



कर्मचारी राज्य बीमा निगम  
(श्रम एवं रोजगार मंत्रालय,  
भारत सरकार)  
Employees' State  
Insurance Corporation  
(Ministry of Labour &  
Employment,  
Govt. of India)



सूचना एवं संप्रेषण प्रौद्योगिकी प्रभाग  
Information and Communication  
Technology Division  
मुख्यालय/Headquarters,  
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Website: <https://esic.gov.in>

Computer No. E-323/No. I-11013/4/2021-ICT

Dated: 11.07.2024

To,

1. Zonal Insurance Commissioner(s)/ Zonal Medical Commissioner(s)
2. Regional Directors/Directors(I/c)/Jt. Directors(I/c) of all ROs/SROs
3. Medical Superintendents of all ESIC Medical Hospitals
4. D(M) Delhi/ D(M) Noida / Director NTA
5. Dean, all ESIC Medical Colleges and Hospitals

**Subject: Policy for procurement of IT Hardware for ESI Locations**

Sir/Madam,

In supersession to all previous instructions issued in this regard, the following hardware policy will come into immediate effect from the date of issue of this order: -

Sl No.	Item	Guidelines
a)	All-in-One Desktop/Desktop Computers (With latest Windows OS)	<p>(i) <b>For all offices other than Hospitals/ Dispensaries / Teaching Institutes:</b> One computer for each staff for functional requirement including MTS. At any point of time, the overall number of computers should not exceed more than the sanctioned strength of officials.</p> <p>(ii) <b>For Hospitals / Dispensaries:</b> One computer for each official. MTS may be provided as per functional requirement. The maximum number of computers should not exceed the sanctioned posts and the number of computers required in any single shift.</p> <p>(iii) <b>For Medical College/Teaching Institutes:</b> The requirement for Computer Lab, Digital Library, etc. to be assessed separately keeping in view, the functional and operational requirements by a committee constituted by the Head of the concerned institute. Statutory guidelines of regulatory bodies like the National Medical Commission / Dental Council of India / Indian Nursing Council also must be followed. Functional requirement for MTS may be considered, by the concerned Head of Office.</p>

*[Handwritten Signature]*

Sl No.	Item	Guidelines
b)	Multi-functional Machine / Printer	<p>(i) One Laser Printer/ Multifunctional Machine with scanning facility for 4 (Four) Office Staff users. For small offices (less than 10 officials), a provision of minimum 2 such printers should be kept. The concerned committee shall further recommend on the numbers, considering the proximity of the seating arrangements of the officials in question.</p> <p>(ii) Individual Printer-cum-scanner/ Multifunctional Machine for all Officers in pay scale of Asstt. Director (or / and equivalent) and above including medical officers holding administrative posts only. In Dispensaries &amp; Hospitals, printer may be given to two doctors on sharing basis considering their proximity. Issue of independent printer to the doctors doing clinical work may be assessed by the committee keeping in view the functional requirement.</p> <p>(iii) One Colour Laser Printer/ Multifunctional Machine for the Head of Office of all ZIC, ZMC, NTA/ZTI, ESIC Hospitals/Teaching Institutes, DMD / DMN Office, ROs, SROs and for each Divisional Head of ESIC Headquarters.</p>
c)	Switches/Lan Cabling/ Nodes	<p>(i) Switches to be procured as per number of nodes available at the office location keeping in view the proximity/locations of the nodes.</p> <p>(ii) AMC of existing Switches/LAN cabling/nodes and further addition of nodes in the existing LAN to be done through AMC agency maintaining hardware.</p> <p>(iii) Provisioning of LAN and nodes at new offices (or hospital) and new office premises (or hospital premises) in the case of shifting of premises to be done through AMC agency maintaining hardware. In case, rates for provisioning of LAN cabling and nodes were not obtained while selecting the maintenance agency, such works may be done as per fresh work basis following GFR.</p> <p>(iv) All hospitals/medical colleges premises must be Wi-Fi enabled as per Wi-Fi Policy issued by ESIC Hqrs vide circular dated 28.06.2023.</p> <p>(v) For new premises, physical LAN connections should be made available for static computing devices like All-in-one Computers. Wi-Fi enabled network may be set up in place as per Wi-Fi Policy issued by ESIC Hqrs vide circular dated 28.06.2023.</p> <p>(vi) For any Internet/Intranet activity, the data traffic should be routed only through SDWAN device placed at the respective locations.</p>





Sl No.	Item	Guidelines
d)	Scanner	Two number of Single Feed Duplex Scanner (FS / Legal Size) with OCR facility as per the recommendation of e-Office guidelines for each RO / SRO / Teaching Institution / Hospital / NTA and one each for Branch Office and one for each Division of Headquarters and DMD.

**2. Guidelines for assessment of requirement:**

- While assessing the requirement of Computers and Printers, number of actual concurrent users and functional requirement should be considered.
- Requirement of ESIC Hospitals / Medical Colleges / Dispensaries/ DCBO/ Other ESIC Offices and locations will be assessed by a committee constituted by the sanctioning authority with one Finance representative.
- In the case of MTS, the requirement should be recorded with reasons and with due approval of the Head of Accounting Unit in consultation with Local Finance.
- Requirement for ESIS Hospitals and ESIS Dispensaries will be assessed by a committee. Constitution of Committee will include SMO, Representative of Director (ESIS), DD/AD (ICT) of the RO / SRO and Dir. / JD / DD / AD (Finance).
- In special cases, computers and printers may be provided over and above the prescribed limit after full justification by the sanctioning authority subject to the approval of Hqrs. Office.

**3. Sanctioning/Procurement Authority:**

Sl. No.	Type of Office	Procuring Authority
a.	Regional Offices, Branch Offices, DCBOs, ESIS Hospitals and dispensaries under their jurisdiction	Regional Director (RD) / RD In- charge of concerned RO
b.	Sub-Regional Offices and Branch Offices under its jurisdiction	Director/Jt. Director in charge of concerned SRO
c.	D(M)D Office and ESI Dispensaries under its jurisdiction	Director, Directorate (Medical) Delhi
d.	Director (Medical) Noida Offices and Dispensaries under its jurisdiction	Director, Directorate (Medical) Noida
e.	ESIC Hospitals	Medical Superintendent
f.	Medical Colleges / Teaching Institutes	Dean / Medical Superintendent
g.	National Training Agency (NTA)	Director, NTA

Note 1: The sanction will be subject to concurrence of local Finance.

Note 2: The procuring authority shall also be the nodal officer for AMC, compliances of various relevant instructions and guidelines, ensuring cyber security and sending status reports as required.

