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**User manual SMC GS24-SMART**  
**User guide SMC GS24-SMART**  
**Operating instructions SMC GS24-SMART**  
**Instructions for use SMC GS24-SMART**  
**Instruction manual SMC GS24-SMART**

## EZ Switch 10/100/1000

### Web-Managed Smart Switch

- ◆ User friendly web management interface
- ◆ Supports Qos, VLANs and Trunk configuration
- ◆ Automatic MDI/MDI-X operation
- ◆ Store-and-forward switching ensures error-free transmission
- ◆ Half- and full-duplex flow control prevents packets from being dropped under heavy loading
- ◆ Plug-and-play—Optional configuration using web interface
- ◆ “At-a-glance” LEDs for port and system status monitoring
- ◆ Desktop or rack installation



### Management Guide

*SMCGS16-Smart*  
*SMCGS24-Smart*



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**Manual abstract:**

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These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with instructions, may cause harmful interference to radio communications. However, there is no guarantee that the interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures: · Reorient the receiving antenna · Increase the separation between the equipment and receiver · Connect the equipment into an outlet on a circuit different from that to which the receiver is connected · Consult the dealer or an experienced radio/TV technician for help EC Conformance Declaration - Class A SMC contact for these products in Europe is: SMC Networks Europe, Edificio Conata II, Calle Fructuós Gelabert 6-8, 2o, 4a, 08970 - Sant Joan Despi, Barcelona, Spain. This information technology equipment complies with the requirements of the Council Directive 89/336/EEC on the Approximation of the laws of the Member States relating to Electromagnetic Compatibility and 73/23/EEC for electrical equipment used within certain voltage limits and the Amendment Directive 93/68/EEC.



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· The appliance coupler (the connector to the unit and not the wall plug) must have a configuration for mating with an EN 60320/IEC 320 appliance inlet. · The socket outlet must be near to the unit and easily accessible. You can only remove power from the unit by disconnecting the power cord from the outlet. · This unit operates under SELV (Safety Extra Low Voltage) conditions according to IEC 60950. The conditions are only maintained if the equipment to which it is connected also operates under SELV conditions. v COMPLIANCES France and Peru only This unit cannot be powered from IT supplies. If your supplies are of IT type, this unit must be powered by 230 V (2P+T) via an isolation transformer ratio 1:1, with the secondary connection point labelled Neutral, connected directly to earth (ground). Impédance à la terre Power Cord Set U.S.A. and Canada The cord set must be UL-approved and CSA certified. The minimum specifications for the flexible cord are: - No. 18 AWG - not longer than 2 meters, or 16 AWG. - Type SV or SJ - 3-conductor The cord set must have a rated current capacity of at least 10 A. The attachment plug must be an earth-grounding type with NEMA 5-15P (15 A, 125 V) or NEMA 6-15P (15 A, 250 V) configuration. Denmark Switzerland U.K. The supply plug must comply with Section 107-2-D1, Standard DK2-1a or DK2-5a. The supply plug must comply with SEV/ASE 1011. The supply plug must comply with BS1363 (3-pin 13 A) and be fitted with a 5 A fuse which complies with BS1362. The mains cord must be <HAR> or <BASEC> marked and be of type HO3VVF3GO.75 (minimum). Europe The supply plug must comply with CEE7/7 ("SCHUKO"). The mains cord must be <HAR> or <BASEC> marked and be of type HO3VVF3GO.75 (minimum). IEC-320 receptacle. Veuillez lire à fond l'information des Gerats und leicht zuganglich sein. Die Stromversorgung des Gerats kann nur durch Herausziehen des Geratenetzkaels aus der Netzsteckdose unterbrochen werden. · Der Betrieb dieses Gerats erfolgt unter den SELV-Bedingungen (Sicherheitskleinstspannung) gemaf IEC 60950. Diese Bedingungen sind nur gegeben, wenn auch die an das Gerat angeschlossenen Gerate unter SELV-Bedingungen betrieben werden viii COMPLIANCES Stromkabel.

