ARIS Cell
Dr. RajendraPrasad Central Agricultural University
Pusa (Samastipur) 848125

No. 03 /ARIS/Pusa Dated : 24/05/2021

Notice Inviting Tender

For Establishment of LAN

Dr. Rajendra Prasad Central Agricultural University, intends to establish LAN in College of Fishries, Dholi and Pt. Deen Dayal Upadhyay College of Horticulture & Forestry, Piprakothi (E. Champaran). The interested firms are hereby invited to participate in the bidding process (in two bid system) through this notice. The details of the work, items required and terms and conditions can be downloaded from the website **www.rpcau.ac.in**. The tender document complete in all respect in the prescribed format shall reach to the **Controlling Officer, ARIS Cell, Dr. RPCAU, Pusa, Samastipur, Bihar-848125** latest by **23rd June, 2021** through **registered/ speed post** only. All the further information (if any) related to this NIT will be published on official website only.

Patel. 24/05/2021
Controlling Officer, ARIS Cell

Memo No. 4/ARIS/Pusa Dated : 24/05/2021

Copy forwarded to Consultant (Publicity & Information) for publishing of this notice in **English Daily newspaper** in appropriate size and place on the earliest possible date. The bills along with tearsheet of the newspapers may be sent to the undersigned for payment.

Patel. 24/05/2021
Controlling Officer, ARIS Cell

A. General Information:

1. **Scope of work**: Dr.Rajendra Prasad Central Agricultural University, Pusa (Samastipur) intends to establish LAN in its newly established college (Pt. Deen Dayal Upadhyay College of Horticulture and Forestry) at Piprakothi along with some other buildings in the premises. In addition, the LAN of College of Fisheries, Dholi is to be extended to its extension and Boys' Hostel.
2. The interested firms are invited to submit their proposal in two bid system i.e. **Technical Bid** and the **Financial Bid**. The Bidders are required to fill up all these two and place them in two separate sealed envelopes, which should be super scribed as "Technical Bid for Establishment of LAN" and "Financial bid for Establishment of LAN" with NIT reference number, as the case may be. Both these envelop must be place in another envelop super scribed "Quotation for Establishment of LAN" with NIT reference number.
3. The Offer should be made in English and no conditional offers will be accepted
4. The Price, terms and conditions of the offer should be valid up to minimum of 180 days.
5. Submitted bid documents with overwriting or tempering will be liable for rejection.
6. The materials should be supplied as per technical specifications and same shall be verified by the authorized officer before installation.
7. Bidders are required to carry out the work at the specified locations on turnkey basis and quote accordingly.
8. The quantity specified in the Bill of material is tentative which may increase/ decrease as per actual requirement. The selected bidder will be required to conduct a detailed survey of the site and submit the actual requirement with detailed plan.
9. The bidders are expected to examine all instructions, forms, terms, project requirements and other details in the tender documents. Failure to furnish complete information as mentioned in the tender documents or submission of a proposal not substantially responsive to the tender documents in every respect will be at the bidder's risk and may result in rejection of the bid.

B. Terms and Conditions:

1. The bidder must show his/ her competency and experience in execution of the work of similar nature by means of the list of clients supported by the adequate proof during last 5 financial years.
2. The Bidder should be an organization/Company in operation for the last 10 financial years from the publication of this notice.
3. The firm should be an ISO-9001:2015/ ISO 27001-2013 or equivalent certifiedCompany (Original Equipment Manufacturer) or their authorised bidder for this tender whose responsibility is to supply and installation of the equipment, giving warranty on the equipment's and deliver the desired services.
4. The Bidder must have prior experience in commissioning such projects relevant to this notice i.e. under taken the work of installation of LAN connectivity to Government / PSUs in India with minimum 04 (Four) Crores single order during last 05 (five) Financial years.
5. Rates quoted should be for F.O.R. destination, inclusive of all taxes and charges. The rates must include packaging, forwarding, transit, installation and insurance charges. The same should be insured against pilferage, theft, loss or breakage during transit by the supplier before dispatch is made. The responsibility in this respect will be solely of the bidder and not of the university.
6. Supply of the goods is acceptable on bill basis only.

7. Payment terms: Payment of 50 % amount of invoice raised against receipt of goods in proper, satisfactory condition shall be made within 60 days from the date of receipt of invoice. Balance payment will be made after successful installation and commissioning.

8. Considering the pandemic situation due to COVID-19 and its current status in the country, the bidders are exempted from Earnest Money Deposit (EMD). The selected bidder will be required to submit performance security as mentioned in para-29 of this document.
9. In terms of General Finance Rules (GFR-2017), bidders may face legal action, if they amend tender, impair or derogates from the tender in any respect within the period of validity of this tender.
10. The bidders will have to attach a certificate to the effect that the material to be supplied will be of the same specification conforming to standard of the items specified.
11. The taxes which are not quoted in tender by the supplier will not be paid by the university under any case.
12. The terms and conditions given by the supplier will not be binding on us. Conditional tenders may be rejected at the sole discretion of the competent authority of the university.
13. **The date / period of delivery of stores must be clearly mentioned.**
14. The firm should give a certificate that his / her company or sister company is not black listed by any Govt. Department or any Institute in the country.
15. Any dispute arising in the process of the tender shall be referred to the sole arbitrator who in such case will be the Vice Chancellor of Dr. RPCAU, Pusa whose verdict shall be final and binding on both the parties.
16. The tender so submitted shall be governed by the GFR-2017 in effect.
17. The bidders may be called for technical discussion by the purchase committee duly constituted or nominated by the competent authority of this university.
18. The technical evaluation criteria will be as per procedure laid down in Annexure-III . The financial bid of only those bidders who qualify through the technical evaluation will be opened.

