

**CORRIGENDUM-IV**

**Subject: Extension in Last date of Submission of e-bids and Modification of Specifications regarding e-Tender Notice Ref. No. NITJ/PUR/MBH/95/2022 for the Purchase of Active and Passive Components required for Mega Boys Hostel (Block – A, B & F)**

With reference to previous corrigendum-III, a meeting of networking committee was held on 18.04.2023 with various potential vendors. After discussion in the meeting, some of the specifications were revised by the committee. The modified specifications are available on (Annexure-1) with this corrigendum. Further, the last date of submission of e-bids has further been extended as per following schedule:

<b>Last date of submission of online bids</b>	04.05.2023 at 03:00 PM
<b>Physical submission of Tender Fee &amp; EMD</b>	08.05.2023 at 11:00 AM
<b>Opening of Technical e-bids (online)</b>	08.05.2023 at 11:00 AM

Rest of the specifications, other terms & conditions of the Tender Documents shall remain same.

**Registrar**

# Annexure - 1

**Dr B R Ambedkar National Institute of Technology, Jalandhar**

## Computer Centre

Equipment Required( Wi Fi) in MBH ( Active and Passive Components)

Active Components								
Sr No	Name of the equipment	Block A	Block B	Block F	Mega Guest House	Mess Area/Gym Area etc	Total Rqment	
A	Switch 24 PoE	03	03	03	01	02	12	
B	Distribution Switch 24 Port Fiber Port 10 G	01						01
C	Wi Fi Controller (HA mode)	02						02
D	Access Points (Indoor)	6(GF) + 6(1 <sup>st</sup> ) + 6(2 <sup>nd</sup> ) + 6(3 <sup>rd</sup> ) + 6(4 <sup>th</sup> ) + 6(5 <sup>th</sup> )	6(GF) + 6(1 <sup>st</sup> ) + 6(2 <sup>nd</sup> ) + + 6(3 <sup>rd</sup> ) + + 6(4 <sup>th</sup> ) + + 6(5 <sup>th</sup> ) + +6(6 <sup>th</sup> )	6(GF) + 6(1 <sup>st</sup> ) + 6(2 <sup>nd</sup> ) + +6(3 <sup>rd</sup> ) + +6(4 <sup>th</sup> ) + + 6(5 <sup>th</sup> )	2(GF) + 2(1 <sup>st</sup> ) + +2(2 <sup>nd</sup> )	3(GF) + 3 (1 <sup>st</sup> )+3(2 <sup>nd</sup> ) + 3(3 <sup>rd</sup> )+3(4 <sup>th</sup> )	Total 15	135
E	Access Point (Outdoor)	8	8	8			24	
F	Fiber Modules 10G ( Multi Mode)	7	7	7	4	5	30	
G	Fiber Modules 1G Single Mode Copper 1G				20		20	
H	Fiber Modules 10G ( Single Mode)				02		02	
I	UPS 3 kVA With 42Ah sealed MF batteries with One Hour Back up or higher	One	One	One			04	
J	UPS 3 kVA with 42Ah, sealed MF batteries With One Hour Backup or higher	One (Server Room)						
Passive Components								
1.	Switch Racks 12U (Extra depth with 630mm) Fully loaded	03	03	03	01 (Server Room)	02	12	
2	Fiber Patch	8	8	8	2	4	30	

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**Dr B R Ambedkar National Institute of Technology, Jalandhar**

**Computer Centre**

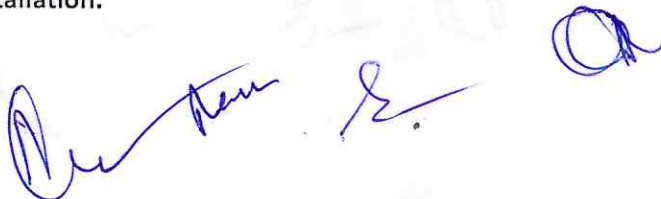
	code(Multi Mode) SC to LC					
3	Fiber Patch code(Single Mode)SC to LC	02				02
4.	Fiber 6 Core (Multi mode)	500 m				500m
5	LIU 24 Port Fiber Fully loaded with SC Adapters and pigtail Cables ( Multi mode)	15 nos				15 nos
6	Cat VI a cable	35 Bundles(305 meters each)				35 Bundles
7	24 Port patch panel- cat VI a Fully Loaded	15 Nos				15 Nos
8	I/O SMB CAT VI a with faceplate and gang Box	165				165 Nos
9	Patch Code 1m CAT VI a cable	325				325 Nos
10	PVC Channel 75x75	1500m approx				1500m (approx.)