Dies muss von dem Land, in dem es benutzt wird gepruft werden: Schweiz Europe Dieser Stromstecker muaf die SEV/ASE 1011 Bestimmungen einhalten. Das Netzkabel muaf vom Typ HO3VVF3GO.75 (Mindestanforderung) sein und die Aufschrift <HAR> oder <BASEC> tragen. Der Netzstecker muaf die Norm CEE 7/7 erfullen ("SCHUKO"). Warnings and Cautionary Messages Warning: Warning: Warning: This product does not contain any serviceable user parts. Installation and removal of the unit must be carried out by qualified personnel only. When connecting this device to a power outlet, connect the field ground lead on the tri-pole power plug to a valid earth ground line to prevent electrical hazards. Wear an anti-static wrist strap or take other suitable measures to prevent electrostatic discharge when handling this equipment. Do not plug a phone jack connector in the RJ-45 port. This may damage this device. Les raccordeurs ne sont pas utilisés pour le système téléphonique! Use only twisted-pair cables with RJ-45 connectors that conform to FCC standards. Caution: Caution: Caution: Warnings (in German) Achtung: Achtung: Achtung: Dieses Produkt enthält keine Teile, die eine Wartung vom Benutzer benötigen. Installation und Deinstallation des Gerates müssen von qualifiziertem Servicepersonal durchgeführt werden. Wenn das Gerat an eine Steckdose angeschlossen wird, muaf der Masseanschluaf am dreipoligen Netzstecker mit Schutzerde verbunden werden, um elektrische Gefahren zu vermeiden. ix COMPLIANCES Environmental Statement The manufacturer of this product endeavours to sustain an environmentally-friendly policy throughout the entire production process.

This is achieved though the following means: · · · · · Adherence to national legislation and regulations on environmental production standards.



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*Conservation of operational resources. Waste reduction and safe disposal of all harmful un-recyclable by-products. Recycling of all reusable waste content. Design of products to maximize recyclables at the end of the product's life span.*

*Continual monitoring of safety standards. End of Product Life Span This product is manufactured in such a way as to allow for the recovery and disposal of all included electrical components once the product has reached the end of its life. Manufacturing Materials There are no hazardous nor ozone-depleting materials in this product. Documentation All printed documentation for this product uses biodegradable paper that originates from sustained and managed forests. The inks used in the printing process are non-toxic. Purpose This guide details the hardware features of the switch, including Its physical and performance-related characteristics, and how to install the switch. Audience The guide is intended for use by network administrators who are responsible for installing and setting up network equipment; consequently, it assumes a basic working knowledge of LANs (Local Area Networks). Diese Anleitung ist für die Benutzung durch Netzwerkadministratoren vorgesehen, die für die Installation und das einstellen von Netzwerkkomponenten verantwortlich sind; sie setzt Erfahrung bei der Arbeit mit LANs (Local Area Networks) voraus. x TABLE OF CONTENTS Introduction . .*

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With 32/48 Gigabits of throughput bandwidth, these switches provide the quickest solution to meeting the growing demands on your network. Features and Benefits . . . . User friendly web management interface Supports Qos, VLANs and Trunk configuration Store-and-forward switching ensures error-free transmission Half- and full-duplex flow control prevents packets from being dropped under heavy loading · Plug-and-play--Optional configuration using web interface · "At-a-glance" LEDs for port and system status monitoring · Desktop or rack installation 1 INITIAL CONFIGURATION INITIAL CONFIGURATION To make use of the management features of your SMC Smart Switch you must first give it an IP address. For simplicity, this should be done before you permanently install the switch in the network. The following procedure is recommended: 1. Place your Smart Switch close to the PC that you will use to configure it. It will help if you can see the front panel of the switch while working on your PC. 2. Connect the Ethernet port of your PC to any port on the front panel of your Smart Switch, start your PC (if it is not already running), connect power to the switch and, when your PC has finished its start-up sequence, verify that you have a link by checking the LEDs on the front-panel of the switch (see the Hardware Description for more information). 3. The default IP address of the switch is 192.

168.2.10 and the subnet mask is 255.255.255.0. If your PC has a different address from the switch but is on the same subnet (i.e. the PC and switch both have addresses that start 192.168.

2.x but are different thereafter) you can skip directly to step 4. Otherwise you will have to set your PC's IP address manually. If you are unfamiliar with this process, please refer to the "Changing PC's IP Address" on page 7. 4.

After changing your PC's IP address, open your web browser and enter the address <http://192.168.2.10>. If your PC is properly configured, you will see the login page of your Smart Switch.

If you do not see the login page, please check your settings and repeat step 3. 5. Enter the password (the default is "smcadmin") and click on the Login button.

