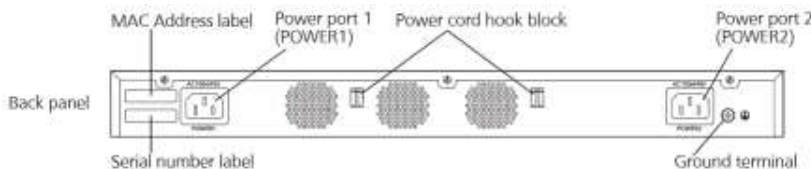


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1. Summary ZEQUO 5410DL is a Layer 3 Ethernet Switch with management function having 100BASE-TX/1000BASE-T/10GBASE-T ports and SFP+ extension slots. 2. Feature (1) Has wire-speed Layer 3 switching function. (2) Ports 1 to 4 are 100BASE-TX/1000BASE-T/10GBASE-T ports corresponding to auto-negotiation. Also their speed and communication mode can be switched by configuration. (3) Ports 5 to 16 are SFP+ extension slots. They are capable of 10Gbps communications. They can be used as SFP or SFP+ ports. (4) If the stacking functions have been activated, ports 15 and 16 can be stacked. By using the SFP+ modules and the optical fiber cables, or the SFP+ direct attach cables, stacking connections are feasible for up to a maximum of two units whereas the ZEQUO 5410DL are used. (5) Settings and firmware can be changed and saved by using an SD card. (6) Equipped with two power ports, power redundancy is feasible. Normally operates even with just the AC power supplied to either one of the power ports. (7) All twisted pair ports support straight/cross cable auto sensing function. Simply connect devices with straight cables, whether it is a terminal or a network device. (This function does not work if the port communication configuration is set at Fixed or Link Aggregation.) (8) Equipped with energy efficient Ethernet (EEE) conforming to IEEE802.3az (LPI). When there is no data transmission at link up, the energy-saving state automatically starts so that power consumption can be reduced on each port. (9) Due to the loop detection/shutoff function, a port where loop has occurred can be automatically shut off to prevent loop failures. (10) The ports which the loop has generated are displayed via the LED, and the network administrator can specify the ports which the loop has generated after the loop is resolved via the loop history functions. (11) The Ring Redundant Protocol (RRP) is supported, allowing to make a redundant network via ring topology.			
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3. Rated/Environmental Conditions			
3-1. Power supply	AC100-240V, 50/60Hz, 1.7A (with a built-in power supply)		
3-2. Power consumption	When either power port 1, or power port 2 is connected Normally, Max. 44.6 W, Min. 21.4 W When both power port 1 and power port 2 are connected Normally, Max. 47.2 W, Min. 24.5 W *Power redundancy is feasible		
3-3. Operating environment	Temperature: 0 - 50℃ Humidity: 20 - 80%RH (no condensation)		
3-4. Storage environment	Temperature: -20 - 70℃ Humidity: 10 - 90%RH (no condensation)		
3-5. EMC compliance	EN 55032 Class A, CISPR 32 Class A, AS/NZS CISPR32 Class A VCCI Class A EN 61000-3-2, EN 61000-3-3 EN 55024, CISPR 24 IEC 61000-4-2, IEC 61000-4-3, IEC 61000-4-4, IEC 61000-4-5, IEC 61000-4-6, IEC 61000-4-8, IEC 61000-4-11		
3-6. Safety compliance	IEC 60950-1 EN 60950-1		
3-7. Environment compliance	RoHS compliant		
4. Form			
4-1. Form and materials/colors	Dimensions : 44mm (Height) × 440mm (Width) × 312mm (Depth) (Excluding protruding sections) Case material : Main unit: SECC, Front face: PC/ABS, Face plate: PC Color : Main unit: Green 03, Front face: Silver 01, Face plate label: Black 01		
4-2. Mass (Weight)	4,600 g		
5. Hardware Specifications			
5-1. Power redundancy	Power port 1 and Power port 2 (Power redundancy is feasible) Connect the supplied power cord to this port and connect the other end into an electric outlet. (1) When connected to 1 power port Even if just power port 1, or power port 2 (1 power cord) is connected, the device will function normally, but there will not be power redundancy. (2) When connected to 2 power ports If both power port 1 and power port 2 (2 power cords) are connected, even if one of them no longer supplies AC power, the device will not be restarted, and it will continue to function on just the other AC power supply via the power redundancy functions. 		
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5. Hardware Specifications			
5－2. Interface	Twisted pair port 1-4 : RJ45 connector Transmitting and receiving network system : IEEE802.3u100BASE-TX IEEE802.3ab1000BASE-T IEEE 802.3an10GBASE-T Transmission speed : 100Mbps full/half duplex, 1000M/10Gbps full duplex. Compatible cable : Twisted pair cable (At least equivalent to EIA/TIA568 category 6) Maximum transmission distance : 100m (※1) Auto-Negotiation : Communication speed and full/half duplex are automatically recognized. The setting can be fixed to 100Mbps, 1000Mbps or 10Gbps and full duplex or half duplex. Power saving mode : Detects the connection status automatically and saves power consumption to minimum. Energy Efficient Ethernet : IEEE802.3az (LPI) (※2) SFP+ extension slot (port 5-16) SFF-8472 (DMI:Diagnostic Monitoring Interface) Optional Accessories : 1000BASE-SX SFP Module (PN54021K-ID) 1000BASE-LX SFP Module (PN54023K-ID) 10GBASE-SR SFP+ Module (PN59021-ID) 10GBASE-LR SFP+ Module (PN59023-ID) Stack port (port 15-16) SFF-8472 (DMI:Diagnostic Monitoring Interface) Optional Accessories : 1000BASE-SX SFP Module (PN54021K-ID) 1000BASE-LX SFP Module (PN54023K-ID) 10GBASE-SR SFP+ Module (PN59021-ID) 10GBASE-LR SFP+ Module (PN59023-ID) ※1 The 10GBASE-T traffic requires Category 6A twisted pair (UTP) cable. The 100BASE-TX and 1000BASE-T traffic can use Category 5e or Category 6 UTP cable. ※2 Port 1-4 equipped with IEEE802.3az (LPI) compatible Energy Efficient Ethernet functions(hereinafter EEE), and if data is transmitted when linked up, the energy efficient state will be moved to, whereas each port can suppress power consumption. Factory default : Enable		
5－3. Switching mode	Switching method : Store and Forward Switching capacity : 320Gbps Packet transfer capability : Non-blocking Max 148,800pps/port (100Mbps) Max 1,488,000pps/port (1000Mbps) Max 14,880,000pps/port (10Gbps) MAC Address table : Max 32K entry/unit Buffer memory : 3M Bytes/unit Flow control : half-duplex Back pressure full-duplex IEEE802.3x Aging timeout : 10 to 1,000,000 sec. Jumbo frame supported : 9KB Transmittable frames : BPDU HOL Blocking Prevention : Support		
5－4. Terminal emulator connection	Console port : RJ45 connector 1 port Transmission mode : RS-232C (ITU-TS V.24) Emulation mode : VT100 Communication configuration : 9,600bps, 8bit, None Parity control, Stop bit 1 bit		
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5. Hardware Specifications