Services Part:

1. Laying of CAT VI A cable cost per meter
2. Laying of OFC Cable cost per meter
3. Laying and fixing of PVC Channel Cost per meter
4. Termination of VAT VI a Cable at both ends ( Rack and field end) Cost per No.
5. Testing , Labeling, Ferruling of CAT Via Cable Cost Per No
6. Installation and dressing of Rack Cost Per Rack
7. Fiber Splicing per Core Cost
8. Access point Installation and Configuration charge per Piece
9. Any other Miscellaneous charges

Note:

1. Compliance of PPP-MII Order must be ensured.
2. The items should be compliant with Indian/Foreign standards.
3. Quantity required for Active and Passive equipment/item may vary at the time of actual installation.



ANNEXURE

24 PORT SMART MANAGED PoE + SWITCH WITH 2x10G SFP ports and 2x10 Copper Port

Parameter	Description of 24 port POE+ Switch	Compliance
Form Factor	Switch have 19" Rack Mountable (1U)	Column1
Physical Dimensions	xxxx	
Architecture	Non Blocking	
Ports	It provides 24 10/100/1000Base-TX ports with PoE+with 2x10G SFP ports and 2x10 Copper Port	
GBIC/SFP	support 2x10G SFP ports and 2x10 Copper Port	
Management Interface	Web/SNMP/SSH/Telnet(IPv4/IPv6 ready)/Console	
PoE	270W (PoE+ supported) with (2KV or higher) surge protection	
Port Status	Power, Link/Act, PoE	
Power over Ethernet	Support IEEE802.3af, IEEE802.3at	
Surge Protection.	24 port PoE Interfaces, Max. PoE Wattage per Port: 30W	
MAC Addresses	with <b>2KV or higher</b> surge protection per port	
Switching capacity	Supported Up to 8K MAC addresses	
and forwarding rate	56 Gbps	
VLANConfiguration	41.7 MPPS	
	supports upto 4K VLAN Based on 802.1Q,MAC-Based VLAN, IP-Based VLAN	
	Protocol-Based VLAN	
	Voice VLAN, Guest VLAN, Private VLAN	
	VLAN Mapping	
	Double VLAN Markup (Basic Q-in-Q)	
MAC Configuration	Support Static MAC Address, MAC Binding, MAC Filtering	
Management	Support Web Management	
	Support serial port management, Support TELNET management, Support SSH management	
L2 Loop Protection	Support RMON 1,2,3,9 group	
	support port loop detection	
	Support STP/RSTP/MSTP	
Link Aggregation	Support manual Link Aggregation, Support LACP	



	Up to 8 maximum aggregation groups, each containing up to 8 ports
<b>QOS Support</b>	Support WRR, SP, WFQ, Sorting Based on 802.1p, Support packet mapped to the corresponding output queue, Support to modify the packet's COS and DSCP sign, Support limit of data flow, Support statistics of data flow, Support mirroring of data flow
<b>ACL Support</b>	Based on Standard IP Based on Extend IP Based on MAC IP Based on MAC ARP Based on time Port Filtering Switch Support DHCP Snooping Switch Support IGMP Snooping ICMPv6 IPv6 Neighbor Discovery MLD Snooping IPv6 Telnet
<b>DHCP SNOOPING</b>	
<b>IGMP SNOOPING</b>	
<b>IPv6</b>	
<b>Port Security</b>	Each port can be configured into isolated protected port from each other
<b>SNMP</b>	Support SNMP protocol, Support SNMP TRAP, Support standard and private MIB Support neighbor discovery protocol, Support topology discovery protocol, Support manual and automated join cluster group, Support cluster unification management /
<b>Cluster Management</b>	<b>Stacking feature</b>
<b>OAM</b>	Support 802.3ah, Support 802.1ag or equivalent
<b>Configuration</b>	
<b>Download/Upload and Upgrade</b>	switch have Download/Upload and Upgrade Firmware availability.
<b>Firmware</b>	Support Ping, Traceroute, Telnet client.
<b>Debugging Tools</b>	Support many to one mirroring
<b>Port mirroring /span Port</b>	Support dynamic ARP binding to prevent ARP spoofing
<b>DHCP SNOOPING</b>	Support dynamic IP, MAC port binding
	Support stationary port connect to DHCP server, to prevent privately connect to DHCP sever