2 FEATURES AND BENEFITS 6. Click on the SYSTEM menu-choice then click on LAN Settings when it appears. On the LAN Settings page, enter the IP address, Subnet Mask and Gateway IP Address for the switch then click on the APPLY button. No other configuration changes are required at this stage but it is recommended that you change the administrator's password before logging out. To change the password click on the SYSTEM→ Password menu-choice and fill in all the fields on the Password Settings page before clicking on the APPLY button. (see "Setting the Switch's IP Address" on page 16 for more information) 3 CONFIGURING THE SWITCH CONFIGURING THE SWITCH Using the Web Interface This switch provides an embedded HTTP web agent. Using a web browser you can configure the switch and view statistics to monitor network activity.

The web agent can be accessed by any computer on the network using a standard web browser (Internet Explorer 5.5 or above, or Mozilla Firefox 1.0 or above). Prior to accessing the switch from a web browser, be sure you have first performed the following tasks: 1.



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Configure the switch with a valid IP address, subnet mask, and default gateway. (Default: 192.168.2.10/255.255.255.0/0.0.0.0) (See "Initial Configuration" on page 2.

) 2. Set a new password using the web interface. (Default: "smcadmin"). Access to the web interface is controlled by the password. (See "Configuring the Logon Password" on page 15.

) Note: If, at any point, you cannot remember the switch's IP address, you can restore the original settings by following the procedure described in the "Troubleshooting" section. 4 NAVIGATING THE WEB BROWSER INTERFACE Navigating the Web Browser Interface To access the web-browser interface you must first enter a password. The user has Read/Write access to all configuration parameters and statistics. The default password for the switch is "smcadmin." If user input is not detected within five minutes, the current session will be terminated. Home Page When your web browser connects with the switch's web agent, the home page is displayed as shown below. The home page displays the Main Menu on the left side of the screen and System Information on the right side. The Main Menu links are used to navigate to other menus, and display configuration parameters and statistics. Figure 1 Home Page Note: The examples in this chapter are based on the SMC GS16-Smart. Other than the number of fixed ports, there are no major differences between the SMC GS16-Smart and SMC GS24-Smart.

5 CONFIGURING THE SWITCH Configuration Options Configurable parameters have a dialog box or a drop-down list. Once a configuration change has been made on a page, be sure to click on the Apply button to confirm the new setting. The following table summarizes the web page configuration buttons.

Table 2 Web Page Configuration Buttons Button Apply Cancel Help Action Sets specified values to the system. Discards all changes and restores current values. Links directly to web help. Notes: To ensure proper screen refresh, be sure that Internet Explorer is configured as follows: Under the menu "Tools / Internet Options / General / Temporary Internet Files / Settings," the setting for item "Check for newer versions of stored pages" should be "Every visit to the page." Panel Display The web agent displays an image of the switch's ports. The port will turn green when the corresponding front-panel port is in connection with another device. To show the port number, place mouse pointer onto the intended port.

Figure 2 Front Panel Indicators 6 NAVIGATING THE WEB BROWSER INTERFACE Main Menu Using the onboard web agent, you can define system parameters, manage and control the switch, and all its ports, or monitor network conditions. The following table briefly describes the selections available from this program. Table 2-1 Switch Main Menu Menu STATUS Overview Provides basic system description, including system information, address information, port information, trunk information, and VLAN information. Shows statistics for port, interface, and RMON. Shows the name of the switch. Sets LAN IP address, subnet mask, and gateway IP address. Changes password. Force the Switch to perform a power reset and restore the original factory settings. Upgrade the Switch system firmware using a file provided by SMC. Restarts the switch.

Registers the switch online. Configure the speed and duplex mode of the port. Sets the rate limiting parameters for each port on the Switch Description Page 6 6 Statistics SYSTEM Name LAN Settings Password Tools Restore to Factory Defaults Upgrade Firmware Restart Register Product PORTS Settings Rate Limiting 10 13 13 14 15 16 16 17 17 18 18 18 19 7 CONFIGURING THE SWITCH Table 2-1 Switch Main Menu (Continued) Menu Broadcast Control Port Mirroring TRUNKS Membership Settings Rate Limiting VLANS VLAN Settings QOS Settings LOGOUT Sets the priority of packets within the switch. Quits to the Login page. Configures the VLANs on the switch for both Ports and Trunks Specifies ports to group into static trunks Configures trunk connection settings Sets the rate limiting parameters for each Trunk configured on the Switch. Description Sets the broadcast storm control parameters for every port on the Switch. Sets up the port mirroring features of the switch to enable traffic monitoring. Page 21 22 23 24 24 25 26 26 29 29 Web Configuration Displaying Status Overview You can easily identify the system by displaying the device name, location and contact information. Field Attributes System Information · System Name Name assigned to the switch system. · Number of Ports Number of built-in ports.

