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You can read the recommendations in the user guide, the technical guide or the installation guide for TRENDNET TEG-2224WS. You'll find the answers to all your questions on the TRENDNET TEG-2224WS in the user manual (information, specifications, safety advice, size, accessories, etc.). Detailed instructions for use are in the User's Guide.

User manual TRENDNET TEG-2224WS
User guide TRENDNET TEG-2224WS
Operating instructions TRENDNET TEG-2224WS
Instructions for use TRENDNET TEG-2224WS
Instruction manual TRENDNET TEG-2224WS

**28-Port 10/100/1000Mbps
Gigabit Ethernet
Web Smart Switch**
with
2×1000BASE-T, 24×10/100BASE-TX ports
2 optional mini-GBIC ports

User's Guide



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Manual abstract:

VCCI Warning This is a product of VCCI Class A Compliance. UL Warning a) Elevated Operating Ambient Temperature- If installed in a closed or multi-unit rack assembly, the operating ambient temperature of the rack environment may be greater than room ambient. Therefore, consideration should be given to installing the equipment in an environment compatible with the manufacturer's maximum rated ambient temperature (Tmra). b) Reduced Air Flow- Installation of the equipment in a rack should be such that the amount of air flow required for safe operation of the equipment is not compromised. c) Mechanical Loading- mounting of the equipment in the rack should be such that a hazardous condition is not achieved due to uneven mechanical loading.

@@@1.00 TABLE OF CONTENT About This Guide....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... 1 Purpose ...

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

..... 1 Terms/Usage .

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

... 1 Introduction.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

.....

... 3 Gigabit Ethernet Technology

.....
.....
.....
.....

.. 3 Fast Ethernet Technology

.....
.....
.....
.....

..... 4 Switching Technology ...

.....
.....
.....
.....

.....
.....
.....
.....

..... 5 VLAN (Virtual Local Area Network).....

.....
.....
.....

.....
.....
.....

. 6 Features.....

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

... 6 Unpacking and Installation

.....
.....
.....
.....

.....
.....
.....

..... 9 Unpacking.

.....
.....

.....
.....
.....
.....

... 13 Front Panel.....

.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

..... 13 Rear Panel ..

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

.... 14 Understanding LED Indicators

.....
.....
.....
.....

.....
.....
.....

.. 15 Power and System LEDs

.....
.....
.....
.....

.....
.....
.....

..... 15 Ports 1~24 10/100M Status LEDs.....

.....
.....
.....
.....

.....
.....
.....

16 Ports 25~26 Gigabit Status LEDs

.....
.....

.....
.....
.....

..... *16 Ports 27~28 mini-GBIC Status LEDs*

.....
.....
.....

.....
.....

.... *17 i Configuration .*

.....
.....
.....
.....

.....
.....
.....
.....

.... *19 Installing the Web Management Utility.*

.....
.....

.....
.....
.....

..... *19 Discovery List.....*

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....

20 Monitor List

.....
.....
.....
.....

.....
.....
.....
.....

..... *21 Device Setting..*

.....
.....
.....

.....
.....
.....

.....
.....
.....
.....
.....
..... 23 *Toolbar.*

.....
.....
.....
.....

.....
.....
.....
.....

.....
.....
.....

..... 24 *Configuring the Switch .*

.....
.....
.....
.....

.....
.....
.....
.....

..... 25 *Login.....*

.....
.....

.....
.....
.....

.....
.....
.....

..... 26 *Setup Menu .*

.....
.....

.....
.....
.....

.....
.....
.....

... 28 *Configuring Setup Setting.....*

.....
.....

.....
.....
.....
.....
.....
.....

..... 32 System Setting ..

.....
.....
.....
.....
.....
.....

... 34 Trap Setting.....

.....
.....
.....
.....
.....
.....

... 34 Set Password ..

.....
.....
.....
.....
.....
.....

