# LANCOM GS-2328

## Fully managed 28-port Gigabit Ethernet switch for high-performance networks



The LANCOM GS-2328 is a high-performance component for modern network infrastructures for any industry or application. Equipped with 24 Gigabit Ethernet ports and 4 SFP+ ports that support transfer rates of up to 10 Gbps, the LANCOM GS-2328 is the ideal solution for networking of up to 28 devices. It supports SD-LAN for automatic switch configuration via the LANCOM Management Cloud for an extremely easy and efficient way of managing your infrastructure.

→ 24 Gigabit Ethernet ports and 4 SFP+ ports (10 Gbps)
→ SD-LAN – automatic switch configuration via the LANCOM Management Cloud
→ Security with configurable access control on all ports based on IEEE 802.1X
→ Secure remote management through TACACS+, SSH, SSL, and SNMPv3
→ IPv6 and IPv4 support for modern enterprise networks
→ 5-year warranty on all components

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### High power output on 28 ports

The LANCOM GS-2328 is equipped with 24 Gigabit Ethernet ports and 4 SFP+ ports that support transmission rates of up to 10 Gbps. With a data throughput of 128 Gbps on the backplane, it offers full performance even under maximum load. This makes the switch a high-performance basis for modern network infrastructures in any industry or field of application.

### Data transmission by 10 Gigabit Ethernet

The LANCOM GS-2328 features 4 SFP+ ports supporting speeds of up to 10 Gbps. What's more, these ports can be bundled by LACP as per IEEE 802.3ad to achieve speeds of up to 40 Gbps. Your network offers noticeably higher performance, greater reliability, and even more speed.

### Software-defined LAN

The LANCOM Management Cloud opens the way to the most advanced switch management: Software-defined LAN (SD-LAN). SD-LAN orchestrates the port profiles for each switch and automatically assigns the necessary network configuration, e.g. the required VLANs. At the click of a mouse, switch configurations that are fully customized to each site's network architecture are simultaneously rolled-out or updated.

### Configurable access control

The LANCOM GS-2328 stops rogue clients from gaining unauthorized access to the network. This is ensured by secured access control on all ports as per IEEE 802.1X (port-based, single, multi, and MAC-based).

### Secure remote management

Secure communication protocols such as SSH, SSL and SNMPv3 mean that the LANCOM GS-2328 is ideal for the professional remote management of networks. The switch also supports the TACACS+ protocol for authentication, authorization and accounting. This optimized solution promises maximum security for multi-site network management and monitoring.

### IPv6 and IPv4 support

Thanks to the dual-stack implementation, the LANCOM GS-2328 operates in pure IPv4, pure IPv6, or in mixed networks. This means that it can be managed via both IP address standards, which makes it fully future-proof.

### 5-year warranty

Every day, our customers rely on products manufactured in Germany to the highest standards of quality. These quality standards also include fast help, just in case things should go wrong. This is why the LANCOM GS-2328 comes with a standard warranty of 5 years.

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## Security

| Secure Shell Protocol (SSH) | SSH for a secure remote configuration |
| --- | --- |
| Secure Sockets Layer (SSL) | SSL to encrypt HTTP connections; advanced security for browser-based configuration via web interface |
| IEEE 802.1X | IEEE 802.1X access control on all ports; RADIUS for authentication, authorization and accounting with e.g. MD5 hashing; guest VLAN; dynamic VLAN assignment |
| Private VLAN edge | Layer 2 isolation between clients in the same VLAN ("protected ports"); support multiple uplinks |
| Port security | Locking of MAC addresses to ports; limiting of the number of learned MAC addresses |
| IP source guard | Blocking access for illegal IP addresses on specific ports |
| Access control lists | Drop or rate limitation of connections based on source and destination MAC addresses, VLAN ID, IP address (IPv4/IPv6), protocol, port, DSCP/IP precedence, TCP/UDP source and destination ports, IEEE 802.1p priority, ICMP packets, IGMP packets, TCP flag |
| RADIUS/TACACS+ | Authentication, authorization and accounting of configuration changes by RADIUS or TACACS+ |
| Storm Control | Multicast/Broadcast/Unicast storm suppression |
| Isolated Group | Allows certain ports to be designated as protected. All other ports are non-isolated. Traffic between isolated group members is blocked. Traffic can only be sent from isolated group to non-isolated group. |