· Hardware Version Hardware version of the main board. · Code Version Version number of the code. · Serial Number The serial number of the switch. 8 WEB CONFIGURATION Address Information · Management VLAN ID of the configured VLAN (this is set to 1 and cannot be changed) all ports on the unit are members of VLAN 1. The management station must always be attached to a port on VLAN 1. · IP Address Address of the VLAN to which the management station is attached. (Note that the management station must always be on VLAN 1) Valid IP addresses consist of four numbers, 0 to 255, separated by periods. · Subnet Mask This mask identifies the host address bits used for routing to specific subnets. (Default: 255.255.255.0) · Gateway IP Address IP address of the gateway router between the stack and management stations that exist on other network segments. (Default: 0.0.0.

0) · MAC Address The physical layer address. Port Information · Type Indicates the port type. · Link Status Indicates if the link is Up or Down. · Speed/Duplex Status Shows the current speed and duplex mode. Displays a number, the speed in Mbps, followed by either "fdx" for full-duplex or "hdx" for half-duplex.

· Flow Control Status Indicates whether flow control is enabled or disabled. · Autonegotiation Shows if auto-negotiation is enabled or disabled. · Frame Type Either "Tagged" or "All". "Tagged" means that the port will only send and receive VLAN-tagged packets. When set to "All", the port will also send and receive untagged packets. · PVID VLAN ID assigned to untagged frames received on the interface. (Default: 1) Trunk Information · Trunk The trunk label. "T1" through "T8" are used as trunk labels. · Type All trunks and ports on this switch are 10/100/1000M · Trunk Status An indication of the speed and duplex setting of the 9 CONFIGURING THE SWITCH trunk. This is a number, the speed in Mbps, followed by either "Full" for full-duplex or "Half" for half-duplex.

This can be changed on the TRUNKS > Settings page.



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· Ports The ports that are members of the trunk. @@@@The total number of frames (bad, broadcast and multicast) received. @@@@The best estimate of the total number of collisions on this Ethernet segment. Transmitted Errors Received Normal Priority Packets Transmitted Normal Priority Packets RMON Statistics Drop Events Received Frames Multicast Frames Undersize Frames Fragments Collisions 13 CONFIGURING THE SWITCH Table 4 Port Statistics (Continued) Parameter Received Bytes Description Total number of bytes of data received on the network. This statistic can be used as a reasonable indication of Ethernet utilization. The total number of good frames received that were directed to the broadcast address. Note that this does not include multicast packets. The number of CRC/alignment errors (FCS or alignment errors). The total number of frames received that were longer than 1518 octets (excluding framing bits, but including FCS octets) and were otherwise well formed. The total number of frames received that were longer than 1518 octets (excluding framing bits, but including FCS octets), and had either an FCS or alignment error. The total number of frames (including bad packets) received and transmitted that were 64 octets in length (excluding framing bits but including FCS octets). The total number of frames (including bad packets) received and transmitted where the number of octets fall within the specified range (excluding framing bits but including FCS octets). Broadcast Frames CRC/Alignment Errors Oversize Frames Jabbers 64 Bytes Frames 65-127 Byte Frames 128-255 Byte Frames 256-511 Byte Frames 512-1023 Byte Frames 1024-1518 Byte Frames 1519-1536 Byte Frames 14 WEB CONFIGURATION Web Click STATUS,

Statistics. Figure 5 Port Statistics Displaying System Name You can easily identify the system by displaying the device name.

Field Attributes · Switch Name Name assigned to the switch system. 15 CONFIGURING THE SWITCH Web Click System, Name. Figure 6 System Name Setting the Switch's IP Address This section describes how to configure an IP interface for management access over the network. The IP address for this switch is 192.168.

2.10 by default. To manually configure an address, you need to change the switch's default settings (IP address 192.168.2.10 and netmask 255.255.255.0) to values that are compatible with your network. You may also need to establish a default gateway between the switch and management stations that exist on another network segment.

Field Attributes · LAN IP Address Address of the VLAN interface that is allowed management access. Valid IP addresses consist of four numbers, 0 to 255, separated by periods. (Default : 192.168.2.10) Subnet Mask This mask identifies the host address bits used for routing to specific subnets. (Default: 255.255.255.0) Gateway IP Address IP address of the gateway router between this device and management stations that exist on other network segments. (Default: 0.0.0.0) If, at any point, you cannot remember the switch's IP address, you can restore the original settings by following the procedure described in the "Troubleshooting" section. · Note: 16 WEB CONFIGURATION Manual Configuration Web Click System, LAN Settings.

Enter the IP address, subnet mask and gateway, then click APPLY. Figure 7 LAN Settings Configuring the Logon Password The administrator has write access for all parameters governing the onboard agent. You should therefore assign a new administrator password as soon as possible, and store it in a safe place. Field Attributes · Password Specifies the user password. (Range: 1-16 characters plain text, case sensitive) If, at any point, you cannot remember the password, you can restore the original settings by following the procedure described in the "Troubleshooting" section.

Note: 17 CONFIGURING THE SWITCH Web Click System, Password. To change the password for the administrator, enter current password, the new password, confirm it by entering it again, then click APPLY. Figure 8 Password Settings Tools On Tools page, you can restore the switch to default settings, upgrade the firmware of the switch, or restart the switch. Restore to Factory Defaults Force the Switch to restore the original factory settings. To reset the switch, select "Reset to Factory Defaults" from the drop-down list and click APPLY. The LAN IP Address, Subnet Mask and Gateway IP Address will not be reset. 18 WEB CONFIGURATION Web Click System, Tools, Reset to Factory Defaults. Figure 9 Reset to Factory Defaults Upgrade Firmware Upgrades the Switch system firmware using a file provided by SMC. Select "Upgrade Firmware" from the Tools drop-down list then click on the "Browse" button to select the firmware file. Finally, press the APPLY button to upgrade the selected Switch firmware file.

You can download firmware files for your Switch from the Support section of [www.smc.com](http://www.smc.com). Web Click System, Tools, Reset to Factory Defaults. Figure 10 Upgrade Firmware Restart Switch Web Click SYSTEM, Tools, Restart Switch. To restart the switch, select from the Tools drop-down list, and then click APPLY. The reset will be complete when the user interface displays the login page. 19 CONFIGURING THE SWITCH Figure 11 Restart Switch Register Product Register your product if you have not already done so. Web Click System, Register Product. By clicking the Register Now button you will be taken to the SMC website, where you can enter the products details.

Figure 12 Register Product Port Configuration You can use the Port Configuration page to manually fix the speed, duplex mode, and flow control. Field Attributes · Speed/Duplex Allows you to manually set the port speed and duplex mode. · Flow Control Allows flow control to be enabled or disabled. When the box is checked, flow control is enabled. 20 WEB CONFIGURATION · Trunk Indicates if a port is a member of a trunk.

Web Click PORTS, Settings. Figure 13 Port Configuration Configuring Rate Limits This function allows the network manager to control the maximum rate for traffic transmitted or received on an interface. Rate limiting is configured on interfaces at the edge of a network to limit traffic into or out of the switch. Traffic that falls within the rate limit is transmitted, while packets that exceed the acceptable amount of traffic are dropped. Rate limiting can be applied to individual ports or trunks.

When an interface is configured with this feature, the traffic rate will be monitored by the hardware to verify conformity. Non-conforming traffic is dropped, conforming traffic is forwarded without any changes. 21 CONFIGURING THE SWITCH The Input/Output Bandwidth Limit field is a type-in box which accepts an integer number in the range 1 to 100.



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The number specifies the percentage of the total input bandwidth of the port that can be used before packets are dropped or flow-control starts. Web Click PORTS, Rate Limiting. This page enables you to set the rate limiting parameters for each port on the Switch. Figure 14 Rate Limiting 22 WEB CONFIGURATION Port Broadcast Control Broadcast storms may occur when a device on your network is malfunctioning, or if application programs are not well designed or properly configured. If there is too much broadcast traffic on your network, performance can be severely degraded or everything can come to complete halt. You can protect your network from broadcast storms by setting a threshold for broadcast traffic for each port. Any broadcast packets exceeding the specified threshold will then be dropped.

Field Attributes · Enable Broadcast Storm Control Click to select the box to enable Broadcast Storm Control. · Bandwidth Limit Threshold as percentage of port bandwidth. This field accepts an integer value in the range 1 to 100. The value specifies the percentage of the available input bandwidth that can be made available for broadcast and multicast traffic. The same percentage threshold is applied to every port on the switch. When the threshold is exceeded, packets are dropped, irrespective of the flow control settings. Web Click PORTS, Broadcast Control. This page enables you to set the broadcast storm control parameters for every port on the Switch. Figure 15 Port Broadcast Control 23 CONFIGURING THE SWITCH Port Mirroring You can mirror traffic from any source port to a target port for real-time analysis. You can then attach a logic analyzer or RMON probe to the target port and study the traffic crossing the source port in a completely unobtrusive manner.