19. The acceptance of tender will rest with the university who does not bind itself to accept the lowest tender and reserves itself the authority to reject or partially accept, any or all the tenders received without assigning any reason.
20. The university reserves the right to place order for the scheduled quantity and or part thereof.
21. **The terms as below related to technical specifications must be strictly followed:**
    a) *Access Pointsshould be compatible with the wireless controller.*
    b) *All passive items should be of same OEM.*
    c) *The Active devices should be backed with OEM Warranty Support as specified in the technical specification of each item.*
    d) *OEM authorization specific to this tender should be attached.*
    e) *Technical compliance duly approved by the OEM on letter headalongwith the letter for product warranty and support(for each active item) is required, failing which the Bid offer will be rejected.*
    f) *Product Certification must be enclosed*
    g) *Product specifications must be supported by catalogue*
22. Tenders are likely to be rejected in case it does not confirm to the specifications, terms and conditions etc, as laid down.
23. The tender must reach to the office of the Controlling Officer, ARIS Cell, Dr. RPCAU, Pusaon or before the specified date and time through **Registered post / Speed post** only

24. All the papers submitted must bear the signature and seal of the authorised person.
25. Presently the work is planned for the College of Fishries, Dholi, (Muzaffarpur) and Pt. DDUCHF, Piprakothi (E. Champaran), however depending on requirements additional site under Dr RPCAU may be added.
26. The selected bidder will be required to visit the concerned site and prepare detailed plan and the actual requirement of the site in consultation with the concerned officer of the University. Depending on the requirement thus worked out, the Bill of material may be revised.
27. Bidder turnover must not be less than 10.0 crore for average last three years.
28. The bidder must have executed at least one such work worth Rs. 4.0 crore in the last three years.
29. Performance Security (Bank Guarantee) will have to be submitted @10% of contract value by the successful bidder at the time of signing Agreement which will be released on **completion of one year from the date of commissioning**.
30. Timely servicing/rectification of defects during 'one year' period, after having been notified of the same, service/rectification must be completed within 06 days'time limit, failing which a penalty of 0.5% of the unit price of the product shall be charged as penalty for each week of delay from the seller as per rule.
31. Duration of the completion of the Project 180 days from the date of signing agreement. Failing which LD may be applied 0.5% of the project cost shall be charged as penalty for each week of delay from the seller as per rule.
32. The bidder will have to provide fixtures/cables required for installation of the components which are not provided with the components and not included in the Bill of Material (BOM).
33. Preference will be given to the make in India products. The technical and functional Specifications of all the equipment's (Active and passive) including approved OEM should be strictly adhered to and made available from day1. In view of the memorandum F.no. 6/18/2019-PPD dated 23rd July 2020 issued by the Public procurement Division, Department of expenditure,Ministry of Finance, all participating Bidders and OEM should comply to the restrictions under rule 144(xi) of GFR.All bidders and OEMs need to submit declaration in specified format regarding compliance of this clause as per Annex. III of the above order.If any bidder fails to comply then their bids shall be summarily rejected.

Controlling Officer, ARIS Cell

Annexure-I (Technical Bid)

A. General Details of the Organisation:

S. No.	Particulars	Remarks/ Documents to be attached
1	Name of the Agency as mentioned in the Registration Certificate	
2	Address of Head office	
	Telephone:	
	E-mail:	
	Fax number(if any):	
	Name(s) of the contact person(s):	
3	Corresponding Office address (if different from the above address):	
	Telephone number :	
	Name(s) of the contact person(s) along with mobile number and e-mail id.	
4	Year of establishment of the Organisation (enclose certificate of registration)	
5	Years of work experience in providing relevant services	
6	Turnover of the agency for the last three years (attach proof)	2020-21: 2019-20: 2018-19:
7	Income Tax - PAN No. (attach proof)	
8	Tax Payer Identification Number (GSTIN) (attach proof)	
9	The firm is a proprietary/ partnership/Limited Co./Society (Please attach documentary evidence)	
10	Details of clients for whom similar projects are under taken, along with value of orders executed. (attach documentary evidence)	

B. Organisational Competency: A Brief note pertaining to the Profile and background of the Agency / Firm explaining its previous experience, expertise in general, previous achievements, technical expertise that makes your Agency / Firm most competent to participate in the bidding process. Besides this, the details of similar kind of work experience of the agency is to be furnished in the format Below:

Details of the work executed

S. No.	Name of Project	Year of Project Completion	Name of Client/ Organisation	Value of the Order In INR	Documentary Evidence
1					
2					
3					
4					
5					

Authorised Signatory with seal

Annexure-II (Financial Bid)

Name of the Agency as mentioned in the Registration Certificate	
Mailing Address with contact details	

I/We hereby quote our lowest prices for the work "Establishment of LAN"

S. No.	Description	Qnty	Unit Rate	GST@	Unit Price including GST	Total Amount (Rs.)
1	Firewall: NGFWas per RFP technical specificationswith 3 years subscription	2				
2	Core Switch	2				
3	Access switch	25				
4	Wireless Access Point	115				
5	Wireless LAN Controller Access Point Licenses	200				
6	Rackmount Server (For University Headquarter)	1				
7	KVM Monitor and switch	2				
8	Fibre Optic Rackmount LIU 12 port rackmountable, fully loaded	25				
9	3M LC-LCOFC Patch Cord SM fibre	70				
10	CAT-6A F/UTP Cable LSZH (305 m) Box	70				
11	12C SM optical fibre cable	3000 m				
12	Modular CAT-6A I/O with Single Phase plate & SMB	400				
13	Cat-6A STP, 24 port Jack Panel fully loaded	32				
14	Cat-6A STP Patch cord of length					
	A) 1metre	550				
	B) 2metre	300				
	C) 3 metre	150				
	D) 5 metre	60				

15	42U Floor mount Rack with PDU, FAN,Cable manager &other accessories	2				
16	12U Wall mount double section Rack	15				
17	HDPE 40/33 mm duct (in M)	2500 m				
18	Online UPS system of 3 KVA Capacity	3				
19	Online UPS system of 10 KVA Capacity	2				
20	Providing Power supply with 3 core 2.5mm unarmoured cable in PVC conduit with provision of switches and sockets (all components ISI mark) as per requirements (per metre length of cable).	1500 m				
21	CAT 6A cable laying in uPVC Panel Trucking Duct (with ISI mark) of appropriate size including Jack Panel Punching, I/O box fixing, node tagging, cable marking, etc. as per standard practices (per metre length of cable laid).	17000 m				
22	OFC Laying in HDPE duct (at 60 to 90 cm depth) with root markers at 15 metre interval and turnings including spicing, LIU mounting, OTDR scanning report as per standard practice (per meter length of OFC cable laid).	3000 m				
23	Providing chemical earthing with minimum two pits as per standards	2				
24	Installation and commissioning charges of all active components including configuration and integration with existing devices (if any) with penta-scanning and documentation.	LS				
	GRAND TOTAL	-	-	-	-	