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AAA	Support 802.1x protocol, RADIUS , Support MAC-based 802.1X authentication, Support 802.1x guest VLAN
Layer 3 Switching support	Supports static Route and Static ARP
EAPS Protocol	switch supports ERPS
Power	AC Input 100-240V AC. Power Cable as per Indian Standards to be Provided.
Warranty Support	Switch should support 3 years of warranty

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## Specifications of WLAN Controller

Sr. No	Specifications	Compliance (Yes / No)
<b>1</b>	<b>WLAN Controller Architecture should support HA</b>	
1.1	The wireless controller shall have Six RJ-45 auto-sensing 10/100/1000 ports ((IEEE 802.3 Type 10Base-T, IEEE 802.3u Type 100Base-TX, IEEE 802.3ab Type 1000Base-T) <b>(Fiber /10G 4-ports, Copper/10G 4-ports)</b>	
1.2	<b>XXXXXXXXXX</b>	
1.3	The device should have 1 console port (RJ-45/DB9)	
1.4	The device should support 1 USB for Keyboard / Mouse	
1.5	Shall support IEEE 802.11b/g/n/ac Access Points for centralized management and control	
1.6	<b>XXXXXXXXXX</b>	
1.7	Shall support up to 512 AP's and 512 Users	
1.8	The wireless controller shall be 1U 19" Rack-Mountable (the rack mounting kit shall be included)	
<b>2</b>	<b>WLAN Controller Mobility Features</b>	
2.1	Shall support fast roaming providing service transparency and fast hand-offs across Access Points within and across subnet boundaries	
2.2	Shall support QoS and security services which follow users as they roam	
2.3	Shall have full service capabilities for wireless networks controlled across the WAN/LAN	
2.4	Shall support central configuration of virtual service communities (or SSIDs) QoS, authentication, encryption, and VLANs	
2.5	The proposed WLAN Architecture shall support distributed traffic forwarding allowing traffic to flow directly from source to destination, eliminating needless traffic to pass through the controller, delivering better performance and faster, more-responsive applications	




2.6	Shall support distributed 802.1x authentication allowing controlled access points to directly authenticate users through an external RADIUS server without controller involvement
2.7	Shall support WAN failover over multiple WAN/LAN connection
2.8 *	Shall support Port forwarding for hosting virtual server
2.9	Shall support VPN or PPTP/L2TP
2.10	XXXXXXXXXX
2.11	<b>Centralized DHCP Support</b>
<b>3</b>	<b>WLAN Controller Security Features</b>
3.1	Shall support authentication based on user credentials (802.1X/EAP), hardware identifiers (MAC address, WEP key), and HTML login
3.2	Shall support authentication and authorization through external RADIUS AAA services
3.3	XXXXXXXXXX
3.4	Shall support secure management interfaces, including access through CLI/Web
3.5	XXXXXXXXXX
3.6	Shall support VLAN mapping of guest access traffic for secure passage through corporate network
3.7	Shall have Captive portal for guest user authentication , MAC Authentication , PPPoE Authentication , Web Authentication for users
<b>4</b>	<b>WLAN Controller Management &amp; Other Features</b>
4.1	Shall control a network of 512 Access points ensuring consistent security, QoS, and roaming services from AP to AP
4.2	Shall have scalability consistent in 802.11 a/b/g and 802.11n networks
4.3	Shall support auto AP discovery, monitoring and configuration through CAP/WAP protocol <b>or equivalent</b>
4.4	Shall support central management of wireless access point operating modes
4.5	Shall support plug-and-play auto-discovery and software installation for easy access point deployment
4.6	Shall have easy-to-use web-based administrator interface

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4.7	Shall support accurate seamless integration with wired network, leveraging existing L2/L3 infrastructure resources, e.g., QoS, VLANs, and External RADIUS AAA
4.8	Shall support RADIUS activity statistics collection per-user for billing by data volume and elapsed session time
4.9	AC can dynamically adjust uniform distribution of users among different AP using Policy Rules
4.10	Operating temperature up to 40°C

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## Specifications 24 Port Distribution Switch

Sl.No	Minimum Specification
1	Switch should be fixed form factor with full Enterprise Layer 3 image supporting IPv4 and IPv6 and BGP with the latest Firmware as available with Line rate non-blocking performance.
2	24x 10G SFP+ with 2x 40G ports
3	656 Gbps Switching Capacity and throughput 488mbps must be offered from Day 1
4	10G-LR optic -2 no per switch. Should be from Switch OEM.
5	24x 1G/10G SFP+ ports & 8*1G RJ45 port with transceiver 16 x 10 G fiber and 8 x 1 G Copper
6	The switch should support HA options in Active - Active or Active Backup configuration as required, all supporting features and licenses to be provided to support the same. Through VSF
7	The switches should be interconnected to offer line rate speed as desirable.
8	The switch should support relevant 1G/10G interfaces to connect.
	<b>Performance</b>
9	Minimum 1 Tbps backplane or more with non-blocking performance supported by toly/Microm or equivalent reports
10	Minimum 32K MAC addresses and ARP table
11	Switch should have 512MB RAM and 4MB packet buffer
12	4K 802.1Q vlans with 4K vlan ID support
	<b>Networking Features</b>
13	Should support L3 routing in hardware for both IPv4 and IPv6 packets
14	Should support 64K route table capacity for IPv4 and IPv6 in hardware.
15	Should support Static Route, OSPF, BGP from Day one for both IPv4 and IPv6 considering all License,
16	Should support 8 ports upto max 128 LAG groups, should be able to LAG across switches
17	Switch should have BGP, VRF
18	MLD Snooping v1/v2, MLD snooping, IGMP Snooping v1/v2/v3, PIM technologies
	<b>Security Features</b>
19	Should support all AAA functions with RADIUS and TACACS integration.
20	Should support various strom control functions.
21	Should support 802.1x implementation using RADIUS
22	Should support Ingress and Egress Acls
	<b>Management Function</b>
23	Should support encrypted communication between the user accessing the device namely using all
24	Should support features like LLDP, LLDP-MED or equivalent
25	The Operating image should be modular in architecture with the industry standard CLI would be



26	Should support sFlow or equivalent
27	Should support management function like Ping, Telnet, Tracert for both IPv4 and IPv6
	<b>Physical parameter of switch</b>
28	Switch should have minimum 512MB RAM, 32 MB SPI Flash 128M Nand flash and 4 MB packet buffer
29	AC 120/240 V ( 50/60 Hz )
30	The proposed switch should be offered 2 Fixed Fan
31	Operating temperature: 32° to 104°F (0° to 40°C)
32	AC 120/240 V ( 50/60 Hz )
	<b>Compliant Standards:</b>
33	Should be ROHS Complied Self Certified
34	OEM warrant for 5year

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INDOOR (CEILING/WALL)

OUTDOOR (POLE / WALL)

	Technical Specification		
1	Chipset		
2	Mounting	Ceiling / Wall	POLE / WALL
3	Antenna Type	Internal	Internal
4	Number Of Radios	2	2
5	Frequency Band	Dual band	Dual band
6	Supported Wi-fi Standards	802.11a/b/g/n/ac	802.11a/b/g/n/ac
7	Max Wireless Signal Range in Mts	50	300
8	Channel Width (MHz)	80 MHz	80 MHz
9	Maximum Data Rate MBps	1200	1200
10	Supported Encryption	WEP/WPA2/AES	WEP/WPA2/AES
11	Receiver Sensitivity in db	-94	-94
12	Transmit power (tx)(dBm)	27 dbm	27 dbm
13	Mode : AP / Router / Repeater / WISP	YES	YES
14	Radio Resource Management such for power channel, coverage hole detection and performance optimization	Available	Available
15	Support for Load Balancing between 2-4 Ghz and 5 Ghz (Via Controller )	Available	Available
16	Support for Configurable Carrier Threshold	Available	Available
17	Device Management	Available	Available
18	Support for QoS for Voice over Wireless	Available	Available
19	Support for MIMO	MIMO	MIMO
20	Number of MIMO supported & Spatial Streams (Per band)	2X2:2	2X2:2
21	Number of WLAN (SSID) per AP	8	8
22	Maximum clients Nos	128	128
23	Support for Autonomous access- point option	Available	Available
24	Number of 10/100/1000 port	2	2
25	Support for Beam forming	Available	Available