Field Attributes Ports to Mirror Select the ports that you want to mirror from this section of the page. A port will be mirrored when the "Mirroring Enabled" check-box is checked. · Port to Mirror to The port that will "duplicate" or "mirror" the traffic on the source port. Only incoming packets can be mirrored. Packets will be dropped when the available egress bandwidth is less than ingress bandwidth.

Note: If the total ingress bandwidth exceeds the mirror port's egress bandwidth, packets will eventually be dropped on ingress to the switch which means they will not reach the mirror port or their intended destination port. Input rate-limiting in conjunction with port flow-control could be used to ensure that the total ingress bandwidth never exceeds the egress bandwidth. 24 WEB CONFIGURATION Web Click PORTS, Port Mirroring. Figure 16 Port Mirroring Trunks Membership This page allows you to create a maximum of eight trunks of up to eight ports each. The Membership Table has one row for each port and ten columns.

Each row contains nine radio buttons which are used to indicate which trunk (if any) the port belongs to. Field Attributes · Port The front-panel port-number of the port. · Not a Trunk Member If the radio button in this column is selected, the port is not a member of any trunks. This is the default state. · Trunk T1-T8 These columns correspond to the eight trunks that are supported by the Switch. Clicking on the radio button in any one of these columns causes the port to become a member of the corresponding trunk. 25 CONFIGURING THE SWITCH Web Click TRUNKS, Membership. Click to select which Trunk member to which each port belongs. Figure 17 Trunk Membership Trunk Configuration Field Attributes · Trunk Indicates trunk identification. · Speed/Duplex Allows you to manually set the port speed and duplex mode for all ports in the trunk.

· Flow Control Allows flow control to be enabled or disabled. When the box is checked, flow control is enabled. · Ports Indicates which ports belong to the trunk. 26 WEB CONFIGURATION Web Click TRUNKS, Settings. Figure 18 Trunk Configuration Trunk Rate Limit This page allows you to change the maximum data-rate into and out of each trunk on the switch. Field Attributes · Trunk Indicates trunk identification. · Trunk Speed Indicates the trunk speed. · Enable Input Rate Limiting - Click to select the box to enable the Input Rate Limiting function. · Input Limit Enter the desired limit. (% of port speed) · Enable Output Rate Limiting Click to select the box to enable the Output Rate Limiting function.

· Output Limit Enter the desired limit. (% of port speed) · Ports Indicates which ports belong to the trunk. 27 CONFIGURING THE SWITCH Web Click TRUNKS, Settings. Figure 19 Trunk Rate Limiting VLAN Settings You can configure VLAN behavior for specific interfaces, including the default VLAN identifier (PVID) and accepted frame types. This page allows you to create and delete VLANs (Virtual LANs) and to change the VLAN membership and behaviour of individual ports.

VLANs are powerful but can be difficult to set up properly. Each row of the table corresponds to one port or trunk; trunked ports cannot be configured individually. Introduction to VLANs VLANs (or Virtual LANs) are logical partitions of the physical LAN. You can use VLANs to increase network performance or increase internal network security. If the network has adequate performance and security for your current needs, it is recommended that you leave the VLAN settings in the default configuration.

The default configuration is as follows: · All ports are members of VLAN 1 · The switch management interface is on VLAN 1 (this cannot be changed) · All ports have a Port VLAN ID (PVID) of 1 28 WEB CONFIGURATION · All ports can send and receive both VLAN-tagged and untagged packets (i.e. they are hybrid ports) In the default configuration, any port is able to send traffic to any other port and a PC connected to any port will be able to reach the management interface. Broadcast traffic, for example, will be flooded to all ports on the switch. There are three different parameters that can be configured for each port on the switch; VLAN IDs (VLAN membership), PVID and Packet Type. Note that the ports within a Trunk cannot be configured individually; configure the Trunk instead (Trunks are labelled T1 to T8). Field Attributes · Port/Trunk The front-panel port-number of the port or the ID of a trunk. This cannot be changed. · VLAN ID VLAN to which matching protocol traffic is forwarded. VLAN 1 is a special VLAN; it cannot be deleted and, if there is a possibility that a port could become isolated, the Web User-interface will add the port to VLAN 1.

