



DGS-3224TGR

## 24-Port Managed Copper Gigabit Switch

### With 4 Combo Mini GBIC (SFP) Slots & Redundant Power Support

The DGS-3224TGR is an all-Gigabit Layer 2 switch designed for departmental connection. It provides 24 10/100/1000BASE-T ports for cost-effective copper Gigabit connection, plus 4 combo Mini GBIC (SFP) slots for flexible copper or fiber backbone attachment. Advanced features such as port trunking, VLANs and priority queues in addition to redundant power supply support are provided, allowing a department to effectively and securely deploy a bottleneck-free switching network for easy integration with a larger enterprise or campus network.

#### 24 Copper Gigabit Connections

With 24 10/100/1000BASE-T auto-sensing ports in a low-profile, high-density device, this switch is cost-effective solution for Gigabit networking. All ports support auto MDI/MDIX, allowing you to connect to workstations, servers, or other switches from any port without the need to change your usual straight-through twisted-pair cables.

#### 4 Mini GBIC Slots for Flexible Fiber Connection

4 mini GBIC (SFP) slots are provided for flexible fiber connection. You can select to install optional transceiver modules in these slots for short, medium or long-distance fiber backbone attachment. Use of the mini GBIC will disable their corresponding built-in 10/100/1000BASE-T connections.

#### Flow Control to Prevent Packet Loss

The switch supports standard IEEE 802.3x Flow Control. Working in conjunction with buffer overrun auto-detection, this full-duplex data transfer mode provides protection against possible data loss for 802.3x supported servers directly connected to the switch.

#### Port Trunks for Aggregated Bandwidths

With low cost per port, port trunks supporting 802.3ad Link Aggregation standard provide an easy and economical alternative solution for server connection to attain Gigabit bandwidth. Up to 8 10/100/1000BASE-T ports can be combined together to create a multi-link load-sharing aggregated bandwidth to a server.

#### VLANs for Enhanced Security & Performance

VLANs improve security and bandwidth utilization by limiting the broadcast domains and confining intra-group traffic within their segments. To segment up the network, workstations and servers supporting IEEE 802.1Q VLAN Tagging connected to the switch can be grouped into different Virtual LANs (VLANs). The switch also supports GVRP (GARP VLAN Registration Protocol) for automatic VLAN configuration distribution.

#### Advanced Network Access Management

802.1x features enable user authentication for each network access attempt. Port security features allow you to limit the number of MAC addresses per port in order to control the number of stations for each port. Static MAC addresses can be defined for each port to ensure only registered machines are allowed to access. By enabling both of these features, you can establish an access mechanism based on user and machine identities, as well as control the number of access stations.

#### Multi-layer Access Control List (ACL)

Access Control Lists (ACL) allow the network administrator to define policies on network traffic control. The switch supports comprehensive and multi-layer ACLs, providing a powerful tool for network management. For example, the switch can be set to block malicious bulk traffic from specific clients (based either on MAC or IP addresses), or during a virus attack. The switch can be set to restrict its flooding based on a virus's unique pattern (TCP/UDP port number).

### Advanced QoS Support

The switch supports not only Layer 2 802.1p Priority Queue control, but also a variety of ways to prioritize network packets. Multi-layer information from L2 to L4 can be used to classify packet priorities. This function support allows you to attach IP telephony devices or video servers to the switch to run delay-sensitive applications like video conference.

### Flexible Transmission Scheduling

The switch supports 2 methods of packet transmission scheduling: Strict scheduling and Weighted Fair Queue (WFQ). You can select to use Strict Scheduling to strictly enforce your priority queues.

### IGMP Snooping for Broadcast Control

The switch listens to IGMP (Internet Group Management Protocol) messages to build mapping table and associate forwarding filters. It dynamically configures the switch ports to forward IP multicast traffic only to those ports associated with multicast hosts.

### Broadcast Storm Control

To limit too many broadcast/multicast flooding in the network, broadcast/multicast storm control is configured to screen excessive traffic. Threshold values are available to control the rate limit for each port. Packets are discarded if the respective count exceeds the configured upper threshold in a given time interval. The possible range of upper threshold is from 0 to 255k packets per second.

