре	8 Way SPN MCB DB		
2	Enclosure	Double Door with IP42/43 protection		
3	Isolator	1 No. 32 Amp Double Pole (Loaded)		
4	МСВ	6 Nos. 10 Amp / 6 Amp Single Pole (loaded)		
5	Supply	Single Phase 250V AC		
6	Brand / Make	Any globally reputed Manufacturer presence in India.		_

- Bidder should submit all relevant data sheet/brochure of all quoted items and should also availablein respective OEM's official website.
- Bidder should indicate items mentioned in the OEM data sheet / brochure by marketing as mentioned in minimum specification in the RFP

Authorized Signatory (Signature In full):
Name and title of Signatory:
Stamp of the Company: