

	Items	Specifications
1	Laptop Core i7	<p>           Generation : 12th Generation or Updated            Processor Type : Intel Core i7            Processor : (10 Cores - 12 Threads)            Processor Speed:1.30 GHz up to 4.40 GHz Turbo (12.0 MB Cache)            Installed RAM: 08 GB            Type of memory: 8 GB DDR4-3200 MHz RAM (2 x 4 GB)            Hard drive size: 512 GB PCIe® NVMe™ M.2 SSD            Type of optical drive: SSD 512 GB SSD            Type of harddrive: 512 GB PCIe® NVMe™ M.2 SSD            Dedicated graphics: No            Graphics memory: Intel Iris Xe Graphics            Type of graphics memory: Shared            Switchable graphics: No            Graphics processor: Intel® Integrated SoC            Backlight LED            Screen size: 15.6" Full HD 1080p Micro-edge, Anti-glare 250nits Display            Screen surface: 15.6" Full HD 1080p Micro-edge, Anti-glare 250nits Display            Screen resolution: 1920x1080            Weight:1.69 kg            Bluetooth : Bluetooth 4.2 Combo            LAN: Yes            Wireless/Wifi: Yes            Type: Realtek RTL8821CE-M 802.11a/b/g/n/ac (1x1) Wi-Fi            Condition: New            USB: 1 Super Speed USB Type-C® 5Gbps signaling rate; 2 Super Speed USB Type-A 5Gbps signaling rate            HDMI: 1 HDMI v1.4b            Camera HP True Vision 720p HD camera with temporal noise reduction and integrated dual array digital microphones            Operating system (Primary)            Genuine Windows 11 Home         </p>
2	Laptop Core i5	<p>           Generation : 12th Generation or Updated            Processor Type : Intel Core i5            Processor : (10 Cores - 12 Threads)            Processor Speed:1.30 GHz up to 4.40 GHz Turbo (12.0 MB Cache)            Installed RAM: 08 GB            Type of memory: 8 GB DDR4-3200 MHz RAM (2 x 4 GB)            Hard drive size: 512 GB PCIe® NVMe™ M.2 SSD            Type of optical drive: SSD 512 GB SSD            Type of harddrive: 512 GB PCIe® NVMe™ M.2 SSD            Dedicated graphics: No            Graphics memory: Intel Iris Xe Graphics            Type of graphics memory: Shared         </p>

		<p>Switchable graphics: No  Graphics processor: Intel® Integrated SoC  Backlight LED  Screen size: 15.6" Full HD 1080p Micro-edge, Anti-glare 250nits Display  Screen surface: 15.6" Full HD 1080p Micro-edge, Anti-glare 250nits Display  Screen resolution: 1920x1080  Weight:1.69 kg  Bluetooth : Bluetooth 4.2 Combo  LAN: Yes  Wireless/Wifi: Yes  Type: Realtek RTL8821CE-M 802.11a/b/g/n/ac (1x1) Wi-Fi  Condition: New  USB: 1 Super Speed USB Type-C® 5Gbps signaling rate; 2 Super Speed USB Type-A 5Gbps signaling rate  HDMI: 1 HDMI v1.4b  Camera HP True Vision 720p HD camera with temporal noise reduction and integrated dual array digital microphones  Operating system (Primary)  Genuine Windows 11 Home</p>
3	Laptop Core i3	<p>Generation : 12th Generation or Updated  Processor Type : Intel Core i3  Processor : (10 Cores - 12 Threads)  Processor Speed:1.30 GHz up to 4.40 GHz Turbo (12.0 MB Cache)  Installed RAM: 08 GB  Type of memory: 8 GB DDR4-3200 MHz RAM (2 x 4 GB)  Hard drive size: 512 GB PCIe® NVMe™ M.2 SSD  Type of optical drive: SSD 512 GB SSD  Type of harddrive: 512 GB PCIe® NVMe™ M.2 SSD  Dedicated graphics: No  Graphics memory: Intel Iris Xe Graphics  Type of graphics memory: Shared  Switchable graphics: No  Graphics processor: Intel® Integrated SoC  Backlight LED  Screen size: 15.6" Full HD 1080p Micro-edge, Anti-glare 250nits Display  Screen surface: 15.6" Full HD 1080p Micro-edge, Anti-glare 250nits Display  Screen resolution: 1920x1080  Weight:1.69 kg  Bluetooth : Bluetooth 4.2 Combo  LAN: Yes  Wireless/Wifi: Yes  Type: Realtek RTL8821CE-M 802.11a/b/g/n/ac (1x1) Wi-Fi  Condition: New  USB: 1 Super Speed USB Type-C® 5Gbps signaling rate; 2 Super Speed USB Type-A 5Gbps signaling rate  HDMI: 1 HDMI v1.4b  Camera HP True Vision 720p HD camera with temporal noise reduction and integrated dual array digital microphones</p>

		Operating system (Primary) Genuine Windows 11 Home
4	Computer Set Intel core i7	Complete Set Processor Type Intel core i7, 12th Gen or updated RAM size 8GB Hard drive size 256 GB SSD Processor Speed 3.6 GHz Max Turbo Frequency 4.2 GHz Processor Bits 64 Processor Threads 4 No of Cores Quad-Core L2 cache L3 cache 8MB RAM size 8GB RAID controllers SSD Memory card reader Yes Dedicated GRAPHICS CARD Graphics processor Screen 19" / 24" HP/Dell or equivalent Keyboard & Mouse Branded. Genuine Windows 10
5	Computer Set Intel Core i5	Complete Set Processor Type Intel core i5 12th Gen or updated RAM size 4GB Hard drive size 256 GB SSD PROCESSOR Processor Speed 3.6 GHz Max Turbo Frequency 4.2 GHz Processor Bits 64 Processor Threads 4 No of Cores Quad-Core L2 cache L3 cache 8MB MEMORY RAM size 8GB RAID controllers SSD Memory card reader Yes Dedicated GRAPHICS CARD Graphics processor Screen 19" / 24" HP/Dell or equivalent Keyboard & Mouse Branded. Genuine Windows 10
6	Computer Set Intel	Complete Set Processor Type Intel core i3

	Core i3	<p>12th Gen or updated  RAM size 4GB  Hard drive size 256 GB SSD  PROCESSOR  Processor Speed 3.6 GHz  Max Turbo Frequency 4.2 GHz  Processor Bits 64  Processor Threads 4  No of Cores Quad-Core  L2 cache  L3 cache 8MB  MEMORY  RAM size 8GB  RAID controllers  SSD  Memory card reader Yes  Dedicated GRAPHICS CARD  Screen 19" / 24" HP/Dell or equivalent  Keyboard &amp; Mouse Branded.  Genuine Windows 10</p>
7	Laptop trolley for wards	<p>Height adjustable working area is comfortable for sitting or standing users  Pull-out keyboard storage  Cables can go through the arm  This model is fitted with wheels for easy movement and 4pcs with lock while working.  Help to improve workflow efficiency and upgrade patient care  Install a single LCD arm to have the monitor in a better viewing position. Monitor can be tilted and swiveled.  Meets with VESA standard 75/100mm.  Weight capacity including monitor: 2-7kgs.</p>
8	Ultra Flat Wall Mount Computer Station	<p>LARGE MONITOR MOUNT: VESA 75x75mm/100x100mm compatible heavy-duty monitor arm for a single large 32" or 43"  Full motion articulation &amp; matte black finish  WIDE RANGE OF MOTION: Articulating ergonomic monitor arm increases comfort &amp; productivity w/ +/-90 tilt, +/-90 swivel, 90 rotating screen (landscape/portrait), &amp; 360 rotating computer monitor arm  EASY INSTALLATION: C-clamp or grommet mount by hand to a desk (10 mm to 80 mm); detachable VESA plate w/ quick release clip makes mounting displays easy; tools incl. to adjust articulation tension  SMALL FOOTPRINT: Aluminum desk mount monitor arm w/ space-saving design enhances the work area &amp; cable management channels keep cables organized &amp; hold incl. tool for articulation tension adjustment.</p>
9	Splicing Machine	<p>Splicing Machine  Applicable Fibers :SM(ITU-T G.652&amp;G.657) / MM(ITU-T G.651) / DS(ITU-T G.653) / NZDS(ITU-T G.655)  Compatible Fiber / Cable :0.25~3.0 mm / Indoor Cable  Cleaved Length Diameter: 0.125~1 mm / Cleave Length: 8~16 mm</p>

		<p>Splicing Mode :Preset 7 modes / Max 128 modes  Typical Splice Loss SM: 0.02dB / MM:0.01dB / DS:0.04dB / NZDS: 0.04dB / G.657: 0.02dB(ITU-T Standard)  Return Loss :&gt;&gt;60dB  Splicing Time Auto mode : 9 sec / Quick mode : 7 sec  Estimated Splice Loss :Available  Protection Sleeve Length: 20~60 mm  Heating Time Typical heating time: 35 sec  Results Storage :The last 2000 results  Tension Test :1.96~2.25N  Operating Condition Operating Altitude: 0~5000m above sea level, 0~95% relative humidity, -10~50°C, Max Wind 15m/s  Storage Condition : 0~95% relative humidity, -40~80°C  Display: 90° bi-directional view, 5.0” Color High Resolution Display  Fiber View &amp; Magnification :X, Y, XY, X/Y : 520X Magnification  Power Supply :AC Input 100-240V, DC Input 9-14V  No. of Splice / Heating with Battery :4200mAh Battery Capacity, Typical 170 times (Splice+Heat)  Operating Methods :Button / Touch screen  Automatic Calibration : Automatic arc calibration by air pressure and temperature  Electrode Life : 3500 arcs, can be extended by using an electrode grinder  Terminal USB : 2.0 / MINI USB / HDMI</p> <ul style="list-style-type: none"> <li>• 1. Core alignment splicing (DACAS Digital Analysis Core Alignment System)</li> <li>• 2. The highest 520X magnification and resolution</li> <li>• 3. 5" Color LCD touch screen</li> <li>• 4. Double tapping (zoom in &amp; out)</li> <li>• 5. Detachable SOC holder and heating oven for splice-on connectors</li> <li>• 6. 3 Bright LEDs for dark environments</li> <li>• 7. Ceramic clamp for improved durability</li> <li>• 8. Easy to replace electrodes</li> <li>• 9. Mirrorless design for easy maintenance</li> </ul>
10	128 Gb SSD	<p>Branded Original SSD 128GB Solid State Drive  Capacity 128 Gb SSD  SATA II - Maximum bandwidth of 3Gb/s or 384 MB per second.  SATA III - Maximum bandwidth of 6Gb/s or 768 MB per second.  PCI-E Gen 3 - Maximum bandwidth of 8GT/s or 8 GB per second.  M.1 drives,  Max read speed: 500 mb/s. Max write speed: 400mb/s.</p>
11	256 Gb SSD	<p>Branded Original SSD 256GB Solid State Drive  Capacity 256 Gb SSD  SATA II - Maximum bandwidth of 3Gb/s or 384 MB per second.  SATA III - Maximum bandwidth of 6Gb/s or 768 MB per second.  PCI-E Gen 3 - Maximum bandwidth of 8GT/s or 8 GB per second.</p>

		M.1 drives, Max read speed: 500 mb/s. Max write speed: 400mb/s.
12	500 Gb SSD	Branded Original SSD 500GB Solid State Drive Capacity 500 Gb SSD SATA II - Maximum bandwidth of 3Gb/s or 384 MB per second. SATA III - Maximum bandwidth of 6Gb/s or 768 MB per second. PCI-E Gen 3 - Maximum bandwidth of 8GT/s or 8 GB per second. M.1 drives, Max read speed: 500 mb/s. Max write speed: 400mb/s.
13	1 TB SSD	Branded Original SSD 1TB Solid State Drive Capacity 1Tb SSD SATA II - Maximum bandwidth of 3Gb/s or 384 MB per second. SATA III - Maximum bandwidth of 6Gb/s or 768 MB per second. PCI-E Gen 3 - Maximum bandwidth of 8GT/s or 8 GB per second. M.1 drives, Max read speed: 500 mb/s. Max write speed: 400mb/s.
14	2TB External HDD	Portable SSD 2TB USB 3.2 Gen 2, USB-C 2 TB Interface USB 3.2 Gen 2 Connector USB-C
15	16GB Server Ram DDR3 / DDR4	Max Speed: 1333MT/s (1600MT/s will clock down) Compatible with Dell Power Edge R710/R730/R740/R440/T440
16	32GB Server Ram DDR4	Max Speed: 1333MT/s (1600MT/s will clock down) Compatible with Dell Power Edge R710/R730/R740/R440/T440
17	64GB Server Ram DDR4	Max Speed: 1333MT/s (1600MT/s will clock down) Compatible with Dell Power Edge R710/R730/R740/R440/T440
18	128GB Server Ram DDR4	Max Speed: 1333MT/s (1600MT/s will clock down) Compatible with Dell Power Edge R710/R730/R740/R440/T440
19	Dell Power Edge	Dell Power Edge R710 Intel Xeon 5600 Series Processors (CPUs) Xeon L5640 2.27 GHz

	R710 Intel Xeon 5600 Series Processors (CPUs)	L3 cache 12 MB Core 6 Thread 12
20	Dell Power Edge r730 CPU	Dell Power Edge R730 Processor E5-2699 v4 2.2 GHz 55MB 22 cores
21	RAM (8 GB) DDR4	8GB DDR4 Ram Speed - DDR4-2666 Technology - DDR4 PC speed - PC4-21300
22	RAM (8GB)DDR 3	8GB DDR4 Ram DDR3 1333 MHz Technology - DDR4
23	Semis Cell	Semis Cell for PC
24	Mouse	Branded Mouse Optical sensor Blue/RED LED Technology Cable Length 1.2m Resolution 1,600 dpi Connectivity USB, wired System Requirements Windows® XP, Windows® Vista, Windows® 7, Windows® 8, Mac USB port
25	Mouse PAD	Smooth Cloth Surface; Easy Cleaning And Maintenance Non-Skid Base Securely Holds The Mouse Pad In Place Machine Washable.
26	Keyboard	Branded Keyboard <ul style="list-style-type: none"> <li>• Product Dimensions : 6 x 17 x 2 inches</li> <li>• Item Weight : 1.4 pounds</li> <li>• Shipping Weight : 1.4 pounds (View shipping rates and policies)</li> <li>• Manufacturer : Dell Computers</li> <li>• ASIN : B008C4JA66</li> <li>• Origin : Made in USA or Imported</li> <li>• Connectivity USB interface</li> <li>• Cable length 1.8 m (5.90 ft)</li> <li>• Switches Function lock switch</li> <li>• Access the special function keys without having to first press on the Fn key</li> <li>• On (Green)</li> <li>• Performs the action as depicted in the icon</li> <li>• Off (Red)</li> </ul>

		<ul style="list-style-type: none"> <li>• Hold the Fn key and the numeral function key to perform the action as depicted in the icon</li> <li>• Available USB port</li> <li>• Windows 7, Windows 8.x, and Windows 10</li> </ul>
27	Wireless Keyboard Plus Mouse	Branded Wireless Keyboard Plus Mouse Easily operation from 10 meter distance. Wireless frequency is 2402MHZ-2408MHZ.
28	Branded Power Cable	Branded Power Cable for Computer/Monitor with Fuse 3 pin Socket Sport 3 Pin Supply Voltage: 250V
29	VGA Cable	Branded VGA Cable Compatible with laptops, monitors & LCD Copper Cable
30	VGA Cable 15M	VGA Branded Cables 15M VGA to HDMI cable supports resolution up to 1920 x 1080 (60Hz).
31	VGA splitter	Cable Type DisplayPort; VGA Connector A DISPLAYPORT (MALE) Connector B (3) HD15 (FEMALE) Ports 5 Input 1 output 4
32	HDMI To VGA Cable Converter	Universal HDMI To VGA Cable Converter HDMI to VGA cable supports resolution up to 1920 x 1080 (60Hz).
33	DVD R/W	Best Quality DVD-R/W 4.7 GB
34	LAN CARD USB	USB LAN 3.0 To RJ45 Lan Network Ethernet Adapter
35	PCI LAN CARD	PCI Slot for LAN (Network) card 10/100/1000Mbps PCIe Adapter* 32-bit PCIe interface, saving the finite chassis space Wake-on-LAN, convenient to manage over LAN PCIe Gigabit Network Adapter
36	Gigabit PCI Express Network	IEEE 802.3, 802.3u, 802.3ab, 802.3x, 802.1q, 802.1p, CSMA/CD, TCP/IP 10/100/1000Mbps RJ45 port



	Adapter	
37	PRINTER DATA Cable	Branded Printer Cable Brand Ultra Spec Cables Connector Type USB 2.0 Cable Type USB Compatible Devices Scanner, Personal Computer, Printer Special Feature High Speed
38	HDMI Cable	HDMI 25 meter Cable Cable type Standard (Category 1) recourse 1080i or 720p bandwidth 4.95 Gb/s
39	HDMI to VGA Converter	HDMI to VGA Converter <b>Features:</b> Converts an HDMI digital signal to a VGA analog video Enjoy high-definition images on a VGA monitor, projector or other display device; supports 1080p analog video output Fully shielded to reduce EMI and other interference sources Gold-plated contacts for best performance Molded PVC boot and strain relief Micro-USB port if additional power is required <b>Specifications:</b> Standards and Certifications <ul style="list-style-type: none"> <li>• UL20276</li> <li>• HDMI 1.3</li> </ul>
40	HDMI to DVI Converter	INPUT 1 / 3  Cable Length (ft.) 6 Cable Length (m) 1.8 <b>PHYSICAL</b> Cable Jacket Rating VW-1 Cable Outer Diameter (OD) 5.5mm Color Black Material of Construction PVC Shipping Dimensions (hwd / cm) 1.27 x 17.78 x 22.86 Shipping Dimensions (hwd / in.) 0.50 x 7.00 x 9.00 Shipping Weight (kg) 0.13 Shipping Weight (lbs.) 0.28 Unit Packaging Type Polybag Wire Gauge (AWG) 30AWG <b>ENVIRONMENTAL</b> Operating Temperature Range 32 to 113°F (0 to 45°C) Storage Temperature Range 14 to 158°F (-10 to 70°C) Operating Humidity Range 10% to 85% RH, Non-Condensing Storage Humidity Range 5% to 90% RH, Non-Condensing <b>CONNECTIONS</b> Side A - Connector 1 HDMI (MALE)

		<p>Side B - Connector 1 DVI-D SINGLE LINK (MALE)  Connector Plating Gold  Contact Plating Gold  <b>FEATURES &amp; SPECIFICATIONS</b>  Max Supported Video Resolution 1920 x 1080 @60Hz (1080p)  HDMI Specification 1.3  HDCP Specification 1.3  Technology DVI; HDMI</p>
41	Zoom Conference Camera	<p>Zoom Conference Camera  Connectivity Technology USB  Flash Memory Type Micro SD  Color Black  Special Feature Lightweight, Low Light  Screen Size 2.2 Inches  Camcorder typeVideo Camera  Included Components Adapter, Device, Warranty Card, Instruction Manual, USB-C Cable  Video Capture Resolution 8K  Minimum Focal Length 28 Millim  Builtin MIC</p>
42	Laptop Adopter Power Cable phool cable	<p>Laptop Adapter/Charger Power Cable With Fuse  Voltage: 250V 10A  Length: 1.0M  Compatible for most 3-port power adapter</p>
43	05 Volt Adopters	<p>COMPATIBLE WITH: Devices Having 3.5mm/1.35mm OD/ID Connector Size.(Please confirm your device reuqire Connection size Outside - 3.5mm , Inside - 1.35mm Power Plug)  Input Voltage : AC 100-240V (Worldwide AC Input),  DC Output: 5V DC at 2A</p>
44	12 volt Adopters	<p><b>12 volt Adopters</b>  Input 100-240V AC  Output 12V 2A DC  Plug Standard : 2.1/5.5mm plug</p>
45	USB 32GB 3.0	<p><b>Branded USB 32GB 3.0</b>  USB 3.0 Flash memory  Capacity: 32GB USB</p>
46	TSC ME-240 Ribbon	<p>TSC ME-240 Ribbon</p>

47	Label Printer TSC-ME 240	Label for TSC ME-240 head and power board
48	LQ ribbons LQ 350/300	Epson LQ-350 Ribbon Cartridge for Epson LQ-350 and LQ 300 Dot Matrix Printers
49	External CD Rom	USB external DVD ROM with data and power cable box pack
50	Fargo HDP5000 Printer Ribbons	Fargo HDP5000 Printer Ribbons
51	Fargo HDP5000 Retransfer Film	Fargo HDP5000 Retransfer Film
52	Thermal Printer	Thermal Receipt Printer heavy duty Printing Method Direct Thermal Printing Speed 300mm/sec Interface USB & Ethernet ( 10M/100M ) & Serial 19200,None,8,1,TCP/IP Printing Paper 79.5±0.5mm×φ83mm Paper Adapter Output: DC 24V/2.5A Paper Width 79.5±0.5mm Resolution 576dots/line or 572dots/line Line Spacing 3.75mm(Use command modifies line spacing) Input Buffer 256k bytes
53	Heavy duty Printer	Heavy duty printer Interface SP 31_SFNN: USB 2.0, Ethernet 10 base-T/100 base-TX SP 31_SFNNw: USB 2.0, Ethernet 10 base-T/100 base-TX, Wireless LAN (IEEE 802.11b/g/n) Power source* 220 - 240V, 50/60Hz 120V, 60Hz Dimensions (W x D x H) 405 x 392 x 390mm

		<p>Weight 17.5Kg</p> <p>Operating System Windows XP®, Windows® Vista, Windows® 7, Windows® 8, Windows® Server 2003, Windows® Server 2008, Windows® Server 2012</p> <p>Duty 20,000 pages/month</p> <p>Continuous output speed 28 pages per minute</p> <p>First output speed less than 8 seconds</p> <p>Printer language PCL</p> <p>Print resolution 1,200 x 600dpi</p> <p>Duplex printing Auto</p> <p>Paper size Standard paper tray: A4, Letter, Half letter, B5 (ISO), A5, B6, A6, Executive, 16K, Legal, F, Foolscap, Folio</p> <p>Bypass tray: Min. 90mm x 140mm, Max. 216mm x 356mm</p> <p>Input capacity Standard paper tray: 250 sheets</p> <p>Bypass tray: 50 sheet</p> <p>Output capacity 50 sheets</p> <p>Paper weight 52-162g/m2 60-105g/m2 (Duplex)</p>
54	Dot matrix printer	<p>Dot matrix printer</p> <p>Printing Method 24 Pin Impact Dot Matrix.</p> <p>Speed Not less than 300 CPS at 10 CPI in draft quality not less than 200 CPS at 10 CPI in letter quality Bi-directional printing.</p> <p>Paper Width Up to 10.1 inches</p> <p>Printing Width 80 characters in 10 CPI pitch.</p> <p>Paper Feed Must be switch able between tractor feed and friction feed for continuous forms and for cut sheets.</p> <p>Character Set 96 standard ASCII and graphic characters.</p> <p>Quality Draft and letter quality.</p> <p>Build in Fonts In letter quality, Roman, Sans Serif, Courier and Prestige.</p> <p>Font Variation Pitch 10, 12, 15, 20 CPI Line spacing variable form 1/6 inch. Normal, Emphasized, Bold, Italics, Upright</p> <p>Normal, Underlined, superscript subscript.</p> <p>Control Panel Power on. On line, Font selection, Line Feed, Form feed, Load / Eject buttons, LCD display and LED indicators for power, line on and paper out.</p>

		<p>Buffer 64 KB or higher</p> <p>Ribbon Life 2 million characters for black ribbon</p> <p>Cables The parallel printer connector and USB cable. Power cord for plugging into a standard 230V / 50 Hz A.C.</p> <p>Power Supply: 230V / 50 Hz. A.C.</p> <p>Interface Parallel, USB</p>																						
55	Thermal label Printers	<table border="1"> <tr> <td><b>Resolution dpi</b></td> <td>203</td> </tr> <tr> <td><b>Print width in inch</b></td> <td>4</td> </tr> <tr> <td><b>Print width in mm</b></td> <td>104</td> </tr> <tr> <td><b>Print speed ips</b></td> <td>6</td> </tr> <tr> <td><b>Print speed mm</b></td> <td>152</td> </tr> <tr> <td><b>Thermo-Transfer</b></td> <td>Yes</td> </tr> <tr> <td><b>Direct Thermal</b></td> <td>Yes</td> </tr> <tr> <td><b>USB</b></td> <td>Yes</td> </tr> <tr> <td><b>RS-232</b></td> <td>Yes</td> </tr> <tr> <td><b>Display</b></td> <td>LCD</td> </tr> <tr> <td><b>Memory</b></td> <td>DRAM 8MB/FLASH 4MB</td> </tr> </table> <p>Print head pressure adjustment knobs</p> <p>450 meter ribbon capacity</p> <p>Available in 203 dpi and 300 dpi resolutions</p> <p>Fast label throughput</p> <p><b>Standard accessories:</b></p> <p>Windows labeling software CD,  USB cable, Power cord,  Ribbon rewind spindle paper core</p>	<b>Resolution dpi</b>	203	<b>Print width in inch</b>	4	<b>Print width in mm</b>	104	<b>Print speed ips</b>	6	<b>Print speed mm</b>	152	<b>Thermo-Transfer</b>	Yes	<b>Direct Thermal</b>	Yes	<b>USB</b>	Yes	<b>RS-232</b>	Yes	<b>Display</b>	LCD	<b>Memory</b>	DRAM 8MB/FLASH 4MB
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<b>Memory</b>	DRAM 8MB/FLASH 4MB																							
56	HP LaserJet scanner	HP LaserJet scanner 2500 Power board																						

	2500 Power board	
57	HP 3 in one Laser Jet Printer	<p>HP 3 in one Laser Jet Printer  Print, Copy, Scan, Fax  Upto 22ppm PrintSpeed  First Page out as fast as 7.6 Secs  Laser Print Technology  Wifi + LAN + USB  Ports: Hi-Speed USB 2.0 port; Built-in Fast Ethernet 10/100/1000 Base-TX network port; 802.11n 2.4/5GHz wireless; Fax port; Front Host USB  Wireless capability : Built-in 802.11 b/g/n; Authentication via WEP, WPA/WPA2, or 802.1X; Encryption via AES or TKIP; WPS; Wi-Fi Direct  Storage device and direct print support :USB Printing; Front-facing USB/Flash drive  Copier settings :Number of copies; Reduce/Enlarge; Lighter/Darker; Optimize; Paper; Multi-page copy; Collation; Draft Mode; Image Adjustment; Set as New Defaults; Restore Defaults  Maximum number of copies :Up to 99 copies  Copy reduce / enlarge settings :25 to 400%  Copy speed (color, normal) :Up to 21 cpm  Copy speed (black, normal) :Up to 21 cpm  Copy resolution :Up to 600 x 600 dpi</p> <p><b>Environmental</b>  Acoustic power emissions (active, printing) :6.4 B(A) (monochrome), Simplex; 6.3 B(A) (colour), Simplex; 6.3 B(A) (monochrome), Duplex; 6.3 B(A) (colour), Duplex  Recommended operating humidity range :30 to 70% RH  Non-Operating Humidity Range :0 to 95% RH  Recommended operating temperature range (Celsius) :15 to 27°C  Storage temperature range (Celsius):-20 to 40°C  Environmental specifications :Mercury Free</p> <p><b>Fax</b>  Fax available :Yes  Fax features :Auto redialing, delayed sending, fax forwarding, TAM interface, distinctive ring detection, cover page wizard (Software only), block fax, billing codes, poll receive, fax activity reports, dial prefix setting  Fax Resolution Black (best) :Up to 300 x 300 dpi  Fax memory :Up to 1300 pages  Telephone handset supported :Yes  Fax telephone mode supported :Yes  Modem :33.6 kbps  Fax Speed Dials, Maximum Number: Up to 120 numbers  Fax transmission speed (letter) :3 sec per page</p> <p><b>Memory</b>  Memory :256 MB DDR, 256 MB Flash  Maximum Memory :256 MB DDR, 256 MB Flash</p> <p><b>Mobile printing capability</b>  Mobile printing services :HP ePrint; Apple AirPrint™; Mobile Apps; Mopria™</p>

Certified; Wi-Fi® Direct Printing

**Networking**

Network protocols, supported :TCP/IP, IPv4, IPv6; Print: TCP-IP port 9100 Direct Mode, LPD (raw queue support only), WSD; Discovery: SLP, Bonjour, WS-Discovery; IP Config: IPv4 (BootP, DHCP, AutoIP, Manual), IPv6

**Paper handling**

Input capacity :1 sheet in Tray 1; Up to 250 sheets (25 mm stack height) in Tray 2

Output capacity :Up to 100 sheets (10 mm stack height)

Media sizes supported (metric) :Executive (184 x 267 mm); Oficio 8.5x13 (216 x 330 mm); 4 x 6 (102 x 152 mm); 5 x 8 (127 x 203 mm); A4 (210 x 299 mm); A5 (148 x 210 mm); A6 (105 x 148 mm); B5(JIS) (182 x 257 mm); B6(JIS) (128 x 182 mm); 10 x 15cm (100 x 150 mm); Oficio (216 x 340 mm); 16K (195 x 270 mm; 184 x 260 mm; 197 x 273mm); Postcard(JIS) (100 x 147 mm); Double Postcard(JIS) (147 x 200 mm); Envelope #10 (105 x 241 mm); Envelope Monarch (98 x 191 mm); Envelope B5 (176 x 250 mm); Envelope C5 (162 x 229 mm); Envelope DL (110 x 220 mm); A5-R (210 x 148 mm)

Media sizes, custom (metric) :76 x 127 to 216 x 356 mm

Media types :Paper (bond, brochure, coloured, glossy, heavy, letterhead, light, photo, plain, preprinted, prepunched, recycled, rough), transparencies, labels, envelopes, cardstock

Media weight supported (metric) :60 to 163 g/m<sup>2</sup> (Uncoated/Matte, recommended), however up to 175 g/m<sup>2</sup> Postcards and 200 g/m<sup>2</sup> HP Matte is allowed in the driver; 60 to 163 g/m<sup>2</sup> (Coated/Glossy, recommended), however up to 175 g/m<sup>2</sup> Postcards and 220 g/m<sup>2</sup> HP Glossy is allowed in the driver.

**Paper handling - ADF**

Automatic document feeder :capacity Standard, 50 sheets

Media size (ADF) :A4

Media weight supported, ADF (metric) :60 to 90 g/m<sup>2</sup>

Media type and capacity, ADF :Sheets: 50 (75 g/m<sup>2</sup> uncurled)

**Power**

Energy savings feature technology Auto-On/Auto-Off Technology; Instant-on Technology Power supply type

Internal (Built-in) power supply

Power supply 220 to 240 VAC (+/- 10%), 50 Hz (+/- 3 Hz), 60 Hz (+/- 3 Hz)

Power consumption 361 watts (active printing), 7.8 watts (ready), 0.8 watts (sleep), 0.05 watt (Manual-Off), 0.05 (Auto-off/Manual-on), 0.06 watt (Auto-Off/Wake on LAN)

**Printing specifications**

Print technolog :Laser

Duplex printing :Automatic (standard)

Print resolution:(best)Up to 600 x 600 dpi

Maximum print area :(metric)206 x 346 mm

Monthly duty cycle : Up to 40,000 pages

Print languagesHP PCL6; HP PCL5c; HP postscript level 3 emulation; PWG raster; PDF; PCLm; PCLm-S; NativeOffice; URF

Printer smart software features :6.8 cm (2.7 in) colour touchscreen, Automatic 2-sided printing, Wireless printing, Ethernet networking, Wireless direct printing, HP ePrint, Apple AirPrint™, Mopria-certified, Google Cloud Print, HP Auto-On/Auto-Off

		<p>technology, HP Smart App, Smart task shortcuts in HP Smart App, HP JetAdvantage Secure Print</p> <p><b>Scan</b></p> <p>Scanner advanced features: Scanning software; Scan-to-E-mail, network folder; 50 sheet Automatic Document Feeder (ADF) for unattended scanning of multiple pages; Automatic scan cropping; Scan to Google Drive/Drop box (PC); Scan to FTP(PC); Scan to Microsoft One Drive, Share Point (PC); Save as editable file (text, PDF)</p> <p>Scan technology :Contact Image Sensor (CIS)</p> <p>Scan speed (normal):Up to 26 ppm (black and white); 22 ppm (colour)</p> <p>Scan speed footnote:Scan speeds measured from ADF. Actual processing speeds may vary depending on scan resolution, network conditions, computer performance, and application software.</p> <p>Scan resolution, hardware:Up to 300 x 300 dpi (colour and monochrome ADF); Up to 1200 x 1200 dpi (Flatbed)</p> <p>Levels of grayscale 256</p> <p>Bit depth 8-bit (mono); 24-bit (color)</p> <p>Duplex ADF scanning No</p> <p>Maximum flatbed scan size (metric) 215.9 x 297 mm</p> <p>Minimum ADF scan size (metric) 102 x 152 mm</p> <p>Maximum ADF scan size (metric) 215.9 x 355.6 mm</p> <p>Twain version Version 1.9 (Legacy OS); Version 2.1 (Windows 7 or higher)</p>
58	HP 147 A Toner	<p>HP 147 A Black LaserJet Toner Cartridge</p> <p>Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results.</p> <p>Page yield (black and white): 2,500 pages</p>
59	HP 106 A TONNER	<p>HP 106 A Black LaserJet Toner Cartridge</p> <p>Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results.</p> <p>Page yield (black and white): 2,500 pages</p>
60	HP 80A Toner	<p>HP 80A Black LaserJet Toner Cartridge</p> <p>Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results.</p> <p>Page yield (black and white): 2,500 pages</p>
61	HP 107A tonner	<p>HP 107A Black LaserJet Toner Cartridge</p> <p>Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results.</p> <p>Page yield (black and white): 2,500 pages</p>
62	HP 37A tonner	<p>HP 37A Black LaserJet Toner Cartridge</p> <p>Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results.</p> <p>Page yield (black and white): 2,500 pages</p>
63	HP 76A tonner	<p>HP 76A Black LaserJet Toner Cartridge</p> <p>Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results.</p> <p>Page yield (black and white): 2,500 pages</p>
64	HP 105 A	<p>HP 105A Black LaserJet Toner Cartridge</p>



	tonner	Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
65	HP 05A tonner	HP 05A Black LaserJet Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
66	HP 85A Toner	HP 85A Black LaserJet Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
67	HP 17a tonner	HP 17a Black LaserJet Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
68	HP 19a Imaging Drum	HP 19A Original LaserJet Imaging Drum Imaging drums with JetIntelligence provide professional-quality results and are precisely tuned to match the powerful performance Page yield (black and white): 12,000 pages
69	HP 90A tonner	HP 90A Black LaserJet Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
70	HP M252 color printer Black, Cyan, Yellow, Magenta Toner	HP Color LaserJet Pro M252dw Printer Toner Cartridges  Colour: Black Colour: Cyan Colour: Yellow Colour: Magenta  Cartridge yield (approx): 2,800 pages HP Printer compatibility: HP Colour LaserJet Pro M252, M277
71	HP 49A Toner	HP 49A Black LaserJet Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
72	HP 53A Toner	HP 53A Black I LaserJet Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages

	HP 79A Black Compatible Toner Cartridge	HP 79A Black Compatible Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
73	HP 81A Toner	Compatible HP 81A Black Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
74	HP 83A Toner	Compatible HP 83A Black Toner Cartridge Cartridges comprise up to 70% of the total imaging system, ensuring consistent results. Specially formulated toner produces clear, sharp results. Page yield (black and white): 2,500 pages
75	Hp pro 400 Printer Fuser	HP LaserJet Pro 400 M401n Fuser full Unit Full Fuser Assembly
76	Hp 1320 Printer Fuser	HP LaserJet 1320 Fuser Unit Full Fuser Assembly
77	Hp 2015 Printer Fuser	HP LaserJet P2015 Fuser Unit Full Fuser Assembly
78	Hp 1102 Printer Fuser	LaserJet Pro P1102w Fuser / Delivery Unit Full Fuser Assembly
79	Printer Clutch for printers (all models)	Printer Clutch for printers (all models) 1320, 2015, 2055, 1102, M12a, pro 400, 102a
80	Pressure Roller printers (all models)	Pressure Roller printers (all models) 1320, 2015, 2055, 1102, M12a, pro 400, 102a
81	Heater printers (all models)	Heater printers (all models) 1320, 2015, 2055, 1102, M12a, pro 400, 102a
82	Formative Card (all models)p	Formative Card (all models)printers 1320, 2015, 2055, 1102, M12a, pro 400, 102a

	rinters	
83	Hp pro400 printer Paper picker	Hp pro400 printer Paper picker Upper and down page picker
84	Hp 1320 printer Paper picker	Hp 1320 printer Paper picker Upper and down page picker
85	Hp 1102 printer Paper picker	Hp 1102 printer Paper picker
86	HP 107 A Printer picker	HP 107 A Printer picker
87	HP LaserJet M611 paper Printer picker	HP LaserJet M611 paper Printer picker
88	HP LaserJet M611 Printer Fuser With maintenance Kit	HP LaserJet M611 Printer Fuser With maintenance Kit
89	HP 107 A Printer picker	HP 107 A Printer picker
90	HP LaserJet M611 paper Printer picker	HP LaserJet M611 paper Printer picker
91	Black copper Thermal Printes	Black copper Thermal Printer head 95Ac, 85Ac
92	Tsc me 240 Label	Tsc me 240 Label Sticker Printer Head Section