In words Rs.)_____
_____

Authorised Signatory with seal

C. Bill of Material

S. No.	Description	Qnty		
		PDUCHF, Piprakothi	COF, Dholi	Total
1	Firewall: NGFWas per RFP technical specificationswith 3 years subscription	1	1	2
2	Core Switch	1	1	2
3	Access switch	17	8	25
4	Wireless Access Point	90	25	115
5	Wireless LAN Controller Access Point Licenses	150	50	200
6	Rack mount Server (For University Headquarter)	1	0	1
7	KVM Monitor and switch	1	1	2
8	Fibre Optic Rackmount LIU 12 port rack mountable, fully loaded	15	10	25
9	3M OFC Patch Cord SM	40	30	70
10	CAT-6A F/UTP Cable LSZH(305 m) Box	50	20	70
11	12C SM optical fibre cable	2500 m	500 m	3000 m
12	Modular CAT-6A I/O with Single Phase plate & SMB	250	150	400
13	Cat-6A STP, 24 port Jack Panel fully loaded	20	12	32
14	Cat-6A STP Patch cord of length			
	E) 1metre	300	250	550
	F) 2metre	200	100	300
	G) 3 metre	100	50	150
	H) 5 metre	50	10	60
15	42U Floor mount Rack with PDU, FAN, Cable manager &other accessories	1	1	2
16	12U Wall mount double section Rack	10	5	15
17	HDPE 40/33 mm duct (in M)	2000 m	500 m	2500 m
18	Online UPS system of 3 KVA Capacity	2	1	3
19	Online UPS system of 10 KVA Capacity	1	1	2
20	Providing Power supply with 3 cores 2.5mm unarmoured cable in PVC conduit with provision of switches and sockets (all components ISI mark) as per requirements (per metre length of cable).	1200 m	300 m	1500 m
21	CAT 6A cable laying in uPVC Panel Trucking Duct (with ISI mark) of appropriate size including Jack Panel Punching, I/O box fixing, node tagging, cable marking, etc.as per standard practices (per metre length of cable).	12000 m	5000 m	17000 m
22	OFC Laying in HDPE duct (at 60 to 90 cm depth) with root markers at 15 metre interval and turnings including spicing, LIU mounting, OTDR scanning report as per standard practice (per meter length of OFC cable laid).	2500 m	500 m	3000 m
23	Providing chemical earthing with minimum two pits as per standards (with maximum ground resistance value of 5 ohm)	1	1	2
24	Installation and commissioning charges of all active components including configuration and integration with existing devices (if any) with penta-scanning and documentation.	LS	LS	LS

Technical Specification

Item No. 1. – Firewall – NGFW

Sl. No	Component	Specification	Compliance (Yes/No)	If Yes, Cross-reference page no.
Brand: _____ Model: _____				
Networking Features				
1	Deployment Mode	The firewall should be deployable as Gateway (L3) as well as Transparent (L2) mode		
2	Routing	The firewall should support the following routing protocols:		
		a. OSPF V2 & V3, BGP4, RIP(1&2), Static Routing		
		b. Policy based Routing		
		c. Multicast: PIM-SM, PIM-SSM, IGMP v1, v2 and v3		
		d. Bidirectional scanning		
3	IPV6	The firewall should be IPV6 ready & certified from day one along with features like application awareness/control, Content Inspection, detection of Zero-day threats and inspection of SSL traffic.		
4	IPSec VPN	The firewall should support IPSec VPN. Licenses should be provided for 20 users from day one:		
		a. Key-Exchange: Manual Key,IKEv1 and IKEv2 (pre-shared key, certificate –based authentication)		
		b. Encryption: 3DES,AES(128,192,256 bit)		
		c. Authentication: MD5,SHA-1,SHA-256,SHA-384,SHA-512		
5	Network Address Translation (NAT)	The firewall should support the following :		
		a. NAT modes (IPv4): Static IP, dynamic IP, dynamic IP and port (port address translation).		
		b . NAT64 .		
		c. Additional NAT features: Dynamic IP reservation.		
6	High Availability (HA)	The firewall should support deployment in		
		a. Modes: Active/ Active & Active / Passive		
		b. Failure detection: Path monitoring, Interface monitoring		
7	SSL VPN	The firewall shall be licensed for 20 SSL VPN users for each installation.		
8	Architecture	Should have hardware architecture based on multi core CPU's to protect & scale against dynamic latest security threats		
Performance				
9	Software Modules	The firewall should have the following software modules with all features preloaded		
		a. Firewall		
		b. It should have Provision for user, group and network based bandwidth management.		
		c. Intrusion prevention system		
		d. Anti-Virus & Anti-Malware		
		e. Anti bot		

Sl. No	Component	Specification	Compliance (Yes/No)	If Yes, Cross-reference page no.
		f. Content filtering		
		g. Category based Web & URL filtering		
		h. Gateway level Anti-Spam service		
		i. Gateway level Data Leak Prevention service		
		j. Must have provision for user to change his password		
		k. Solution should have inbuilt Web Application firewall to protect institute's web & application server		
		l. Cloud based Sandboxing detection engine		
10	Performance	a. The firewall should deliver a Threat Prevention Throughput of Min. 2Gbps with multiple security modules implemented and running with logging enabled.		
		b. The firewall should have the capability to support minimum 1,20,000 new connections per second from day one		
		c. The next generation firewall throughput should not be less than 9 Gbps and IPS throughput of 10 Gbps.		
Hardware				
11	Ports	Min 4 Nos. of 1GE RJ45 ports for data communication from day one.		
		Min 2 Nos. of 1GE (SFP) ports populated with 2x1GE SFP multimode transceivers from day one.		
		Min 4 Nos. of 10GE (SFP+) interface slots ready from day one and 2x10GE SFP+ transceiver from day one.		
		Additional High Availability ports for connecting Firewalls in Active-Active cluster should be provisioned for future use.		
12	Management Ports	Min. 1 No. of 10/100/1000 RJ45 port for managing the firewall using its Web Interface.		
		Min. 1 No. of Console port		
		Min. 1 No. of USB port.		
13	Storage	The Firewall should have minimum 240GB of SSD Internal storage for keeping the logs & generating reports		
14	Power Supply	Dual redundant power supply from day one		
	Wireless Controller			
15	Controller Features	The Wireless LAN Controller should Support IEEE 802.11 a/b/g/n/ac/wave 2.		
16		The Wireless Access Controller should support Rouge AP detection & MAC Filtering / Spoofing, etc.		
17	Wireless security	WPA, WPA2 Personal, WPA2 Enterprise with Separate Zone, Bridge to LAN & VLAN mode.		