5-5. Stack	Number of units : Two units max. (Stackable with ZEQUO 5410DL only) Bandwidth : 20Gbps max. Stack topology : Chain, Ring
5-6. SD card slot	SD card slot : 1 Standard : SD/SDHC Class : 2/4/6/10 Size : 128MBytes to 32GBytes
5-7. LED display	(1)POWER 1 LED Green Light : Power is ON. Off : Power is OFF. Or, an internal power fault. (2)POWER 2 LED Green Light : Power is ON. Off : Power is OFF. Or, an internal power fault. (3)STATUS LED Green Light : The system is normally operating. Green Blink : Port is available within 3 days after a loop resolution Orange Light : Starting Orange Blink : Malfunction (Contact the seller.) Off : Power is OFF. (4)SD CARD LED Green Light : SD card inserted Green Blink : Reading / writing data Orange Light : SD card error Off : No SD card (5)STACK ID LED Indicating “H” and the STACK ID alternately : Master switch Indicating “h” and the STACK ID alternately : Backup master switch Off : Stack functions invalid *The following information is also displayed depending upon the device’s state. “P” : Power failure “F” : Fan failure “L” : Within 3 days after a loop resolution (6)Port LED (Port 1-4) Green Light : Link is established at 100/1000 Mbps or 10 Gbps. Green Blink : Transmitting and receiving data at 100/1000 Mbps or 10 Gbps. Orange Light : Shuts off due to loop detection and shutoff functions/ storm controls/BPDU guard Orange Blink : Transmitting and receiving just the administration packets Off : No devices is connected. (7)Port LED (SFP+ port 5-16) Green Light : Link is established at 1000 Mbps or 10 Gbps. Green Blink : Transmitting and receiving data at 1000 Mbps or 10 Gbps. Orange Light : Shuts off due to loop detection and shutoff functions/ storm controls/BPDU guard Orange Blink : Transmitting and receiving just the administration packets Off : No devices is connected.
5-8. Cascade connections	Port 1-4 corresponding to the Auto MDI / MDI-X (Allowed change by the setting for the application) Ports 1 to 4 are fixed to be MDI-X (factory default).
5-9. FAN	Installed

