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| Model Name | GA-AS48T | Product Specification | 401-25481-TH-SP02 |
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1. Summary

GA-AS48T has 50 ports which are 10BASE-T/100BASE-TX/1000BASE-T compatible ports.

2. Feature

- (1) Ports 1 to 50 (twisted pair ports) are 10BASE-T/100BASE-TX/1000BASE-T corresponding to auto-negotiation.
- (2) All of the twisted pair ports are equipped with straight/cross cable automatic detection functions. Straight cables can be used to make interconnections without distinctions between the terminals and network devices having to be made. (The factory default is for ports 1 to 48 to have MDI-X be fixed.)
- (3) If 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.
- (4) Automatically detects the connection states via the equipped energy efficiency mode, and suppresses power consumption to required levels.
- (5) VLAN function allows free grouping of up to 256 VLANs.
- (6) The IEEE802.1p compatible QoS function is supported.
- (7) Has an Internet Mansion function, which ensures security between each door.
- (8) The Switching Hub settings can be configured via a web browser. Since the IP address is not set when the Switching Hub is shipped from the factory, it can be changed by connecting the computer and the Switching Hub which have the ZEQUO assist Plus that is on the CD-ROM installed on them with the twisted pair cables.

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3. Rated/Environmental Conditions

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| 3-1. Power supply | AC100-240V, 50/60Hz, 4.0A (with a built-in power supply) |
| 3-2. Power consumption | Normally, Max.35.0W, Min.14.7W |
| 3-3. Operating environment | Temperature: 0 - 50°C Humidity: 20 - 80%RH (no condensation) |
| 3-4. Storage environment | Temperature: -20 - 70°C Humidity: 10 - 90%RH (no condensation) |
| 3-5. EMC compliance | CISPR 22 Class A, EN 55022 Class A, EN 55032 Class A AS/NZS CISPR22 Class A VCCI Class A EN 61000-3-2, EN 61000-3-3 CISPR 48, EN 55048 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

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|--------------------------------|---|
| 4-1. Form and materials/colors | Dimensions :44mm (Height) × 440mm (Width) × 386mm (Depth) (Excluding protruding sections) Case material :SECC Color : Main unit: Green 03, Front face: Black 03, Face plate label: Black 04 |
| 4-2. Mass (Weight) | 4,600g |

5. Hardware Specifications

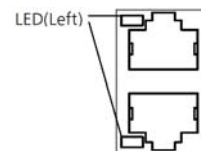
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|----------------|--|
| 5-1. Interface | <p>Twisted pair port 1-50 :RJ45 connector (※1) Transmitting and receiving network system :IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX IEEE802.3ab 1000BASE-T Energy Efficient Ethernet :IEEE802.3az (LPI) ※2 Transmission speed :10/100Mbps full/half duplex, 1000Mbps full duplex, Compatible cable :Twisted pair cable (At least equivalent to EIA/TIA568 category 5e) If there is Category 3 cable used in a connection, the communication at a speed of 10Mbps can not be established. You must use category 5e or higher crossover cable. Maximum transmission distance :100m Auto-Negotiation :Communication speed and full/half duplex are automatically recognized. The setting can be fixed to 10Mbps, 100Mbps, 1000Mbps and full duplex or half duplex.</p> <p>※1 Automatically detects the connection states via the equipped Power Saving Mode, and suppresses power consumption to required levels. Factory default : Half</p> <p>※2 Port 1-48 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</p> |
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5. Hardware Specifications

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|--------------------------|---|
| 5-2. Switching mode | <p>Switching method :Store and Forward</p> <p>Switching capacity :96.0Gbps</p> <p>Packet transfer capability :Non-blocking</p> <p>Max 14,880pps/port (10Mbps)</p> <p>Max 148,800pps/port (100Mbps)</p> <p>Max 1,481,000pps/port (1000Mbps)</p> <p>MAC Address table :Max 16K entry/unit</p> <p>Buffer memory :1.5M Byte/unit</p> <p>Flow control :half-duplex Back pressure</p> <p>full-duplex IEEE802.3x</p> <p>Aging timeout :10 to 1,000,000 sec.</p> <p>Jumbo frame supported :9KB</p> <p>Transmittable frames :EAP, BPDU</p> <p>HOL Blocking</p> |
| 5-3. LED display | <p>(1) POWER (Power) LED</p> <p>Green Light :Power is ON</p> <p>Off :Power is OFF</p> <p>(2) STATUS (status) LED</p> <p>Green Light : System is normally operating</p> <p>Green Blink : After powering on, and the system startup is completed, blinks for five minutes</p> <p>Orange Light : System is starting up</p> <p>Orange Blink : System is malfunctioning</p> <p>(3) Port LED (Left)</p> <p>LINK/ACT (ports 1-50) LED</p> <p>Green Light : Link is established.</p> <p>Green Blink : Data is being sent/received.</p> <p>Off : No terminal is connected.</p> |
| 5-4. Cascade connections | <p>Port 1-50 corresponding to the Auto MDI / MDI-X</p> <p>(Allowed change by the setting for the application)</p> <p>The factory default is for ports 1 to 48 are fixed to be MDI-X.</p> |
| 5-5. FAN | Installed |