## Performance

| Switching technology | Store and forward with latency less than 4 microseconds |
| --- | --- |
| MAC addresses | Support of max 32K MAC addresses |
| Throughput | Max. 128 Gbps on the backplane |
| Maximum packet processing | 95,23 million packets per second (mpps) at 64-byte packets |
| Single IP Management (SIP) | Supports stacking of up to 16 devices, several switches can be managed via one ip address |
| VLAN | Port based and IEEE 802.1q tag based VLAN with up to 4,093 VLAN; Supports ingress and egress packet filter in port based VLAN |
| Jumbo frame support | Jumbo frame support with up to 9k frames |

## Energy efficiency (Green Ethernet)

| Energy detection | Energy efficiency according to IEEE 802.3az. Automatically turns off power on Gigabit Ethernet RJ-45 port when detecting link down or Idle of client. Active mode is resumed without loss of any packets when the switch detects the link up |
| --- | --- |
| Cable length detection | Adjusts the signal strength based on the cable length. Reduces the power consumption for short cable |

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## Layer 2 switching

| | |
|---|---|
| Spanning Tree Protokoll (STP) / Rapid STP / Multiple STP | Standard Spanning Tree according to IEEE 802.1d with fast convergence support of IEEE 802.1w (RSTP); using Multiple Spanning Tree instances by default according to IEEE 802.1s (MSTP) |
| Link Aggregation Control Protocol (LACP) | Support of 14 groups containing up to 4 ports each according to IEEE 802.3ad |
| VLAN | Support for up to 4K VLANs simultaneously (out of 4096 VLAN Ids); matching due to port, IEEE 802.1q tagged VLANs or MAC adresses |
| Voice VLAN | Voice traffic is automatically assigned to a voice-specific VLAN and treated with appropriate levels of QoS |
| IGMP multicasts | IGMP v1, v2, v3 to limit bandwidth-intensive multicast traffic to ports with requesters; supports 256 multicast groups; source-specific multicasting |
| IGMP querier | Support of multicast domains of snooping switches in the absence of a multicast router |
| IGMP proxy | IGMP proxy to pass IGMP messages through |
| Generic VLAN registration | VLAN registration with GVRP according to IEEE 802.1q for automatic delivery of VLANs in bridged domains |
| DHCP Relay Agent | Relay of DHCP broadcast request to different LANs |
| Supported DHCP options | → DHCP option 66<br>→ DHCP option 67<br>→ DHCP option 82 |

## Interfaces

| | |
|---|---|
| Ethernet | → 24 TP ports 10/100/1000 Mbps<br>→ 4 SFP+ ports 1/10 Gbps<br>→ 28 concurrent Ethernet ports in total |
| Console port | DB9 configuration port for command line access |

## Management and monitoring

| | |
|---|---|
| Management | LANconfig, WEBconfig, LANCOM Management Cloud, Industry Standard CLI |
| Command Line Interface (CLI) | Configuration and status display from the command line with console application and direct connection to console port, via Telnet or SSH |
| Monitoring | LANmonitor, LANCOM Management Cloud |
| Remote Monitoring | Integrated RMON software agent supports 4 RMON groups (history, statistics, alarms and events) for enhanced traffic management, monitoring and analysis |
| Easy-Configuration-Ports | Easy setup of ports for QoS and Security based on pre-defined configuration profiles |

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## Management and monitoring

| | |
|---|---|
| Port Mirroring | Traffic can be mirrored from on port to another for investigation with network analyzer or RMON probe. Up to 27 ports can be mirrored to a single mirror port. Single sessions can be selected |
| Security | Access rights (read/write) can be set up separately, access control list |
| SNMP | SNMP management via SNMPv1, v2c or v3 with support of traps. User-based security model for SNMPv3 (USM) |
| Diagnosis | Diagnosis from the switch with PING and cable diagnosis |
| Firmware update | → Update via WEBconfig and browser (HTTP/HTTPS)<br>→ Update via TFTP and LANconfig<br>→ Dual firmware image to update during operation |
| Secure Copy | Securely import and export files |
| DHCP client | Automatic assignement of the management IP address by DHCP |
| SNTP | Automatic time settings with Simple Network Time Protocol (SNTP) |
| s-flow | Standard for monitoring of high-speed-networks. Visualization of network use, accounting an analysation to protect your network against dangers |

## Hardware

| | |
|---|---|
| Weight | 5,50 lbs (2,50 kg) |
| Power supply | Internal power supply unit (100 – 240 V, 50 – 60 Hz) |
| Environment | Temperature range 0 – 40° C; humidity 10 – 90%; non-condensing |
| Housing | Robust metal housing, 19" 1U (442 x 44 x 211 mm > W x H x D) with removable mounting brackets, network connectors on the front |
| Fans | 1 |
| Power consumption (max) | 48 W |