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26	Operate as a sensor for wireless IPS	Available	Available
27	Support for QoS and Video Call Admission Control capabilities	Available	Available
28	Support for Rogue access point detection	Available	Available
29	Support for Wireless Intrusion Protection System	Available	Available
30	WPC certified	Available	Available
31	Support non-Wi-Fi detection for off-channel rogues and Containment for both radio while serving the client simultaneously	Available	Available
32	Powering options (Such as AC/DC, 802/3af PoE, 802/3at PoE+), specify	DC + 802.3at PoE	DC + 802.3at PoE
33	Operating Temperature Range (Degree C)	0 ~ 40 DEG CEL	- 40 ~ 55 DEG CEL
34	Operating Humidity (%RH)	0%~90%	0%~90%
35	Weight (grams)	<1000	<1000
36	OEM Warranty (Years)	3	3
37	Ingress Protection	IP31	IP67
38	FIT / FAT Mode	YES	YES
39	WLAN controller	<b>As per specifications</b>	
40	Modes Supported	AP + Repeater	AP + Repeater

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### Specifications of 10G SFP LC Type Transceiver (Qty 30)

Item	Operational	Specification	Compliance
1	Architecture	10G SX-SFP Multi-mode Fiber Transceiver	
2	Connector	It should have duplex LC Connector	
3	Flow control.	Support 802.3z	
4	Mode/Fiber Type	Multimode	
	Support Max Cable Distance	280 to 550m	
5	Support wavelenght	:850nm	
	Case Operating Temperature:	0° ~ 70°	
7	Storage Relative Humidity:	5% to 95%	

### Specifications of 1G SFP LC Type Copper Transceiver (Qty 20)

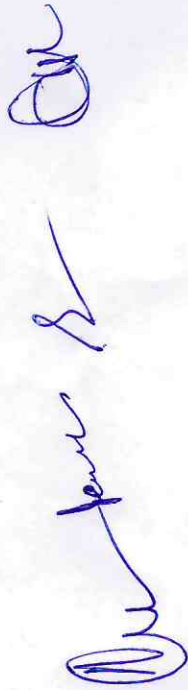
Item	Operational	Specification	Compliance
1	Architecture	1G SX-SFP Single-mode Copper Transceiver	
2	Connector	It should have duplex LC Connector	
3	Flow control.	Support 802.3z	
4	Mode/Fiber Type	Multimode	
	Support Max Cable Distance	280 to 550m	
5	Support wavelenght	:850nm	
	Case Operating Temperature:	0° ~ 70°	
7	Storage Relative Humidity:	5% to 95%	

### Specifications of 10G SFP LC Type Fiber Transceiver (Qty 20)

Item	Operational	Specification	Compliance
1	Architecture	10G SX-SFP Single-mode Fiber Transceiver	
2	Connector	It should have duplex LC Connector	
3	Flow control.	Support 802.3z	
4	Mode/Fiber Type	Multimode	

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	Support Max Cable Distance	280 to 550m
5	Support wavelength	:850nm
	Case Operating Temperature:	0° ~ 70°
7	Storage Relative Humidity:	5% to 95%