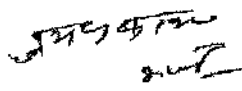
#### 4. Procurement Procedure: General Guidelines

- i. Procurement should be undertaken as per administrative and functional requirement subject to budgetary provisions following GFR instructions through GeM.
- ii. An insurance policy must be taken for all IT assets.
- iii. Hardware should be brought into the ambit of AMC Service Provider after the expiry of the warranty period.
- iv. All procurement must be recorded in Dead Stock Register as per GFR provisions.
- v. All the procurement must be in accordance with the attached specifications (Annexure-'A').
- vi. All infrastructure is to be maintained in compliance with the ESIC Cyber Security Guidelines, in force. Latest instructions issued vide file E13105 on 26.02.2024.

This issues with the approval of the competent authority.

Yours faithfully,

Encl: Specifications (Annexure- 'A')

  
(Jai Prakash Sharma)  
Deputy Director (ICT)

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Model Specifications of IT Hardware for different ESI Locations. These are the minimum model specifications. Field units should use other higher specification for the prescribed parameters keeping in view their functional requirements, future use, evolution of technology, availability of such higher specifications on GeM etc.

1. **All-in-One (AIO) PC: -**

Sl. No.	Parameters	Minimum Model Specifications	
1.	Processor	Make –Intel i7 or Higher /AMD- R7 or Higher (With latest generation)	
2.	Motherboard	OEM motherboard	
3.	RAM	Minimum 16GB DDR-4 3200 MHz or higher expandable upto 64 GB	
4.	Storage	Minimum 1 TB (HDD) + 256GB (SSD)	
5.	Display size (Monitor)	23.6" or Higher (All- in-One)	
6.	Display Resolution	Minimum resolution 1920 x 1080 or higher	
7.	Display Type	Touch/Non-Touch	
8.	Stand & Mount	Adjustable	
9.	Webcam	Integrated, FHD	
10.	Microphone	Integrated	
11.	Graphic Type	Integrated	
12.	Speaker	Two speakers integrated with display	
13.	Ethernet	10/100/1000 Mbps on board integrated port	
14.	Wireless	Wireless 802.11 ac/ b/g/n or higher	
15.	Bluetooth	Bluetooth 5.0 or higher	
16.	Panel Technology	LCD/TFT display non-touch	
17.	Keyboard	Wired / Wireless, 104 keys with Rupee symbol & USB Interface	
18.	Mouse	OEM optical USB scroll Mouse (Wired / Wireless) with mouse pad	
19.	Chassis	All in ONE Form Factor	
20.	Certification	BIS Registration under CRS of MeitY	Yes
		BIS Registration Number and its Validity	Yes
		ROHS Compliance	Yes
		BEE / Energy Star for the given Model	Yes
24.	USB Ports & Interface	(i) Front & Rear: 2 Nos. USB-2.0, 2 Nos. USB-3.1 G1, (ii) DP Port - 01 Nos. for Extended Display (iii) HDMI Port - 01 Nos. for Extended Display	
25.	Operating System	Preloaded with OEM pack licensed Windows 11 Professional with x64 or higher	
26.	Warranty	Complete systems with minimum 05 years OEM onsite comprehensive warranty support. The Device should not be declared end of life by OEM at the time of purchase.	
27.	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorized dealer with OEM Manufacturer Authorization only to bid. Appropriate documents to be submitted regarding this with the bid. MAF from OEM is	



Sl. No.	Parameters	Minimum Model Specifications
		must.
28.	Service Centre	OEM Service Centre should be in India and support should be available at local level of the indenting offices.
29.	OEM logo should be embossed on Monitor, Keyboard, Mouse etc. (No sticker)	

Optional: 1) Warranty support with 24Hrs. resolution SLA  
2) Acceptance testing before Delivery.

## 2. Laptop:

Sl. No.	Parameters	Minimum Model Specifications	
1.	Processor	Make –Intel i7 or Higher /AMD- R7 or Higher (With latest generation)	
2.	RAM	Minimum 16GB DDR4 or higher	
3.	Storage	Minimum 512 GB SSD	
4.	Battery	Lithium ion / Lithium Polymer with rechargeable battery backup of 08 hours (minimum) under standard working conditions	
5.	Display size	14” or higher	
6.	Display Type	Anti-glare LED Backlit Display	
7.	Resolution	Minimum resolution 1920 x 1080 or higher	
8.	Webcam	Integrated, FHD	
9.	Microphone	Integrated	
10.	Bluetooth	Enabled 5.0 or higher	
11.	Wireless Device	Wireless 802.11 ac/ b/g/n or higher	
12.	Audio	Built-in stereo speakers with high definition audio support. Built-in Microphone.	
13.	Keyboard touch pad device	Backlit Keyboard with touch pad	
14.	Mouse	Wired/Wireless	
15.	Certifications	BIS Registration under CRS of MeitY	Yes
		BIS Registration Number and its Validity	Yes
		ROHS Compliance	Yes
		BEE / Energy Star for the given Model	Yes
19.	USB Ports & Interface	Minimum 4 USB ports out of which 2 ports should be USB 3.0 or higher and one port shall be Type C port with docking support, 10/100/1000 Ethernet card, HDMI, Microphone, Stereo Headphone and other standard ports etc.	
20.	Operating System	Preloaded with OEM pack licensed Windows 11 Professional with x64 or higher	
21.	Warranty	Complete systems with minimum 05 years OEM onsite comprehensive warranty support. The Device should not be declared end of life by OEM at the time of purchase.	
22.	Carry case, charging adaptor	Good quality carry case/bag, Charging Adapter	
23.	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorized dealer with OEM Manufacturer Authorization only to bid. Appropriate documents to be submitted regarding this with the bid.	

Sl. No.	Parameters	Minimum Model Specifications
24.	Service Centre	OEM Service Centre should be in India and support should be available at local level of the indenting offices.
25.	OEM logo should be embossed on Laptop PC (No sticker)	

Optional: 1) Warranty support with 24Hrs. resolution SLA.  
2) Acceptance testing before Delivery.