### Port Mirroring

This function allows you to mirror adjacent ports for the purpose of analyzing incoming and outgoing packets where packet patterns can be studied.

### 802.1D & 802.1w Rapid Spanning Tree (\*)

For mission critical environments with multiple switches supporting STP, you can configure the stack of switches with a redundant backup bridge path, so transmission and reception of packets can be guaranteed in event of any fail-over switch on the network.

*\* Rapid Spanning Tree supported in next firmware release*

### Multiple Management Interfaces

SNMP v.1, v.3 network management is supported, using the built-in MIBs. RMON monitoring and SYSLOG are provided for effective central management. The switch also provides a Command Line Interface (CLI) and a Web-based GUI. CLI enables quick system configuration for administrators familiar with command line operation. The embedded Web-based interface allows you to easily access the switch from anywhere on the network and troubleshoot it in real-time. You can, for example, browse the MAC address table via the Web browser and perform searching to identify the location of any workstation. Port utilization graphs provide real-time traffic monitoring and diagnostic information.

### Redundant Power Support

The switch can be connected to an external power supply for redundant power backup purposes. In case the built-in internal power supply fails, the redundant power supply unit will automatically provide all the required power to ensure continuous operation. For redundant power supply, a DPS-300 can be deployed.

## Features

- 24 10/100/1000BASE-T ports
- 4 combo Mini GBIC (SFP) slots
- Redundant power supply support
- 35.7mpps (48Gbps) switching fabric
- Auto MDI/MDIX for all twisted-pair ports
- Jumbo frame support (up to 9216 bytes)
- 802.1Q VLAN, GARP/GVRP, Asymmetric VLAN (\*) support
- IGMP snooping, 802.1p Priority Queues, port mirroring support
- Multi-layer (Layer 2 to Layer 4) ACL and CoS support
- Administrator-definable port security
- 802.3ad Link Aggregation port trunks of up to 32 groups on
- 8 10/100/1000BASE-T ports of each group; supports static mode and LACP (\*)
- Broadcast storm control
- 802.3x Flow Control
- 802.1D and 802.1w Rapid Spanning Tree (\*) for redundant backup bridge paths
- SNMP v.1, v.3 network management, 4 groups of RMON
- 802.1x port access control
- Per-port bandwidth control
- Command Line Interface, TFTP firmware upgrade, Web-based management, Web GUI Traffic Monitoring support
- MIB support

*\* Asymmetric VLAN, LACP and Rapid Spanning Tree functions available in next firmware release*

### Hardware

#### Device Ports

- 24 10/100/1000BASE-T ports
- 4 combo Mini GBIC (SFP) slots
- RS-232 console port

#### Standard Support

- IEEE 802.3 10BASE-T/802.3u 100BASE-TX/802.3ab 1000BASE-T
- ANSI/IEEE 802.3 NWay auto-negotiation
- IEEE 802.3x Flow Control

#### Mini GBIC (SFP) Support

- IEEE 802.3z 1000BASE-LX (DEM-310GT transceiver)
- IEEE 802.3z 1000BASE-SX (DEM-311GT transceiver)
- IEEE 802.3z 1000BASE-LH (DEM-314GT transceiver)
- IEEE 802.3z 1000BASE-ZX (DEM-315GT transceiver)

#### Switch Fabric

35.7mpps (48Gbps)

#### Diagnostic LEDs

##### Per device:

- Power
- Console
- RPS

##### Per RJ-45 port:

- Speed
- Link/Act

##### Per SFP port:

- Link/Act

### Software

#### VLAN

- IEEE 802.1Q Tagged VLAN
- GARP/GVRP
- Number of VLANs: 255 per device (max.) (64 static VLANs)

#### Priority Queues (CoS)

- Standard: IEEE 802.1p
- Number of queues: 8 per port

#### Traffic Classification (CoS)

Can be based on user-definable application types:

- TOS
- Diffserv (DSCP)
- Port-based
- MAC address
- IP address
- TCP/UDP port number

#### Network Access Security

- Port security features
- 802.1x user authentication
- RADIUS client
- SSH2
- Multi-layer Access Control List (ACL) based on:
  - TOS
  - Diffserv (DSCP)
  - MAC source/destination address
  - IP destination address
  - TCP/UDP destination port number

#### Spanning Tree

- 802.1D
- 802.1w Rapid Spanning Tree \*

\* Rapid Spanning Tree supported in next firmware release

#### Multicast

- IGMP Snooping

#### Port Trunk

- Enables grouping of links between the switch and another switch or a server to provide higher bandwidth of up to 8 10/100 ports or up to 8 Gigabit ports with active redundant links.
- Number of trunking group: 32 (max.)
  - Number of ports per trunk: 8 (max.)
  - Operation mode: load sharing

### Performance

#### Transmission Method

Store-and-forward

#### MAC Address Table

16K entries per device

#### MAC Address Learning

- Dynamic entries: automatic update
- Static entries: user-defined

#### Packet Filtering/Forwarding Rates (half duplex)

1,488,100 pps per port (max.)

#### RAM Buffer

2MB per device

#### Jumbo Frame Size

Up to 9216bytes

#### Broadcast Storm Control

Rate control of Broadcast, unknown Multicast and Unicast packets

### Configuration & Management

#### Management Support

- SNMP v.1, v.3
- Web-based management
- CLI (command line interface)
- RMON monitoring
- Telnet server
- SYSLOG
- Web GUI traffic monitoring
- Password enable

#### MIBs

- MIB-II (RFC 1213)
- Bridge MIB (RFC 1493)
- RMON MIB (RFC 1757)
- 802.1Q VLAN/802.1p MIB (RFC 2674)
- IF MIB (RFC 2233)
- Ethernet-like MIB (RFC 1643)
- D-Link enterprise MIB

#### RMON Groups

1, 2, 3, 9 (Alarm, Statistics, History, Event)

#### IP Number Self-identification

Through DHCP client, Bootp client

#### Firmware Upgrade

TFTP

#### Console Port

DB-9 RS-232 DCE

### Physical & Environmental

#### Power Input

100 to 120 VAC, 50/60 Hz or 200 to 240 VAC, 50/60 Hz  
Internal universal power supply

#### Redundant Power Backup Support

Connector to connect to external redundant power supply

#### Power Consumption

60 watts (max.)

#### Ventilation

40 x 40 mm DC fans x 4  
60 x 60 mm 5400 RPM fan blower x 1

#### Operating Temperature

0° to 40 °C

#### Storage Temperature

-25° to 55 °C

#### Humidity

5% to 95% non-condensing

# DGS-3224TGR

## Technical Specifications

## Gigabit L2 Switch

### Dimensions

441 (W) x 309 (D) x 44 mm (H)  
19-inch rack-mount width, 1 U height

### Weight

4 kg

### Emission (EMI)

- FCC Class A  
- CE Class A  
- C-Tick

### Safety

CSA International



ACN 052 202 838

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## Ordering Information

### Managed Gigabit Layer 2 Switch

**DGS-3224TGR** 24 10/100/1000BASE-T ports, 4 combo Mini GBIC (SFP) slots, redundant power support

### Optional Mini GBIC SFP Transceiver

**DEM-310GT** SFP transceiver for 1000BASE-LX, single-mode fiber, max. distance 10km, 3.3V  
**DEM-311GT** SFP transceiver for 1000BASE-SX, multi-mode fiber, max. distance 550m, 3.3V  
**DEM-314GT** SFP transceiver for 1000BASE-LHX, single-mode fiber, max. distance 40km, 3.3V  
**DEM-315GT** SFP transceiver for 1000BASE-ZX, single-mode fiber, max. distance 80km, 3.3V

### Optional Redundant Power Supply

**DPS-300** Redundant power supply

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Rev. 01 (Jul. 2003)