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6. Software Specifications			
6-1. Configuration	Control parameters can be set by the following procedures: (1) Configuration from an asynchronous terminal connected to the console port. (2) Configuration from a remote terminal connected via TELNET and SSH. (3) It can be set from a remote terminal according to the Web screen.		
6-2. Ethernet Switch Control	It is possible to check the control and operation of the Ethernet Switch by ZEQUO assist Plus. Ethernet Switch can be controlled by the following procedures: (1) Control from an asynchronous terminal connected to the console port. (2) Control from a remote terminal using SSH/TELNET and TCP/IP network connection. (3) Control using SNMP Manager The Ethernet Switch operation status can be checked using the following functions. (1) Fan sensor function (2) Internal temperature sensor function (3) Function to display the CPU usage and memory usage (4) SFP module status checking function (DDM: Digital Diagnostic Monitoring) (5) Twisted pair cable diagnostic function		
6-3. System reboot	It can be reset in the following three modes from software. (1) Warm start. (2) Reset back to the factory default settings.		
6-4. Agent	Management protocol : SNMP v1/v2c/v3 (RFC 1157, RFC 3411, RFC 3412, RFC 3413, RFC 3414, RFC 3415, RFC 3416) TELNET (RFC 854, RFC 855, RFC 856, RFC 858) SSH v2 (RFC 4252, RFC 4253, RFC4254, RFC 4716, RFC 4419) Data transfer protocol : TFTP (RFC 783, RFC 1350)		
6-5. Support MIB	RFC1213-MIB (MIB II) (RFC 1213) BRIDGE- MIB (RFC 1493, RFC 4188) SNMPv2-MIB (RFC 1907) RMON-MIB (RFC 2819, RFC 3273) EtherLike-MIB (RFC 2665) P-BRIDGE- MIB (RFC 4363) Q-BRIDGE-MIB (RFC 2674) IF-MIB (RFC 2233, RFC 2863) RADIUS-AUTH-CLIENT-MIB (RFC 2618, RFC 4670) MGMD-STD- MIB (RFC 5519) RIPv2-MIB (RFC 1724) IP-FORWARD-MIB (RFC 4292) DISMAN-PING-MIB (RFC 2925) DISMAN-TRACEROUTE-MIB (RFC 2925) VRRP-MIB (RFC 2787) ENTITY-MIB (RFC 2737) IPV6-MIB (RFC 2465) IP MIB (RFC 4293) TCP MIB (RFC 4022) UDP MIB (RFC 4113) 802.1X MIB (draft-ietf-bridge-8021x-03.txt) Neighborhood Discovery Protocol (NHDP) MIB (RFC 6779) LAG MIB (802.3ad) ICMPv6 MIB (RFC 2466) Link Layer Discovery Protocol (LLDP) and MIB (IEEE 802.1AB) Syslog MIB (draft-ietf-syslog-device-mib)		
6-6. Log	Maximum retention number:1,000 Syslog forwarding function (IPv4 / v6)		
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6. Software Specifications			
6-7. Loop Detection		Will be notified of the ports which generated the loops via LEDs, those ports will be automatically blocked off. (When blocked off, the port LEDs light up orange.) In addition, when ports are blocked off and automatically restored, the administrator can be notified via an SNMP trap. After loop cancellations, for the ports that are within three days, the STATUS LEDs will flash green, and notifications will be given. · Loop detection port Enabled: Ports 1 to 4 (factory default) Disabled: Ports 5 to 16 (factory default) · Loop detection setting Enabled (factory default) Enabled/disabled can be switched by configuring a setting using the console. · Loop shutoff time 60 to 86,400 sec. (factory default: 60 sec.) The set time Port LED lights up orange and the port shuts off. The Loop shutoff mode has the following 2 types of modes. · Blocking mode (factory default) When loops are detected, the ports are blocked, and just the loop detection packets will be transmitted and received. · Shutdown mode When loops are detected, the ports are shut down, and none of the packets including the loop detection packets will be transmitted nor received. (*) *Just the loop detection packets from 30 seconds before the set restoration times will automatically be transmitted and received.	
6-8. Others		Syslog Client (system log sent to a Syslog server) TFTP Client (Firmware upgrade, save and read of configuration information) TELNET Client DHCP Client SNTP LLDP LLDP-MED DNS Relay DNS Resolver DHCP Snooping UDLD	
7. Layer 2 Switching Functions			
7-1. Spanning Tree		IEEE 802.1D Spanning Tree Protocol, Rapid Spanning Tree Protocol IEEE 802.1Q Multiple Spanning Tree Protocol BPDU guard	
7-2. VLAN		IEEE802.1Q Private VLAN MAC-based VLAN Subnet based VLAN Protocol-based VLAN Number of VLAN registrations: 4,094 (including default) Asymmetric VLAN Voice VLAN (LLDP-MED) Dynamic VLAN Guest VLAN	
7-3. Protected ports		The receiving ports and transmitting ports can be grouped together	
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7. Layer 2 Switching Functions