**TENDER SPECIFICATION FOR MULTIMODE UNITUBE ARMOURED FIBER CABLE**

SR. NO.	SPECIFICATION/QUALITATIVE REQUIREMENT	COMPLIANCE (YES/NO)	REMARK
1	06-Core, Multimode 50/125 micron primary coated buffers, Armoured Loose Tube, ECCS (Electrolytic Chrome Coated Steel) Tape, Jelly Filled Loose Tube.		
2	Two Steel Wires/Rods embedded in outer periphery of the jacket as strength members. UV Stabilised jacket and protected from Rodent attacks		
3	Complying to ANSI/TIA-568-C.3, ISO/IEC 11801, Telecordia GR-20 Core, IEC 60793-1/60794-1, EN 50173, RoHS Compliant		
4	Suitable for use in indoor/outdoor ducts, direct burial and backbone cabling		
5	Loose tube material : Polybutylene Terephthalate (PBT) with Natural/White Colour having Inner Diameter/Outer Diameter 1.7/2.5 ± 0.1 mm		
6	Peripheral strength member as two steel wires/rods having dimensions as 0.6 ± 0.05 mm		
7	Moisture Barrier as Water Swellable Tape, Armouring ≥ 0.150 mm (ECCS Tape), Number of Ripcords as 01 no polyester based yarns.		
8	Outer sheath material as HDPE with diameter as 7.5 ± 0.5 mm having thickness of 1.5mm nominal		
9	Weight of the cable for 04/06/0812 core (HDPE): 65.0 ± 10 kg/km		
10	Fiber colour and Loose tube colour as per ANSI/TIA standards.		
11	Tensile Strength : 1000 N, Crush Resistance : 4000 N/100mm		
12	Minimum bend radius : 20 x Diameter (during installation), bend radius : 10 x Diameter (during full load) <span style="float: right;">Minimum</span>		
13	Fiber Type : 50/125 (OM2) <b>OM3 or higher</b>		
14	Attenuation as per <b>OM3 or higher</b> : 50/125 (OM2) (≤ 2.7 dB/km (@850 nm), ≤ 0.8 dB/km (@1300 nm)		
15	Band Width : <b>OM3 or higher</b> 50/125(OM2) (≥ 500 MHz.km (@850 nm), ≥ 500 MHz.km (@1300 nm)		
16	Core Cladding Concentricity Error : ≤ 1.0 µm		
17	Cladding Diameter : 125 ± 1 µm , Coating Diameter : 250 ± 15 µm		
18	Cladding Non-circularity : ≤ 1 %		
19	Installation Temperature : -20 °C to +70° C, Operating Temperature : -20 °C to +60° C		
20	Cable Size and Standard Length: 4F to 12F : 2/4kms ± 10%		

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**TENDER SPECIFICATION FOR FIBER RACKMOUNT 24 Port LIU (LOADED DRAWER TYPE)**

SR. NO.	SPECIFICATION / QUALITATIVE REQUIREMENT	COMPLIANCE (YES/NO)	REMARK
1.	Suitable to mount at different positions (depth wise) on standard 1U 19 inch racks. Drawer type to pull out for easy maintenance when assembled in racks.		
2.	Cold Rolled Steel material with black powder coating		
3.	Three types of cable entry holes for different size cables through cable glands, covered with rubber cable grommets/covers.		
4.	Splicing of 24 fibers in each plastic fiber splicing trays with integrated cable spool design.		
5.	<b>Top cover with rear cover should be there.</b>		
6.	Suitable for assembling 6/12/24/48 (SC/LC, Simplex/Duplex) adapters on rackmount ports.		
7.	Accessories kit consists of Cable management rings/Cable saddles (6 nos), Cable glands (PG13.5, 2 nos), Splice rods (24/48 nos), Blanking clips (24 nos), Velcro ties (12 nos.), Cable ties (6 nos.), Cable inlet/outlet hole covers (2 types, 2 nos each)		
8.	Cable management rings/Cable saddles can be mounted inside the rackmount, no provision to mount outside in front of the adapter panel.		
9.	Suitable for storing up to 3 meters of 900 µm tight buffered fiber pigtail per adapter.		
10.	Panel Dimensions : 482 x 220 x 44.3 mm (Length x Width x Height)		
11.	Splice Tray Dimensions : 220 x 90 x 15 mm (Length x Width x Height)		
12.	Port identification numbers printed on the Adapter panel		
13.	Standards: Comply as per ANSI/TIA-568-C.3, ISO/IEC 11801, RoHS Compliant.		
14.	Operating Temperature : -20 °C to +70° C Installation Temperature : -20 °C to +70° C		

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