### 3. Mono Multifunctional Machine/ Laser Printer:

Sl. No.	Parameters	Minimum Model Specifications
1.	Make & Model Number	Exact details to be provided by the bidder with its official brochure
2.	Printing Technology	Laser
3.	RAM	512 MB or more
4.	Type of Printing	Any value (Mono/Colour as per requirement)
5.	Resolution	600 x 600 dpi or higher
6.	Duplex Printing	Automatic duplex printing (DADF)
7.	Simplex Printing Speed (A4)	32 ppm or above
8.	Standard Functions	Print, Copy, Scan
9.	Paper Tray Capacity	250 pages
10.	Media Type	Plain Paper, Heavy Paper, Transparency, Label, Index Card, Envelope.
11.	Media Sizes	A4/Legal (as per requirement)
12.	Duplex Printing	A4 / Letter / Legal
13.	Scanner	Flatbed and duplex ADF scanning (DADF), scan to email
14.	Resolution (For scanner)	600 x 600 dpi or higher optical
15.	Interface	USB 2.0 Hi-speed or more 10/100 Base-T Ethernet (Network), WiFi 802.11b/g/n
16.	Operating System Drivers to be provided for	Windows 2000/Server 2003, 2008, 2012/Linux, MAC OS, Windows 11 (all 32 and 64 bit both) or later, MAC OS
17.	Duty Cycle	Minimum 8000 pages per month
18.	All-in-One Cartridges	Based on ISO/IEC 19752 standard Printer ships with minimum 1000-page starter cartridge
19.	Flatbed Size	A4 / Letter / Legal
20.	BIS Registration/ BIS Catalogue	BIS registration of the product is must
21.	Environmental Compliance	Energy star, RoHS certified
22.	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorized dealers with OEM Manufacturer Authorization only to bid, MAF to be submitted

Sl. No.	Parameters	Minimum Model Specifications
23.	Warranty	Minimum 5 Years OEM Comprehensive warranty including all parts (except toner Cartridge) with onsite support. The Device should not be declared end of life by OEM at the time of purchase.
24.	Service Centre	OEM Service Centre should be in India and support should be available at local level of the indenting offices.

Optional: 1) Warranty support with 24Hrs. resolution SLA  
2) Acceptance testing before Delivery.

#### 4.1 Single Feed- Scanner- 40 PPM:

Sl. No.	Parameters	Minimum Model Specifications
<b>General</b>		
1.	Scanner Type	Colour & B/W Flatbed with ADF
2.	Scanning Technology	CIS (Contact Image Sensor)
3.	Document Size	Legal, A4, Letter, envelope, Any other
<b>Scan Resolution</b>		
4.	Scan Resolution, Optical	Minimum 600 x 600 dpi
<b>Scan Speed</b>		
5.	Automatic Document Feeder Scan Speed	Minimum 40 ppm or higher
6.	Scan Speed Footnote Number	[3] Sheet feed speeds: (All resolutions up to and including 300 ppi). Simplex 40 A-4 pages per minute. Duplex 80 A-4 images per minute
<b>Scanner Specifications</b>		
7.	Duty Cycle (Daily)	Recommended daily duty cycle: Minimum 4000 pages
8.	Scan File Format	For text & images: PDF, PDF/A, Encrypted PDF, JPEG, PNG, BMP, TIFF, Word, Excel, PowerPoint, Text (.txt), Rich Text (.rtf) and Searchable PDF
9.	Scanning Options (ADF)	Single-pass duplex, Multi Feed Detection
10.	Duplex ADF Scanning	Yes
11.	Colour Scanning	Yes
12.	Memory	Minimum 512 MB
<b>Connectivity &amp; Communications</b>		
13.	Connectivity, Standard	Ethernet 10/100 Base-T, USB 3.0, WiFi 802.11 ac/b/g/n, WiFi Direct
14.	Twain Version	Windows: 32-bit and 64-bit, Mac OS, Linux (Latest Versions)
<b>System Requirements</b>		
15.	Compatible Operating Systems	Microsoft® Windows® (32-bit and 64-bit,), Mac OS, Linux



Sl. No.	Parameters	Minimum Model Specifications
<b>Warranty &amp; Service</b>		
16.	Warranty	Minimum 5 Years OEM Comprehensive warranty including all parts except for consumables with onsite support. The Device should not be declared end of life by OEM at the time of purchase.
17.	Service Centre	OEM Service Centre should be in India and support should be available at local level of the indenting offices.
18.	Environmental Compliance	BEE/Energy star, RoHS certified
19.	BIS Registration/ BIS Catalogue	BIS registration of the product is must

#### 4.2 Single Feed- Scanner- 25 PPM:

Sl. No.	Parameters	Minimum Model Specifications
<b>General</b>		
1.	Scanner Type	Colour & B/W Flatbed with ADF
2.	Scanning Technology	CIS (Contact Image Sensor)
3.	Document Size	Legal, A4, Letter, envelope, Any other
<b>Scan Resolution</b>		
4.	Scan Resolution, Optical	Minimum 600 x 600 dpi
<b>Scan Speed</b>		
5.	Automatic Document Feeder Scan Speed	Minimum 25 ppm or higher
6.	Scan Speed Footnote Number	[3] Sheet feed speeds: (All resolutions up to and including 300 ppi). Simplex 25 A-4 pages per minute. Duplex 50 A-4 images per minute
<b>Scanner Specifications</b>		
7.	Duty Cycle (Daily)	Recommended daily duty cycle: Minimum 3000 pages
8.	Scan File Format	For text & images: PDF, PDF/A, Encrypted PDF, JPEG, PNG, BMP, TIFF, Word, Excel, PowerPoint, Text (.txt), Rich Text (.rtf) and Searchable PDF
9.	Scanning Options (ADF)	Single-pass duplex, Multi Feed Detection
10.	Duplex ADF Scanning	Yes
11.	Colour Scanning	Yes
12.	Memory	Minimum 256 MB
<b>Connectivity &amp; Communications</b>		
13.	Connectivity, Standard	Ethernet 10/100 Base-T, USB 3.0, WiFi 802.11 ac/b/g/n, WiFi Direct
14.	Twain Version	Windows: 32-bit and 64-bit, Mac OS, Linux (Latest Versions)
<b>System Requirements</b>		
15.	Compatible Operating Systems	Microsoft® Windows® (32-bit and 64-bit,), Mac OS, Linux
<b>Warranty &amp; Service</b>		
16.	Warranty	Minimum 5 Years OEM Comprehensive warranty including all parts except for consumables with onsite support. The Device

Sl. No.	Parameters	Minimum Model Specifications
		should not be declared end of life by OEM at the time of purchase.
17.	Service Centre	OEM Service Centre should be in India and support should be available at local level of the indenting offices.
18.	Environmental Compliance	BEE/Energy star, RoHS certified.
19.	BIS Registration/ BIS Catalogue	BIS registration of the product is must.

5. **Network Switches** – Total number of switch port (24/48), POE feature & stackable feature decided as per requirement of the location. Similarly, number of SFP Port can be decided as per end location requirement.