7-4. Link aggregation	IEEE802.3ad link aggregation function (STATIC) IEEE802.3ad link aggregation function (LACP) Configurable up to 15groups (Max. 8 ports per group)
7-5. SPAN, RSPAN	Subject port traffic can be copied and transmitted to designated ports (multiple subject ports can be designated) Remote switching packets can be monitored via RSPAN
7-6. Multicast	IGMP snooping (IGMPv1/v2/v3) function. (can be up to 256 groups of registration) MLD snooping (MLDv2) function. (can be up to 256 groups of registration)
7-7. QoS	IEEE802.1p 8 levels of Priority Queue supported Scheduling Method: Strict Priority Queuing (SPQ:Strict priority queuing) Weighted Round Robin (WRR:Weighted round robin scheduling)
7-8. Authentication Function	IEEE802.1X Port-based / MAC-based authentication MAC-based authentication using IEEE 802.1X Web-based authentication using IEEE 802.1X Triple authentication (*1) *1 IEEE802.1X MAC-based/MAC/WEB authentication can be simultaneously put into standby via 1 port Step authentication (*2) *2 2 authentications can be combined in phases
7-9. Access Control	Access control can be controlled by the following parameters: (1)IP address (Source or Destination) (2)MAC address (Source or Destination) (3)TCP/UDP port number (Source or Destination) (4)VLAN ID (5)IEEE 802.1p Priority (6)DSCP (7)Protocol (8)ICMP type (9)TCP SYN Flag
7-10. Ring protocol	Redundancy is enabled by ring topology. (Up to 8 group can be registered.)
7-11. Time setting	SNTP settings, time manual setting

8. Layer 3 Switching Functions

8-1. IP interface	IP interface : 256 max. Multiple IP addresses : 256 / Interface
8-2. IPv4 routing	Static RIP v1/v2
8-3. IPv6 routing	Static
8-4. Routing table	Static : 7,224 (IPv4) , 7,248 (IPv6) (Common with Dynamic) Dynamic : 7,360 (Common to IPv4 and IPv6)
8-5. IP forwarding	95 Mbps max.
8-6. VRRP	Maximum number of virtual router : 255
8-8. DHCPv4 server	Allocatable IP address : 1,024/pool Max. pool : 16 Max. manual binding address : 120
8-9. DHCPv6 server	Allocatable IP address : 1,024/pool Max. pool : 16 Max. manual binding address : 64
8-10. DHCP relay (IPv4/v6)	DHCP Option:82