	Sticker Printer Head	
93	Black copper Thermal Printes	Black copper Thermal Printer head 95Ac, 85Ac
94	HP pro 400 printer heat sleeve	For HP LaserJet Pro 400 M401 M425 M401d M401dn M425dn M425dw Fuser Film Sleeves, For HP M401 M425 400 M 401 425 Fixing Film
95	HP 1102 printer heat sleeve	10X HP LaserJet P1102 P1606 M1536 M401 M425 P2035 P2055 1213NF Fuser Film Sleeve
96	Hp 1102 printer Fuser Roller	Compatible NEW for HP P1102W P1560 P1566 P1102 P1536 P1606dn Fuser Pressure Roller Lower sleeve roller LPR-1102-000 LPR-1102
97	Hp pro400 printer Fuser Roller	Pressure Roller Lower sleeve roll
98	Hp 1320 printer heat sleeve	FILM1320 Fuser Film Sleeve, OEM for HP LaserJet 1320
99	Magnet for tonner	Magnet for tonner
100	Hp Enterpris e M553 toners	Hp Enterprise M553 toners
101	Drums for HP pro400, 1320, 1102, 1109, M604 etc for tonners	Drums for HP pro400, 1320, 1102, 1109, M604 etc for tonners
102	Toner	Refill Toner powder 280A 80A 80X 280X 280 CF280X CF280A For HP Laserjet pro 400

	powder INK 80a ,85a	401 452 printer
103	Toner powder INK 17a	Refill Toner powder INK 17a
104	Printer	<p>Print speed black (ISO, A4) Up to 38 ppm (default) ; Up to 40 ppm (HP High Speed) 1</p> <p>First page out black (A4, ready) As fast as 6.3 sec 2</p> <p>Duplex printing Automatic (default)</p> <p>Duty cycle (monthly, letter) Up to 80,000 pages 3 (Duty cycle is defined as the maximum number of pages per month of imaged output. This value provides a comparison of product robustness in relation to other HP LaserJet or HP Color LaserJet devices, and enables appropriate deployment of printers and MFPs to satisfy the demands of connected individuals or groups.)</p> <p>Duty cycle (monthly, A4) Up to 80,000 pages 3 (Duty cycle is defined as the maximum number of pages per month of imaged output. This value provides a comparison of product robustness in relation to other HP LaserJet or HP Color LaserJet devices, and enables appropriate deployment of printers and MFPs to satisfy the demands of connected individuals or groups.)</p> <p>Recommended monthly page volume 750 to 4,000 4</p> <p>Print quality black (best) Fine Lines (1200 x 1200 dpi)</p> <p>Print languages HP PCL 6, HP postscript level 3 emulation, PDF, URF, PWG Raster</p> <p>Print technology Laser</p>

	<p>Connectivity, standard 1 Hi-Speed USB 2.0; 1 host USB at rear side; Gigabit Ethernet 10/100/1000BASE-T network; 802.3az(EEE)</p> <p>Network capabilities Built-in 10/100/1000Base-TX Ethernet, Gigabit; Auto-crossover Ethernet; Authentication via 802.1X</p> <p>Minimum System Requirements for Macintosh 2 GB available hard disk space, Internet connection or USB port.</p> <p>Minimum System Requirements 2 GB available hard disk space, Internet connection, USB port, Internet browser.</p> <p>Display 2-line backlit LCD graphic display</p> <p>Processor speed 1200 MHz</p> <p>Maximum Memory 256 MB</p> <p>Memory 256 MB</p> <p>Internal Storage None</p> <p>Storage Optional Job storage via external rear host USB port (Minimum 16 GB)</p> <p>Compatible Operating Systems Windows Client OS (32/64-bit), Win10, Win8.1, Win 8 Basic, Win8 Pro, Win8 Enterprise, Win8 Enterprise N, Win7 Starter Edition SP1, UPD Win7 Ultimate, Mobile OS, iOS, Android, Mac, Apple® macOS Sierra v10.12, Apple® macOS High Sierra v10.13, Apple® macOS Mojave v10.14, Discrete PCL6 Printer Driver, for more information on the supported operating systems go to <a href="http://www.support.hp.com">http://www.support.hp.com</a>,</p>
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enter your product name and search, click on User Guides and enter your product name and search for User Guide, search for your (Product Name) User Guide, search for the Supported Operating Systems section, UPD PCL6/PS Printer Drivers, Supported Operating systems, for more information on the supported operating systems see <http://www.hp.com/go/upd>

Paper handling input, standard  
100 sheet multipurpose Tray 1, 250 sheet input Tray 2

Paper handling output, standard  
150 sheet output bin

Paper handling input, optional  
Optional third 550 sheet tray

Finished output handling  
Sheetfed

Media types  
Paper (plain, EcoFFICIENT, light, heavy, bond, coloured, preprinted, prepunched, recycled, rough); Envelopes; Labels

Media sizes supported  
Tray 1, Tray 2: A4; A5; A6; B5 (JIS); B6 (JIS); 16K (195 x 270 mm, 184 x 260 mm, 197 x 273 mm); 10 x 15 cm; Oficio (216 x 340 mm); Postcards (JIS single, JIS double); Envelopes (DL, C5, B5); Optional Tray 3: A4; A5; A6; B5 (JIS); B6 (JIS); 16K (195 x 270 mm, 184 x 260 mm, 197 x 273 mm); 10 x 15 cm; Oficio (216 x 340 mm); Postcards (JIS single, JIS double); Automatic duplexer: A4; B5; 16K (195 x 270 mm, 184 x 260 mm; 197 x 273 mm); Oficio (216 x 340 mm)

Media sizes, custom  
Tray 1: 76 x 127 to 216 x 356 mm; Tray 2, optional Tray 3: 100 x 148 to 216 x 356 mm

Power consumption  
495 watts (Active Printing), 5.5 watts (Ready), 0.5 watts (Sleep), 0.5 watts (Auto Off/Wake on LAN, enabled at shipment), 0.05 watts (Auto Off/Manual On), 0.05 (Manual Off) 6

Power  
220-volt input voltage: 220 to 240 VAC (+/- 10%), 50/60 Hz (+/- 2 Hz)

		<p>Operating humidity range 10 to 80% RH</p> <p>Recommended operating humidity range 30 to 70% RH</p> <p>Operating temperature range 15 to 32.5°C</p> <p>Blue Angel compliant Yes, Blue Angel DE-UZ 219—only ensured when using Original HP supplies</p> <p>Typical electricity consumption (TEC) number Blue Angel: 1.10 kWh/Week; Energy Star 3.0: 0.371 kWh/Week 7 (Blue Angel TEC is equal to Best TEC. Power requirements are based on the country/region where the printer is sold. Do not convert operating voltages. This will damage the printer and void the product warranty. Energy Star value typically based on measurement of 115V device.)</p> <p>Energy savings feature technology HP Auto-On/Auto-Off Technology; Instant-on Technology</p> <p>Ecolabels ENERGY STAR® qualified; EPEAT® Silver; CECP 8</p> <p>Energy star certified Yes</p> <p>Safety IEC 60950-1:2005+A1:2009+A2:2013/EN 60950-1:2006+A11:2009+A1:2010+A12:2011+A2:2013; IEC 60825-1:2014/EN 60825-1:2014 (Class 1 Laser/LED Product); IEC 62479: 2010/EN 62479:2010</p> <p>Security management Secure Boot, Secure Firmware Integrity, Runtime Code Integrity, password protected EWS, secure browsing via SSL/TLS 1.0, TLS 1.1, TLS 1.2; IPP over TLS; Network: enable/disable network ports and features, unused protocol and service disablement, SNMPv1, SNMPv2, and SNMPv3, community password change; HP ePrint: HTTPS with certificate validation, HTTP Basic Access Authentication, SASL authentication; Firewall and ACL; Control panel lock, certificates configuration, UPD</p>
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		<p>PIN printing, Syslog, signed firmware, administrator settings, 802.1x authentication (EAP-TLS, and PEAP); Encrypted data storage; Secure data erase; Automatic firmware updates; Secure Encrypted Print via optional job storage, Compatible with optional HP JetAdvantage Security Manager</p> <p>Minimum dimensions (W x D x H) 381 x 357 x 216 mm 9 (Without trays and covers not extended)</p> <p>Maximum dimensions (W x D x H) 381 x 781 x 241 mm 9 (Without trays and covers not extended)</p> <p>Weight 8.56 kg</p> <p>What's in the box HP LaserJet Pro M404dn; Preinstalled HP 59A Black LaserJet Toner Cartridge (yield: 3,000 pages); Getting started guide; Support flyer; Warranty guide; Regulatory flyer; Power cord 10</p> <p>Number of print cartridges 1 (black)</p>
105	Multimedia Projector along with wall screen	<p><b>Type of display</b> Poly-silicon TFT active matrix <b>ResolutionBrightLink 480i:</b> 1024 × 768 pixels (XGA)</p> <p><b>BrightLink 475Wi/485Wi:</b> 1280 × 800 pixels (WXGA)</p> <p><b>LensF= 1.80</b></p> <p>Focal length: 3.71 mm</p> <p><b>Color reproduction</b>Full color, 16.77 million colors<b>BrightnessBrightLink 475Wi:</b></p> <p>Normal Power Consumption mode:</p> <p>White light output 2600 lumens (ISO 21118 standard)</p>

		<p>Color light output 2600 lumens</p> <p>ECO Power Consumption mode:</p> <p>White light output 1800 lumens (ISO 21118 standard)</p> <p><b>BrightLink 480i:</b></p> <p>Normal Power Consumption mode:</p> <p>White light output 3000 lumens (ISO 21118 standard)</p> <p>Color light output 3000 lumens</p> <p>ECO Power Consumption mode:</p> <p>White light output 1800 lumens (ISO 21118 standard)</p> <p><b>BrightLink 485Wi:</b></p> <p>Normal Power Consumption mode:</p> <p>White light output 3100 lumens (ISO 21118 standard)</p> <p>Color light output 3100 lumens</p> <p>ECO Power Consumption mode:</p> <p>White light output 1800 lumens (ISO 21118 standard)</p> <p><b>Contrast ratio</b></p> <p>3000 to 1 with Auto Iris on and Normal Power Consumption mode</p> <p><b>Image sizeBrightLink 480i:</b></p> <p>55.9 to 93.2 inches (1.42 to 2.37 m)</p> <p><b>BrightLink 475Wi/485Wi:</b></p> <p>60 to 100 inches (1.52 to 2.54 m)</p> <p><b>Projection distance</b>13.7 to 23.5 inches (0.35 to 0.60 m)<b>Projection methods</b>Front, wall or ceiling-mounted<b>Optical aspect ratio</b></p>
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		<p>(width-to-height)</p> <p><b>BrightLink 480i:</b></p> <p>4:3</p> <p><b>BrightLink 475Wi/485Wi:</b></p> <p>16:10</p> <p><b>Focus adjustment</b>Manual<b>Zoom adjustment</b>Digital<b>Zoom ratio</b></p> <p>(Tele-to-Wide)</p> <p>1:1.35<b>Internal sound system</b>16 W monaural<b>Noise level</b>35 dB (Normal Power Consumption mode)</p> <p>28 dB (ECO Power Consumption mode)</p> <p><b>Keystone correction angle</b>Vertical: <math>\pm 5^\circ</math></p> <p>Horizontal: <math>\pm 5^\circ</math></p> <p><b>USB-B port compatibility</b>USB 1.1 and 2.0 compliant for USB display or external mouse<b>USB-A port compatibility</b>One USB 1.1 and 2.0 compliant port for USB device input or EPSON document camera display</p>
106	Tape Cable 2 pin	Branded Tape Cable 2 pin
107	Electric Soldering Iron	Electric Soldering Iron
108	Heat gun	Heat Gun Machine Heavy Duty
109	DVD	Re writeable DVD's Best Quality
110	LED 4K Smart 60 inch	<p>ACCESSORIES</p> <p>Power Cable (Built In) Yes</p> <p>Batteries For Remote Yes</p> <p>User Manual Yes</p> <p>Base Stand Yes</p> <p>Wall Mount Bracket Yes</p>

	<p>SPDIF Output (Optical/Coaxial) 1 Optical</p> <p>Voice Search Remote Yes</p> <p>Audio</p> <p>Auto Volume Level Yes</p> <p>Dolby Audio 5.1 Surround Yes</p> <p>Audio Power Output 2 X 6W</p> <p>Connectivity</p> <p>USB Connectivity 2 (2.0) and 3.0</p> <p>HDMI &amp; ARC Yes/Yes</p> <p>Wifi :Yes</p> <p>Bluetooth Built-In Yes</p> <p>HDMI Input 2</p> <p>Dimension (W x D x H) mm</p> <p>TV With Stand 720.7 X 166.4 X 455.4</p> <p>TV Without Stand 720.7 X 84 X 420.7</p> <p>Display</p> <p>Screen Size 60</p> <p>LED Smart TV</p> <p>Resolution 1366 X 768 (HD Ready)</p> <p>POWER</p> <p>Energy Saving Yes</p> <p>Stand By Consumption 0.5 W WOW/ WOL&lt;1W</p> <p>Stand By &lt;0.5 W</p> <p>Power Supply AC 110-240V~ 50/60Hz</p> <p>TECHNICAL</p> <p>Frameless Yes</p> <p>CPU CA53 Quard Core-1.1GHz</p> <p>RAM 1 GB</p> <p>Preinstalled App</p> <p>Google Play /Netflix/ Youtube/ Prime Video/ Daily Play/I Casting</p> <p>AI System Google Assistant</p> <p>Channel Editor Yes</p> <p>Channel List Yes</p> <p>LAN 1</p> <p>Parent Control(Child Lock) Yes</p>
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		Smart Share Google Chromecast Speaker Type Bottom Dolby Digital Yes Video GPUMali-G52MC1 Real Color Engine Yes Reflecto-Con Yes Nature View Yes Image Refinery Yes Digital Comb Filter Yes Digital Noise Reduction Yes Auto Power Off Yes DynaCon Yes Digital Multimedia Controller Yes Wide Viewing Angle 178(CR>=10) Netflix Yes YouTube Yes NetRange Yes Open Browser Yes Facebook Watch Yes Twitter Yes EPG Yes DTV Tuner DVB-T2, For Cable DVB-C Mira CastYes Tele text Yes Wide Color Enhancer Yes OS Android 9.0 (Pie) or updated ROM 8 GB Built-In Apps With Google Play Yes DTV Tuner DVB-T2, For Cable DVB-C RF Input 1
111	LED 4K Smart 43	ACCESSORIES Power Cable (Built In) Yes

	inch	<p>Batteries For Remote Yes</p> <p>User Manual Yes</p> <p>Base Stand Yes</p> <p>Wall Mount Bracket Yes</p> <p>SPDIF Output (Optical/Coaxial) 1 Optical</p> <p>Voice Search Remote Yes</p> <p>Audio</p> <p>Auto Volume Level Yes</p> <p>Dolby Audio 5.1 Surround Yes</p> <p>Audio Power Output 2 X 6W</p> <p>Connectivity</p> <p>USB Connectivity 2 (2.0) and 3.0</p> <p>HDMI &amp; ARC Yes/Yes</p> <p>Wifi :Yes</p> <p>Bluetooth Built-In Yes</p> <p>HDMI Input 2</p> <p>Dimension (W x D x H) mm</p> <p>TV With Stand 720.7 X 166.4 X 455.4</p> <p>TV Without Stand 720.7 X 84 X 420.7</p> <p>Display</p> <p>Screen Size 43</p> <p>LED Smart TV</p> <p>Resolution 1366 X 768 (HD Ready)</p> <p>POWER</p> <p>Energy Saving Yes</p> <p>Stand By Consumption 0.5 W WOW/ WOL&lt;1W</p> <p>Stand By &lt;0.5 W</p> <p>Power Supply AC 110-240V~ 50/60Hz</p> <p>TECHNICAL</p> <p>Frameless Yes</p> <p>CPU CA53 Quard Core-1.1GHz</p> <p>RAM 1 GB</p> <p>Preinstalled App</p> <p>Google Play /Netflix/ Youtube/ Prime Video/ Daily Play/I Casting</p> <p>AI System Google Assistant</p>
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	<p>Channel Editor Yes</p> <p>Channel List Yes</p> <p>LAN 1</p> <p>Parent Control(Child Lock) Yes</p> <p>Smart Share Google Chromecast</p> <p>Speaker Type Bottom</p> <p>Dolby Digital Yes</p> <p>Video</p> <p>GPUMali-G52MC1</p> <p>Real Color Engine Yes</p> <p>Reflecto-Con Yes</p> <p>Nature View Yes</p> <p>Image Refinery Yes</p> <p>Digital Comb Filter Yes</p> <p>Digital Noise Reduction Yes</p> <p>Auto Power Off Yes</p> <p>DynaCon Yes</p> <p>Digital Multimedia Controller Yes</p> <p>Wide Viewing Angle 178(CR&gt;=10)</p> <p>Netflix Yes</p> <p>YouTube Yes</p> <p>NetRange Yes</p> <p>Open Browser Yes</p> <p>Facebook Watch Yes</p> <p>Twitter Yes</p> <p>EPG Yes</p> <p>DTV Tuner</p> <p>DVB-T2, For Cable DVB-C</p> <p>Mira CastYes</p> <p>Tele text Yes</p> <p>Wide Color Enhancer Yes</p> <p>OS Android 9.0 (Pie) or updated</p> <p>ROM 8 GB</p> <p>Built-In Apps With Google Play Yes</p> <p>DTV Tuner</p>
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		DVB-T2, For Cable DVB-C RF Input 1
112	LED 4K Smart 55 inch	<p>ACCESSORIES</p> <p>Power Cable (Built In) Yes</p> <p>Batteries For Remote Yes</p> <p>User Manual Yes</p> <p>Base Stand Yes</p> <p>Wall Mount Bracket Yes</p> <p>SPDIF Output (Optical/Coaxial) 1 Optical</p> <p>Voice Search Remote Yes</p> <p>Audio</p> <p>Auto Volume Level Yes</p> <p>Dolby Audio 5.1 Surround Yes</p> <p>Audio Power Output 2 X 6W</p> <p>Connectivity</p> <p>USB Connectivity 2 (2.0) and 3.0</p> <p>HDMI &amp; ARC Yes/Yes</p> <p>Wifi :Yes</p> <p>Bluetooth Built-In Yes</p> <p>HDMI Input 2</p> <p>Dimension (W x D x H) mm</p> <p>TV With Stand 720.7 X 166.4 X 455.4</p> <p>TV Without Stand 720.7 X 84 X 420.7</p> <p>Display</p> <p>Screen Size 55</p> <p>LED Smart TV</p> <p>Resolution 1366 X 768 (HD Ready)</p> <p>POWER</p> <p>Energy Saving Yes</p> <p>Stand By Consumption 0.5 W WOW/ WOL&lt;1W</p> <p>Stand By &lt;0.5 W</p> <p>Power Supply AC 110-240V~ 50/60Hz</p> <p>TECHNICAL</p> <p>Frameless Yes</p> <p>CPU CA53 Quad Core-1.1GHz</p>