5.1) **Layer 2 Access switches**

Sl. No.	Parameters	Descriptions
<b>General</b>		
1.	Device Type:	Fully Managed Layer 2 Switch
2.	Ports Qty:	Switch should have minimum 24 nos. 100/1000 Base- T ports and additional 4 nos. 10G SFP+ ports. In case of Stackable 24x RJ45 100/1000 auto-sensing ports and 4x 10G SFP+ ports supporting minimum 40 Gbps Stacking bandwidth Stacking accessories to be included. Can stack minimum 4 switches
3.	Flow Control	Supported for Full duplex mode and auto negotiation mode.
4.	Hot swappable	All modules/ SFP, fan trays & Power supplies should be hot swappable
<b>Memory</b>		
5.	Flash Memory:	Minimum 128 MB flash
6.	Power	Support for redundant power supply
<b>Performance</b>		
7.	Switching Capacity	Minimum 128 Gbps
8.	MAC Address Table Size	Shall have minimum 16000 MAC addresses
<b>Networking Features</b>		
9.	IPv6	IPv6 should be supported from day one
10.	Status Indicators:	Link activity, Power LED
11.	VLANs	Should support Port, Voice VLAN, Private VLAN, GVRP, Should support minimum 1024 VLAN
12.	DHCP and DHCP relay	Should support DHCP, DHCP relay
13.	Protocol	(i) Switch should support TFTP or FTP (ii) Should support SVIs (inter VLAN Routing), Static routing, OSPF, PIM. (iii) Support IEEE Standards IEEE 802.1d, 802.1s, 802.1w, 802.3ad, 802.3x, 802.1p, 802.1q, 802.3, 802.3u, 802.1ae, 802.3ab,



Sl. No.	Parameters	Descriptions
		802.3z, 802.3ae.
14.	Redundancy Protocols	Should support STP, RSTP, MSTP
15.	Network Support	Should support 802.1x authentication and accounting, IPv4 and IPv6 ACLs, Dynamic VLAN assignment, and Guest VLANs, port Mirroring
<b>Management Function</b>		
16.	Configuration	Should support CLI and SNMP v1/v2/v3 based managements
17.	Miscellaneous	
18.	Authentication Method:	Should Support Access List/ Firewall Filters, QoS, IPv6, SSHv2, SNMPv2c, SNMPv3, NTP, RADIUS and TACACS+, Jumbo frame, RADIUS
<b>Power</b>		
19.	Power Device:	Power supply AC
20.	Voltage Required:	AC 100 to 240 V (50 to 60 Hz)
21.	Warranty	Minimum 05 years OEM onsite warranty. Device should not be declared End of Life by OEM at the time of purchase. OEM Service Center should be in India and support available across India.
22.	Certifications	OEM MAF need to be required at the time of device purchases
23.	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorized dealer with OEM Manufacturer Authorization only to Bid.

#### 5.2) Layer 3 switches

Sl. No.	Parameters	Descriptions
<b>General</b>		
1.	Device Type:	Fully Managed Layer 3 Switch
2.	Ports Qty:	24x RJ45 100/1000Mbps, 4x 10G SFP+ ports
		Should support minimum 2 x 40/100 Gbps Uplink Interfaces
3.	Flow Control	Supported for Full duplex mode and auto negotiation mode.
4.	Hot swappable	All modules/ SFP, fan trays & Power supplies should be hot swappable
5.	Operating Conditions	Switch should support operating temperature ranging 0 (or lower) to +40 (or higher) degree centigrade, relative humidity: 10% to 85% non-condensing
<b>Memory</b>		
6.	Flash Memory:	Minimum 1 GB
7.	Power	Should have redundant power supply
<b>Performance</b>		
8.	Switching Capacity	Minimum 300 Gbps
9.	MAC Address Table Size	Shall have minimum 32000 MAC addresses
10.	IP Routes (IPv4 / IPv8)	16000 Routes Supported
<b>Networking Features</b>		

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Sl. No.	Parameters	Descriptions
11.	Routing Protocol:	(i) Should have SVIs, Routed-Layer-3 interfaces (with more than one IP address per port, per SVI), Static routing support, RIP V1, RIP V2, OSPF (V1, V2 and V3), VRRP, BGP is from day one. (ii) Should support VRF-lite/VRF/virtual router
12.	IPV6	IPv6 should be supported from day one
13.	Status Indicators:	Link activity, Power LED
14.	VLANs:	Should support Port, Voice VLAN, Private VLAN, GVRP, should support minimum 4096 VLAN
15.	DHCP and DHCP relay	Should support DHCP, DHCP relay. Switch should support TFTP or FTP.
16.	Redundancy Protocols	Should support STP, RSTP, MSTP
17.	Security Features	(i) Should Support 802.1x authentication and accounting, IPv4 and IPv6 ACLs, Dynamic VLAN assignment, Guest VLANs, Port Mirroring, MAC Sec-128 min. on uplinks ports. (ii) Should support IEEE Standards 802.1D, 802.1s, 802.1w, 802.1x, 802.3ad, 802.1ae, 802.3x, 802.1p, 802.1Q, 802.1ak, 802.1AB, 802.1ad, 802.1Q-Q, 802.3ab, 802.3z, 802.3ae
<b>Management Function</b>		
18.	Configuration	(i) Should support CLI and SNMP v1/v2/v3 based managements. (ii) Should support Management function like Ping, Telnet
19.	Authentication Method	Switch should support (SSH), RADIUS, TACACS+
20.	Certification	The switch/ switch series should be EAL3/NDPP/NDcPP certified under Common Criteria
<b>Power</b>		
21.	Power Device	Power supply AC
22.	Voltage Required	AC 100 to 240 V (50 to 60 Hz)
<b>Warranty and Certifications</b>		
23.	Warranty and Support SLA	Minimum 05 years OEM onsite warranty. Device should not be declared End of Life by OEM. OEM Service Center should be in India and Support available across India.
24.	Certifications	OEM MAF need to be required at the time of device purchases.
25.	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorized dealer with OEM Manufacturer Authorization only to Bid.

## 6. Anti-Virus:

6.1 The End point security system should include anti-ransomware and behavioural deduction system to protect PCs/Laptops and network from today advance threats. The security system should have Virus protection, Email protection, Behaviour detection, Real-time virus protection, ransomware protection, Quick update, Memory scan, Phishing protection, Antimalware Scan, Registry Restore feature etc.

6.2 Solution should have Web security, browsing protection, Vulnerability scan, Anti-Keylogger, Centralised Management and control with details report and graphical dashboards,

generate infected systems report with their source and destination IP, updation and upgradation management etc.

6.3 Solution should not allow the user to uninstall or disable Endpoint Security Solution agent.

6.4 The security solution / software should be updated on regular basis from the OEM.

6.5 As per best practice being followed in the security posture for an Organization, the single Centralized Management and Control for end to end security solution for performance efficiency and protects every endpoint.

6.6 Client Server based end point security (EPS) system is normally being use if the End location is having at least 10 Nos. PCs/Laptop else standalone end point security solution licenses to be installed.

6.7 It is also recommended to have end point security solution licenses to be installed on each and every PC and Laptop being used in the office for the total security protection.