Sl. No	Component	Specification	Compliance (Yes/No)	If Yes, Cross-reference page no.
18		Shall support DoS attack control, Access control list, MAC-based Access control List, IP filtering URL filtering, Port forwarding, DMZ security, Intra SSID filtering.		
19		Should allow authenticated client devices to roam securely from one access point to another AP within or across subnets with no perceptible delay during re-association.		
20		The controller shall support in both L2 and L3 Network for auto discovery.		
21		User, group, time, or network based policies, Access time polices per user/group.		
22		The AP and, wireless controller (where used), should communicate over an encrypted tunnel to ensure end-to-end security of user information.		
23	WLC Licenses	WLC shall support 200 Access points and 150 Access pointslicenses from day 1.		
24	Management	Centralized Management of Access points and Wireless clients, Access point discovery with Static IP discovering		
Standard				
25	Support Availability	The proposed solution should not be declared as End of Sale in next one year		
26	Customer Support	Proposed solution should support OEM TAC support and advance 3-5 days Hardware replacement.		
27	Warranty	The products must have 3Year onsite warranty duly endorsed by OEM with endorsement to all the specifications by OEM as per requirement of this BID.		
28	Approved Make	**Fortigate/Sophos/Checkpoint/Cisco**		

Item No. 2. – Core Switch

Sl. No.	Technical Specification (minimum)	Compliance (Yes/No)	If Yes,Cross-reference page no
	Brand _____ Model: _____		
1	**Architecture**		
1.1	Shall be19" Rack Mountable single or Chasis based switch		
1.2	Switch shall have minimum 12nos 10Base-T, 12x1 Gbps(6 Nos SFP SM&6 Nos.SFP MM Transceiver loaded), 24 x 10 Gbps(12 Nos. SFP+ SM & 12 Nos. SFP+ MM Transceiver loaded),with 2 x100Gbps with 3m DAC Cable.		
1.3	Shall have an RJ45 console port.		

1.4	Shall have min 4GB of Memory and 4GB of Flash memory		
1.5	Shall have switching capacity of 1.5Tbps		
1.6	Shall have up to 1200 million pps switching throughput		
1.7	Switch shall have redundant power supply from day-1		
1.8	All the transceiver should be of the same OEM as that of switch.		
2	**Resiliency**		
2.1	The Switch should have the capability to extend the control plane across multiple active switches making it a virtual switching fabric, enabling interconnected switches to perform as single Layer-2 switch and Layer-3 Switch. The Fabric should be managed by a single IP Address.		
2.2	The connected servers or switches should be attached using standard LACP for automatic load balancing and high availability.		
2.3	The modules/cables to create virtual switching fabric shall be provided.		
2.4	The switch must work in Active-Active HA configuration.		
2.5	IEEE 802.1D Spanning Tree Protocol, IEEE 802.1w Rapid Spanning Tree Protocol and IEEE 802.1s Multiple Spanning Tree Protocol		
2.6	IEEE 802.3ad Link Aggregation Control Protocol (LACP)		
3	**Layer 2 Features**		
3.1	Shall support min 128K MAC address table		
3.2	Shall support up to 4K VLANs		
3.3	Shall support GVRP or equivalent feature to allow automatic learning and dynamic assignment of VLANs		
3.4	Shall have the capability to monitor link connectivity and shut down ports at both ends if uni-directional traffic is detected, preventing loops		
3.5	Shall support jumbo frame size of up to 9K-bytes		
3.6	Internet Group Management Protocol (IGMP)		
3.7	Multicast Listener Discovery (MLD) snooping		
3.8	IEEE 802.1AB Link Layer Discovery Protocol (LLDP)		
3.9	The switch shall support PVST		
3.10	Shall support port isolation or equivalent		
3.11	Shall support Data/Voice VLAN feature or equivalent to automatically assign VLAN and priority to devices like IP phones		
4	**Layer 3 Features (any additional licenses required shall be included)**		
4.1	Static Routing for IPv4		
4.2	Static Routing for IPv6		
4.3	User Datagram Protocol (UDP) helper function to allow UDP broadcasts to be directed across router interfaces		
4.4	Dynamic Host Configuration Protocol (DHCP) client and Relay		
4.5	Should support policy based routing and ECMP		
5	**QoS and Security Features**		
5.1	Access Control Lists for Layer 2 to Layer 4 traffic filtering		
5.2	Shall support global ACL, VLAN ACL, port ACL, and IPv6 ACL		
5.3	Traffic classification using multiple match criteria based on Layer 2, 3, and 4 information		
5.4	Powerful QoS feature supporting strict priority (SP) queuing, weighted round robin (WRR) / SP+WRR		
5.5	Shall support applying QoS policies on a port, VLAN, or whole switch, to set priority level or rate limit selected traffic		

5.6	IEEE 802.1x to provide port-based user authentication with multiple 802.1x authentication sessions per port		
5.7	Media access control (MAC) authentication to provide simple authentication based on a user's MAC address		
5.8	Dynamic Host Configuration Protocol (DHCP) snooping to prevent unauthorized DHCP servers		
5.9	Shall support Port security		
5.10	STP BPDU port protection to prevent forged BPDU attacks		
5.11	STP Root Guard to protect the root bridge from malicious attacks or configuration mistakes IP Source guard to prevent IP spoofing attacks		
5.12	IP Source guard to prevent IP spoofing attacks		
5.13	Dynamic ARP protection blocking ARP broadcasts from unauthorized hosts		
6	**Management Features**		
6.1	Configuration through the CLI, SSL, console, Telnet, SSH, SNMPv3 or Web Management		
6.2	SNMPv1, v2, and v3 and Remote monitoring (RMON) support		
6.3	Supports Netflow (LPFIX) Sflow for flow exports		
6.4	Management security through multiple privilege levels		
6.5	FTP, TFTP, and Secure FTP support		
6.7	RADIUS/TACACS for switch security access administration		
6.8	Network Time Protocol (NTP) or equivalent support		
6.9	Shall have Ethernet OAM (IEEE 802.3ah)or equivalent management capability		
7	**Software Defined Networking (SDN) Capability**		
7.1	The Switch should support OpenFlow without any hardware change from Day 1 to enable the switch to work in SDN environment.		
8	**Environmental Features**		
8.1	Shall provide support for RoHS and WEEE regulations and switch should have EAL3 or NDPP certification.		
8.2	Shall have features to improve energy efficiency like variable-speed fans, shutoff unused ports etc		
8.3	Operating temperature of 0°C to 40°C		
8.4	Safety and Emission standards including UL 60950-1; IEC 60950-1; VCCI Class A; EN 55022 Class A		
9	**OEM qualification Criteria**		
9.1	Customer Support and warranty: The products must have 3 Year onsite warranty duly endorsed by OEM with endorsement to all the Specifications by OEM as per requirement of this BID.		
9.2	Approved make : Cisco/HPE/juniper/DELL EMC		