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6. Software Specifications

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|----------------------------|---|
| 6-1. Configuration | It can be set from a remote terminal according to the Web screen. |
| 6-1-1. IP address setting | (1) Setting by the Web screen. (2) Setting by the IP address easy setting function of ZEQUO assist Plus. |
| 6-2. Switching Hub Control | It can be set from a remote terminal according to the Web screen. Possible to confirm the switch operating status by the following features. (1) CPU utilization, memory usage display 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. (3) Reset to return the non-IP address to the factory default setting. It can be used in combination reboot timer function in each mode |
| 6-4. Agent | Management protocol :HTTP (RFC 2616) Data transfer protocol :TFTP (RFC 783) |
| 6-5. Log | Maximum retention number:1,024 Syslog forwarding function |
| 6-6. Others | Ping response (ICMP echo reply) function Syslog Client (system log sent to a Syslog server) TFTP Client (Firmware upgrade, save and read of configuration information) SNTP Client IP Address Easy Setting |

7. Layer 2 Switching Functions

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|-----------------------------|---|
| 7-1. Port grouping function | It can communicate control only the same group. (It can be up to 256 groups of registration.) |
| 7-2. VLAN | IEEE802.1Q tag VLAN protocol Port-based VLAN VLAN registration number 256 (including the default) Internet Mansion function VLAN invalid setting function |
| 7-3. Link aggregation | IEEE802.3ad link aggregation function (Manual) Configurable up to 16groups (Max. 8 ports per group) |
| 7-4. Port Monitoring | It can be sent by copying the port where you specify the traffic of the target port. (A plurality of target port can be specified.) (Link Aggregation Configuration port can also be monitoring.) |
| 7-5. QoS | IEEE802.1p 4 stage priority control Scheduling scheme: Priority Queuing (PQ: Absolute priority scheduling) |
| 7-6. Time setting | SNMP settings, time manual setting |
| 7-7. Multicast | Multicast address group registration function. (can be up to 256 groups of registration) |
| 7-8. Storm control function | Unknown unicast / Broadcast / Multicast of possible control the storm |

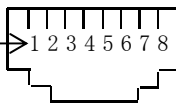
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8. Web management function

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| 8-1. Software specification | | |
| 8-1-1. Enabled browser | Microsoft Internet Explorer 11 | |
| 8-2. Setting function | | |
| 8-2-1. Switching configuration | Administration config IP config Port config (basic, extend, Power saving) System security Syslog transmission config ID/Password change FDB reference Time setting Static ARP table VLAN settings QoS settings Link aggregation config Storm control config | Port monitoring config Static multicast address config Port group config Software update Reboot Save current config Statistics System log config Config file transfer Ping execution Exception handler Watchdog timer |
| 8-2-2. Time setting | SNTP setting, manual setting | |
| 8-3. Monitoring function | | |
| 8-3-1. Basic information | System information, Hardware information, Management information [Host name (sysName), System address information | |
| 8-3-2. Learning and recording information | FDB table, ARP table, Statistics, System log | |
| 8-4. System management tools | Software upgrade, Reboot, Save current config, Config file transfer, Ping execution | |

9. Connector Pin Arrangement

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|------------------|---------|--------|--------|--------|--------|--------|--------|--------|--------|---|
| 9-1. Port 1 - 50 | | | | | | | | | |  |
| 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. Accessories