## 7. TECHNICAL Specifications of Online / Line Interactive UPS

### 7.1 TECHNICAL SPECIFICATIONS OF ON-LINE – 1 KVA UPS SYSTEMS

S.N.	PARAMETERS	SPECIFICATIONS
1	Capacity	1 KVA (Single Phase input & Single-Phase output)
	Battery Backup	30 Minutes at full load
2	General	
	Inverter Technology	Pulse Width Modulation (PWM) using IGBTs, double conversion.
	Total Harmonic Distortion (THD)	< 3% for 100% linear load
	Voltage	< 5% for 100% non-linear load
	Operating Temperature	0°- 40° C
	Crest Factor	Not less than 3:1 on full non-linear load
	Humidity	Up to 95% non-condensing
	Output Wave Form	Pure Sine wave
	Cold Start facility	Required
	Cooling	Air cooled
	Audible Noise	< 60 db
3	Input	
		AC Single Phase
	Voltage Range	160 V AC to 270 V AC
	Frequency Range	50 ± 6% Hz
	Input Power Factor	0.95 or better at full output load leading to Unity with active power factor correction (APFC)
	Distortion (Current)	Less than 10%
	D/G set Compatibility	Required
4	Output	
	Voltage	230V AC ±1 %, single phase
	Regulation (Steady State)	Less than ± 2% at No load to full load
	Frequency	(a) 50 Hz ± 0.5 %
5	Efficiency	

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S.N.	PARAMETERS		SPECIFICATIONS
	Overall Efficiency		90 % or better on rated full load at 0.9 PF & 230V, 50Hz AC output
	Inverter Efficiency		92% or better on rated full load at 0.90 PF & 230V, 50Hz AC output
6	Overload Capacity		110% for 2 min. & 125% overloads for 30sec.
7	Load Power Factor		0.90 lagging to unity
8	Transient Response Time		For 100% load change, output must remain within $\pm 1\%$ and recovery within 20 ms.
9	Protection		(i) Required for: Surge protection (ii) Short Circuits (iii) Over Loading (iv) Over Temperature (v) Input low/ high voltage control
10	Battery Bank Details		
	Battery Type		Sealed Maintenance Free (VRLA)
	Battery Features		Reputed brand, manufactured in India & complying to JIS C 8702 test.
	Battery recharge time (after complete discharge to 90% charge) & charge rating		Battery recharge time to 90% charge after 100% DoD should be within 8-10 hours and charger should be capable to charge battery on C20 rating.
	Battery Cut off voltage during backup		Not less than 10.5V
11	Battery Capacity		
	Capacity of UPS	Max. VAh	Battery Bank VAh for Back-up Time
	1 KVA		30 minutes
	UPS & Battery Housing		$\geq 800$ VAh
			Powder coated UPS cabinet and battery rack made of good quality material and should be free from sharp edge, scratches, nicks, & burs etc. Enclosure should conform to all protection requirements.
12	L.C.D. meter		To measure and monitor input voltage, output voltage, output load level in %, DC voltage, input /output frequency
13	Indications		(i) Mains on (ii) Load on Battery (iii) Inverter (iv) Load level (v) Inverter over load
14	Audible Alarm		(i) Over Temperature (ii) Main failure (iii) Battery low (iv) Inverter Overload
15	Switches		(i) Main ON/OFF MCB (ii) Battery ON/OFF MCB (iii) Inverter push button with reset or UPS ON/OFF button available in front panel.



S.N.	PARAMETERS	SPECIFICATIONS
16	Output Connection	O/P Terminals of standard quality should be provided.
17	Isolation Transformer (Optional)	Compatible Galvanic Isolation Transformer shall be provided.
18	Static & Manual Bypass	Shall be provided
19	Certifications	(i) As per MeitY (Government of India) Guidelines, UPS Shall have valid IS16242-Part 1 CRS Certification. Certificate of Govt. Lab/ NABL/ILAC Accredited of UPS testing. (ii) ISO 9001:2008, ISO 14001: 2004, 18001:2007
20	Service Centre	OEM Service Center should be in India and Support available at local level of Indenting department
21	Warranty	(i) Minimum 3 years OEM repair or replace warranty including Battery (ii) Device should not be declared End of Life by OEM at the time of purchase
22	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorised dealers with OEM Manufacturer Authorization only to bid, MAF to be submitted

## 7.2 TECHNICAL SPECIFICATIONS OF ON-LINE – 2 KVA UPS SYSTEMS

S.N.	PARAMETERS	SPECIFICATIONS
1	Capacity	2 KVA (Single Phase input & Single-Phase output)
	Battery Backup	60 Minutes at full load
2	General	
	Inverter Technology	Pulse Width Modulation (PWM) using IGBTs, double conversion.
	Total Harmonic Distortion (THD) Voltage	(i) < 3% for 100% linear load (ii) < 5% for 100% non-linear load
	Operating Temperature	0°- 40° C
	Crest Factor	Not less than 3:1 on full non-linear load
	Humidity	Up to 95% non-condensing
	Output Wave Form	Pure Sine wave
	Cold Start facility	Required
	Cooling	Air cooled
	Audible Noise	< 60 db
3	Input	AC Single Phase
	Voltage Range	160 V AC to 270 V AC
	Frequency Range	50 ± 6% Hz
	Input Power Factor	0.95 or better at full output load leading to Unity with active power factor correction (APFC)
	Distortion (Current)	Less than 10%
	D/G set Compatibility	Required
4	Output	
	Voltage	230V AC ±1 %, single phase
	Regulation (Steady State)	Less than ± 2% at No load to full load
	Frequency	50 Hz + 0.5 %

S.N.	PARAMETERS		SPECIFICATIONS
5	Efficiency		
	Overall Efficiency		90 % or better on rated full load at 0.9 PF & 230V, 50Hz AC output
	Inverter Efficiency		92% or better on rated full load at 0.90 PF & 230V, 50Hz AC output
6	Overload Capacity		110% for 2 min. & 125% overloads for 30sec.
7	Load Power Factor		0.90 lagging to unity
8	Transient Response Time		For 100% load change, output must remain within ±1% and recovery within 20 ms.
9	Protection		(i) Required for: Surge protection (ii) Short Circuits (iii) Over Loading (iv) Over Temperature (v) Input low/ high voltage control
10	Battery Bank Details		
	Battery Type		Sealed Maintenance Free (VRLA)
	Battery Features		Reputed brand, manufactured in India & complying to JIS C 8702 test.
	Battery recharge time (after complete discharge to 90% charge) & charge rating		Battery recharge time to 90% charge after 100% DoD should be within 8-10 hours and charger should be capable to charge battery on C20 rating.
	Battery Cut off voltage during backup		Not less than 10.5V
11	Battery Capacity		
	Capacity of UPS	Max. VAh	Battery Bank VAh for Back-up Time
	2 KVA		60 minutes
			≥ 3200 VAh
	UPS & Battery Housing		Powder coated UPS cabinet and battery rack made of good quality material and should be free from sharp edge, scratches, nicks, & burs etc. Enclosure should conform to all protection requirements.
12	L.C.D. meter		To measure and monitor input voltage, output voltage, output load level in %, DC voltage, input /output frequency
13	Indications		(i) Mains on (ii) Load on Battery (iii) Inverter (iv) Load level (v) Inverter over load
14	Audible Alarm		(i) Over Temperature (ii) Main failure (iii) Battery low (iv) Inverter Overload
15	Switches		(i) Main ON/OFF MCB (ii) Battery ON/OFF MCB (iii) Inverter push button with reset or UPS ON/OFF button available in front panel.