Item No. 3. – Access Switch

S. No.	Technical Specification (minimum)	Compliance (Yes/No)	If Yes, Cross-reference page no.
	Brand _____ Model _____		
	Architecture		
1	The switch should have minimum 24x RJ-45 autosensing 10/100/1000 POE+ ports with 4x1/10G SFP+ uplink ports populated with 2 Nos. SM transceiver from Day-1.		
2	The Switch should be 19" rack mountable.		
3	Should have minimum 128 Gbps switching capacity, 1 GB of Memory and 256 MB of Flash Memory.		
4	Switching throughput of up to 95 Mpps		
5	MAC Address table size of 16000 entries		
6	Should have 190 W POE+ budget		
7	Shall support IEEE 802.3ad Link Aggregation Control Protocol (LACP)		
8	Shall support IEEE 802.1s Multiple Spanning Tree Protocol,802.1w(RSTP)		
9	Shall support IPv4 Static routing		
10	Shall support IEEE 802.1Q (4000 VLAN IDs) and 256 VLANs simultaneously		
11	Shall support Jumbo frame		
12	Shall be IPv6 Capable		
13	Shall support IEEE 802.1AB Link Layer Discovery Protocol (LLDP)		
14	Shall support IEEE 802.1p Traffic prioritization for real-time traffic classification. Shall support traffic classification mapped to four queues		
15	Should support IEEE 802.1p/DSCP priority to queue mapping (4 queues)		
	Security		
1	Should support RADIUS		
2	MAC address authentication		
3	Should support 802.1x,Packet storm protection		
4	TFTP,SCP and SSL		
5	Should support DHCP snooping, IGMP snooping, Dynamic ARP protection		
	Management & maintenance		
1	SNMPv1/v2/v3		
2	RMON		
3	Web-based Management		
	Environmental Feature/OEM Criteria		
1	Shall have an operating temperature of 0°C to 40°C		
2	Operating relative humidity 15% to 95%, non-condensing		
3	VCCI-CISPR 32, Class A;CNS 13438; ICES-003 Issue 6 Class A; FCC CFR 47 Part 15, Class A;EN 55032: 2015 +AC:2016/CISPR-32,Class A;EN 55024:2010 / EN 55035:2017;EN 61000-3-2, IEC 61000-3-2		
4	Approved OEM: Cisco/HPE/Juniper/DELL EMC		
5	**Customer Support and Warranty**: The products must have 3 Year onsite warranty duly endorsed by OEM with endorsement to all the Specifications by OEM as per requirement of this BID.		

Item No. 4. – Wireless Access Point

Sr. No	Specifications	Compliance (Yes/No)	If Yes, Cross-reference page no.
	Technical Specification		
	Brand _____ Model_____		
1	Access Point radio should be minimum 3x3 MIMO with 2 spatial streams. The AP should have Dual Radio 802.11ac access point with Multi-User MIMO (MU-MIMO)		
2	Access Point should be 802.11ac ready from day one		
3	AP should have one 10/100/1000BASE-T Ethernet network interface (RJ-45) and 1GB RAM.		
4	AP should support minimum aggregated data rates of 1.5Gbps		
5	Access Point should have min 4 integrated internal antenna		
6	Should support 16x BSSID per AP .		
7	The access point should be capable of performing security scanning and serving clients on the same radio. It should be also capable of performing spectrum analysis and security scanning using same radio.		
8	Should support BPSK, QPSK, 16-QAM, 64-QAM, 256 QAM and 1024 QAM modulation types.		
9	Access point should support 802.3af/ac POE+ standard or should be ROHS and Reach Compliant.		
12	Must operate as a sensor for wireless IPS		
13	AP model proposed must be able to be both a client-serving AP and a monitor-only AP for Intrusion Prevention services		
14	Access point must incorporate radio resource management for power, channel, coverage hole detection and performance optimization		
15	AP should have kensington lock slot.		
16	AP should support Hardware controllerfor specific requirements.		
18	The AP should support priority handling and policy enforcement with endpoint, mobile device for unified communication apps, including Skype for Business with encrypted videoconferencing, voice, chat and desktop sharing		
19	The AP should support deep packet inspection to classify and block, prioritize, or limit bandwidth for thousands of applications in a range of categories		
20	The Access point should support maximum ratio combining (MRC) for improved receiver performance		
21	The Access point should support IEEE 802.11 a/b/g/n/ac and wave 2		
27	Should support 0-40 degree temperature		
28	Certification - UL 2043/FCC/EN601,Wi-Fi CERTIFIED a, b, g, n, ac/ WPA, WPA2,WPA3.		
29	Approved OEM : Cisco/DELL EMC/Sophos/HPE		

30	**OEM Warranty**:The products must have 3 Year onsite warranty duly endorsed by OEM with endorsement to all the Specifications by OEM as per requirement of this BID.		

Item No. 5. - Wireless LAN Controller Licenses for item no. 1

Item No. 6. - Rackmount Server

Sr no	Specifications	Compliance (Yes/No)	IF Yes, Cross-reference Page no.
	Brand _____ Model_____		
1	2 x Intel Xeon 10C Processor or higher.		
2	Intel C621 or later OEM Chipset		
3	256 GB DDR4 ECC Memory upgradable to 3TB		
4	Min 24 DIMM Slots or higher		
5	Server chassis should be tool less serviceable		
6	6 nos 1.2TB or higher capacity 12G Enterprise Hot Swap HDD in RAID 6 configuration		
7	Should support at least minimum 8 nos. of SAS Bays Drives or higher		
8	12 Gbps RAID Controller (RAID 0,1,5,6,1+0) with 8 GB Write Cache.		
9	4 nos of 10G Ethernet ports with SFP+ SM populated		
10	2 x dual Port Qlogic 16Gbps FC Host Bus Adapter		
11	Up to 6 PCIe Gen3 slots + 1 RAID slot + 1 NDC slot and the server should have an additional 2 PCIe slots available and free for future expansion		
12	Integrated on-board graphics controller (1280 X 1024) with 16.7 million colors		
13	It shall be possible to manage the server hardware and software components remotely.		
14	The server hardware shall be manageable even when it is shutdown or crashed		
15	It shall be possible to power on/off and boot the system remotely; management log		
16	Browser and CLI support		
17	Secure Socket Layer		
18	Secure Shell		
19	The management port shall support automatic fencing (in case of clustering whenever required)		
20	2U Rack mountable with rack mount kit and rails		
21	OEM software for management of Servers must be included as standard.		
22	It should integrate with any SNMP based industry standard		
23	Network Management Software. (The SNMP MIBs for the hardware and software components shall be provided).		
24	Should provide Fault management and automatic event handling through e-mail. SNMP alerts and monitoring should be supported and enabled on all of the server types to be supplied. All the required licenses shall be quoted separately.		
25	Should provide Role based secured remote management using Secure Sockets Layer (SSL) and Secure Shell (SSH) to encrypt management communications.		
26	Local LED/LCD based diagnostic panel for easy fault identification.		
27	Server should be provided with Redundant hot swappable Power supplies.		
28	Server should have redundant fully populated hot swappable Fans.		