You can add up to seven VLANs to the configuration of the switch. Each VLAN must be given a VLAN ID in the range 2-4094. One port can be a member of up to eight VLANs.



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All packets travelling through the switch are associated with one and only one VLAN. If a port is not a member of a VLAN, it cannot send or receive packets associated with that VLAN. A tagged packet carries its VLAN ID in the payload of the packet. An untagged packet, received on a port with Packet Type set to "All," is associated with the VLAN identified by the PVID. · PVID VLAN ID assigned to untagged frames received on the interface. The PVID is (Port VLAN ID) is the VLAN ID that is associated with untagged, ingress packets. It is not possible to remove a port from VLAN 1 unless its PVID has been changed to something other than 1.

The PVID has no effect on ports that have Packet Type set to Tagged. (Default: 1) · Packet Type Sets the interface to accept all frame types, including 29 CONFIGURING THE SWITCH tagged or untagged frames, or only tagged frames. When set to receive all frame types, any received frames that are untagged are assigned to the default VLAN. PCs should be connected to ports with Packet Type set to "All". PCs cannot, in general, send or receive tagged packets.

Switches should be connected to each other with Packet Type set to "Tagged". If the Packet Type is set to "All", the port can accept incoming tagged and untagged packets. Untagged packets will be associated with the VLAN identified by the PVID. Tagged packets will be dropped unless the port is a member of the VLAN identified by the VLAN tag in the packet. Outgoing packets will be tagged unless the packet's VLAN ID is the same as the PVID.

If the Packet Type is set to "Tagged", the port will drop untagged packets and will only send and receive tagged packets. Tagged packets will be dropped unless the port is a member of the VLAN identified by the VLAN tag in the packet. The PVID has no effect in this case. (Option: All, Tagged; Default: All) Web Click VLANs, VLAN Settings. Fill in the required settings for each interface, click Apply. Figure 20 VLAN Settings 30 WEB CONFIGURATION QoS Settings

QoS (Quality of Service) is a mechanism which is used to prioritize certain traffic as it moves through the switch. Traffic can be classified as High or Normal priority and, when the switch is heavily loaded, it is the Normal priority packets that are dropped first. You can select how traffic is prioritized by using one of the four QoS modes which is selected using the QoS Mode drop-down list. Note: Only one QoS mode can be active at one time. It is not possible, for example, to prioritise traffic using the IP Port number and 802.

Ip tag. QoS Disabled QoS is turned off and all packets have equal priority. 802.1p Packets are prioritized using the content of the VLAN-tag. The 802.1p field is held within the VLAN-tag of a packet. The field is three bits long so can hold eight values; 0 - 7 inclusive. When QoS Mode is set to 802.1p, the 802.1p Configuration table appears which allows a priority (normal or high) to be set for each of the eight values.

You can use the Prioritize Traffic drop-down list to quickly set the values in the 802.1p Configuration table. Select All Normal Priority to set all values to normal priority or select All High Priority to set all values to high priority. Use Custom if you want to set each value individually. Note: Because end-stations, like PCs, are not usually VLAN aware, they do not create VLAN-tagged frames.

As a result, this method of prioritization is not ideal when there are a lot of PCs connected to the Switch. IP Port Although this is a layer 2 switch, it is capable of looking far enough into each packet to find the port number associated with a UDP/IP or TCP/IP transfer. When QoS Mode is set to IP Port, the Custom QoS TCP/IP 31 CONFIGURING THE SWITCH table appears and you are able to select up to ten IP Ports for prioritization. Prioritized port numbers can be in the range 0 - 65535 inclusive. The specified ports will be given either normal or high priority depending on the value selected in the Priority drop-down list.

If the specified port numbers are given high priority, all other port numbers will have normal priority. Conversely, if the specified port numbers are given normal priority, all other port numbers will have high priority. @@@@The list contains some useful presets. @@@@Six bits allows the DSCP field to take any value in the range 0 - 63 inclusive. When QoS Mode is set to DSCP, the DSCP Configuration table appears which allows a priority (normal or high) to be set for each of the DSCP values. You can use the Prioritize Traffic drop-down list to quickly set the values in the DSCP Configuration table. Select All Normal Priority to set all values to normal priority or select All High Priority to set all values to high priority. Use Custom if you want to set each value individually. 32 WEB CONFIGURATION Web Click QoS, Settings. In QoS Mode, select QoS Disabled, 802.