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S.N.	PARAMETERS	SPECIFICATIONS
16	Output Connection	O/P Terminals of standard quality should be provided.
17	Isolation Transformer (Optional)	Compatible Galvanic Isolation Transformer shall be provided.
18	Static & Manual Bypass	Shall be provided
19	Certifications	As per MeitY (Government of India) Guidelines, UPS Shall have valid IS16242-Part 1 CRS Certification. Certificate of Govt. Lab/ NABL/ILAC Accredited of UPS testing. ISO 9001:2008, ISO 14001: 2004, 18001:2007
20	Service Centre	OEM Service Center should be in India and Support available at local level of Indenting department
21	Warranty	(i) Minimum 3 years OEM repair or replace warranty including Battery (ii) Device should not be declared End of Life by OEM at the time of purchase
22	Original Equipment Manufacturer (OEM)Product	(i) OEM Manufacturer or its authorised dealers with OEM (ii) Manufacturer Authorization only to bid, MAF to be submitted

### 7.3 TECHNICAL SPECIFICATIONS OF ON-LINE – 3 KVA UPS SYSTEMS

S.N.	PARAMETERS	SPECIFICATIONS
1	Capacity	3 KVA (Single Phase input & Single-Phase output)
	Battery Backup	60 Minutes at full load
2	General	
	Inverter Technology	Pulse Width Modulation (PWM) using IGBTs, double conversion.
	Total Harmonic Distortion (THD)	< 3% for 100% linear load < 5% for 100% non-linear load
	Voltage	
	Operating Temperature	0°- 40° C
	Crest Factor	Not less than 3:1 on full non-linear load
	Humidity	Up to 95% non-condensing
	Output Wave Form	Pure Sine wave
	Cold Start facility	Required
	Cooling	Air cooled
	Audible Noise	< 60 db
3	Input	
		AC Single Phase
	Voltage Range	160 V AC to 270 V AC
	Frequency Range	50 ± 6% Hz
	Input Power Factor	0.95 or better at full output load leading to Unity with active power factor correction (APFC)
	Distortion (Current)	Less than 10%
	D/G set Compatibility	Required
4	Output	

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S.N.	PARAMETERS		SPECIFICATIONS
	Voltage		230V AC $\pm 1\%$ , single phase
	Regulation (Steady State)		Less than $\pm 2\%$ at No load to full load
	Frequency		(b) 50 Hz $\pm 0.5\%$
5	<b>Efficiency</b>		
	Overall Efficiency		90 % or better on rated full load at 0.9 PF & 230V, 50Hz AC output
	Inverter Efficiency		92% or better on rated full load at 0.90 PF & 230V, 50Hz AC output
6	<b>Overload Capacity</b>		110% for 2 min. & 125% overloads for 30sec.
7	<b>Load Power Factor</b>		0.90 lagging to unity
8	<b>Transient Response Time</b>		For 100% load change, output must remain within $\pm 1\%$ and recovery within 20 ms.
9	Protection		(i) Required for: Surge protection (ii) Short Circuits (iii) Over Loading (iv) Over Temperature (v) Input low/ high voltage control
10	<b>Battery Bank Details</b>		
	Battery Type		Sealed Maintenance Free (VRLA)
	Battery Features		Reputed brand, manufactured in India & complying to JIS C 8702 test.
	Battery recharge time (after complete discharge to 90% charge) & charge rating		Battery recharge time to 90% charge after 100% DoD should be within 8-10 hours and charger should be capable to charge battery on C20 rating.
	Battery Cut off voltage during backup		Not less than 10.5V
11	<b>Battery Capacity</b>		
	Capacity of UPS	Max. VAh	Battery Bank VAh for Back-up Time
			60 minutes
	3 KVA		$\geq 4800$ VAh
	UPS & Battery Housing		Powder coated UPS cabinet and battery rack made of good quality material and should be free from sharp edge, scratches, nicks, & burs etc. Enclosure should conform to all protection requirements.
12	L.C.D. meter		To measure and monitor input voltage, output voltage, output load level in %, DC voltage, input /output frequency
13	Indications		(i) Mains on (ii) Load on Battery (iii) Inverter (iv) Load level (v) Inverter over load
14	Audible Alarm		(i) Over Temperature (ii) Main failure (iii) Battery low (iv) Inverter Overload

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S.N.	PARAMETERS	SPECIFICATIONS
15	Switches	(i) Main ON/OFF MCB (ii) Battery ON/OFF MCB (iii) Inverter push button with reset or UPS ON/OFF button available in front panel.
16	Output Connection	O/P Terminals of standard quality should be provided.
17	Isolation Transformer (Optional)	Compatible Galvanic Isolation Transformer shall be provided.
18	Static & Manual Bypass	Shall be provided
19	Certifications	(i) As per MeitY (Government of India) Guidelines, UPS Shall have valid IS16242-Part 1 CRS Certification. (ii) Certificate of Govt. Lab/ NABL/ILAC Accredited of UPS testing. (iii) ISO 9001:2008, ISO 14001: 2004, 18001:2007
20	Service Centre	OEM Service Center should be in India and Support available at local level of Indenting department
21	Warranty	(i) Minimum 3 years OEM repair or replace warranty including Battery (ii) Device should not be declared End of Life by OEM at the time of purchase
22	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorised dealers with OEM Manufacturer Authorization only to bid, MAF to be submitted

#### 7.4 TECHNICAL SPECIFICATIONS OF ON-LINE – 5 KVA UPS SYSTEMS

S.N.	PARAMETERS	SPECIFICATIONS
1	Capacity	5 KVA (Single Phase input & Single-Phase output)
	Battery Backup	60 Minutes at full load
	General	
	Inverter Technology	Pulse Width Modulation (PWM) using IGBTs, double conversion.
	Total Harmonic Distortion (THD)	< 3% for 100% linear load < 5% for 100% non-linear load
2	Voltage	
	Operating Temperature	0°- 40° C
	Crest Factor	Not less than 3:1 on full non-linear load
	Humidity	Up to 95% non-condensing
	Output Wave Form	Pure Sine wave
	Cold Start facility	Required
	Cooling	Air cooled
	Audible Noise	< 60 db
	Input	
		AC Single Phase
3	Voltage Range	160 V AC to 270 V AC
	Frequency Range	50 ± 6% Hz
	Input Power Factor	0.95 or better at full output load leading to Unity with active power factor correction (APFC)
	Distortion (Current)	Less than 10%