29	Should be supplied with OEM management controller and software required to update and rollback system and PCI card firmware. Earlier versions of firmware should be stored locally of the system.		
30	Server should be capable of operation in a temperature range of 10 to 45 DegCentigrade.		
31	OEM Server management utility capable of setting Server level and or rack/Datacenter level power cap should be provided. The utility should also be able to report on power utilization.		
32	Power supplies should be FCC class A certified		
33	Windows server Latest version preloaded or with perpetual license.		
34	Approved Make : HP / DeLL / Cisco		
35	OEM Warranty should be 3 years Support and OEM to submit Step-by-Step compliance of required specification along with MAF specific to this query endorsing the undertaking letter for product warranty and Support service requirement as per this Bid Query.		

Item No. 7. - KVM Monitor and Switch

Sr no	Specifications		Compliance (Yes/No)	IF Yes, Cross-reference Page no.
	Make: _____ Model: _____			
A	**Console Connection**			
1	Local-1 (Share Remote Bus)			
2	Remote -1			
B	**Computer Connection**			
1	Direct	8		
2	Maximum	128 (via Daisy-chain)		
	Port Selection	OSD, Hotkey, Pushbuttons		
C	**Connectors**			
1	External Console Ports	1 x SPHD Male		
2	KVM Ports	8 x SPHD Female		
3	Daisy Chain Ports	1 x DB-25 Male		
4	Firmware Upgrade	1 x RJ-11 Female		
5	LAN Ports	1 x RJ-45 Female		
D	**Video**			
1	Remote	1920 x 1200 @60 Hz		
E	**Panel Spec**			
1	LCD Module	17" TFT-LCD		
2	Resolution	1280 x 1024 @75 Hz		
3	Pixel Pitch	0.264 mm x 0.264 mm		
4	Viewing Angle	170° (H), 160° (V)		
5	Support Color	16.7M colors		
6	Contrast Ratio	1000:01:00		
7	Luminance	250 cd/m²		
F	**Emulation**			
1	Keyboard / Mouse	PS/2, USB		
2	Scan Interval	1-255 sec.		
3	Maximum Input Power Rating	100-240V AC, 50-60Hz, 1A		

Item No. 8– Fiber Optic Rack mount LIU (12 port), loaded with adapter plates, Splice Tray and Pigtail
Make:-(Siemon/Panduit/Belden/CommScope)

Sr no	Specifications	Requirement	Compliance	If Yes, Cross-reference page no.
		Brand _____ Model_____		
1	Fiber Management Shelf	Fully loaded and factory fitted Fiber enclosure shelf, sliding drawer style front access, 1U rackmount for storing and splicing of fiber cables.		
		Preloaded with SC SM duplex adapters, Pigtails, Splice trays and management rings.		
		Shelf shall have locking latches on the front to protect from accidental slide outs. Shall be pre-installed with grounding lugs (2 nos).		
		Rear cable entry ports should be sealed with cable glands.		
		Shall be made of powder coated steel sheet.		
2	Compact size	1U height, 19” width for rack-mounting for fiber and buffer tube storage.		
3	Optical Fibre Adapter Plates Loaded	SC duplex adapters, Blue pre-fitted in LIU		
4	No of Adapter Plate Reqd.	12 Nos.		
5	Pigtail	SC type Singlemode, 9/125/900 um, pre-installed in shelf.		
6	No. of Pigtail Req	12 nos.		

Item No. 9. OFC Patch Cord
Make:-(Siemon/Panduit/Belden/CommScope)

Sr no	Specifications	Requirement	Compliance (Yes/No)	If Yes, Cross-reference page no.
		Model_____ Brand_____		
1	Make and Type	SC/UPC to LC/UPC Duplex tuned Fiber Optic Patch Cord 3 Mtr, 9/125 Micron, G.652.D and G.657A1 Singlemode		
2	Cable Sheath	LSZH rated as per IEC 60332-3, NEC OFNR-LS (ETL) and UL 1685		
3	Return Loss	> 55 db		
4	Compliance	OEM to submit compliance of required specification along with MAF specific to this query endorsing the warranty and service requirement as per this Bid condition.		

Item No. 10. –CAT 6A F/UTP Cables (LSZH).
Make:- (Siemon/Panduit/Belden/CommScope)

Sr no	Feature	Requirement	Compliance (Yes/No)	If Yes, Cross-reference page no.
1	Type	Cat 6A F/UTP 23 AWG solid copper Cable shall support high speed data network applications such as 10-Gig Ethernet (10GBASE-T) and compliant to ANSI/TIA 568.2-D and ISO/IEC 11801 Class EA.		
		The cable shall be constructed of 4 pairs with Aluminium foil shield and a drain wire to minimise alien crosstalk and provide excellent signal isolation and superior electromagnetic interference (EMI) protection		
2	Technical Characteristics	Primary Insulation: Polyolefin Sheath type: LSZH (Flame Test IEC 60332-1, Smoke test IEC 61034-2, Acid Gas IEC 60754-2) Nominal OD: 7.0 – 7.2mm NVP: 64 - 70% Screen: Laminated Aluminium foil Drain Wire: tin-coated copper		
3	Electrical Characteristics	Mutual Capacitance: 5.6 nF/100m DC Resistance: 8.0 /100m max. Propagation Delay: 550ns /100m max@1-500MHz Impedance: 100 ± 15@ 1-500 MHz Dielectric strength, min: 1500 Vac Operating Voltage: 80V max Insertion Loss: Max. 45.3dB @ 500Mhz PSNEXT: 31.8 @ 500Mhz, min Category 6A F/UTP Cable is intended for high speed data applications up to 500MHz including: IEEE 802.3 10GBASE-T 10Gb/s IEEE 802.3 1000GBASE-T 1Gb/s TIA/EIA-854 1000BASE-TX 1Gb/s IEEE 802.3bt (Type 4) 4PPoE		
4	Applications	Suitable for high speed data applications up to 500MHz including: IEEE 802.3 10GBASE-T 10Gb/s IEEE 802.3 1000GBASE-T 1Gb/s TIA/EIA-854 1000BASE-TX 1Gb/s IEEE 802.3bt (Type 4) 4PPoE		
5	Commercial Standards	ANSI/TIA/EIA-568.2-D ISO/IEC 11801 Class EA Intertek 4 connector channel compliant ETL verified for ANSI/TIA-568.2-D Category 6A, ISO/IEC 11801-1 Category 6A and EN 50173-1.		
		All the relevant certificates must be submitted with the bid on OEM Letter head.		