## Software

| | |
|---|---|
| LCOS version | based on LCOS SX 3.34 |
| Lifecycle Management | After discontinuation (End of Sale), the device is subject to the LANCOM Lifecycle Management. Details can be found at: www.lancom.de/lifecycle |
| Anti-backdoor policy | Products from LANCOM are free of hidden access paths (backdoors) and other undesirable features for introducing, extracting or manipulating data. The trust seal "IT Security made in Germany" (ITSMIG) and certification by the German Federal Office for Information Security (BSI) confirm the trustworthiness and the outstanding level of security |

# LANCOM GS-2328

## Declarations of conformity*

| | |
|---|---|
| Europe/EFTA | CE |
| North America | FCC/IC |
| Japan | VCCI |
| *) Note | The full text of the specific Declaration of Conformity is available at the following Internet address: www.lancom-systems.com/doc |

## Supported IEEE standards

| | |
|---|---|
| IEEE 802.1AB | Link Layer Discovery Protocol (LLDP) |
| IEEE 802.1AB | LLDP-MED |
| IEEE 802.1ad | Q-in-Q tagging |
| IEEE 802.1d | MAC Bridging |
| IEEE 802.1d | Spanning Tree |
| IEEE 802.1p | Class of Service |
| IEEE 802.1q | VLAN |
| IEEE 802.1s | Multiple Spanning Tree Protocol (MSTP) |
| IEEE 802.1w | Rapid Spanning Tree Protocoll (RSTP) |
| IEEE 802.1X | Port Based Network Access Control |
| IEEE 802.3 | 10Base-T Ethernet |
| IEEE 802.3ab | 1000Base-TX Ethernet |
| IEEE 802.1ax, incl. 802.3ad | Link Aggregation Control Protocol (LACP) |
| IEEE 802.3ae | 10 Gigabit Ethernet over fiber |
| IEEE 802.3az | Energy Efficient Ethernet |
| IEEE 802.3u | 100Base-T Ethernet |
| IEEE 802.3x | Flow Control |
| IEEE 802.3z | 1000Base-X Ethernet |

## Supported RFC standards

| | |
|---|---|
| RFC 854 | Telnet Protocol Specification |

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## Supported RFC standards

| | |
|---|---|
| RFC 1213 | MIB II |
| RFC 1215 | SNMP Generic Traps |
| RFC 1493 | Bridge MIB |
| RFC 1769 | Simple Network Time Protocol (SNTP) |
| RFC 2021 | Remote Network Monitoring MIB v2 (RMONv2) |
| RFC 2233 | Interface MIB |
| RFC 2613 | SMON MIB |
| RFC 2617 | HTTP Authentication |
| RFC 2665 | Ethernet-Like MIB |
| RFC 2674 | IEEE 802.1p and IEEE 802.1q Bridge MIB |
| RFC 2818 | Hypertext Transfer Protocol Secure (HTTPS) |
| RFC 2819 | Remote Network Monitoring MIB (RMON) |
| RFC 2863 | Interface Group MIB using SMIv2 |
| RFC 2933 | IGMP MIB |
| RFC 3019 | MLDv1 MIB |
| RFC 3414 | User based Security Model for SNMPv3 |
| RFC 3415 | View based Access Control Model for SNMP |
| RFC 3635 | Ethernet-Like MIB |
| RFC 3636 | IEEE 802.3 MAU MIB |
| RFC 4133 | Entity MIBv3 |
| RFC 4188 | Bridge MIB |
| RFC 4251 | The Secure Shell Protocol Architecture (SSH) |
| RFC 4668 | RADIUS Authentication Client MIB |
| RFC 4670 | RADIUS Accounting MIB |
| RFC 5519 | Multicast Group Membership Discovery MIB |

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## Supported RFC standards

| | |
|---|---|
| RFC 7513 | DHCP Snooping |

## Scope of delivery

| | |
|---|---|
| Manual | Hardware Quick Reference (DE/EN), Installation Guide (DE/EN) |
| Cable | Serial configuration cable, 1.5m |
| Cable | IEC power cord |
| 19" brackets | Two 19" brackets for rackmounting |