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| 10-1. Accessories | (1) Installation Guide(*) :1 (2) CD-ROM (PDF version of Operating Instructions)(*1) :1 (3) Rubber foot :4 (4) Mounting bracket (for 19-inch rack) :2 (5) Screw (for 19-inch rack) :4 (6) Screw (for fixing the main unit and 19-inch mount bracket) :8 (7) Power cord (TIS166-2549)(*2) :1 *1 We discontinued the CD-ROM from October 2020's production lots. *2 The attached power cord is dedicated for AC 100 - 480 V use. |
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10. Prohibitions when Using the Product to Guarantee Safety

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 the power cord with wet hand.
Deviation could lead to electric shock, and/or equipment failure.
- (3) Do not handle this Switching Hub and connection cables during a thunderstorm.
Deviation could lead to electric shock.
- (4) Do not disassemble and/or modify this Switching Hub.
Deviation could lead to fire, electric shock, and/or equipment failure.
- (5) 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, and/or electric shock.
- (6) Do not insert, nor drop foreign objects such as metal or combustible things into the inside from the openings or twisted pair ports.
Deviation could lead to fire, electric shock, and/or equipment failure.
- (7) Do not connect equipments other than 10BASE-T/100BASE-TX/1000BASE-T to twisted pair port.
When connecting to a 10BASE-T device, use a Cat5 or above cable.
Deviation could lead to fire, electric shock, and/or equipment failure.
- (8) Do not place this Switching Hub in harsh environment (such as near water, high humid, and/or high dust).
Deviation could lead to fire, electric shock, and/or equipment failure.
- (9) Do not place this Switching Hub under direct sunlight and/or high temperature.
Deviation could lead to high internal temperature and fire.
- (10) Do not install this Switching Hub at the location with continuous vibration or strong shock, or at the unstable location.
Deviation could lead to falling, injury and/or equipment failure.
- (11) Do not put this Switching Hub into fire.
Deviation could lead to explosion and/or fire.
- (12) Double pole / Neutral fusing

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11. Cautions when Using the Product to Guarantee Safety

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 connected for a long time, could lead to fire.
- (3) Connect this Switching Hub to ground.
Otherwise this might cause electrical shocks, misoperations and malfunctions.
Connect the Switching Hub 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 (AWG18:green/yellow) 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 (Status) LED blinks orange, unplug the power cord since this is a malfunction.
Deviation, such as keeping connected for a long time, could lead to fire.
- (6) Handle the Switching Hub carefully so that fingers or hands may not be damaged by twisted pair port or power cord hook block.
- (7) This Switching Hub is to be periodically serviced in order to maintain its performance.
Please choose a product administrator, and have them 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.
- (8) When using this Switching Hub 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 Switching Hub is being used.
- (9) When using this Switching Hub for applications which require extremely high reliability, be careful to expend all possible means to ensure safety and reliability.
This Switching Hub was 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.
- (10) Be aware of glitches which are caused in the usage environments such as age-related degradation, etc.
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. It is recommended that this Switching Hub be replaced about five years after it has been installed.
- (11) Be careful in regards to environmental restrictions whereby the Switching Hub 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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12. Basic Instructions for the Use of This Product

- (1) For inspection and/or repair, consult the retailer.
- (2) Use commercial power supply from a wall socket, which is close and easily accessible to this Switching Hub.
- (3) Unplug the power cord when installing or moving this Switching Hub.
- (4) Unplug the power cord when cleaning this Switching Hub.
- (5) Use this Switching Hub within the specifications. Deviation could lead to malfunction.
- (6) Do not touch the twisted pair cable modular metal terminals which are connected to RJ45 connectors (twisted pair ports) or the connectors, nor place them near electrically-charged objects. 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 Switching Hub. Deviation could lead to equipment failure.
- (9) Do not store and/or use this Switching Hub in the environment with the characteristics listed below.
(Store and/or use this Switching Hub 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.
- (10) Please use this Switching Hub in place where ambient temperature is from 0 to 40° C.
Failure to satisfy the conditions above may result in a fire, electric shock, equipment failure, and/or malfunction. Such events are not covered by the warranty.
Do not block the ventilator of the Switching Hub.
Blocked ventilator induces the heat accumulation inside, causing equipment failure and/or malfunction.
- (11) If used at a temperature out of the operating temperature range, the protection equipment becomes activated and the power supply stops.
- (12) When using two Switching Hubs, do not stack them. When you place them side by side, allow for a space of 20 mm or more between them.

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