Item No. 11. –12 Core SM OFC Cables
Make:- (Siemon/Panduit/Belden/CommScope)

Sr. no	Specifications	Requirement	Compliance (Yes/No)	If Yes, Cross-reference page no.
		Brand _ _____ Model _____		
1	Cable Type	Fibre Single Mode, Armoured, Unitube, Gel filled 12 core cable complying to ISO/IEC 11801, ITU-T G.652.D OS2; IEC 60793/60794, ANSI/TIA 568-C.3, Telcordia GR-20; suitable for use in direct burial, outdoor ducts and backbone cabling.		
2	Armour	Corrugated Steel Tape Armour -Thickness >0.15 mm		
3	Water Blocking	Thixotropic Gel (Tube), Petroleum Jelly (Interstices)		
4	Attenuation	,@ 1310nm <=0.35 db/Km MAX		
		,@1550nm <=0.22 db/Km MAX		
5	Numerical Aperture	0.14		
6	Attenuation Discontinuity	Both Windows <0.10dB		
7	Core/Mode-Field (um)	9		
8	Clad Diameter (um)	125 + - 1		
9	Coat Diameter	245 + - 10		
10	Loose tube material	Single PBTP Loose tube filled with water blocking Thixotropic gel		
11	Jacket material	UV Stabilised Polyethylene (HDPE), min thickness 2.0mm		
12	Peripheral Strength Member	Two Steel wires / Armied Yarns/ Glass Yarns		
13	Tensile Strength	1000N		
14	Crush Resistance	3000N/10 cm		
15	Cable Diameter	> 9 mm		
16	Max. Bending Radius (during installation)	20 X Overall diameter		
17	Max. Bending Radius (during full load)	16 X Overall diameter		
18	Cable weight Kg/Km	80-100 kg/km or more		
19	Operating Temperature	-10 Degree C to +70 Degree C		

Item No. 12. – Modular UTP CAT 6A I/O with Single Faceplate & SMB
Make:-(Siemon/Panduit/Belden/CommScope)

Sr no	Feature	Requirement	Compliance (Yes/No)	If Yes, Cross-reference page no.
		Brand _____ Model_____		
1	Type	robust die cast zinc alloy jack body housing spring loaded shutter.		
2	Mechanical Characteristics	RJ45 Connector Housing: Zinc Alloy plated Bright Ni/Cu Contact Material: Copper Alloy Contact Plating: 1.25 micrometres Au/Ni Contact Force: 100g minimum Contact Material: Copper Alloy IDC Contact Plating: Matte Tin Contact Force: 100g minimum Wire Accommodation: 22-24 AWG solid		
3	Electrical/Optical Characteristics	Interface Resistance: 20mΩ Initial Contact Resistance: 2.5mΩ Insulation Resistance: >500MΩ		
4	Modular Jack Housing	Zinc Alloy		
5	IDC Connecting blocks	polycarbonate, 94V-0 rated		
6	Commercial Standards	TIA-568- ISO 11801 IEC 60603-7 FCC Approvals: ETL independant testing UL-1863		
7	Faceplate	Square shuttered plate with 1 port		
8	ROHS/ELV	Compliant		

Item No.13. – STP CAT 6A Jack Panel
Make:-(Siemon/Panduit/Belden/CommScope)

Sr no	Feature	Requirement	Compliance (Yes/No)	If Yes, Cross-reference page no.
		Model_____ Brand _____		
1	Type	19" 24-port (1U) Cat 6A Shielded Modular Patch Panel made from robust powder coated sheet metal. Panels shall be supplied with removable rear cable manager for cable strain relief and neat cable dressing. Port numbering labels to be provided with the panel.		

3	Mechanical Characteristics	IDC Connector Plastic Housing: Polycarbonate, UL94V-0 rated Operating Life: Minimum 20 reterminations Contact Material: Copper Alloy IDC Contact Plating: Tin Matte finish Contact Force: 100g minimum Wire Accommodation: 22-24 AWG solid Patch Panel Characteristics Material: CRS (cold rolled steel) Thickness: 1.52mm (.060") Coating: Black Powdercoat Jack Connector Housing: Zinc Alloy plated Bright Ni/Cu Operating Life: Minimum 750 insertion cycles Contact Material: Copper Alloy Contact Plating: 1.25 micrometres Au/Ni Contact Force: 100g minimum Plug Retention Force: 6.8kg minimum		
4	Electrical/Optical Characteristics	Interface Resistance: 20mΩ Initial Contact Resistance: 2.5mΩ Insulation Resistance: >500 MΩ		
5	Category	Should accept 10G Approved Shielded Jacks CAT6A jacks		
6	Front Connector interface	RJ45		
7	Circuit Identification Scheme	Icons on each of 24-ports		
8	Port Identification	9mm or 12mm Labels on each of 24-ports (to be included in supply)		
9	Height 1 U	(1.75 inches)		
10	Interface	Polyester Moulding Compound, Black		

Item No. 14. CAT 6A STP Patch Cord 1M/2M/3M/5M
Make:-(Siemon/Panduit/Belden/CommScope)

Sr no	Feature	Requirement	Compliance (Yes/No)	If Yes, Cross-reference page no.
		Brand : _____ Model: _____		
1	Length	1/2/3/5 Meter		
2	Screen material	Aluminium foil shield on each pair with overall screening encapsulating 4 pairs, PiMF constructionwire		
3	Commercial Standards	ANSI/TIA 568.2-D, ISO/IEC 11801 Class EA, UL-1863, IEC 60332-1		