		<p>RAM 1 GB</p> <p>Preinstalled App</p> <p>Google Play /Netflix/ Youtube/ Prime Video/ Daily Play/I Casting</p> <p>AI System Google Assistant</p> <p>Channel Editor Yes</p> <p>Channel List Yes</p> <p>LAN 1</p> <p>Parent Control(Child Lock) Yes</p> <p>Smart Share Google Chromecast</p> <p>Speaker Type Bottom</p> <p>Dolby Digital Yes</p> <p>Video</p> <p>GPUMali-G52MC1</p> <p>Real Color Engine Yes</p> <p>Reflecto-Con Yes</p> <p>Nature View Yes</p> <p>Image Refinery Yes</p> <p>Digital Comb Filter Yes</p> <p>Digital Noise Reduction Yes</p> <p>Auto Power Off Yes</p> <p>DynaCon Yes</p> <p>Digital Multimedia Controller Yes</p> <p>Wide Viewing Angle 178(CR&gt;=10)</p> <p>Netflix Yes</p> <p>YouTube Yes</p> <p>NetRange Yes</p> <p>Open Browser Yes</p> <p>Facebook Watch Yes</p> <p>Twitter Yes</p> <p>EPG Yes</p> <p>DTV Tuner</p> <p>DVB-T2, For Cable DVB-C</p> <p>Mira CastYes</p> <p>Tele text Yes</p> <p>Wide Color Enhancer Yes</p>
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		<p>OS Android 9.0 (Pie) or updated</p> <p>ROM 8 GB</p> <p>Built-In Apps With Google Play Yes</p> <p>DTV Tuner</p> <p>DVB-T2, For Cable DVB-C</p> <p>RF Input 1</p>
113	<p>LED 4k</p> <p>Smart 32</p> <p>inch</p>	<p>ACCESSORIES</p> <p>Power Cable (Built In) Yes</p> <p>Batteries For Remote Yes</p> <p>User Manual Yes</p> <p>Base Stand Yes</p> <p>Wall Mount Bracket Yes</p> <p>SPDIF Output (Optical/Coaxial) 1 Optical</p> <p>Voice Search Remote Yes</p> <p>Audio</p> <p>Auto Volume Level Yes</p> <p>Dolby Audio 5.1 Surround Yes</p> <p>Audio Power Output 2 X 6W</p> <p>Connectivity</p> <p>USB Connectivity 2 (2.0) and 3.0</p> <p>HDMI &amp; ARC Yes/Yes</p> <p>Wifi :Yes</p> <p>Bluetooth Built-In Yes</p> <p>HDMI Input 2</p> <p>Dimension (W x D x H) mm</p> <p>TV With Stand 720.7 X 166.4 X 455.4</p> <p>TV Without Stand 720.7 X 84 X 420.7</p> <p>Display</p> <p>Screen Size 32</p> <p>LED Smart TV</p> <p>Resolution 1366 X 768 (HD Ready)</p> <p>POWER</p> <p>Energy Saving Yes</p> <p>Stand By Consumption 0.5 W WOW/ WOL&lt;1W</p> <p>Stand By &lt;0.5 W</p>

	<p>Power Supply AC 110-240V~ 50/60Hz</p> <p>TECHNICAL</p> <p>Frameless Yes</p> <p>CPU CA53 Quad Core-1.1GHz</p> <p>RAM 1 GB</p> <p>Preinstalled App</p> <p>Google Play /Netflix/ Youtube/ Prime Video/ Daily Play/I Casting</p> <p>AI System Google Assistant</p> <p>Channel Editor Yes</p> <p>Channel List Yes</p> <p>LAN 1</p> <p>Parent Control(Child Lock) Yes</p> <p>Smart Share Google Chromecast</p> <p>Speaker Type Bottom</p> <p>Dolby Digital Yes</p> <p>Video</p> <p>GPUMali-G52MC1</p> <p>Real Color Engine Yes</p> <p>Reflecto-Con Yes</p> <p>Nature View Yes</p> <p>Image Refinery Yes</p> <p>Digital Comb Filter Yes</p> <p>Digital Noise Reduction Yes</p> <p>Auto Power Off Yes</p> <p>DynaCon Yes</p> <p>Digital Multimedia Controller Yes</p> <p>Wide Viewing Angle 178(CR&gt;=10)</p> <p>Netflix Yes</p> <p>YouTube Yes</p> <p>NetRange Yes</p> <p>Open Browser Yes</p> <p>Facebook Watch Yes</p> <p>Twitter Yes</p> <p>EPG Yes</p> <p>DTV Tuner</p>
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		<p>DVB-T2, For Cable DVB-C</p> <p>Mira CastYes</p> <p>Tele text Yes</p> <p>Wide Color Enhancer Yes</p> <p>OS Android 9.0 (Pie) or updated</p> <p>ROM 8 GB</p> <p>Built-In Apps With Google Play Yes</p> <p>DTV Tuner</p> <p>DVB-T2, For Cable DVB-C</p> <p>RF Input 1</p>
114	Kyocera Printer Ink	<p>Kyocera Printer Compatible Cartridges Ink</p> <p>Kyocera 4100 printer Compatible Cartridges Ink</p>
115	LED Normal for Computers 20 inch	Supported 1,920 by 1,080 pixels
116	Normal for Computers 22 inch	Supported 1,920 by 1,080 pixels
117	3.0 speed dome camera	<p>3.0 MP speed dome camera with 48X Zoom</p> <p><b>FEATURES</b></p> <p>High Resolution</p> <p>Weather-proof 24-hours Surveillance</p> <p>ICR true day/night,IP66 standard, lighting &amp; surge protector, high strength metal housing, heater and fan.</p> <p>High Speed</p> <p>Panning Speed 0.1~300 /Sec, tilt Speed 0.1~120 /Sec, preset mode at 360 /Sec, accuracy +/- 0.1.</p> <p>High Performance Memory</p> <p>128 Preset positions (maximum), 3 self-learning auto tracks (120 seconds per track),6 vector</p>

		<p>scan groups, intelligent power off real time memory, 8 privacy mask zones.</p> <p>Quick Installation</p> <p>Hot plugging technology, wall &amp; suspensory mounting selectable, digital turn over function, built-in multi protocol.</p>
118	Hammer	heavy duty hammer
119	Solder Sucker Removal Tool	De soldering Pump ZD205 Solder Sucker Removal Tool
120	Wire Stripper	<p>Wire Stripper</p> <p>With a die-cast blade pre-marked for wires ranging from 8-18AWG, this Automatic Wire Stripper makes quick work by holding, cutting and stripping wires in a single step. When the tool is released, a recoil spring releases the blade and the tool is ready again for use.</p>
121	Stairs	<p>Stairs</p> <p>6 Feet Aluminum Folding Stair, 5 Steps</p>
122	Dual Mode Biometric Time and Attendance	<p>Dual Mode Biometric Time and Attendance Terminal</p> <p>1200 facial templates</p> <ul style="list-style-type: none"> <li>• 2000 fingerprint templates</li> <li>• Up to 10,000 cards</li> <li>• Up to 100,000 stored punches</li> </ul>
123	Biometric Time and Attendance	<p>Capacity           Users   10,000</p> <p>Face Template   10,000</p> <p>Fingerprints     10,000</p> <p>ID Cards         10,000</p> <p>Transactions     1,000,000</p> <p>Hardware         High Performance Android Industrial CPU / 2GB DDR3 RAM / 16GB ROM / Z-ID FingerPrint Sensor / 7-inches Touch Screen, 1280*800 Pixel / 2NP Binocular Camera</p> <p>Communication TCP/ IP/USB Host /Wiegand Input / Wiegand Output</p> <p>Standard Functions</p> <p>ID Card / Work Code / ADMS/ DST / Schedule Bell / Automatic Status Switch / Record Query / Photo ID</p>

		<p>Optional Functions: 13.56MHz IC Card</p> <p>Additional Info Algorithms ZKFace V10.0 &amp; ZKFinger V12.0</p> <p>Working Temperature 0°C~+50°C</p> <p>Working Humidity &lt;90%</p> <p>Dimensions 264*120*51mm</p> <p>Facial Recognition Speed ≤1s</p> <p>Facial Recognition Distance 0.5m~3m</p> <p>Power DC12V 3A</p> <p>Access Control Interface Lock Relay Output / Exit Button /Alarm Output /Door Sensor /External Bell</p> <p>Special Functions Enhanced Visible Light Facial Recognition / Liveness Face Detection / Multiple Biometric Verification Modes (Time Attendance)</p> <p>Power Supply: 5V DC</p> <p>2 hrs minimum power backup</p>
124	USB Fingerprint Scanner	<p>USB Fingerprint Scanner</p> <ul style="list-style-type: none"> <li>• Stable operation under strong light</li> <li>• Support live fingerprint detection function</li> <li>• Large fingerprint capture area and high image performance</li> </ul>
125	Electric Lock	<p>Electric Lock High Quality</p> <p>Product Size</p> <p>393.8*74.2*58.6 mm</p> <p>Net Weight</p> <p>4.2kg</p> <p>Power Supply Mode</p> <p>2480mAh lithium-ion battery (7.2V ), USB-C emergency power supply (5V )</p> <p>Wireless Protocols</p> <p>Zigbee, Bluetooth 5.0, NFC</p> <p>Operating Humidity</p> <p>0-93% RH, non-condensing</p>
126	Magnetic door lock	<p>Import material, high quality and reliability</p> <p>Unlock when power off, no residual magnetism, convenient to escape</p> <p>No noise, environmental-friendly and Energy-saving</p> <p>Anti-rust processes, anti-corrosion and wear-resistant, easy to repair</p>

		<p>Unlock by key, manual, controller, intelligent sensor</p> <p>Fit for electric door, escape door, fire door, glass door, wooden door, etc</p>
127	Door Lock Button	<p>Switch Button</p> <p>Stainless Steel Rectangle 12V DC Exit Push Release Button Switch For Electric magnetic Lock Door Access Control</p>
128	Laptop Adopter	Hp, Dell, Acer, Toshiba, Lenovo or other Brand
129	Laptop Batteries	Hp, Dell, Acer, Toshiba, Lenovo or other Brand
130	12 Channel Wireless Microphone System	<p><b>input</b> 2 x Mic: -60dB*, 600 ohms, unbalanced, phone jack</p> <p>3 x AUX: -20 dB*, 10k ohms, unbalanced, phone jack</p> <p><b>output</b> 1 x Line: -20dB*, unbalanced, phone jack</p> <p>2 x Recording: -20dB*, 10k ohms, unbalanced, phone jack/RCA pin jack</p> <p>1 x Headphone: mini jack</p> <p><b>external EQ</b></p> <p>Input: -20dB*, 10k ohms, RCA pin jack</p> <p>Output: -20dB*, 10k ohms, RCA pin jack</p> <p><b>No. of connectable</b></p> <p><b>Chairman/Delegate Unit</b></p> <p>192</p> <p><b>External Control Terminal</b></p> <p>D-sub connector (9P, male)/USB-B selectable</p> <p><b>Function Switch</b></p> <p>Speaker restriction: set to 1,2,3 and 4</p> <p>Mic-off function: off or on (selectable)</p>

		<p>Speech priority selector A/B/C</p> <p>A: First-in-first-out, B: Last-in-first-out, C: Fixed for the first unit and last-in-last out for the subsequent units</p> <p>FBS selection: External/Off/Auto/Manual</p> <p><b>Dimensions</b></p> <p>359(W) x 118.8(H) x 184.7(D) mm (14.13" x 4.68" x 7.27")</p> <p><b>Weight</b></p> <p>2.8 kg (6.17 lb)</p>
131	Table MIC	<p>Best Quality Table MIC</p> <p>Audio Patterns: Bidirectional, Cardioid, Omnidirectional, Stereo</p> <p>Four directional patterns</p> <p>High sound quality</p>
132	Stereo Cable	Stereo Cable
133	Stereo Cable Extension	Stereo Cable Extension
134	Radiant Viewer Com Viewer	<p>Radiant Viewer Com Viewer Licensing</p> <p>Plan: 5Years</p> <p>10 Nods</p>
135	Queue management	<p>Ticket Dispenser (quantity 1) standing</p> <p>Thermal printer</p> <ul style="list-style-type: none"> <li>•Automatically cutting paper</li> <li>•Paper roll diameter: 20mm</li> <li>•Electronic printer Optional)</li> <li>· Journal printer Optional)</li> </ul> <p><b>Control System</b></p> <ul style="list-style-type: none"> <li>· Intel P4</li> </ul>



		<ul style="list-style-type: none"> <li>· 1GRAM</li> <li>· 160GHD</li> </ul> <p><b>Software</b></p> <ul style="list-style-type: none"> <li>· Operation system: Microsoft Windows XP</li> <li>· Support VC, C++, JAVA development language</li> <li>· Application software: WOSA/XFS</li> </ul> <p><b>Security</b></p> <ul style="list-style-type: none"> <li>· EPP keyboard Support DES,3DES</li> <li>· Automatically monitoring system Optional)</li> </ul> <p><b>Electromagnetic compatibility</b></p> <ul style="list-style-type: none"> <li>· Radiation compliant with GB9254</li> <li>· Compliant with GB/T17618</li> </ul> <p><b>Dimensions</b></p> <ul style="list-style-type: none"> <li>· Lobby style</li> <li>· Height:1540mm</li> <li>· Width: 470mm•Depth : 865mm</li> </ul> <p><b>Working environment</b></p> <ul style="list-style-type: none"> <li>· Power consumption : 300W</li> <li>· Working temperature : 0°C-45°C</li> <li>· Relative humidity : 20%-90%</li> <li>· Noise : 55dB (A) (free) , 65dB (A) (work)</li> </ul>
136	Fast Scanner	<p>Scan Speed 8.5x11, 200dpi, Portrait Simplex (1 sided) 60 Duplex (2 sides) 120 + 1600 x 3200 dpi optical resolution + Exceptional dynamic range (up to 3.6 Dmax for transparency scanning) + Dual-Focus Mechanism + High-speed scans and previews + USB and SCSI connectivity with optional FireWire® interface</p>
137	Hp G280 /240 Power supply	Hp G280 /240 Power supply
138	DELL 8TB SAS 3.5inch	DELL 8TB SAS 3.5inch 7.2K RPM 12Gbps
139	DELL 8TB SAS 2.5inch	DELL 8TB SAS 2.5inch 7.2K RPM 12Gbps
140	Long range point to point wireless	wireless router unidirectional

	router unidirectional	
141	Image scanner	<p>Scanner type Flatbed color  Photoelectric device Color CCD line sensor  Effective pixels 40,800 × 56,160 pixels at 4800 dpi  Scanning area may be restricted if resolution setting is large.  Document size Reflective:  216 × 297 mm (8.5 × 11.7 inches) A4 or US letter size  Transparent:  35 mm film strip: 6 frames at a time  35 mm slides: up to 4 slides at a time  Scanning resolution 4800 dpi (main scan)  9600 dpi with Micro Step (sub scan)  Output resolution 50 to 6400, 9600, and 12800 dpi (50 to 6400 dpi in 1 dpi increments)  Image data 16 bits per pixel per color internal  16 bits per pixel per color external (maximum)  Interface One USB 2.0 Hi-speed port  Light source White LED</p>
142	Cat 6 Cable	
143	Cat 6A cable	
144	RJ 45 CONNECTORS	Best quality
145	JOINTER	Best Quality
146	Crimping tool	Best Quality
147	Tagging machine	Best Quality
148	Tagging machine cassettes	Best Quality 9mm
149	Splicing Machine	Best Quality
150	24 port SFP Manageable core switch L3	<ul style="list-style-type: none"> <li>▪ Layer 3 24-Port 10GBASE-X SFP+ + 4-Port 10GBASE-T Managed Ethernet Switch</li> <li>▪ has the capability to reach a high speed of 10Gbps over copper or fiber-optic cabling which helps to accelerate the performance of large data transmission. The built-in 10GBASE-T copper interfaces support 5-speed (10G/5G/2.5G/1G/100) auto-negotiation, and 10Gbps data transmission with the existing Cat6A/Cat7 UTP cabling, meaning the speed can be increased without costs</li> <li>▪ Supports redundant ring technology and features strong, rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates</li> </ul>

		<p>advanced ITU-T G.8032 ERPS (Ethernet Ring Protection Switching) technology and Spanning Tree Protocol (802.1w RSTP) into customer's network to enhance system reliability and uptime in harsh environments. In a certain simple Ring network, the recovery time could be less than 10ms to quickly bring the network back to normal operation.</p> <ul style="list-style-type: none"> <li>▪ series enables the administrator to conveniently boost network efficiency by configuring Layer 3 IPv4/IPv6 VLAN static routing manually, the RIP (Routing Information Protocol) or OSPF (Open Shortest Path First) settings automatically.</li> <li>▪ The RIP can employ the hop count as a routing metric and prevent routing loops by implementing a limit on the number of hops allowed in a path from the source to a destination.</li> <li>▪</li> <li>▪ The OSPF is an interior dynamic routing protocol for autonomous system based on link state. The protocol creates a database for link state by exchanging link states among Layer3 switches, and then uses the Shortest Path First algorithm to generate a route table based on that database.</li> <li>▪</li> <li>▪ can be programmed for advanced switch management function, such as dynamic port link aggregation, Q-in-Q VLAN, Multiple Spanning Tree Protocol (MSTP), Layer2/4 QoS, bandwidth control and IGMP/MLD snooping. It allows the operation of a high-speed trunk combining multiple ports. Supporting 8 trunk groups, it enables a maximum of up to 16 ports per trunk and supports connection fail-over as well.</li> <li>▪ offers comprehensive Layer 2 to Layer 4 access control list (ACL) for enforcing security to the edge. It can be used to restrict network access by denying packets based on source and destination IP address, TCP/UDP port number or defined typical network applications. Its protection mechanism also comprises 802.1x Port-based and MAC-based user and device authentication. With the private VLAN function, communication between edge ports can be prevented to ensure user privacy.</li> <li>▪</li> <li>▪ With the built-in Web-based management interface, it offers an easy-to-use, platform-independent management and configuration facility.</li> <li>▪ For text-based management, it can be accessed via Telnet and the console port.</li> <li>▪ For standard-based monitor and management software, it offers SNMPv3 connection which encrypts the packet content at each session for secure remote management.</li> <li>▪ supports SFP-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage</li> <li>▪</li> <li>▪ RAM 2048Mbytes</li> <li>▪ Flash Memory 64Mbytes</li> <li>▪ Switch Architecture Store-and-Forward</li> </ul>
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		<ul style="list-style-type: none"> <li>▪ Switch Fabric 320Gbps/non-blocking</li> <li>▪ Throughput 238.1Mpps@ 64Bytes packet</li> <li>▪ Address Table 32K entries, automatic source address learning and aging</li> <li>▪ Shared Data Buffer 32Mbits</li> <li>▪ Flow Control IEEE 802.3x pause frame for full duplex</li> <li>▪ Back pressure for half duplex</li> <li>▪ Jumbo Frame 10240bytes</li> </ul>
151	Patch panel	24-port CAT6 patch panel. BLANK KEYSTONE 1U PATCH PANEL: The 24-Port Blank Keystone 1U Patch Panel supports standard sized Cat6 keystone jacks.
152	Cable Manager	Cable Manager best quality Rack Mount Rack Unit: 1RU
153	Fiber optic cable installation	Per meter
154	Internet load balancer latest Model	Five or more Ethernet ports with DHCP , nating etc. URL filtering with SSL +HTTPS traffic blocking User rights
155	<b>Dell server Rack 42U</b>	<b>Height 78.7" (1999mm) Width 23.8" (605mm) Depth 42.1" (1070mm) Weight 298 lbs (135 kg)</b>
156	Cat 6 Cable	Best copper Cat6 cable 305 meter
157	Digital Meter	Digital meter cable testing Length measurement Length broken detected
158	Cat 6A cable	Best copper Cat6 cable 305 meter
159	HDF Fargo 5000	Tonner
160	HDF Fargo 5000	Printer
161	Power Supply	DIFFERENT MODLES
162	Network Switch Manageable 24 Port – 2	<ul style="list-style-type: none"> <li>• features 48 1000BASE-T RJ45 copper ports and 4 10GBASE-X SFP+ ports with 128Gbps switch fabric delivered in a 1U rugged case with fanless design.</li> <li>• Provides high-density performance, Layer 3 static routing, RIP (Routing Information Protocol) and OSPF (Open Shortest Path First). With 10Gbps interfaces and 128Gbps switching fabric</li> </ul>