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S.N.	PARAMETERS	SPECIFICATIONS
	D/G set Compatibility	Required
4	<b>Output</b>	
	Voltage	230V AC $\pm 1\%$ , single phase
	Regulation (Steady State)	Less than $\pm 2\%$ at No load to full load
	Frequency	(c) 50 Hz $\pm 0.5\%$
5	<b>Efficiency</b>	
	Overall Efficiency	90 % or better on rated full load at 0.9 PF & 230V, 50Hz AC output
	Inverter Efficiency	92% or better on rated full load at 0.90 PF & 230V, 50Hz AC output
6	<b>Overload Capacity</b>	110% for 2 min. & 125% overload for 30sec.
7	<b>Load Power Factor</b>	0.90 lagging to unity
8	<b>Transient Response Time</b>	For 100% load change, output must remain within $\pm 1\%$ and recovery within 20 ms.
9	<b>Protection</b>	Required for: (i) Surge protection (ii) Short Circuits (iii) Over Loading (iv) Over Temperature (v) Input low/ high voltage control
10	<b>Battery Bank Details</b>	
	Battery Type	Sealed Maintenance Free (VRLA)
	Battery Features	Reputed brand, manufactured in India & complying to JIS C 8702 test.
	Battery recharge time (after complete discharge to 90% charge) & charge rating	Battery recharge time to 90% charge after 100% DoD should be within 8-10 hours and charger should be capable to charge battery on C20 rating.
	Battery Cut off voltage during backup	Not less than 10.5V
11	<b>Battery Capacity</b>	
	Capacity of UPS	Max. VAh
		Battery Bank VAh for Back-up Time
		60 minutes
	5 KVA	>8000 VAh
	UPS & Battery Housing	Powder coated UPS cabinet and battery rack made of good quality material and should be free from sharp edge, scratches, nicks, & burs etc. Enclosure should conform to all protection requirements.
12	L.C.D. meter	To measure and monitor input voltage, output voltage, output load level in %, DC voltage, input /output frequency
13	Indications	(i) Mains on (ii) Load on Battery (iii) Inverter (iv) Load level (v) Inverter over load
14	Audible Alarm	(i) Over Temperature (ii) Main failure (iii) Battery low (iv) Inverter Overload

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S.N.	PARAMETERS	SPECIFICATIONS
15	Switches	(i) Main ON/OFF MCB (ii) Battery ON/OFF MCB (iii) Inverter push button with reset or UPS ON/OFF button available in front panel.
16	Output Connection	O/P Terminals of standard quality should be provided.
17	Isolation Transformer (Optional)	Compatible Galvanic Isolation Transformer shall be provided.
18	Static & Manual Bypass	Shall be provided
19	Certifications	(i) As per MeitY (Government of India) Guidelines, UPS Shall have valid IS16242-Part 1 CRS Certification. (ii) Certificate of Govt. Lab/ NABL/ILAC Accredited of UPS testing. (iii) ISO 9001:2008, ISO 14001: 2004, 18001:2007.
20	Service Centre	OEM Service Center should be in India and Support available at local level of Indenting department
21	Warranty	(i) Minimum 3 years OEM repair or replace warranty including Battery (ii) Device should not be declared End of Life by OEM at the time of purchase
22	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorised dealers with OEM Manufacturer Authorization only to bid, MAF to be submitted

#### 7.5 TECHNICAL SPECIFICATIONS OF ON-LINE – 10 KVA UPS SYSTEMS

S.N.	PARAMETERS	SPECIFICATIONS
1	Capacity	10 KVA (Single Phase input & Single-Phase output)
	Battery Backup	60 Minutes at full load
	General	
	Inverter Technology	Pulse Width Modulation (PWM) using IGBTs, double conversion.
	Total Harmonic Distortion (THD)Voltage	< 3% for 100% linear load < 5% for 100% non-linear load
2	Operating Temperature	0°- 40° C
	Crest Factor	Not less than 3:1 on full non-linear load
	Humidity	Up to 95% non-condensing
	Output Wave Form	Pure Sine wave
	Cold Start facility	Required
	Cooling	Air cooled
	Audible Noise	< 60 db
	Input	
		AC Single Phase
	Voltage Range	160 V AC to 270 V AC
3	Frequency Range	50 ± 6% Hz
	Input Power Factor	0.95 or better at full output load leading to Unity with active power factor correction (APFC)
	Distortion (Current)	Less than 10%
	D/G set Compatibility	Required

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S.N.	PARAMETERS		SPECIFICATIONS
4	Output		
	Voltage		230V AC $\pm 1\%$ , single phase
	Regulation (Steady State)		Less than $\pm 2\%$ at No load to full load
	Frequency		(d) 50 Hz + 0.5 %
5	Efficiency		
	Overall Efficiency		90 % or better on rated full load at 0.9 PF & 230V, 50Hz AC output
	Inverter Efficiency		92% or better on rated full load at 0.90 PF & 230V, 50Hz AC output
6	Overload Capacity		110% for 2 min. & 125% overload for 30sec.
7	Load Power Factor		0.90 lagging to unity
8	Transient Response Time		For 100% load change, output must remain within $\pm 1\%$ and recovery within 20 ms.
9	Protection		Required for: (i) Surge protection (ii) Short Circuits (iii) Over Loading (iv) Over Temperature (v) Input low/ high voltage control
10	Battery Bank Details		
	Battery Type		Sealed Maintenance Free (VRLA)
	Battery Features		Reputed brand, manufactured in India & complying to JIS C 8702 test.
	Battery recharge time (after complete discharge to 90% charge) & charge rating		Battery recharge time to 90% charge after 100% DoD should be within 8-10 hours and charger should be capable to charge battery on C20 rating.
	Battery Cut off voltage during backup		Not less than 10.5V
11	Battery Capacity		
	Capacity of UPS	Max. VAh	Battery Bank VAh for Back-up Time
			60 minutes
	10 KVA		>16000 VAh
	UPS & Battery Housing		Powder coated UPS cabinet and battery rack made of good quality material and should be free from sharp edge, scratches, nicks, & burs etc. Enclosure should conform to all protection requirements.
12	L.C.D. meter		To measure and monitor input voltage, output voltage, output load level in %, DC voltage, input /output frequency
13	Indications		(i) Mains on (ii) Load on Battery (iii) Inverter (iv) Load level (v) Inverter over load