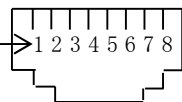
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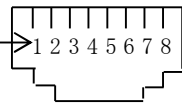
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9. Web management function

9-1. Software specification		
9-1-1. Enabled browser	Microsoft Internet Explorer 11	
9-2. Setting function		
9-2-1. Switching configuration	Administration IP Port (basic, extend, Power saving) System security Syslog transmission ID/Password change Static ARP table VLAN settings QoS settings Link aggregation Storm control Port monitoring	Static multicast address System log Exception handler Watchdog timer RIP Stacking IGMP snooping Loop detection and shutoff DDM
9-2-2. Time setting	SNTP setting, manual setting	
9-3. Monitoring function		
9-3-1. Basic information	System information, Hardware information, Management information [Host name (sysName)] System address information	
9-3-2. Learning and recording information	FDB table, ARP table, Statistics, System log	
9-4. System management tools	Software upgrade, Reboot, Save current, Config file transfer, Ping execution	
9-5. Routing configuration	RIP, Static routing	

10. Connector Pin Arrangement

10-1. Port 1 - 4										
Status	Pin No.	1	2	3	6	4	5	7	8	
MDI-X	Signal	BI_DB+	BI_DB-	BI_DA+	BI_DA-	BI_DD+	BI_DD-	BI_DC+	BI_DC-	
MDI	Signal	BI_DA+	BI_DA-	BI_DB+	BI_DB-	BI_DC+	BI_DC-	BI_DD+	BI_DD-	

10-2. Console port					
Pin No.	Signal		Pin No.		Signal
1	NC		5		GND
2	NC		6		RXD
3	TXD		7		NC
4	GND		8		NC

11. Installation Procedures and Accessories

11-1. Installation Procedures	Mounting to rack	
11-2. Accessories	(1) Installation Guide (2) Rubber foot (3) Mounting bracket (for 19-inch rack) (4) Screw (for 19-inch rack) (5) Screw (for fixing the main unit and the mounting bracket) (6) SFP+ Direct Attach Cable (1m) (7) Dummy SD card (8) Power cord (CEE7/7) (*) * The attached power cord is dedicated for AC 100 - 240 V use.	: 1 : 4 : 2 : 4 : 8 : 1 : 1 : 2