<p>SFP L3 AI based</p>	<ul style="list-style-type: none"> <li>• Each of the SFP+ ports supports Dual-Speed, 10GBASE-SR/LR or 1000BASE-SX/LX</li> <li>• Supports redundant ring technology and features strong, rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates advanced ITU-T G.8032 ERPS (Ethernet Ring Protection Switching) technology and Spanning Tree Protocol (802.1s MSTP) into customer's network to enhance system reliability and uptime in harsh environments</li> <li>• Supports abundant multicast features. In Layer 2, it features IPv4 IGMPv1/v2/v3 snooping and IPv6 MLD v1/v2 snooping. In Layer 3 multicast protocols, it features IGMPv1/v2/v3. With Multicast VLAN Register (MVR), multicast receiver/sender control and illegal multicast source detect functions</li> <li>• IP Source Guard and Dynamic ARP Inspection functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address</li> <li>• built-in Web-based management interface</li> <li>• supports SFP-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage</li> </ul> <p>Switch Architecture    Store-and-forward</p> <p>Switch Fabric    128Gbps/non-blocking</p> <p>Switch Throughput    95.23Mpps</p> <p>Address Table    32K MAC address table with auto learning function</p> <p>ARP Table    8K</p> <p>Routing Table    6K</p> <p>IP Interface    1024</p> <p>ACL Table    2K</p> <p>Shared Data Buffer    12MB</p> <p>Jumbo Frame    12KBytes</p> <p>Flow Control    Back pressure for half duplex IEEE 802.3x pause frame for full duplex</p> <p>IP Routing Protocol    Static route</p> <p>RIPv1/v2</p> <p>OSPFv2</p> <p>Multicast Routing Protocol    IGMP v1/v2/v3</p> <p>Layer 3 Protocol    ARP</p> <p>ARP Proxy</p> <p>IGMP Proxy 16 Gbps or more Capability</p> <p>256 or More VLANs</p> <p>9000 byte Jumbo Frame or Higher</p> <p>Full Layer 3 Features</p> <p>Static Routing, DHCP, ARP</p> <p>Static Routing, DHCP, ARP (Layer 3 Feature)</p> <p>RJ 45 &amp; SFP Ports</p> <p>Rack mounting Kit</p> <p>800 MHz or Higher Processor</p> <p>512 MB SDRAM or Higher</p>
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		<p>32 MB flash or Higher  1.5MB Packet Buffer Size  Web browser; SNMP Manager or Higher  3 Year Warranty with On Site Support</p>
163	<p>Network Switch Manageable 48 Port – 4 SFP L3 AI based</p>	<ul style="list-style-type: none"> <li>• features 24 10/100/1000BASE-T RJ45 copper ports and 4 1G/10GBASE-X SFP+ ports with 128Gbps switch fabric delivered in a 1U rugged case with fanless design.</li> <li>• provides high-density performance, Layer 3 static routing, RIP (Routing Information Protocol) and OSPF (Open Shortest Path First). With 10Gbps interfaces and 128Gbps switching fabric</li> <li>• Each of the SFP+ ports supports Dual-Speed, 10GBASE-SR/LR or 1000BASE-SX/LX</li> <li>• supports redundant ring technology and features strong, rapid self-recovery capability to prevent interruptions and external intrusions. It incorporates advanced ITU-T G.8032 ERPS (Ethernet Ring Protection Switching) technology and Spanning Tree Protocol (802.1s MSTP) into customer’s network to enhance system reliability and uptime in harsh environments</li> <li>• supports abundant multicast features. In Layer 2, it features IPv4 IGMPv1/v2/v3 snooping and IPv6 MLD v1/v2 snooping. In Layer 3 multicast protocols, it features IGMPv1/v2/v3. With Multicast VLAN Register (MVR), multicast receiver/sender control and illegal multicast source detect functions</li> <li>• IP Source Guard and Dynamic ARP Inspection functions to prevent IP snooping from attack and discard ARP packets with invalid MAC address</li> <li>• built-in Web-based management interface</li> <li>• supports SFP-DDM (Digital Diagnostic Monitor) function that greatly helps network administrator to easily monitor real-time parameters of the SFP and SFP+ transceivers, such as optical output power, optical input power, temperature, laser bias current, and transceiver supply voltage</li> </ul> <p>Switch Architecture Store-and-forward  Switch Fabric 128Gbps/non-blocking  Switch Throughput 95.23Mpps  Address Table 32K MAC address table with auto learning function  ARP Table 8K  Routing Table 6K  IP Interface 1024  ACL Table 2K  Shared Data Buffer 12MB  Jumbo Frame 12KBytes  Flow Control Back pressure for half duplex  IEEE 802.3x pause frame for full duplex  IP Routing Protocol Static route  RIPv1/v2  OSPFv2  Multicast Routing Protocol IGMP v1/v2/v3  Layer 3 Protocol ARP  ARP Proxy</p>

		<p>IGMP Proxy 16 Gbps or more Capability  256 or More VLANs  9000 byte Jumbo Frame or Higher  Full Layer 3 Features  Static Routing, DHCP, ARP  Static Routing, DHCP, ARP (Layer 3 Feature)  RJ 45 &amp; SFP Ports  Rack mounting Kit  800 MHz or Higher Processor  512 MB SDRAM or Higher  32 MB flash or Higher  1.5MB Packet Buffer Size  Web browser; SNMP Manager or Higher  3 Year Warranty with On Site Support</p>
164	PoE Switch 24 Port	<p>12 RJ-45 autosensing 10/100/1000 PoE+ ports; Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 12 RJ-45 autosensing 10/100/1000 ports (IEEE 802.3 Type 10BASE-T, IEEE 802.3u Type 100BASE-TX, IEEE 802.3ab Type 1000BASE-T); Duplex: 10BASE-T/100BASE-TX: half or full; 1000BASE-T: full only 2 SFP 100/1000 Mbps ports (IEEE 802.3z Type 1000BASE-X, IEEE 802.3u Type 100BASE-FX)  16 Gbps or more Capability  256 or More VLANs  9000 byte Jumbo Frame or Higher  Full Layer 2 Features  Static Routing, DHCP, ARP  Static Routing, DHCP, ARP (Layer 3 Feature)  RJ 45 &amp; SFP Ports  Rack mounting Kit  ARM Cortex-A9 @ 400 MHz or Higher Processor  256 MB SDRAM or Higher  64 MB flash or Higher  1.5MB Packet Buffer Size  Web browser; SNMP Manager or Higher  3 Year Warranty with On Site Support</p>
165	Cable Tie 4"	100 pcs Cable tie
166	Cable Tie 6"	100 pcs Cable tie
167	Cable Tie 8"	100 pcs Cable tie
168	Cable Tie 10"	100 pcs Cable tie
169	Turk Plast	Turk Plast Pipe 1" L10'

	Pipe 1"	
170	Turk Plast Pipe 2"	Turk Plast Pipe 2" L10'
171	Metal U Clip 1"	Metal U Clip for Pipe
172	Metal U Clip 2"	Metal U Clip for Pipe
173	pigtail sc to sc	Connector type: SC Length: 1 m
174	pigtail lc to sc	Connector type: LC to SC Length: 1 m
175	patch panel 24	Copper Patch Panel 24-Port High-Density Multimedia Unloaded
176	PDU	Power Distribution Units 8 port
177	KJ nut	For Switch Hang
178	Pvc Cable Duct 1"	1 inch
179	Pvc Cable Duct 2"	2 inch
180	PVC Duct Cutter	Best Quality
181	Cat6 Connector Cover	Best quality Connector Cover Color White
182	Tagging Machine	Label Printer makes it easy to print labels Easy to use QWERTY keyboards make creating labels simple and fast. Includes a 16-digit, 2 lines, LCD display with one built-in font and 24 character sizes. With a resolution of 200 DPI.
183	i/o punching	i/o punching tool



	tool	
184	RJ45 CAT6E Lan I/O	RJ45 CAT6E Lan I/O
185	I/O Face Plate	I/O 3X3 1M Dual Face Plate
186	Pigtails	High Quality Fiber Optic Pigtail
187	SFP module	SFP module
188	SFP transceiv er Modules	SFP transceiver Modules
189	Network Cable	Cat-6 A stp High quality Cable
190	Wifi Router (Short Range)	<p>Network Speed 5 GHz: 4804 Mbps (802.11ax, HE160), 2.4 GHz: 1148 Mbps (802.11ax)</p> <p>Network Standard IEEE 802.11ax/ac/n/a 5 GHz, IEEE 802.11n/b/g 2.4 GHz</p> <p>Antenna 8× Fixed High-Performance Antennas</p> <p>Buttons Wi-Fi On/Off Button, Power On/Off Button, LED On/Off Button, WPS Button, Reset Button</p> <p>Protocols IPv4, IPv6</p> <p>Warranty 1 Year Warranty</p>
191	Wifi Antena	<p>External Outdoor WiFi Antenna Long Range Omni-Directional 2.4G/5.8G 12dBi for WiFi Trail Spypoint Security Camera Antenna/WiFi Routers/WiFi Hotspot Antenna External Outdoor Wifi Antenna</p> <p>Brand SIGNALPLUS</p> <p>Color Silver, White</p> <p>Impedance 50 Ohm</p> <p>Maximum Range 10000 Meters</p> <p>Item Dimensions LxWxH 1.18 x 1.18 x 30.71 inches</p>

192	Long range wifi router	Complies with IEEE 802.11 a/b/g/n/ac standards Dual-Band Speed up to 2.4GHz 150Mbps, 5GHz 433Mbps Weatherproof RJ45 Connector, Integrated Passive Power over Ethernet (PoE) Passive PoE Support for Flexible Deployment Provides high performance at a Long-Range Links, depending on its antenna Features up to 1000mW of power and an enhanced receiver design Robust weatherproof case withstands harsh outdoor conditions Operation Modes: Router, AP, Repeater Maximum Security with WAP, and WPA2 Support 3 LEDs Wireless Signal Strength Build in lightning arrester (15kV ESD)
193	Rj 45 Connector	Rj 45 steel Connector and simple
194	Rj 11 connector	Rj 11 connectors
195	Jointer	Rj 45 jointer
196	Network Digital Metter	Digital Network Cable Tester Meter With Length Measurement With Battery
197	IT-Tech Network Toolkit	Electrical adhesive tape CRV red black Rubber plastic screwdriver 5*100(-) Crystal box 22pc(8p:10pcs 6p:6pcs 4p:6pcs CRV red black Rubber plastic hand Shank screwdriver 5*100(+) Precision screwdrivers 2.4(-) 2.4(+) Digital electrical pen test 12-250v Long flat nose pliers wire stripper Network pliers Wire cutter Network tester
198	Network Switch Rack	Network Switch Rack 2U
199	Network Switch Rack	Network Switch Rack 4U
200	Network Switch Rack	Network Switch Rack 6U
201	Network Switch	Network Switch Rack 9U

	Rack	
202	Network Switch Rack	Network Switch Rack 27U
203	Network Switch Rack	Network Switch Rack 42U
204	Window Server 2008, 2012, and 2016 License	Window Server 2008 and 2012, 2016, 2019 License
205	Window 10 License	Window 10 License
506	Antivirus kaspersky server and client point	Antivirus kaspersky server and client point
207	Antivirus nod32 server and client point	Antivirus nod32 server and client point
208	Humidity control set	For Data Centre
209	Temperature control set	For Data Centre
210	Fire Alarm System	For Data Centre
211	Fire Fighting Kit	For Data Centre
212	RFID Cards	Best Quality RFID Cards



Sr. #	Description	Specifications	Qty.
311	4x2MP Multi-Sensor Panoramic Network IR Bullet Camera	<ul style="list-style-type: none"><li>• Four 2MP 1/2.8" CMOS image sensor, low illuminance, high image definition</li><li>• Outputs max. 8MP (4096 × 1800) @30 fps</li><li>• H.265 codec, high compression rate, ultra-low bit rate</li><li>• ROM, 4 GB RAM 2 GB</li><li>• Built-in IR LED, max. IR distance: 30 m</li><li>• ROI, SMART H.264+/H.265+, flexible coding, applicable to various bandwidth and storage environments</li><li>• DWDR, 3D NR, HLC, BLC, digital watermarking</li><li>• Intelligent functions: Crowd distribution map, Vehicle Density situation</li><li>• Abnormality detection: Motion detection, video tampering, scene changing, audio detection, no SD card, SD card full, SD card error, network disconnection, IP conflict, illegal access, and voltage detection</li><li>• Alarm: 2 in, 2 out; audio: 1 in, 1 out; 485; BNC; supports max. 256 G SD card</li><li>• 12V DC/24V AC/Poe power supply; easy for installation</li><li>• Supports object tracking</li><li>• IP67, IK10 protection</li></ul>	1
312	8 MP Full-color Active Deterrence Network Camera	8 MP, CMOS image sensor, low illuminance, high image definition, Outputs max. 8MP (3840 × 2160) @25/30 fps, H.265 codec, high compression rate, low bit rate, Built-in warm illuminator, and the min. illumination distance: 30m, ROI, SMART H.264+/H.265+, flexible coding, applicable to various band width and storage environments, Rotation mode, WDR, 3D NR, HLC, BLC, digital watermarking, applicable to various	1



		monitoring scenes, Intelligent detection: Tripwire, intrusion, Abnormality detection: Motion detection, video tampering, scene changing, audio detection, no SD card, SD card full, SD card error, network disconnection, IP conflict, illegal access, and voltage detection, Supports sound and light alarm linkage. When an alarm is triggered, the camera links sound alarm and light flashing Supports one-tap disarming. You can disarm the events of alarm output, sending email, audio, and light in the configured period, Alarm: 1 in, 1 out; audio: 1 in, 1 out; supports max. 256 G Micro SD card, built-in Mic and speaker, 12V DC/Poe power supply, IP67 protection, SMD Plus, Colorful flashlight alarm,	
313	2MP Network AI IR Bullet Camera	Max. 2MP resolution, Up to 120fps, 0.007Lux@F1.3, 1/30sec. (Color), 0Lux (B/W, IR LED on), Day & Night (ICR), WDR (120dB), H.265, H.264, MJPEG, Video Analytics based on AI, Object detection and classification (Person, Face, Vehicle, License Plate), Face mask detection, Social distancing detection, Attribute, Best Shot, Compatible Insight v2.0 for Business Intelligence, Age/gender based People counting, Heat map, Queue management, TPM with FIPS 140-2 level2, Secure boot, Verify firmware forgery, System requirements, IP66, IP67, IK10, NEMA4X,	1
314	Providing and fixing of 4 MP Intelligence	4MP, CMOS image sensor, low illuminance, high image definition, Outputs max. 4MP (2688 ×	1

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	base Cameras with Built in mic.	1520)@30fps, H.265 codec, high compression rate, low bit rate, Built-in IR LED, max. IR distance: 50 m, ROI, SMART H.264+/H.265+, flexible coding, applicable to various bandwidth and storage environments, Rotation mode, WDR, 3D DNR, HLC, BLC, digital watermarking, applicable to various monitoring scenes, Intelligent detection: Intrusion, tripwire, Abnormality detection: Motion detection, video tampering, scene changing, audio detection, no SD card, SD card full, SD card error, network disconnection, IP conflict, illegal access, voltage detection, Supports max. 256 G Micro SD card, built-in Mic, 12V DC/POE power supply, IP67 protection,	
315.	Outdoor/ Indoor AI Intelligent Cameras,	4Megapixel progressive scan CMOS H.265 & H.264 triple-stream encoding, 25/30 fps@2688 × 1520, 50/60 fps@1080P(1920 × 1080) WDR (140 dB), RAM 1 GB , AI and Intelligent Smart Features, Support face image capture, Support 6 kinds of face attributes extraction: Age, Gender, Expression (Jolly, Surprise, Normal, Rage, Sad, Disgusted, Confused, Frightened), Glasses, Mouth Mask, Moustache & Beard, Tripwire, intrusion (Recognition of vehicle and people), fast moving, loitering detection, parking detection and people gathering, Support People Counting, Perimeter Protection, Support Line crossing/Region/Queuing people counting; Support 4 accesses independent detection, 4 areas independent detection, Object Abandoned/Missing, Heat Map, 2.7 mm–12.0 mm	1



		motorized lens, 2/1 Alarm in/out, 1/1 audio in/out Max. IR LEDs Length 50 m, Micro SD memory, IP67, IK10	
316	Artificial Intelligence base Facial Reorganization Camera.	4MP, CMOS image sensor, low luminance, high image definition, 4MP (2688×1520) @50 fps/60 fps, ROM , 16 GB RAM 2 GB, H.264&H.265 coding, high compression ratio, Alarm: 3 in, 2 out; audio: 1 in, 1 out; RS-485; BNC; supports max. 256 GB SD card, Five streams for three-channel HD video, IP67, IK10 protection grade, 5 streams, Face Recognition, with deep learning algorithm support People Counting, Face Capture, Perimeter Protection and Video Structuration, Professional, intelligent, Face recognition, track, priority, snapshot, face enhancement, face exposure, face attribute extract, 6 attributes and 8 expressions: Gender, age, glasses, expressions (anger, sadness, disgust, fear, surprise, calm, happiness and confusion), mask, beard, Max supports face contrast in face library with 200,000 faces, People Counting, People counting (count the entry number, exit number and pass number), display and output daily/monthly/annual statistics, No. in area, 2.7 to 12mm Motorized Lens, 12V DC/24V AC/, IR Distance Minimum 50m , IP67, IK10 protection grade.	1
317	Artifice Intelligence License Plate 4 MP Speed Detection	4 MP Artificial Intelligence ANPR Camera, white light, Embedded with Deep learning LPR Engine, Supports vehicle video detection with high	1