Item No. 15. – 42U Floor mount Rack with PDU, FAN , Cable manager & Hardware
Make:- (Valrack/Rittal/APW/Netrack)

S.No.	Descriptions	Compliance (Yes/No)	If Yes, Cross-reference page no.
	Brand : _____ Model: _____		
1	Enclosure should be 800 x 1000 floor mount		
2	Should have Front Perforated u-shaped Door and Rear Split Perforated Door with Castors		
3	Should have loaded with PDUS-1Ph 230V,32A, Vertical PDU with 20 X 5/15A, 7KVA Rating& 3-Meter Power Cord with Industrial power socket		
4	Should have loaded with Shelf 725/600w		
5	Should have loaded with Hardware 5 pkts of hardware & 4 nos of FAN 230VAC 90 CFM		
6	Should have loaded with five CABLE MANAGER 1U/19" and 10 blank plates		
7	OEM should have ISO 14001 certification UL listed,EN/CEA Standard		

Item No. 16. – 12 U Wall Mount Double Section Rack
Make:- (Valrack/Rittal/APW/Netrack)

S.No.	Descriptions	Compliance (Yes/No)	If Yes, Cross-reference page no.
	Brand _____ Model: _____		
1	Enclosure should be 19", 12U/550w x 600D with front glass doorlock - CKD Flat Pack Format with 100MM rear section The rack should have two sections. Front section to be bolted with to back section. Back section fixed to wall.		
2	Should have loaded with FANS 90 CFM 230 VAC		
3	Should have loaded with PDU HORIZONTAL 5/15AMP WITH 6 SOCKET		
4	Should have loaded with HARDWARE FRONT PANEL MTG and hardware pkt(20nos.)		
5	Should have loaded with SHELF CANTILEVER 1U/255		
6	Should have loaded with CABLE MANAGER 1U/19"		

Item No. 17. – 40/33 MM HDPE
Make- Standard ISI marked

S.No.	Descriptions	Compliance (Yes/No)	If Yes, Cross-reference page no.
1	40/33MM HDPE Pipe Standard ISI make		

Item No. 18 – Online UPS, 3KVA (Eligible Brand: Numeric/APC/Vertiv/Delta)

Parameters	3KVA On-Line UPS (1PH-1PH)	Compliance (Yes/No)	If Yes, Cross-reference page no.
	Brand: _____ Model: _____		
Topology	True Online Double Conversion UPS with IGBT based converters		
Output Power factor	0.8		
Conformal Coating	Yes		
INPUT			
Phase	Single Phase		
Voltage	230V AC		
Voltage Range	160V - 300V AC&110V - 300V AC @ 50% Load		
Power Factor	0.99		
Current THD	<10%		
DC Volt	72 VDC		
Battery Backup	60 Min		
Battery VAH	5400 (12V,75AH x 6 Nos. battery)with battery stand		
OUTPUT			
Nominal Output voltage	200VAC/208VAC/220VAC/230VAC/240VAC +- 1%		
Frequency	50Hz ± 0.5Hz		
Frequency sync.	47.5 to 52.5 Hz		
Voltage THD	< 3% THD, linear load@Line mode < 3% THD, linear load @battery mode, battery voltage 12V / per battery		
	< 7% THD, non-linear load@line mode < 7% THD, non-linear load @ battery mode, battery voltage 12V / per battery		
Efficiency			
AC/AC (Overall eff.)	>92%		
ECO mode	>95%		
Overload capacity			
100%～105%	Constant		
105%~130%	60 sec		
130%~150%	10 sec		
>150%	300 msec		
Operating Temp.	0 ~ 40°C Continuous		
Electrical			
Input Terminal	Input Breaker +Terminal		
Output Terminal	1 terminal block		
Features			
Convert Mode(CVCF)	UPS Should have Convert Mode with max derating of 60%		
Bypass parameters Configurable	Should be available		
SNMP	Ups should be having RS232 port		
Display	LCD Display		
Mechanical			
Ingress Protection	IP 20		
Standards			
Safety	BIS		
Surge	IEC 61000-4-5 Level 4		
Performance	IEC 61000-4-2 Level 3/IEC 61000-4-3 Level 3/IEC 61000-4-4 Level 4		
Certification	UPS Should have Certified with ISO 9001 & 14001		
Warranty	3 years (onsite) on UPS and 3 years on batteries		

Item No. 19 – Online UPS, 10KVA (Eligible Brand: Numeric/APC/Vertiv / Delta)

Parameters	10 KVA On-Line UPS (1PH-1PH)	Compliance (Y/N)	If Yes, Cross-reference page no.
	Brand: _____ Model: _____		
Topology	True Online Double Conversion UPS with IGBT Converter		
Output power factor	Unity (OEM to choose next available higher rating if PF is 0.9 or less)		
Form factor	Rack/Tower Convertible -2U		
INPUT			
Phase	Single Phase		
Voltage	230V AC		
Voltage Range	160V - 275V AC		
	110V - 275V AC @ 50% Load		
Power Factor	0.99		
Current THD	<= 3%		
DC Volt	192 VDC		
Battery Backup	120 Min		
Battery VAH	14400 VAH (12V, 75AH x 16 Nos. battery)with battery stand		
OUTPUT			
Nominal Output voltage	220VAC / 230VAC / 240VAC / +- 1%		
Frequency	50Hz ± 0.1Hz		
Frequency sync.	40-70HZ		
Voltage THD	< 1% THD@ linear load		
	<5% @non-linear load		
Efficiency			
AC/AC (Overall eff.)	up to 92%		
ECO mode	>= 95%		
Overload capacity			
100%＜Load≤105%:	Constant		
105%＜Load≤125%:	10 minutes		
125%＜Load≤150%:	30 Sec		
>150%	:500ms		
Communication			
RS 232	Required RS 232		
Operating Temperature	0 ~ 40°C Continuous		
Electrical			
Input Terminal	Input Breaker+Terminal		
Output Terminal	Terminal		
Features			
Bypass parameters Configurable	Should be available		
SNMP	Should be offered with UPS day-1		
Display	LCD Display		
Mechanical			
Ingress Protection	IP 20		
Standards			
Safety	CE		
Surge	IEC 61000-4-5 Level 4		
Performance	IEC 61000-4-2 Level 3 IEC 61000-4-3 Level 3 IEC 61000-4-4 Level 4		
Certification	A certificate of 3 Years (onsite) OEM on the Step-by-Step compliance of Specification is required		
Warranty	3 years on UPS and 3 years on batteries		

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