S.N.	PARAMETERS	SPECIFICATIONS
14	Audible Alarm	(i) Over Temperature (ii) Main failure (iii) Battery low (iv) Inverter Overload
15	Switches	(i) Main ON/OFF MCB (ii) Battery ON/OFF MCB (iii) Inverter push button with reset or UPS ON/OFF button available in front panel.
16	Output Connection	O/P Terminals of standard quality should be provided.
17	Isolation Transformer (Optional)	Compatible Galvanic Isolation Transformer shall be provided.
18	Static & Manual Bypass	Shall be provided
19	Certifications	(i) As per MeitY (Government of India) Guidelines, UPS Shall have valid IS16242-Part 1 CRS Certification. (ii) Certificate of Govt. Lab/ NABL/ILAC Accredited of UPS testing. (iii) ISO 9001:2008, ISO 14001: 2004, 18001:2007
20	Service Centre	OEM Service Center should be in India and Support available at local level of Indenting department
21	Warranty	(i) Minimum 3 years OEM repair or replace warranty including Battery (ii) Device should not be declared End of Life by OEM at the time of purchase
22	Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorised dealers with OEM Manufacturer Authorization only to bid, MAF to be submitted

#### 7.6 Technical Specification of Line Interactive UPS systems

Parameter	Detailed Description
Capacity	600 VA
Backup Time	10 min
Technology	PWM using MOSFET / IGBT
<b>A. MAINS MODE</b>	
<b>1. AC INPUT</b>	
1. Voltage	160 to 270 Volts
2. Frequency	50 Hz $\pm$ 3 Hz
<b>2. AC OUTPUT</b>	
1. Voltage	230 $\pm$ 5% (With AVR)_
2. Frequency	Sync with input voltage frequency
<b>B. INVERTER MODE (Output)</b>	
1. Voltage	230 volts + 2% during all condition in inverter mode like Full load to no load, backup period etc.
2. Frequency	50 Hz $\pm$ 0.5 Hz
3. Load Power Factor	0.70 (Lag)
4. Output Load	420W at 0.70 lagging load
5. Wave Form	Sine wave

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Parameter	Detailed Description
6. Inverter Efficiency	$\geq 70\%$ (on full rated capacity of UPS at 0.70 load PF)
7. Total Harmonic Distortion	$\leq 10\%$
8. Battery Charger Capacity	Should be minimum 10% (C20 rating) of battery AH capacity
9. DC Bus Voltage	$\geq 12\text{ V}$
<b>Battery Bank</b>	
1. BATTERY (SMF)	Any National reputed brand complying with JIS C8702.
2. Minimum Battery VAH	Minimum 160VAh
3. Battery End Cell Voltage	$\geq 10.5\text{V}$ (None of the Battery should discharge below 10.5V)
4. Recharge Time	Less than 10 hours
<b>Other Parameters</b>	
5. Battery Cabinet	Inbuilt / separate cabinet matching to the UPS cabinet. In case of separate battery cabinet, the cabinet should be free from sharp edges, scratches, nicks & burns etc. The battery cabinet must have lockable caster wheels.
6. UPS Cabinet	UPS cabinet should of minimum 1mm thick material and should be free from sharp edge, scratches, nicks & burns etc.
<b>PROTECTIONS</b>	
1. Short Circuit	Electronic current limit in inverter mode & Fuse/MCB in mains mode.
2. Surge/Spikes	Through Line Filters
3. Voltage Protection	Under and Over Voltage
4. Overload	Yes ,110% for 2 minutes
ALARMS	1. Inverter Mode, 2. Fault Condition, 3. Low Battery at least 2 minutes before the system trips
AC Output SOCKETS	Minimum 3 Nos. (230V/5A ISI mark) sockets / IEC socket with cable.
Display	Load, Overload and battery indicators
Certifications	As per MeitY (Government of India) Guidelines, UPS Shall have valid IS16242-Part 1 CRS Certification. Certificate of Govt. Lab/ NABL/ILAC Accredited of UPS testing.
Service Centre	OEM Service Center should be in India and Support available at local level of Indenting department
Warranty	(i) Minimum 3 years OEM repair or replace warranty including Battery (ii) Device should not be declared End of Life by OEM at the time of purchase
Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorised dealers with OEM Manufacturer Authorization only to bid, MAF to be submitted

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## 7.7 Technical Specification of Line Interactive UPS systems

Parameter	Detailed Description
Capacity	650 VA
Backup Time	10 min
Technology	PWM using MOSFET / IGBT
<b>A. MAINS MODE</b>	
<b>1. AC INPUT</b>	
1. Voltage	160 to 270 Volts
2. Frequency	50 Hz $\pm$ 3 Hz
<b>2. AC OUTPUT</b>	
1. Voltage	230 $\pm$ 5% (With AVR)
2. Frequency	Sync with input voltage frequency
<b>B. INVERTER MODE (Output)</b>	
1. Voltage	230 volts + 2% during all condition in inverter mode like Full load to no load, backup period etc.
2. Frequency	50 Hz $\pm$ 0.5 Hz
3. Load Power Factor	0.70 (Lag)
4. Output Load	455W at 0.70 lagging load
5. Wave Form	Sine wave
6. Inverter Efficiency	$\geq$ 70 % (on full rated capacity of UPS at 0.70 load PF)
7. Total Harmonic Distortion	$\leq$ 10%
8. Battery Charger Capacity	Should be minimum 10% (C20 rating) of battery AH capacity
9. DC Bus Voltage	$\geq$ 12 V
<b>Battery Bank</b>	
1. BATTERY (SMF)	Any National reputed brand complying with JIS C8702.
2. Minimum Battery VAH	Minimum 174VAh
3. Battery End Cell Voltage	$\geq$ 10.5V (None of the Battery should discharge below 10.5V)
4. Recharge Time	Less than 10 hours
<b>Other Parameters</b>	
5. Battery Cabinet	Inbuilt / separate cabinet matching to the UPS cabinet. In case of separate battery cabinet, the cabinet should be free from sharp edges, scratches, nicks & burns etc. The battery cabinet must have lockable caster wheels.
6. UPS Cabinet	UPS cabinet should of minimum 1mm thick material and should be free from sharp edge, scratches, nicks & burns etc.
<b>PROTECTIONS</b>	
1. Short Circuit	Electronic current limit in inverter mode & Fuse/MCB in mains mode.
2. Surge/Spikes	Through Line Filters
3. Voltage Protection	Under and Over Voltage

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Parameter	Detailed Description
4. Overload	Yes, 110% for 2 minutes
ALARMS	1. Inverter Mode, 2. Fault Condition, 3. Low Battery at least 2 minutes before the system trips
AC Output SOCKETS	Minimum 3 Nos. (230V/5A ISI mark) sockets / IEC socket with cable.
Certifications	As per MeitY (Government of India) Guidelines, UPS Shall have valid IS16242-Part 1 CRS Certification. Certificate of Govt. Lab/ NABL/ILAC Accredited of UPS testing.
Service Centre	OEM Service Center should be in India and Support available at local level of Indenting department
Warranty	(i) Minimum 3 years OEM repair or replace warranty including Battery (ii) Device should not be declared End of Life by OEM at the time of purchase
Original Equipment Manufacturer (OEM) Product	OEM Manufacturer or its authorised dealers with OEM Manufacturer Authorization only to bid, MAF to be submitted

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