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	Cameras with installation Accessories.	detection rate; supports vehicle direction detection, License plate recognition, vehicle size, vehicle color detection and etc., Supports 11 vehicle sizes detection: large bus, heavy truck, medium truck, sedan, minivan, light truck, SUV, MPV, medium bus, pick-up and minicar, Supports 11 colors detection (daytime): white, black, blue, red, yellow, green, pinkish purple, gray, brown, orange and silver. White List (10000 records database inside the camera), H.265& H.264 dual-stream encoding, Micro SD memory, Powerful motorized lens and white light, ideal for monitor ANPR distance, IP67, and superior performance for outdoor applications, Embedded with LPR algorithm inside the camera, Vehicle data structuring: license plate recognition, vehicle size, vehicle color detection and etc. Illumination Distance 30 m (98.43 ft), Capture Distance, 8 m–30 m, Min. Illumination, 0.002 lx (built-in illuminator on), Min. Detection Speed 60 km/h, Alarm Event, Vehicle Detection, Vehicle capture rate $\geq 99\%$ , Vehicle Recognition.	
318	Mini PTZ Speed Dome Cameras for Outdoor Surveillance.	2MP, 25/30fps@2M, Deep-learning, Pro AI performance: Perimeter protection, Video Structurization, 25x optical zoom, SMD, Starlight, H.265, PFA Technology, IR Distance up to 100m, -40°C~70°C wide temperature range, IP66, POE+, -15°~90° tilt range,	1

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319	PTZ Speed Dome Cameras for Outdoor Surveillance.	4Megapixel 45x optical zoom, Max. 25/30fps@4MP, Deep-learning-based auto tracking and perimeter protection, IR distance up to 250m, IP67, IK10, Operating Temperature: -40°C~+70°C, Smart detection / Video Analytics:, Support human, motor vehicle and non-motor vehicle image capture, Support alarm triggering by target types (human And vehicle), Filtering out false alarms caused by animals, rustling leaves, bright lights, etc., Support Auto Tracking, Tripwire, Intrusion, Object missing, Object Abandoned, Face Detection etc.	1
320	Supply of 64 Channel Artifice Intelligence Enabled NVR I	64 Channel AI NVR, Smart H.265+/H.265/Smart H.264+/H.264/MJPEG, up to 16 Channel perimeter protection, up to 4 Channel video stream face recognition, Up to 24 face pictures /sec processing, up to 20 face databases with 100,000 face images in total, 2 HDMI, 1 VGA Output Ports, Support Multiscreen Display 16MP, 12MP, 8MP, 6MP, 5MP, 4MP, 3MP, 1080P, Smart H.265+/H.265/Smart H.264+/H.264/MJPEG 320 Mbps Bandwidth 8 SATA III Ports, Up to 8 TB capacity for each HDD ,2 RJ-45 Ports (10/100/1000Mbps)	1
321	Embedded Video Storage	64-bit High-performance multi-core processor, Max 512-ch IP camera inputs, Max 1024 Mbps incoming/recording/forwarding bandwidth, 48 HDDs, SAS/SATA, Hot-Swap, Supports RAID 0/1/5/6/10/50/60, JBOD, Hot spare, Supports video stream/ Picture direct storage mode and	1

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		<p>IPSAN storage mode, Supports N+M cluster, Supports Automatic Network Replenishment (ANR), SAS cascade for expanded storage space, Modular and drawer-like design, 1+1 redundant 80PLUS platinum power supply, BBU battery for abnormal power failure, 10Gig Fiber Module. RAM 8 GB by default (extendable to 64 GB), Power Redundancy1+1, 4x1-GbE LAN ports; 2x10-GbE optical fiber ports, up to 512-channel (1024 Mbps) access, storage, and forwarding; 32-channel (64 Mbps) online playback, Video Direct Storage (ONVIF).</p>	
322	Central Management Server.	<p>Main Processor Intel i5, 64 bits 4 Core Processor, Operating System Embedded Linux with 8GB memory, Supports 3.5"chassis with up to 15 hot plug hard drives and extend the storage via iSCSI and SAS/SATA disk intermixing to use, 4 Ethernet Ports (100/1000Mbps) and 3HDMI out ports with GPU decoding, System should be capable to Face recognition cameras Per Server without license, System must be capable to add Face library management, Adding face one by one, Import faces in batches., Automatically captures faces in the camera field of view Extracts face attribute information from captured face, Real-time face comparison, Generate daily, weekly, monthly attribute report based on the gender and age, Bandwidth of Video Input/output per Server 600 Mbps., Storage Environment Temperature -20°C ~ + 70°C, Redundant Power</p>	1



		Supply, Embedded device, 7*24 stable operation, Support local storage and IP-SAN storage, Support Google map, Raster Map, Support ONVIF standard protocol, Support platform SDK, Front panel can displays system service status, Support 1000 channels (Support 450 input devices ), Support 150 online users, unlimited user management, Support 650M transfer capability, Support 650M local storage capability, Support POS function, Support People counting, Support Heat map, Support Face Recognition, Support ANPR.	
323	Recording Storage Device	<b>Enterprises Grade 10 TB SATA HDD</b> <ul style="list-style-type: none"><li>➤ Enterprise Class Storage (2.5 Mn Hrs MTBF)</li><li>➤ Read/Write Speed : 7200 Rpm</li><li>➤ 3.5 Inch</li><li>➤ 256Mb Cache</li><li>➤ Enhanced Rotational Vibration Safeguard (RVS)</li><li>➤ HelioSeal Technology</li></ul>	1
324	Video Wall Display Unit Ultra Narrow Bezel	<b>SMART Signage Razor Narrow Bezel Video Wall.</b> <ul style="list-style-type: none"><li>➤ Razor-thin bezel measuring 0.44mm, 0.88mm Bezel-Bezel Depth for seamless image</li><li>➤ Wide viewing angles enable clear image presentation for more viewers in large spaces</li><li>➤ 700 nit brightness and non-glare panel provide high visibility 24/7</li><li>➤ Picture enhancement technology delivers optimized visuals</li><li>➤ Input: RGB, Video, HDCP, USB</li><li>➤ Resolution: 1920*1080</li><li>➤ Type: IPS</li><li>➤ Response Time: 8ms</li><li>➤ Max Brightness: 700nit</li><li>➤ Contrast Ratio: 1100:1</li></ul>	1

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		<ul style="list-style-type: none"> <li>➤ Power: 270 W/LED with 2x LEDs/PDU</li> </ul>	
325	65inch Smart Interactive Whiteboard	<ul style="list-style-type: none"> <li>➤ 4K HD display.</li> <li>➤ Supports using both Android and Windows (PC module must be installed).</li> <li>➤ Wireless screen sharing from multiple devices, such as phones, computers, and tablets.</li> <li>➤ Supports being written on with a stylus.</li> <li>➤ Supports Office software, and playing videos and audio files.</li> <li>➤ The startup channels are all customizable.</li> <li>➤ Wired and wireless network support.</li> <li>➤ Built-in 5-MP camera.</li> </ul>	
326	Industrial Grade 4K Screen for 24/7 Monitoring.	21.45" FHD Monitor, 1920×1080 (FHD), VGA×1, HDMI×1, 3000:1 Contrast Ratio	1
327	Multi-Screen Controller	Multi-screen Video Controller ,ATCA industry box, 10 service card slots, every slot supports various service card, Redundant power optional and smart temperature controlled fan, FPGA array framework, built in ultrahigh bandwidth switch matrix, high image processing capacity, flexible data exchange, PCI-E bus, high system bandwidth, Window Division Supports 1/4/9/16 window division modes and full-screen switch of the window ,Input support Up to 8 kinds of signal sources are supported, including VGA, DVI, HDMI, BNC, SDI, and IP camera input ,Power supply Redundant (1+1), Hot Swappable . Output with decoding card, Input with 4k Card complete in all	1



		aspects.	
328	Video Input Interface Cards	Interface card A should have 2 CH HDMI 1.4 input slot support HDCP, Both HDMI input channel should support 4K resolution, Input Access Capability: All HDMI Channel Should support following resolution 3840*2160@30fps,1920*1080@60fps/1600*1200@60fps/1400*1050@60fps/1366*768@60fps/1280*1024@60fps/1280*720@60fps/1024*768@60fps, Capable of frequent switching of channels. Cards should work with different type of video convertors and splitters	1
329	Video Input Interface Cards	Interface 4ch BNC, Signal Format 3G-SDI, 2.97Gbps Access Capability 4ch@1080P, downward, Compatibility.	1
330	Video Output Decoding Interface Cards	1: Video Output Interface A should be capable of decoding network stream and displaying at least 4 CH in 4k resolution with 25fps per card 2: Should be capable of decoding at least 2 CH per card at 12 MP with local input in 15fps 3: Should support 4ch HDMI 1.4 output, supportive to distance at 20m 4: Interface card should support Following output resolutions 3840*2160@30fps (HDMI2, 3)/1920*1080@60fps/1600*1200@60fps/1400*1050@60fps/1366*768@60fps/1280*1024@60fps/1280*720@60fps/1024*768@60fps 5: Each decoding card Should support up to 32 splits on video wall, Supportive to Multi-input displaying at one time. 6: Card should support H.265 video compression standard for logs and event storage.	1
331	Base for Screens.	Aluminum Good Quality Base, for Each Screen.	1
332	Bracket for Screens.	<b>Push and Pull Bracket for Samsung Video Wall including local base Structure and back Wall/ Entrance</b> ➤ Pop-Out Extension: provides quick access	1



		<p>for installation and maintenance</p> <ul style="list-style-type: none"> <li>➤ Precise Display Alignment: height/depth adjustment for seamless digital signage</li> <li>➤ Quick-Release Latch: locks/unlocks the display in place</li> <li>➤ Pop-Out Lock System: ensures safety by reducing the possibility of accidental pop-outs</li> <li>➤ Anti-Theft Locking Hole: for additional security preventing any unwanted removal</li> </ul>	
333	PC for Cameras Monitoring and Management.	<p><b>Branded PC for Cameras Monitoring and Management.</b></p> <ul style="list-style-type: none"> <li>➤ Processor: Intel Core i7 13700</li> <li>➤ CPU Cooler: Alseye S120D Black</li> <li>➤ Motherboard: Gigabyte B760M Gaming X</li> <li>➤ Ram: Corsair Vengeance 32GB 3600Mhz</li> <li>➤ GPU: Zotac Trinity OC 4080</li> <li>➤ SSD: Samsung 980 PRO 1TB</li> <li>➤ PSU: XPG Core reactor 850W 80+ GOLD</li> <li>➤ Casing: Lianli lancool 216</li> <li>➤ Windows 10 Genuine</li> </ul>	1
334	24 Port Gigabit High-performance Ethernet Switches Layer 3 for Main Control Room.	<p><b>L3 + Managed Core / aggregation Switch</b></p> <ul style="list-style-type: none"> <li>➤ 24 Ethernet Ports &amp; 12 Optical Ports</li> <li>➤ Switching Capacity: 598 Gbps</li> <li>➤ Packet Forwarding Capacity: 168 Mbps</li> <li>➤ 10 Gbps uplink and all-gigabit ports</li> <li>➤ Power Consumption: 33W</li> <li>➤ Dual Power Supply</li> <li>➤ Various routing characteristics</li> <li>➤ IRF2 intelligent resilient architecture</li> <li>➤ Manage through the web client and CLI</li> <li>➤ Supports functions such as port aggregation, Lay-2 VLAN, ACL, and QoS</li> <li>➤ High performance and reliability; easy to manage and maintain</li> </ul>	1

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335	16 Port Gigabit POE Switch.	Fast/Gigabit Ethernet, 16GE Poe, Poe SFP Slots, 2GE SFP, Switching Capacity, 52Gbps, Packet Forwarding Rate, 23.81MppPacket Buffer Memory, 4Mb MAC Table Size, 8K PoE Standard, PoE (802.3af), PoE+ (802.3at) , Hi-PoE, PoE Budget, 240W Long PoE Transmission, Support of VLAN, Link Aggregation, Flow Control, Spanning Tree, Management Web, Lightning Protection, Mode 2KV, Working Temperature -10°C~55°C	1
336	08 Port Industrial Grade POE Network Managed Gigabit Switch with 2 SFP Ports including Power supply.	8 Ports Industrial Full Gigabit Poe Managed Switch Provide 8* 10/100/1000Base-T Ethernet ports (Poe) + 2* 1000BASE-X SFP Ports, Support 4K high-definition video transmission; PoE Function: support IEEE802.3af/at standard, each port supports up to 60W PoE Output; Support Web-based network management, support VLAN, QoS, RSTP, SNMP, Support IGMP Snooping etc. network function; Support 4K VLAN, Support 802.1Q Protocol-Based VLAN, Support Port-Based VLAN; Support Fast Ring as redundant link Support relay alarm for power off, network broken, PoE off, 6KV surge immunity, 8KV ESD Protection and anti-interference ability; -40°C~75°C working temperature Support redundant Power Supply Rail/Rack kit Fitting, CE、FCC、ROHS Certified	1
337	HD Network Control Keyboard for PTZ Cameras.	HD Network Control Keyboard, Screen 10" TFT LCD touch screen, Keyboard to Control, 2×RJ-45 port (10/100/1000M), Four-Dimensional Joystick Control of PTZ Functions, Support 4K decoding	1



		live view, Support Video-Wall display control, support bidirectional talk, Preset Position, Auto Scan, Auto Pan, Auto Tour & Pattern Control.	
338	CAT-6 Network Cable in RFT	CAT-6 Network Cable in Good Quality Duct / U-PVC, / Conduit including the RJ-45 Connectors including Civil related work if required. Support Poe long-distance transmission; Excellent OFC with 99.99% OFC (oxygen free copper) purity; Environmentally-friendly outer sheath; Top-notch quality guarantee for 10 years	1
339	Optical fiber cable in RFT	12 core optical fiber cable in Good Quality Duct / U-PVC, / Conduit including Splicing, Patch Cord, Pigtail and Related installation accessories.	1
340	FIFER PATCH CARD	FIBER PATCH CARD SC TO SC	1
341	FIFER PATCH CARD	FIBER PATCH CARD SC TO LC	1
342	PDU	PDU	1
343	OFDF	OFDF 24 Port with accessories of OFC related.	1
344	OFDF	OFDF 12 Port with accessories of OFC related.	1
345	SFP	Gigabit SFP Fiber Module	1
346	IT Rack 42U	Floor Standing, Perforated Dual Compartment Door, 2 Fixed Tray and 1 sliding tray, 4 Fans, Fan kit and PDU, Compatible to cater all accessories as per the CCTV design.	1
347	Weather Proof Rack	Weather Proof Rack/ Edge DB Box to inbuilt, Poe switch, UPS, Circuit Breaker, PDU, ODF etc.	1

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348	Power Cable in RFT	2.5 mm 2 Core Power Cable in Feet including Civil work pure copper above than 99%	1
349	Power Backup	ONLINE Branded 10 kVA, 0.9 PF standard Backup UPS	1
350	Breaker	100 p Breaker for DBs	1
351	Breaker	10 mp Breaker for DBs	1
352	Poles	Galvanized Poles for Cameras 5 Feet with, Base, Civil Work complete in all aspects.	1
353	Poles	Galvanized Poles for Cameras 10~15 Feet with, Base, Civil Work complete in all aspects.	1
354	Poles	Galvanized Poles for Cameras 15~20 Feet with, Base, Civil Work complete in all aspects.	1
355	Water-proof Junction Box for Camera Mount	Aesthetic design, Material: aluminum, junction box	1
356	HDMI Cable	HDMI Cable 15 Meter 4K Supportive.	1
357	Main Control Room Installation	<b>Main Control Room with installation of LED and other related Accessories.</b>  Room Size  Wood /PVC Paneling.  Gypsum State of the art Ceiling 2X2.  Electrification work with lighting and related work.  Chairs and Counter Table  Screen structuring	1

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# Tender Documents for Next Generation AI Based Network

S. #	Technical Requirements
1.	<p><b>Next Generation AI Based Network Firewall...</b></p> <p><b>Offered Firewall Brand must be at least in Challengers category in Gartner Magic Quadrant for 2021</b></p> <p><b><i>Performance parameters required</i></b></p> <ul style="list-style-type: none"> <li>• Stateful firewall throughput (1,518 B packet size) in Mbps = 19,500 +</li> <li>• Next-generation firewall throughput in Mbps = 2,450 +</li> <li>• IPsec VPN throughput (1,400 B packet size) in Mbps = 4,300 +</li> <li>• Routing with packet mode throughput (1,518 B packet size) in Mbps = 9,850 +</li> <li>• Application visibility and control throughput in Mbps = 5,900 +</li> <li>• IPS throughput in Mbps = 1,950</li> <li>• Secure Web Access firewall throughput in Mbps = 1,800</li> <li>• Route table size (RIB/FIB) (IPv4 or IPv6) = 1Million</li> <li>• Maximum concurrent sessions (IPv4 or IPv6) = 375,000 +</li> <li>• Maximum security policies = 3,950 +</li> <li>• Connections per second = 49,500</li> <li>• Maximum NAT rules = 2,950 +</li> <li>• MAC table size = 15,500 +</li> <li>• IPsec VPN tunnels = 2,000 +</li> <li>• Number of remote access/SSL VPN (concurrent) users = 500</li> <li>• GRE tunnels = 2,000+</li> <li>• Maximum number of security zones = 125+</li> <li>• Maximum number of virtual routers = 125+</li> <li>• Maximum number of VLANs = 2,950+</li> <li>• AppID sessions = 62,000+</li> <li>• IPS sessions = 62,000+</li> <li>• URLF sessions = 62,000+</li> </ul> <p><b><i>WAN and Wi-Fi Interface Support ONLY</i></b></p> <ul style="list-style-type: none"> <li>• 1 port T1/E1 module</li> <li>• 1 port VDSL2 Annex A/M module</li> <li>• 4G / LTE module (Up to 300 Mbps download and 50 Mbps upload)</li> <li>• 802.11ac Wave 2 Wi-Fi module (Up to 850+ Mbps at 5GHz / 300 Mbps at 2.4GHz)</li> </ul> <p><b><i>Hardware Specifications</i></b></p> <ul style="list-style-type: none"> <li>• Total onboard ports = 20 (16x1GbE RJ-45, 4x10GbE SFP+)</li> <li>• MACsec-capable ports = All</li> </ul>

- Out-of-band (OOB) management ports = 1GbE RJ-45
- Mini Interface Module Slots = 4
- Console RJ-45 + miniUSB = 1
- USB 3.0 Port(s) = 1
- PoE+ Ports = 16
- Memory (RAM) = 4GB
- Storage = 100GB SSD
- Power Supply = 1+1 hot-swappable AC PSU
- Maximum PoE power = 480watt
- Meantime between failures (MTBF) = 28+Years
- FCC Classification = Class A
- RoHC Compliance = RoHC 2

### ***Software Specifications / Features***

#### Routing Protocols:

- IPv4, IPv6, ISO, CLNS
- Static Routes
- RIP v1 / v2
- OSPF / OSPF v3
- BGP with Route Reflector
- IS-IS
- IGMP v1 /v2, PIM SM / DM / SSM / SDP / DVMRP / MSDP / RFF
- Encapsulation: VLAN, PPP, Frame Relay, HDLC, Serial, MLPPP, MLFR, PPPoE
- Virtual Routes
- Policy Based Routing, Sourced based Routing
- Equal Cost Multipath (ECMP)

#### QoS Features:

- Support 802.1p, DSCP, EXP
- Classification based on VLAN, DLCI, interface or multifield filters
- Marking, policing and shaping
- Classification and scheduling
- Weighted and maximum bandwidth
- Guaranteed and maximum bandwidth
- Ingress traffic policing
- Virtual channels
- Hierarchical shaping and policing