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12. Optional accessories			
12－1. 1000BASE-SX SFP Module (Model No. :PN54021K-ID)		Fiber optic port connector type Standards Transmission speed Compatible cable Maximum transmission distance	: LC connector (Duplex) : IEEE802.3z 1000BASE-SX : 1000Mbps, full duplex : Fiber cable 50/125 μ m Multi Mode Fiber 62.5/125 μ m Multi Mode Fiber : 550 m at 50/125 μ m 220 m at 62.5/125 μ m
12－2. 1000BASE-LX SFP Module (Model No.:PN54023K-ID)		Fiber optic port connector type Standards Transmission speed Compatible cable Maximum transmission distance	: LC connector (Duplex) : IEEE802.3z 1000BASE-LX : 1000Mbps, full duplex : Fiber cable 10/125 μ m Single Mode Fiber 50/125 μ m Multi Mode Fiber 62.5/125 μ m Multi Mode Fiber : 10 km when Single Mode Fiber is used 550 m when Multi Mode Fiber is used
12－3. 10GBASE-SR SFP+ Module (Model No.:PN59021-ID)		Fiber optic port connector type Standards Transmission speed Compatible cable Maximum transmission distance	: LC connector (Duplex) : IEEE802.3ae 10GBASE-SR : 10Gbps full duplex : Fiber cable 50/125 μ m Multi Mode Fiber 62.5/125 μ m Multi Mode Fiber : 300 m at 50/125 μ m 33 m at 62.5/125 μ m
12－4. 10GBASE-LR SFP+ Module (Model No.:PN59023-ID)		Fiber optic port connector type Standards Transmission speed Compatible cable Maximum transmission distance	: LC connector (Duplex) : IEEE802.3ae 10GBASE-LR : 10Gbps full duplex : Fiber cable 10/125 μ m Single Mode Fiber : 10 km
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13. Prohibitions when Using the Product to Guarantee Safety Denotes that “Death or serious injuries might be sustained”. The manufacturer assumes no responsibility for any problems occurring when the following conditions are not satisfied. Observe the following items when using the product. (1) Do not use power supply other than AC 100 – 240 V. Deviation could lead to fire, electric shock, and/or equipment failure. (2) Do not handle this Ethernet Switch and connection cables during a thunderstorm. Deviation could lead to electric shock. (3) Do not disassemble and/or modify this Ethernet Switch. Deviation could lead to fire, electric shock, and/or equipment failure. (4) Do not damage the power cord. Do not bend too tightly, stretch, twist, bundle with other cord, pinch, put under a heavy object and/or heat it. Damaged power cord could lead to fire, short, and/or electric shock. (5) Do not unplug nor plug in the power plug with wet hands. Deviation could lead to electrical shock, and/or equipment failure. (6) Do not insert or drop any foreign objects such as metal or readily combustible things into Ethernet Switch through the openings. Deviation could lead to fire, electrical shock, and/or equipment failure. (7) Do not store or use the Ethernet Switch in places where it might get splashed with liquids such as water, in places with a lot of humidity, in places with conductive dust, or in places where there are corrosive and combustible gases. Deviation could lead to fire, electrical shock, and/or equipment failure. (8) Do not use the Ethernet Switch in dusty environments such as on floors, underneath floors, the backside of ceilings, or boards. Do not use the Ethernet Switch in very dusty areas such as on floors, underneath floors, the backside of ceilings, or boards. Deviation could lead to fire, electrical shock, and/or equipment failure. It is recommended that the Ethernet Switch be operated in environments such as the inside of racks where it is difficult for dust to be generated. (9) Do not store or use the Ethernet Switch in places where it will be exposed to direct sunlight or high temperatures. The temperature inside will rise, which may cause fire. (10) Do not store or use the Ethernet Switch in places where there are lots of vibrations and impacts, or in unstable areas. It might fall, which may cause injuries and/or equipment failure. (11) Do not put this Ethernet Switch into fire. Deviation could lead to explosion and/or fire. (12) Do not connect any other devices except for 100BASE-TX/1000BASE-T/10GBASE-T devices to the twisted pair ports. Deviation could lead to equipment failure. (13) Do not insert any other modules except for our optional SFP module (PN54021K-ID/PN54023K-ID) and the SFP+ module (PN59021-ID/PN59023-ID) to the SFP+ extension slots. (14) Do not insert any other modules except for our optional SFP module (PN54021K-ID/PN54023K-ID), SFP+ module (PN59021-ID/PN59023-ID), or SFP+ direct attach cable to the stacking ports (Port15-16). Check out our website for the latest information on supported SFP modules. (15) Do not connect the console ports with any other console cables except for our optional PN72001 RJ45-DSub 9-pin console cable. Deviation could lead to fire, electrical shock, and/or equipment failure.			
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14. Cautions when Using the Product to Guarantee Safety Denotes that “Minor injuries might be sustained, or property damage might occur”. The manufacturer assumes no responsibility for any problems occurring when the following conditions are not satisfied. Observe the following items when using the product. (1) Use the bundled power cord (AC 100 - 240 V specifications). Deviation could lead to electric shock, malfunction, and/or equipment failure. (2) Unplug the power cord in case of equipment failure. Deviation, such as keeping connecting for a long time, could lead to fire. (3) Be sure to connect the ground cable. Otherwise this might cause electrical shocks, misoperations and malfunctions. Connect the Ethernet Switch via the supplied power cord to the outlet which is connected to the ground. If the outlet is not connected to a ground, connect the