Ip, IP Port, or DSCP to configure the related parameters. Figure 21 QoS Settings 33 TROUBLESHOOTING TROUBLESHOOTING Diagnosing Switch Indicators 1. Symptom Power LED does not light after power on. Probable Causes · AC power cord may be defective. Possible Solutions · Check for loose connections. · Check the power outlet by using it for another device. · Replace the AC power cord. 2. Symptom Link LED does not light after connection is made. Probable Causes · Switch port, network card or cable may be defective.

Possible Solutions · Check that the switch and attached device are both powered on. · Be sure the network cable is connected to both devices. · Verify that Category 5 or better cable is used for 10/100 Mbps connections, Category 5 or 5e cable for 1000 Mbps connections, and that the length of any cable does not exceed 100 meters (328 feet). · Check the network card and cable connections for defects. · Replace the defective card or cable if necessary.

34 DIAGNOSING SWITCH INDICATORS 3. Forgotten password If you have forgotten the administration password you can return the Switch to its factory default state by doing the following: 1. Remove the power cord from the back of the Switch. 2. Remove all cables from the front-panel ports.

3. Connect port 1 to port 2, on the front panel, using a standard network cable. 4. Reconnect the power cord to the rear of the Switch. 5. Wait at least 40 seconds before disconnecting port 1 from port 2. After completing this procedure, the password will be "smcadmin" and the network address will be returned to the default; 192.168.2.10.

35 CHANGING PC'S IP ADDRESS CHANGING PC'S IP ADDRESS To change the IP address of your PC: 1. On Windows, go to Start, Settings, Network and Dial-up Connections. 2. Right-click the connectin icon of which the IP address you want to change, and then click properties. 3. In General tab, under Components checked are used by this connection, click to select Internet Protocol (TCP/IP), and then click Properties to open Internet Protocol (TCP/IP) Properties dialog box.



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4. In Internet Protocol (TCP/IP) Properties dialog box, click to select Use the following IP address. 5. In IP address, Subnet mask, and Default gateway type your intended information.

6. Click OK to save the changes and quit. 36 EZ SWITCH 10/100/1000 PRODUCT SPECIFICATIONS EZ Switch 10/100/1000 Standards Conformance IEEE 802.3-2002 Ethernet, Fast Ethernet, Gigabit Ethernet Full-duplex flow control Communication Rate 10, 100, and 1000 Mbps Communication Mode Full or half duplex at 10/100 Mbps Full duplex at 1000 Mbps Media Supported 10BASE-T: 100-ohm Category 3 or better twisted-pair 100BASE-TX: 100-ohm Category 5 or better twisted pair 1000BASE-T: 100-ohm Category 5, 5e, or 6 twisted-pair Number of Ports SMC GS16-Smart: 16 RJ-45 1000BASE-T ports SMC GS24-Smart: 24 RJ-45 1000BASE-T ports Indicator Panel Power Ports: Link/Act, 100/1000M Dimensions 33 x 20.4 x 4.4 cm (12.99 x 8.04 x 1.73 in.) 37 PRODUCT SPECIFICATIONS Weight SMC GS16-Smart: 2.0 kg (4.04 lbs) SMC GS24-Smart: 2.2 kg (4.85 lbs) MAC Address Table 8 K entries Memory Buffer SMC GS16-Smart: 272 Kbits on-chip frame buffer SMC GS24-Smart: 400 Kbits on-chip frame buffer Power Consumption SMC GS16-Smart: 15.8 Watts SMC GS24-Smart: 24.2 Watts Heat Dissipation 130 BTU/hr maximum Power Requirement Input Voltage: 100 - 240 VAC@50-60 Hz Temperature Operating: 0 ~ 40 °C / 32 ~ 104 °F Storage: -40 ~ 70 °C / -40 ~ 158 °F Humidity 5% to 95% non-condensing EMC/Safety Compliances CE Mark Immunity EN 61000-4-2/3/4/5/6/8/11 Emissions FCC Class A, CISPR Class A, EN 61000-3-2/3 Safety CSA/CUS (CSA60950-1 & UL60950-1) TUV / GS EN60950-1 CB IEC60950-1 38 FOR TECHNICAL SUPPORT, CALL: From U.S.A. and Canada (24 hours a day, 7 days a week) (800) SMC-4-YOU; Phn: (949) 679-8000; Fax: (949) 679-1481 From Europe: Contact details can be found on [www.smc.com](http://www.smc.com).

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