#### Switching Features:

- ASIC-based Layer 2 Forwarding
- MAC address learning
- VLAN addressing and integrated routing and bridging (IRB) support
- Link aggregation and LACP
- LLDP and LLDP-MED
- STP, RSTP, MSTP
- MVRP

- 802.1X authentication

#### Firewall Services

- Stateful and stateless firewall
- Zone-based firewall
- Screens and distributed denial of service (DDoS) protection
- Protection from protocol and traffic anomaly
- Integration with Pulse Unified Access Control (UAC)
- Integration with Aruba Clear Pass Policy Manager
- User role-based firewall
- SSL Inspection (Forward-proxy)

#### Network Address Translation (NAT)

- Source NAT with Port Address Translation (PAT)
- Bidirectional 1:1 static NAT
- Destination NAT with PAT
- Persistent NAT
- IPv6 address translation

#### VPN Features

- Tunnels: Site-to-Site, Hub and Spoke, Dynamic Endpoint,
- AutoVPN, ADVPN, Group VPN (IPv4/ IPv6/ Dual Stack)
- Juniper Secure Connect: Remote access / SSL VPN
- Configuration payload: Yes
- IKE Encryption algorithms: Prime, DES-CBC, 3DES-CBC, AECCBC, AES-GCM, SuiteB
- IKE authentication algorithms: MD5, SHA-1, SHA-128, SHA-256, SHA-384
- Authentication: Pre-shared key and public key infrastructure (PKI) (X.509)
- IPsec (Internet Protocol Security): AH / ESP protocol
- IPsec Authentication Algorithms: hmac-md5, hmac-sha-196, hmac-sha-256
- IPsec Encryption Algorithms: Prime, DES-CBC, 3DES-CBC, AEC-CBC, AES-GCM, SuiteB
- Perfect forward secrecy, anti-reply
- Internet Key Exchange: IKEv1, IKEv2
- Monitoring: Standard-based dead peer detection (DPD) support, VPN monitoring
- VPNs GRE, IP-in-IP, and MPLS

#### Network Services

- DHCP client/server/relay
- DNS proxy, dynamic DNS (DDNS)
- Real-time performance monitoring (RPM) and IPmonitoring
- flow monitoring
- Bidirectional Forwarding Detection (BFD)
- Two-Way Active Measurement Protocol (TWAMP)
- IEEE 802.3ah Link Fault Management (LFM)
- IEEE 802.1ag Connectivity Fault Management (CFM)

#### High Availability Features

- Virtual Router Redundancy Protocol (VRRP)
- Stateful high availability, Dual box clustering, Active/passive and Active/active

- Configuration synchronization
- Firewall session synchronization
- Device/link detection
- In-Band Cluster Upgrade (ICU)
- Dial on-demand backup interfaces
- IP monitoring with route and interface failover

#### Management, Automation, Logging, and Reporting

- SSH, Telnet, SNMP
- Smart image download
- CLI and Web UI
- Cloud based AI Simplified management
- OS Space and Security Director
- OS event, commit, and OP script
- Application and bandwidth usage reporting
- Auto installation
- Debug and troubleshooting tools
- Zero-Touch Provisioning with Contrail Service Orchestration

#### Advanced Routing Services

- Packet mode
- MPLS (RSVP, LDP)
- Circuit cross-connect (CCC), translational cross-connect (TCC)
- L2/L3 MPLS VPN, pseudowires
- Virtual private LAN service (VPLS), next-generation multicast VPN (NG-MVPN)
- MPLS traffic engineering and MPLS fast reroute

#### Application Security Services Capability:

- Application visibility and control
- Application-based firewall
- Application QoS
- Application-based advanced policy-based routing
- Application quality of experience (AppQoE)

#### Enhanced SD-WAN Services

- Application-based advanced policy-based routing (APBR)
- Application-based link monitoring and switchover with
- Application quality of experience (AppQoE)

#### Threat Defense and Intelligence Services

- Intrusion prevention
- Antivirus
- Antispam
- Category/reputation-based URL filtering
- Protection from botnets (command and control)
- Adaptive enforcement based on GeoIP
- Juniper Advanced Threat Prevention to detect and block zero day attacks
- Adaptive Threat Profiling

- Encrypted Traffic Insights
- SecIntel to provide threat intelligence

Warranty:

- Next Business Day support
- Hardware Replacement

2. **Network Switches**

**Offered Network Switches Brand must be at least in Challengers category in Gartner Magic Quadrant for 2021**

- **24-port 10/100/1000BaseT, 4 x 10G SFP/SFP+ (All ports enabled, no license requirement)**
- **48-port 10/100/1000BaseT, 4 x 10G SFP/SFP+ (All ports enabled, no license requirement)**

**Hardware Specifications**

- Switching Engine Model = Store and forward
- DRAM = 2 GB
- Flash = 2 GB
- CPU = 1.25GHz or equivalent
- Backplane: 80 Gbps Chassis interconnect to link up to 4 switches as a single logical device

**Physical Layer**

- Physical port redundancy: Redundant trunk group (RTG)
- Cable diagnostics for detecting cable breaks and shorts
- Auto MDI/MDIX (medium-dependent interface/medium dependent interface crossover) support
- Port speed downshift/setting maximum advertised speed on
  - 10/100/1000BASE-T ports
  - Digital optical monitoring for optical ports

**Packet-Switching Capacities (Maximum with 64-Byte Packets)**

- 24 Port Switch: 64 Gbps (unidirectional)/128 Gbps (bidirectional)
- 48 Port: 88 Gbps (unidirectional)/176 Gbps (bidirectional)

**Throughput (Mpps) (Maximum with 64 Byte Packets)**

- 24 Port: 95 Mpps (wire speed)
- 48 Port: 130 Mpps (wire speed)

**Layer 2 Features**

- Maximum MAC addresses in hardware: 16,000
- Jumbo frames: 9216 bytes
- Number of VLANs supported: 4093 (2044 active VLAN)
- Range of possible VLAN IDs: 1-4094
- Port-based VLAN

- MAC-based VLAN
- Voice VLAN
- Layer 2 Protocol Tunneling (L2PT)
- IEEE 802.1ak: Multiple VLAN Registration Protocol (MVRP)
- Compatible with Per-VLAN Spanning Tree Plus (PVST+)
- RVI (Routed VLAN Interface)
- IEEE 802.1AB: Link Layer Discovery Protocol (LLDP)
- LLDP-MED with VoIP integration
- IEEE 802.1ad Q-in-Q tunneling
- IEEE 802.1br: Bridge Port Extension
- IEEE 802.1D: Spanning Tree Protocol
- IEEE 802.1p: CoS Prioritization
- IEEE 802.1Q: VLAN Tagging
- IEEE 802.1Q-in-Q: VLAN Stacking
- IEEE 802.1s: Multiple Spanning Tree Protocol (MSTP)
- Number of MST instances supported: 64
- Number of VSTP instances supported: 253
- IEEE 802.1w: Rapid Spanning Tree Protocol (RSTP)
- IEEE 802.1X: Port Access Control
- IEEE 802.3: 10BASE-T
- IEEE 802.3u: 100BASE-T
- IEEE 802.3ab: 1000BASE-T
- IEEE 802.3z: 1000BASE-X
- IEEE 802.3af: PoE
- IEEE 802.3at: PoE+
- IEEE 802.3ad: Link Aggregation Control Protocol (LACP)
- IEEE 802.3x: Pause Frames/Flow Control
- IEEE 802.3az: Energy Efficient Ethernet

**Layer 3 Features: IPv4**

- Maximum number of ARP entries: 1,500
- Maximum number of IPv4 unicast routes in hardware: 512 prefixes; 4,096 host routes
- Maximum number of IPv4 multicast routes in hardware: 2,048 groups; 2,048 multicast routes
- Routing Protocols: RIP v1/v2, OSPF v1/v2
- Static routing
- Routing policy
- Bidirectional Forwarding Detection (BFD) with slow timers (> 3sec)
- IP directed broadcast

**Layer 3 Features: IPv6**

- Maximum number of Neighbor Discovery (ND) entries: 1,500
- Maximum number of IPv6 unicast routes in hardware: 512 prefixes; 2,048 host routes
- Maximum number of IPv6 multicast routes in hardware: 1,024 groups; 1,024 multicast routes
- Neighbor discovery, system logging, Telnet, SSH, SNMP, NTP, DNS
- Static routing

- Routing protocols: RIPng, OSPF v3, Multicast Listener Discovery, Multicast Listener Discovery v2

#### **Access Control Lists (ACLs)**

- Port-based ACL (PACL)—256 ingress; 256 egress
- VLAN-based ACL (VACL)—256 ingress; 256 egress
- Router-based ACL (RACL)—256 ingress; 512 egress
- ACL entries (ACE) in hardware per system: 2,000
- ACL counter for denied packets
- ACL counter for permitted packets
- Ability to add/remove/change ACL entries in middle of list (ACL editing)
- L2-L4 ACL

#### **Access Security**

- MAC limiting
- Allowed MAC addresses—configurable per port
- Sticky MAC (persistent MAC address learning)
- Dynamic ARP inspection (DAI)
- Proxy ARP
- Static ARP support
- DHCP snooping
- 802.1X port-based
- 802.1X multiple supplicants
- 802.1X with VLAN assignment
- 802.1X with authentication bypass access (based on host MAC address)
- 802.1X with VoIP VLAN support
- 802.1X dynamic ACL based on RADIUS attributes
- 802.1X Supported EAP types: Message Digest 5 (MD5), Transport Layer Security (TLS), Tunneled Transport Layer Security (TTLS), Protected Extensible Authentication Protocol (PEAP)
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- Static MAC authentication
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- Trusted Network Connect (TNC) certified

#### **High Availability**

- Link aggregation
- 802.3ad (LACP) support:
  - Number of LAGs supported: 128
  - Maximum number of ports per LAG: 8
- Tagged ports support in LAG
- Uplink Failure Detection



## **Quality of Service (QoS)**

- Layer 2 QoS
- Layer 3 QoS
- Ingress policing: one-rate two-color; two-rate three-color markers
- Hardware queues per port: 8
- Scheduling methods (egress): Strict Priority (SP), shaped deficit weighted round-robin (SDWRR)
- 802.1p, DSCP /IP precedence trust and marking
- L2-L4 classification criteria: Interface, MAC address, EtherType, 802.1p, VLAN, IP address, DSCP/IP precedence, TCP/UDP port numbers
- Congestion avoidance capabilities: Tail drop and WRED Multicast
- IGMP snooping entries: 2,000
- IGMP: v1, v2, v3
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- PIM-SM, PIM-SSM, PIM-DM
- MLD snooping

## ***Management and Analytics Platforms***

- Cloud Based Wired Assurance for Campus
- Cloud Based Network Director for Campus
- Cloud Management

## ***Device Management and Operations***

- OS CLI
- Web interface
- Out-of-band management: Serial, 10/100BASE-T Ethernet
- ASCII configuration
- Rescue configuration
- Configuration rollback
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- Simple Network Management Protocol (SNMP): v1, v2c, v3
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- TUV/GS to EN 60950-1 (Second Edition)
- CB-IEC60950-1 (Second Edition with all country deviations)
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b) All the feature mentioned above must be part of the proposed solution.

c) The proposed solution must not be put to End of Life (EOL) by the principal within the next five years' time

The bidder must have minimum **(10) Five years relevant experience in the field.**

4. **AI Driven Wireless LAN Access Points**

**Offered WLAN Brand must be at least in Challengers category in Gartner Magic Quadrant for 2021**

Wi-Fi Standard	802.11ax (Wi-Fi 6), including support for OFDMA, 1024-QAM, MU-MIMO, Target Wake Time (TWT), Spatial Frequency Reuse (BSS Coloring). Backwards compatibility with 802.11a/b/g/n/ac
Combined Highest Supported Data Rates	3.0Gbps
2.4 GHz	2x2 : 2 802.11b/g/n/ac up to 400 Mbps data rate;

	2x2 : 2 802.11ax up to 575 Mbps data rate
5 GHz	4x4 : 4 802.11ax up to 2,400 Mbps data rate
MIMO Operation	Four spatial stream SU-MIMO for up to 2,400 Mbps wireless data rate to individual 4x4 HE80  Four spatial stream MU-MIMO for up to 2,400 Mbps wireless data rate to up to four MU-MIMO-capable client devices simultaneously
Dedicated Third Radio	2.4GHz and 5GHz dual-band WIDS/WIPS, spectrum analysis, synthetic client and location analytics radio
Internal Antennas	Two 2.4GHz omnidirectional antennas with 5 dBi peak gain  Four 5GHz omnidirectional antennas with 6 dBi peak gain
Bluetooth 5.0	Omnidirectional Bluetooth antenna Supports superbroadcast mode with iBeacon and Eddystone
Beam Forming	Transmit Beamforming and Maximal Ratio Combining
Power Options	802.3at PoE, 802.3bt PoE
Mean Time Between Failures (MTBF)	Indoor MTBF in hours is 846,297
USB	USB 2.0 support interface
EtherNet	10/100/1000Base-T; RJ45
Reset	Reset to the factory default settings
Mounting Options	WallMount, CeilingMount
Cloud Services	<ul style="list-style-type: none"> <li>• Predictable and Measurable Wi-Fi</li> <li>• Service-Level Expectation (SLE) Support</li> <li>• WxLAN Policy Fabric for Role-Based Access</li> <li>• Customizable Guest Wi-Fi Portal</li> <li>• Radio Resource Management</li> </ul>
Virtual Assistant	<ul style="list-style-type: none"> <li>• AI-Powered Virtual Network Assistant</li> <li>• Natural Language Processing Conversational Interface</li> <li>• Anomaly Detection</li> <li>• Client SLE Visibility and Enforcement</li> <li>• Data Science-Driven Root-Cause Analysis</li> </ul>
Bluetooth Cloud Services	<ul style="list-style-type: none"> <li>• Identification of Assets by Name and View Location</li> <li>• Zonal/Room Accuracy for Third-Party Tags</li> <li>• Historical Analytics for Asset Tags</li> </ul>



		<ul style="list-style-type: none"> <li>• Telemetry for Asset Tags (temperature, motion and other data)</li> <li>• APIs for Viewing Assets and Analytics</li> </ul>
	Analytics Cloud Services	<ul style="list-style-type: none"> <li>• Baseline Analytics Features Come Included with Wi-Fi Assurance, Mobile Engagement, and Asset Visibility Subscriptions</li> <li>• End-to-End Network Visibility</li> <li>• Orchestrated Networking and Application Performance Queries</li> <li>• Simplified Network Transparency</li> <li>• Baseline Analytics Features Come Included with Wi-Fi Assurance, Mobile Engagement, and Asset Visibility Subscriptions</li> <li>• Customer Segmentation and Reporting Based on Visitor Telemetry</li> <li>• Correlated Customer-Guest Traffic and Trend Analysis</li> </ul>
		<ul style="list-style-type: none"> <li>• b) All the feature mentioned above must be part of the proposed solution.</li> <li>• c) The proposed solution must not be put to End of Life (EOL) by the principal within the next five years' time</li> <li>• The bidder must have minimum <b>(10) five years relevant experience in the field.</b></li> </ul>

5.	<p><b>WLAN Controller / Management</b></p> <p>AI-Driven Cloud Based WLAN Management System</p> <p><b>Automation for Deployment and Provisioning:</b></p> <p>The Cloud based controller platform must be programmable, using open APIs, for full automation and seamless integration with complementary products across LAN, WAN, security, engagement, and asset location domains.</p> <p><b>Comprehensive Network Performance and SLE Dashboard Analytics:</b></p> <p>The Cloud based controller platform must provide a daily and weekly trend of the SLE metrics reports, which should provide unprecedented visibility over the last week for longer-term trend analysis into anomalies seen at the AP, device, application, and OS levels. Required set of available SLEs are: Time to Connect, Successful Connects, Throughput, Roaming, Coverage, Capacity, AP Uptime, WAN.</p> <p><b>Simple Root-Cause Analysis and Remediation:</b></p> <p>The Cloud based controller platform must collect information from all endpoints and correlates it for quick wireless, wired, and device problem identification. More than 150 state changes must be captured for each client device and access point every few seconds. Predictive recommendations and automated workflows for quick remediation of problems or for prevention these entirely.</p> <p><b>Network Rewind and Dynamic Packet Capture:</b></p>
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The Cloud based controller service must automatically detect and start capturing packets when an anomaly is detected. With the record, one should be able to rewind back in time to see what was going on exactly when the event occurred to eliminates hours or even days of guesswork or time spent trying to reproduce an issue.

***Client Profiling:***

The Cloud based controller must profile clients for device types, operating systems, applications, location, and user role, to enable WxLAN to autodetect printers, Apple TVs, and other IoT devices and to categorize them for security and audit reasons, without requiring any manual database management.

***Risk Profiling Driven by Mist AI:***

The Cloud based controller must have Risk Profiling solution, which should bring network security to the distributed network edge. Risk Profiling must provide visibility into infected wired or wireless clients that must be observable within the cloud and shall assigns a threat score determined by the cloud. From within the cloud one can geospatially locate infected devices and take one-touch mitigation actions like ban or deauthenticate.

***AI-Driven Radio Resource Management:***

The Cloud based controller must use data science and cumulative SLE performance to learn and improve radio settings to assure performance, while also instantaneously adapting to intermittent outside interference. The required AI-driven Radio Resource Management must proactively feed coverage and capacity anomalies based on client experience (SLE metrics) into RF decisions so that RF planning continues to improve and adapt.

***Policy Creation and Enforcement:***

The Cloud based controller must deliver operational simplicity by allowing to create policies for role, device type, and user-based access on the network. Global labels must be created for physical and logical resources (users, WLAN, AP, IP addresses, IP subnets, and applications) enable policies to be enforced at the edge on access points.

***Personal WLAN***

The Cloud based controller must Create personal wireless network (with personalized preshared key) through a self-serve portal. This feature can be used to secure IoT and guest traffic as well as provide a scalable solution for multitenant networks.

***Guest Portal:***

The Cloud based controller must be capable to create custom guest portals that can optionally include: terms of service, email/text login, or even social media login to help boost customer engagement.