.....Likewise, since data transfers occur 10 times faster than Fast Ethernet, servers outfitted with Gigabit Ethernet NIC's are able to perform 10 times the number of operations in the same amount of time. 3 In addition, the phenomenal bandwidth delivered by Gigabit Ethernet is the most cost-effective method to take advantage of today and tomorrow's rapidly improving switching and routing internetworking technologies. And with expected advances in the coming years in silicon technology and digital signal processing that will enable Gigabit Ethernet to eventually operate over unshielded twisted-pair (UTP) cabling, outfitting your network with a powerful 1000-Mbpscapable backbone/server connection creates a flexible foundation for the next generation of network technology products. Fast Ethernet Technology The growing importance of LANs and the increasing complexity of desktop computing applications are fueling the need for high performance networks. A number of high-speed LAN technologies have been proposed to provide greater bandwidth and improve client/server response times. Among them, 100BASE-T (Fast Ethernet) provides a non-disruptive, smooth evolution from the current 10BASE-T technology. The non-disruptive and smooth evolution nature, and the dominating potential market base, virtually guarantees cost-effective and high performance Fast Ethernet solutions. 100Mbps Fast Ethernet is a standard specified by the IEEE 802.3 LAN committee.

It is an extension of the 10Mbps Ethernet standard with the ability to transmit and receive data at 100Mbps, while maintaining the CSMA/CD Ethernet protocol. Since the 100Mbps Fast Ethernet is compatible with all other 10Mbps Ethernet environments, it provides a straightforward upgrade and takes advantage of the existing investment in hardware, software, and personnel training. 4 Switching Technology Another approach to pushing beyond the limits of

Ethernet technology is the development of switching technology. A switch bridges Ethernet packets at the MAC address level of the Ethernet protocol transmitting among connected Ethernet or Fast Ethernet LAN segments. Switching is a cost-effective way of increasing the total network capacity available to users on a local area network.

A switch increases capacity and decreases network loading by dividing a local area network into different segments, which don't compete with each other for network transmission capacity. The switch acts as a high-speed selective bridge between the individual segments. The switch, without interfering with any

other segments, automatically forwards traffic that needs to go from one segment to another. By doing this the total network capacity is multiplied, while still maintaining the same network cabling and adapter cards. Switching LAN technology is a marked improvement over the previous generation of network bridges, which were characterized by higher latencies.

Routers have also been used to segment local area networks, but the cost of a router, the setup and maintenance required make routers relatively impractical. Today switches are an ideal solution to most kinds of local area network congestion problems. 5 VLAN (Virtual Local Area Network) A VLAN is a group of end-stations that are not constrained by their physical location and can communicate as if a common broadcast domain, a LAN. The primary utility of using VLAN is to reduce latency and need for routers, using faster switching instead. @@@@Port-based (or port-group) VLAN is the common method of implementing a VLAN, and is the one supplied in the Switch. Features 24x10/100Mbps Auto-negotiation Fast Ethernet RJ45 ports 2x10/100/1000Mbps Auto-negotiation Gigabit RJ45 ports 2xmini-GBIC ports All RJ45 ports support auto MDI/MDIX, so there is no need to use cross-over cables or an up-link port Full/half duplex transfethernet Switch 10/100M Gigabit 1 Link/ACT POWER 2 SYSTEM 100Mbps 4 8 10 12 14 16 18 20 22 24 100Mbps 3 5 7 9 11 13 15 17 19 21 23 25 26 27 28 Link/ACT 1000Mbps 1000BASE-T Mini GBIC Figure 3. @@@@Supported input voltages range from 100-240V AC at 50-60Hz. @@@@Off : No link. 1000Mbps On : When the 1000Mbps LED lights on, the respective port is connected to a 1000Mbps Gigabit Ethernet network. : When the respective port is disconnected to the network Off 17 CONFIGURATION Through the Web Browser you can configure the Switch such as VLAN, Trunking, QoS.