ground cable to the ground terminal screw. (4) Connect the power cord firmly to the power port. Deviation could lead to electric fire, shock, and/or malfunction. (5) If the STATUS LED is blinking orange, check for the cause via the system log, since it might be a malfunction if it is not the temperature, loop detection and shutoff, unplug the power plug. Deviation, such as keeping connecting for a long time, could lead to fire. (6) Handle the Ethernet Switch carefully to prevent fingers and hands from being damaged by twisted pair port, SFP extension slot, tacking port, console port, SD card slot, or power cord hook block. (7) When connecting 10GBASE-T (IEEE 802.3an) supported devices to this device, use Cat6 or above cables. If any other cables except for the aforementioned are used, malfunctions might be caused. (8) Check whether the optical fiber cable connectors are contaminated with dust, etc. This might cause the optical signal to not be transmitted normally, and cause misoperations and malfunctions. If they are contaminated, make sure to clean them off, then connect them to the optical fiber ports. (9) This Ethernet Switch is to be periodically serviced in order to maintain its performance. Please assign a product administrator, and be sure to implement periodic maintenance. When doing maintenance, check the inspection chart that is posted on our website which has the requisite items listed on it. (10) When using this Ethernet Switch to design systems, use it after applying appropriate measures such as setting up redundant configurations. Communications failures might be generated due to causes such as malfunctions or misoperations while the Ethernet Switch is being used. (11) When using this Ethernet Switch for applications which require extremely high reliability, be careful to expend all possible means to ensure safety and reliability. This Ethernet Switch is not designed nor manufactured with the intention that it be used for applications (in use with railways, aviation, and medical care, etc. whereas the influence rate due to communications failures is extremely high in regard to systems that directly affect systems and human lives) which require extremely high reliability. (12) It is recommended that this Ethernet Switch be replaced about five years after it has been installed. This may vary depending upon conditions such as utilisation rates and usage environments, but performance might decrease due to the age-related degradation, etc. of components. (13) Be careful in regards to environmental restrictions whereby the Ethernet Switch can be used. Please isolate the business power lines and communications lines. Isolate distribution lines and other distribution lines, and low current power lines, optical fiber cables, metallic water conduits, and gas conduits, etc. Noise may be generated in the communications lines which might cause communications glitches.			
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15. Basic Instructions for the Use of This Product (1) For inspection and/or repair, consult the shop. (2) Use commercial power supply from a wall socket, which is close and easily accessible to this Ethernet Switch. (3) Unplug the power cord when installing or moving this Ethernet Switch. (4) Unplug the power cord when cleaning this Ethernet Switch. (5) Use this Ethernet Switch within the specifications. Deviation could lead to malfunction. (6) Do not touch the metal terminal of the RJ45 connector, the modular plug of connected twisted pair cable, or the metal terminal of the SFP extension slot. Do not place charged objects in the proximity of them. Static electricity could lead to equipment failure. (7) Do not put the modular plug of the connected twisted pair cable on objects that can carry static charge, such as carpet. Do not place it in the proximity. Static electricity could lead to equipment failure. (8) Do not put a strong shock, including dropping, to this Ethernet Switch. Deviation could lead to equipment failure. (9) Before connecting a console cable to the console port, discharge static electricity, for example by touching metal appliance (do not discharge by touching this Ethernet Switch). (10) Do not store and/or use this Ethernet Switch in the environment with the characteristics listed below. (Store and/or use this Ethernet Switch in the environment in accordance with the specification.) - High humidity. Possible spilled liquid (water). - Dusty. Possible static charge (such as carpet). - Under direct sunlight. - Possible condensation. High/low temperature exceeding the specifications environment. - Strong vibration and/or strong shock. (11) Please use this Ethernet Switch in place where ambient temperature is from 0 to 50° C. Failure to meet the above conditions may result in fire, electric shock, breakdown, and/or malfunction. Please take notice because such cases are out of guarantee. Additionally, do not cover the bent hole of this Ethernet Switch. Deviation could lead to high internal temperature, equipment failure and/or malfunction. (12) When stacking Ethernet Switches, leave a minimum of 20 mm space between them. (13) When connecting the stacks, be sure to use firmware versions that are identical for all of the device. Please note that operations are not guaranteed if the firmware versions are different. (14) Please note that operation will not be guaranteed if any SD card other than the separately sold Panasonic SD card is installed into the SD card slot. Format the card with this Ethernet Switch. (15) Select the appropriate cables and lay them. Communications might be affected by how the cables are laid, and environmental noise.			
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