6. **Core Network Switches**

**Offered Network Switches Brand must be at least in Challengers category in Gartner Magic Quadrant for 2021**

- **24 SFP+/SFP ports, 4 QSFP+ ports, 2 expansion slots, redundant, fans, 2 AC power supplies, 2 power cords, 4-post rack mount kit, and front to back airflow**

***Hardware Specifications:***

- Switching capacity: 720 Gbps (unidirectional)/1.44 Tbps (bidirectional)
- Layer 2/Layer 3 throughput (maximum with 64 byte packets): 1,071 Mpps (wire speed)
- • Switching mode: Cut-through and store-and-forward
- Front-to-back airflow
- Management and rear console port connections
- Predicted mean time between failures (MTBF): 150,000 hours
- Predicted FIT rate: 4,987

***Interface Options:***

- 1GbE SFP: 24
- 10GbE SFP+: 24
- 40GbE QSFP+: 4
  - Each fixed QSFP+ port can be configured as a 4x10GbE interface
  - Each QSFP+ port can be configured as a 40 Gbps port
- USB port
- Console port
- 2 management ports: 1 RJ-45 and 1 SFP
- Supported transceiver and direct attach cable

***Power Supply and Fan Modules***

- Dual redundant (1+1) and hot-pluggable 110-240 V single phase AC power supplies
- Redundant (N+1) and hot-pluggable fan modules for front-to-back airflow

***Performance Scale (Unidimensional)***

- MAC addresses per system: 287,000+
- VLAN IDs: 4,000+
- Number of ports per LAG: 30+
- IPv4 unicast routes: 128,000 prefixes; 208,000 host routes
- IPv4 multicast routes: 103,000+
- IPv6 multicast routes: 50,000+
- IPv6 unicast routes: 63,000+ prefixes
- Address Resolution Protocol (ARP) entries: 47,000+
- Jumbo frame: 9,216 bytes

## **Access Control Lists (ACLs)**

- Port-based ACL (PACL): Ingress and egress
- VLAN-based ACL (VACL): Ingress and egress
- Router-based ACL (RACL): Ingress and egress
- ACL entries (ACE) in hardware per system:
  - Ingress ACL: 1,530+
  - Egress ACL: 1,020+
- ACL counter for denied packets
- ACL counter for permitted packets
- Ability to add/remove/change ACL entries in middle of list (ACL editing)
- L2-L4 ACL
- IPv6 ACL
- Firewall filter on loopback interface
  - Firewall filter on management interface

## **Spanning Tree Protocol (STP)**

- Multiple Spanning Tree Protocol (MSTP) instances: 60+
- VLAN Spanning Tree Protocol (VSTP) instances: 250+

## **Traffic Mirroring**

- Mirroring destination ports per switch: 3+
- Maximum number of mirroring sessions: 3+
- Mirroring destination VLANs per switch: 3+

## **Layer 2 Features**

- STP—IEEE 802.1D (802.1D-2004)
- Rapid Spanning Tree Protocol (RSTP) (IEEE 802.1w); MSTP(IEEE 802.1s)
- Bridge protocol data unit (BPDU) protect
- Loop protect
- Root protect
- RSTP and VSTP running concurrently
- VLAN—IEEE 802.1Q VLAN trunking
- Routed VLAN interface (RVI)
- Port-based VLAN
- MAC address filtering
- GRE tunneling
- QinQ
- VLAN translation
- Static MAC address assignment for interface
- Per VLAN MAC learning (limit)
- MAC learning deactivate
- Link Aggregation and Link Aggregation Control Protocol (LACP) (IEEE 802.3ad)
- IEEE 802.1AB Link Layer Discovery Protocol (LLDP)
- MAC notification
- MAC address aging configuration
- MAC address filtering
- Persistent MAC (sticky MAC) Link Aggregation

## **Link Aggregation**

- Multichassis link aggregation (MC-LAG) - Layer 2, Layer 3, VRRP, STP
- Redundant trunk group (RTG)
- LAG load sharing algorithm—bridged or routed (unicast or multicast) traffic:
- IP: SIP, Dynamic Internet Protocol (DIP), TCP/UDP source port, TCP/UDP destination port
- Layer 2 and non-IP: MAC SA, MAC DA, Ethertype, VLAN ID, source port

## **Layer 3 Features (IPv4)**

- Static routing

- Routing policy
- Routing protocols (RIP, OSPF, IS-IS, BGP, MBGP)
- Virtual Router Redundancy Protocol (VRRP)
- Bidirectional Forwarding Detection (BFD) protocol
- Virtual router
- Dynamic Host Configuration Protocol (DHCP) relay
- Proxy Address Resolution Protocol (ARP)
- Multicast Features
- Internet Group Management Protocol (IGMP): v1, v2, v3
- IGMP snooping: v1, v2, v3
- IGMP filter
- PIM-SM
- Multicast Source Discovery Protocol (MSDP)
- Security and Filters
- Secure interface login and password
- RADIUS
- TACACS+
- Ingress and egress filters: Allow and deny, port filters, VLAN filters, and routed filters, including management port filters
- Filter actions: Logging, system logging, reject, mirror to an interface, counters, assign forwarding class, permit, drop, police, mark
- SSH v1, v2
- Static ARP support
- Storm control, port error deactivate, and autorecovery
- Control plane denial-of-service (DoS) protection
- Dynamic ARP inspection (DAI)
- Sticky MAC address
  
- DHCP snooping
- Filter based forwarding
- IP directed broadcast traffic forwarding
- IPv4 over GRE (encap and decap)

### **Layer 3 Features (IPv6)**

- Static routing
- Routing protocols (RIPng, OSPF v3, IS-IS v6, BGP v6)
- Virtual Router Redundancy Protocol (VRRP v3)
- IPv6 CoS (BA, MF classification and rewrite, scheduling based on TC)
- IPv6 over MPLS LSPs (6PE)
- IPv6 ping
- IPv6 traceroute
- Neighbor discovery protocol
- Path MTU discovery
- SNMP, NTP, DNS, RADIUS, TACACS+, AAA
- Virtual router support for IPv6 unicast

### **Quality of Service (QoS)**

- L2 and L3 QoS: Classification, rewrite, queuing
- Rate limiting:
  - Ingress policing: 1 rate 2 color, 2 rate 3 color
  - Egress policing: Policier, policier mark down action
  - Egress shaping: Per queue, per port
- 12 hardware queues per port (8 unicast and 4 multicast)
- Strict priority queuing (LLQ), smoothed deficit weighted round robin (SDWRR), weighted random early detection (WRED), weighted tail drop
- 802.1p remarking
- L2 classification criteria: Interface, MAC address, Ether type, 802.1p, VLAN
- Congestion avoidance capabilities: WRED

- Trust IEEE 802.1p (ingress)
- Remarking of bridged packets
- Priority-based flow control (PFC)—IEEE 802.1Qbb

**Virtual Chassis**

- 40GbE and 10GbE as Virtual Chassis port
- Virtual Chassis Routing Engine (RE) election
- Virtual Chassis pre-provisioning (plug and play)
- Auto-LAG formation of Virtual Chassis ports
- Mixed Virtual Chassis support between different model switches of same brand (in data center only)
- QoS on Virtual Chassis ports
- Local designated forwarding
- Nonstop routing (NSR)
- Nonstop bridging (NSB)
- Monitor distributed aggregate interface
- Control plane protection for virtual RE

**High Availability**

- Bidirectional Forwarding Detection (BFD)
- Uplink failure detection (UFD)
- Uninterested bridging in Virtual Chassis configuration
- Uninterested routing in Virtual Chassis configuration
- Uninterested software upgrade in Virtual Chassis configuration

**Traffic Mirroring**

- Port-based
- LAG port
- VLAN-based
- Filter-based
- Mirror to local
- Local/L2 remote analyzer (SPAN, RSPAN for IPv4 and IPv6 frames)
- Mirror to remote destinations (L2 over VLAN)
- Insight Technology (microburst monitoring and statistics reporting)

**Device Management and Operations**

- Web Software
- Role-based CLI management and access
- CLI via console, telnet, or SSH
- Extended ping and traceroute
- OS configuration rescue and rollback
- Image rollback
- SNMP v1/v2/v3
- XML management protocol
- sFlow v5
- DHCP server
- DHCP relay on L2 VLAN & L3 interfaces (with option 82)
- DHCP local server support
- High frequency statistics collection
- Beacon LED for port and system
- Automation and orchestration
- Zero touch provisioning (ZTP)
- OpenStack Neutron Plug-in
- OS event, commit, and operations scripts
- Ability to execute scripts written in Python/TCL/Perl

**7. L2 Managed distributive Switch with 1GB 48 x Ethernet Ports + 4 SFP Ports.**

1. Powerful Processing Capacity Perfect Security Control Strategy Perf Reliability Protection Mechanism
2. Switching Capacity 500Gbps

	<ol style="list-style-type: none"> <li>3. Packet Forwarding Rate 120 Mpps</li> <li>4. VLAN 4K Port-based VLAN 802.1Q Standard VLAN MAC-based VLAN Protocol-based VLAN planning Tree STP RSTP MSTP Loop Protection ERPS Loopback Detection</li> <li>5. Support Security Features Hardware</li> <li>6. supports IP ACL, MAC ACL, VLAN ACL Hardware supports IP+MAC binding based on port</li> <li>7. Support IP Source Guard Support ARP Detection</li> <li>8. Support IEEE802.1x port authentication</li> <li>9. Support Radius authentication</li> <li>10. Support the user classification management and password protection network Management WEB (http and https protocol) CLI. Telnet SSH 2.0 SNMP RMON LLDP</li> <li>11. Support the NTP client</li> <li>12. Working Temperature -10~55°C</li> <li>13. Convenient Management and Maintenance.</li> </ol> <p>Spanning Tree Protocol, Routing, VLAN Function, Link Aggregation, IEEE 802.3x Flow Control, Multicast, Reliability, ARP, DHCP Function, Security, IPv6, Equipment Management</p>
8.	<p><b>L3 + MANAGED CORE/ AGGRIGATION SWITCH @ 16×1 GB SFP PORTS @ 4×10 GB SFP PORTS @ 8 × 1 GB ETHERNET PORT.</b></p> <ol style="list-style-type: none"> <li>1. Switching Capacity minimum 560 Gbps.</li> <li>2. Packet Forwarding Rate minimum 120 Mpps.</li> <li>3. Packet Buffer Size 1.3Mbyte.</li> <li>4. Ethernet Port Speed 10/100/1000 Mbps.</li> <li>5. MAC Table size 14K.</li> <li>6. IPv4 Routes 10K Dynamic ARP 4K.</li> <li>7 Rack mount.</li> <li>8. Rack mount.</li> <li>9. CE/FCC/UL</li> </ol>
9.	<p>1 Gigabit pluggable single mode 25G SFP transceiver 1310 / 1550nm, 20km LC.</p>
10.	<p><b>PowerEdge R750xs Server</b></p> <p>Intel Xeon Silver 4310T (2)/ Chassis with up to 8 x 3.5"/ 16GB RDIMM, 3200MT/s, 900GB 15K RPM SAS/ PERC H745/ iDrac9, Enterprise + Open Manage Ent Advanced /DVD+/-RW, SATA/ Dual, Hot-plug, Redundant Power Supply (1+1), 800W</p>
11.	<p>SERVER</p> <p><b>(Power edge T140)</b></p> <p>Intel ® Xeon ® E-2200 product family, intel Pentium ®, Intel Core i3 ® Intel Celeron ® 4x DDR DIMM slots,</p>

	<p>RAID 3 x 1TB. Which Supports UDIMMs, speeds up to 2666MT/s 64 GB? IDRAC9.Open Manage Enterprise.</p> <p>RAID 3 x 1 TB. Minimum 4x 3.5 cabled bays</p>
12.	<ol style="list-style-type: none"> <li>1. ISO certified brand / UL listed</li> <li>2. 0.565 (23AWG),</li> <li>3. UTP Cat 6 A Cable ,</li> <li>4. solid bare copper (99.95%) 75C U/UTP CAT-6 Network Cable</li> <li>5. including the RJ-45 connectors,</li> <li>6. Support Poe long distance transmission,</li> <li>7. Life time of cable 10 year or higher.</li> <li>8. Environmentally-friendly outer sheath;</li> <li>9. Top-notch quality.</li> <li>10. Including Best quality 15u inch gold plated contacts,</li> <li>11. support 1000 base-T Ethernet,</li> <li>12. Compliant with ROHS standard, 8 pins x 8 conductors.</li> </ol> <p><b>(Rate per feet)</b></p>
13.	<p><b>2 Core Power cable for centralized power distribution</b></p> <ol style="list-style-type: none"> <li>1. ISO certified brand,</li> <li>2. Two Core 2.5 mm</li> <li>3. pure copper,</li> <li>4. flexible,</li> </ol> <p><b>(Rate Per Feet)</b></p>
14.	<p><b>Water / weather proof, edge DB for Poe switch, ODF for outdoor use</b></p> <p>Weather and rust proof power coated  Built-in fiber splice box  Built-in temperature control sheet inside  20 Ft extra OFC 12/24 core rolling option.  operating temp -10 to +55 C,  including fans for heat extraction, air filter with exhaust pocket  removable tray with dual shelves and universal fittings  built-in fiber in out holding clumps inside DB  built-in earthing strip and electric connectors  digital volt meter,  6 to 10A, 2 Pole, Schneider circuit breaker,  power distribution board (minimum 4 port PDU)  dual locks with keys,  Dual mounting options ground and wall.  Built in rain shed  Permeant tagging plates</p>
15.	<p><b>12 U Rack for Poe switch, ODF etc. for indoor use</b></p>



	<ol style="list-style-type: none"> <li>1. Built-in fiber splice box</li> <li>2. 20 Ft extra OFC 12/24 core rolling option.</li> <li>3. including fans for heat extraction, air filter with exhaust pocket</li> <li>4. removable tray with dual shelves and universal fittings</li> <li>5. built-in fiber in out holding clumps inside DB</li> <li>6. built-in earthing strip and electric connectors</li> <li>7. digital volt meter,</li> <li>8. 6 to 10A, 2 Pole, Schneider circuit breaker,</li> <li>9. power distribution board (minimum 4 port PDU)</li> <li>10. dual locks with keys,</li> <li>11. Dual mounting options ground and wall.</li> <li>12. Permeant tagging plates</li> </ol>
16.	<p><b>(Complete tools kit and Networking Set)</b></p> <ol style="list-style-type: none"> <li>1. Complete Networking tools kit Set i.e. (cable stripper, Y key professional Network crimping tool, high quality LAN / Network cable tester having ability to Check line voltage on RJ45 (PoE), cable tracer</li> <li>2. digital laser tape measure</li> <li>3. 02 Nos room temperature + humidity meter / Tester,</li> <li>4. tagging machine with 02 Nos Tap</li> <li>5. 02 optical fiber testing laser light (Specially designed for OFC testing)</li> <li>6. Digital soldering station (Qawia Set with its related accessories),</li> <li>7. Digital SMD Hot Air Rework Station (Heat gun),</li> <li>8. Glue Guns Set</li> <li>9. tools carrying bag</li> <li>10. aluminum 02 Nos sliding + folding stairs</li> <li>11. original screw driver set,</li> <li>12. Nuts opining / spanner type wrench keys set,</li> <li>13. Earthing tester.</li> </ol>
17.	<ol style="list-style-type: none"> <li>1. ISO Certified brand Duct / PVC-U pipe</li> <li>2. including delivery,</li> <li>3. Accessories like sockets, bends, elbows, wall clamps etc.</li> <li>4. Complete in all respect <b>In RFT.</b></li> </ol>
18.	12 Ports ODF full loaded with all accessories
19.	24 Ports ODF full loaded with all accessories
20.	Single Mode 12 core Optical fiber cable,
21.	Single Mode 24 core Optical fiber cable,
22.	Single Mode 48 core Optical fiber cable,
23.	<b>ISO Certified / UL listed brand Node box</b>

	<ol style="list-style-type: none"> <li>1. I/O RJ-45 Female connector</li> <li>2. Face plate</li> <li>3. Back box</li> </ol>
24.	<b>SFP Module to RJ-45 Cat6 etc.</b>
25.	<b>Fixed Rj-45 interface with metallic shield</b>
26.	<ol style="list-style-type: none"> <li>1. US / EU / ISO certified</li> <li>2. online 1 KVA standard backup time UPS,</li> <li>3. Rack mounted.</li> </ol>
27.	<b>5~8 Feet Leader for Complaint</b>
28.	SFP+ 10GBASE-SR 10-Gigabit Ethernet Optics, 850 nm for up to 300 m transmission on multimode fiber optic (MMF)
29.	<p><b>Smart-UPS 20 kilo Watt 400V UPS A Category with 2 hour Long Backup.</b></p> <p>Industrial grade online double conversion ups</p> <ul style="list-style-type: none"> <li>➤ Power Factor: 0.8, 0.9 &amp; 1 (as required)</li> <li>➤ Phase: Three Phase</li> <li>➤ Model: ES2033</li> <li>➤ Display: Digital Display</li> <li>➤ Communication Interface:</li> <li>➤ Voltage Range: 380/400/415V Adjustable</li> <li>➤ Frequency Handling: 10% Adjustable</li> <li>➤ Soft Start: 0-100% 5Secs</li> <li>➤ DC: 348V</li> <li>➤ Charge Current: 10-25A Adjustable</li> <li>➤ Transfer Time:</li> <li>➤ Temperature: 0-50 degree</li> <li>➤ Humidity: &lt;95 % when 20 degree</li> <li>➤ Noise: 63 db</li> <li>➤ 100 ah X 32 batteries+ external batteries bank and cables</li> </ul>
30.	SFP Transceiver module
31.	UTP Cat-VI I/O
32.	Faceplate
33.	Back Box
34.	24 Port Patch Panel Fully Loaded
35.	9U Rack
36.	Pigtail SC-SC
37.	SC-LC Patch Cord (1 Meter)
38.	Duct 60 x 60 (Each 10ft Length)
39.	Duct 40 x 40 (Each 10ft Length)
40.	Duct 16 x38 (Each 10ft Length)

41.	PVC Pipe 1 1/2 Inch for Ethernet Cabling
42.	PVC Pipe 1 Inch for Power & Fiber (Each 10ft Length)
43.	40/76 Power Cable (ft)
44.	Power distribution unit Branded
45.	100Amp Breaker for Control Room with DB
46.	10Amp Breaker
47.	HD Pipe 1 Inch (ft)
48.	Digging and Filling for Optical Fiber (ft)
49.	OFDF 6 Ports
50.	UTP Cat-VI Patch Cord 1 Meter
51.	27U Rack <ul style="list-style-type: none"> <li>➤ 27 U Rack</li> <li>➤ Floor Standing</li> <li>➤ Perforated Dual Compartment Door</li> <li>➤ 2 Fixed Tray and 1 sliding tray</li> <li>➤ 4 Fans</li> <li>➤ Fan kit and PDU</li> </ul>
52.	42U Rack <ul style="list-style-type: none"> <li>➤ 42 U Rack</li> <li>➤ Floor Standing</li> <li>➤ Perforated Dual Compartment Door</li> <li>➤ 2 Fixed Tray and 1 sliding tray</li> <li>➤ 4 Fans</li> <li>➤ Fan kit and PDU</li> </ul>
53.	CAT-VI (A) network cable Roll
54.	Cable tracing, labeling / tagging and management of 6,000 Feet Cable.
55.	Installation, Configuration & commissioning charges:* Installation and Termination of UTP I/O
56.	* Installation and Termination of Patch Panel
57.	* Installation and Termination of OFDF
58.	* Installation and fixation of Data Cabinet
59.	* Installation and Configuration of Switches,
60.	* Installation and Configuration of Access Points,

61.	* Installation and Configuration of, Access Point Controller
62.	*Installation and Configuration of Firewalls
63.	Relevant installation / commissioning configuration services of quoted Electronic Device/equipment with Free servicing / minor repairs to 1 x years warranty period.