.. etc. With the attached Web Management Utility, you can easily discover all the Web Management Switch, assign the IP Address, changing the password and upgrading the new firmware. Installing the Web Management Utility The following gives instructions guiding you through the installations of the Web Management utility. 1. 2. 3. Insert the Utility CD in the CD-Rom Drive. From the Start menu on the Windows desktop, choose Run. @@@@Follow the on-screen instructions to install the utili the device, use this function to update. Figure 11. @@@@Monitor Load: To manually load the setting file of the Monitor List. Exit: To exit the Web Management Utility. @@@@Clear Log: to clear the log. @@@@The Switch can be configured through the Web Browser. @@@@For example, when the default network address of the default IP address of the Web Smart Switch is 192.



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168.0.1, then the manager PC should be set at 192.

168.0.x (where x is a number between 2 and 254), and the default subnet mask is 255.255.255.0. Open Internet Explorer 5.0 or above Web browser. Enter IP address <http://192.168.0.1>.

0.1 (the factory-default IP address setting) to the address location. Figure 12. 26 Or through the Web Management Utility, you do not need to remember the IP Address, select the device shown in the Monitor List of the Web Management Utility to settle the device on the Web Browser. When the following dialog page appears, remain enter the default password "admin" and press Login to enter the main configuration window. Figure 13. After entering the password, the main page comes up, the screen will display the device status. Figure 14. Device Status 27 Setup Menu When the main page appears, find the Setup menu in the left side of the screen (Figure 15). Click on the setup item that you want to configure.

There are eleven options: Port Settings, VLAN Settings, Trunk Setting, Mirror Setting, Device Status, Statistic, System Settings, Trap Setting, Password Setting, Backup Setting and Reset Setting as shown in the Main Menu screen. Figure 15. Setup menu Configuring Setup Setting Find that there are four items, including Port Settings, VLAN Settings, Trunk Settings and Mirror Settings in Setup menu. Port Settings In Port Settings menu (Figure 16), this page will show each port's status, press the ID parameter to set each port's Speed, Flow Control, QoS priority and Link Status. When you need to renew the posted information, press the "Refresh" button.

28 The Link Status in the screen will show the connection speed and duplex mode; else this dialog box will show down when the port is disconnected. Figure 16. Port Configuration To change the port setting, click on the ID parameter to enter to the selected port to configure its Speed/Disable, Flow control and QoS setting. Figure 17. 29 Speed/Disable: This setting has six modes--100M Full, 100M Half, 10M Full, 10M Half, Auto and Disable--for speed or port disable selections.

Flow Control: This setting determines whether or not the Switch will be handling flow control. Set FlowCtrl to Enable for avoiding data transfer overflow. Or it sets to Disable; there is either no flow control or other hardware/software management. When the port is set to forced mode, then the flow control will automatically set to Disable. QoS: In some ports that need to have a high priority to manage the data transfer, QoS should be change. Set the port's QoS to high to determine the port will always transfer their data first. VLAN Settings (Virtual Local Area Network) Group individual ports into a small "Virtual" network of their own to be independent of the other ports. To add a VLAN group, press "Add Group" button, the new VLAN configuration window will pop out, you can fill in the description in order to describe this VLAN Group, check on the port to be a member to this VLAN Group, and press "Apply" button to execute the setting. Figure 19. VLAN Group Settings 30 Once you want to modify the VLAN Group, check on the ID parameter, the ID VLAN configuration window will pop out.

Figure 20. VLAN Settings Trunk Setting The Trunk function enables to cascade two devices with a double times bandwidth (up to 4000Mbps in full duplex mode). @@@@The selection of the sniffer mode is as follow: TX (transmit) mode: this mode will duplicate the data transmit from the source port and forward to the sniffer port. RX (receive) mode: this mode will duplicate the data that send to the source and forward to the sniffer port. Both (transmit and receive) mode: this mode will duplicate both the data transmit from and data that send to the source port, then it will forward to the sniffer port. Figure 22. Device Status Click on the "Status" to present the device status on this screen, it will show the System Status, Port Status, VLAN Status, Trunk Status and Mirror Status.. @@@@The Login Timeout is to set the idle time-out for security issue, when there is no action when running the Web Smart Utility and the time is up, you must re-login to Web Smart Utility before you set the Utility. Fill up the IP Address, Subnet Mask and Gateway for the device.