## Support

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|---|---|
| Warranty | 5 years, for details, please refer to the General Warranty Conditions at: www.lancom-systems.com/warranty-conditions |
| Manufacturer support | Technical manufacturer support as part of a support contract (LANcommunity partner, LANcare Direct, or LANcare Premium Support) |
| LANcare Advanced M | Service package with security updates and support entitlement* until EOL and 5 years NBD advance replacement (* support access required, e.g. support contract or LANCOM Service Packs 24/7 or 10/5), item no. 10731 |
| LANcare Direct Advanced 24/7 M | Direct, prioritized 10/5 manufacturer support incl. 24/7 emergency hotline and security updates for the device, NBD advance replacement with delivery of the device on the next business day (24/7/NBD), guaranteed first response times (SLA) of max. 30 minutes for reporting massive operational disruptions by telephone (priority 1) and max. 4 hours for all other concerns (priority 2), term-based for 1, 3, or 5 years (item no. 10779, 10780 or 10781) |
| LANcare Direct 24/7 M | Direct, prioritized 10/5 manufacturer support incl. 24/7 emergency hotline and security updates for the device, guaranteed first response times (SLA) of max. 30 minutes for reporting massive operational disruptions by telephone (priority 1) and max. 4 hours for all other concerns (priority 2), term-based for 1, 3, or 5 years(item no. 10755, 10756 or 10757) |
| LANcare Direct Advanced 10/5 M | Direct, prioritized 10/5 manufacturer support and security updates for the device, NBD advance replacement with delivery of the device on the next business day (10/5/NBD), guaranteed first response times (SLA) of max. 2 hours for reporting massive operational disruptions by telephone (priority 1) and max. 4 hours for all other concerns (priority 2), term-based for 1, 3, or 5 years (item no. 10767, 10768 or 10769) |
| LANcare Direct 10/5 M | Direct, prioritized 10/5 manufacturer support and security updates for the device, guaranteed first response times (SLA) of max. 2 hours for reporting massive operational disruptions by telephone (priority 1) and max. 4 hours for all other concerns (priority 2), term-based for 1, 3, or 5 years (item no. 10743, 10744 or 10745) |

## LANCOM Management Cloud

| | |
|---|---|
| LANCOM LMC-B-1Y LMC License | LANCOM LMC-B-1Y License (1 Year), enables the management of one category B device for one year via the LANCOM Management Cloud, item no. 50103 |
| LANCOM LMC-B-3Y LMC License | LANCOM LMC-B-3Y License (3 Years), enables the management of one category B device for three years via the LANCOM Management Cloud, item no. 50104 |

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### LANCOM Management Cloud

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|---|---|
| LANCOM LMC-B-5Y LMC License | LANCOM LMC-B-5Y License (5 Years), enables the management of one category B device for five years via the LANCOM Management Cloud, item no. 50105 |

### Accessories*

| | |
|---|---|
| 1000Base-SX SFP module | LANCOM SFP-SX-LC1, item no. 61556 |
| 1000Base-SX SFP module | LANCOM SFP-SX2-LC1, item no. 60183 |
| 1000Base-LX SFP module | LANCOM SFP-LX-LC1, item no. 61557 |
| 1000Base-LX SFP BiDi module | LANCOM SFP-BiDi1550-SC1, item no. 60201 |
| 10GBase-SX SFP module | LANCOM SFP-SX-LC10, item no. 61485 |
| 10GBase-LX SFP module | LANCOM SFP-LX-LC10, item no. 61497 |
| 10GBase-LX SFP BiDi module | LANCOM SFP-BiDi1310-LC10, item no. 60202 |
| Copper SFP module | LANCOM SFP-CO1, item no. 61494 |
| LANCOM Power Cord (UK) | IEC power cord, UK plug, item no. 61650 |
| LANCOM Power Cord (CH) | IEC power cord, CH plug, item no. 61652 |
| LANCOM Power Cord (US) | IEC power cord, US plug, item no. 61651 |
| LANCOM Power Cord (AU) | IEC power cord, AU plug, item no. 61653 |
| *) Note | Support for third-party accessories (SFP and DAC) is excluded and cannot be granted |

### Item number(s)

| | |
|---|---|
| LANCOM GS-2328 | 61444 |
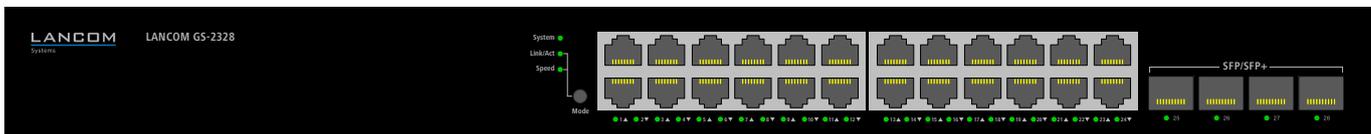


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