Figure 25. Trap Setting The Trap Setting enables the device to monitor the Trap through the Web Management Utility, set the Trap IP Address of the manager where the trap to be sent. Figure 26. Trap Setting 34 System Events: Monitoring the system's trap. Device Bootup: a trap when booting up the system. Illegal Login: a trap when there is using a wrong password login, and it will record from where the IP to be login. Fiber Port Events: Monitoring the Fiber port status. Link Up/Link Down: a trap when there is linking status happens in fiber port. Abnormal* Receive Error: a trap when there are receive data error in fiber port. Abnormal* Transmit Error: a trap when there are transmit data error in fiber port.

Copper Port Events: Monitoring the copper port status. Abnormal* Receive Error: a trap when there are receive data error in copper port. Abnormal* Transmit Error: a trap when there are transmit data error in copper port. Abnormal*: 50 error packet count within 10 seconds. Set Password Password is the invaluable tool for the manager to secure Web Management Switch, use this function to change the password. If you forget the password, press the "Reset" button in the rear panel of the Switch, the current setting includes VLAN, Port Setting... etc. will be lost and the Switch will restore to the default setting.

35 Figure 27. Set Password Backup Setting The backup tools help you to backup the current setting of the Switch. Once you need to backup the setting, press the "Backup" button to save the setting. To restore a current setting file to the device, you must specify the backup file and press "Restore" button to proceed the setting of the recorded file. Figure 28. Backup Setting Note: when restoring a recorded file, the current password will not be erased. 36 Reset Setting The Factory Reset button helps you to reset the device back to the default setting from the factory. Be aware that the entire configuration will be reset, the IP address of the device will be set to default setting 192.168.0.

1. Figure 29. Reset Setting Logout When press this function, the web configuration will go back to first Login page. Figure 30. Logout 37 TECHNICAL SPECIFICATIONS General Standards IEEE 802.

3 10BASE-T Ethernet IEEE 802.3u 100BASE-TX Fast Ethernet IEEE 802.3ab 1000BASE-T Gigabit Ethernet IEEE 802.3x Full Duplex Flow Control Protocol Data Transfer Rate CSMA/CD Ethernet: 10Mbps (half duplex), 20Mbps (full-duplex) Fast Ethernet: 100Mbps (half duplex), 200Mbps (full-duplex) Gigabit Ethernet: 2000Mbps (full-duplex) Topology Network Cables Star 10BASE-T: 2-pair UTP Cat. 3, 4, 5; up to 100m 100BASE-TX: 2-pair UTP Cat.



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5; up to 100m 1000BASE-T: 4-pair UTP Cat. 5; up to 100m Fiber module: mini-GBIC Fiber module Number of Ports 24 × 10/100Mbps Auto-MDIX RJ45 ports 2 × 10/100/1000Mbps Auto-MDIX RJ45 ports 2 × mini-GBIC fiber slot Physical and Environmental AC inputs Power Consumption Temperature Humidity Dimensions EMI: Safety: 100-240V AC, 50-60 Hz internal universal power supply 19Watts (Max) Operating: 0° ~ 40° C, Storage: -10° ~ 70° C Operating: 10% ~ 90%, Storage: 5% ~ 90% 440 x 200 x 44 mm (W x H x D) FCC Class A, CE Mark Class A, VCCI Class A cUL(UL60950), CB(IEC60950) 39 Performance Transmits Method: Filtering Table: Address Store-and-forward 4K entries per device 10Mbps Ethernet: 14,880/pps 100Mbps Fast Ethernet: 148,800/pps 1000Mbps Gigabit Ethernet: 1,488,000/pps Automatic update Store-and-forward 768K bytes per device Packet Filtering/Forwarding Rate: MAC Learning: Address Transmits Method: RAM Buffer: 40 .



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