lancom-systems.com

LANCOM GS-4554X

Stackable full-layer 3 access switch for large, demanding infrastructures



In enterprise networks with a high number of components, this fully managed access switch is a reliable solution thanks to its full layer 3 functions with high-performance uplinking and stacking. At the same time, the extensive port equipment according to industry standards offers enormous performance even at high workloads. Professional redundancy functions and LANCOM fail-safe stacking ensure fail-safe operation. In addition, this switch is covered by the Limited Lifetime Warranty (LLW). Its configuration is automated via the LANCOM Management Cloud (LMC).

- → Multi-Gigabit Access Switch with 12x 2.5 multi-Gigabit Ethernet ports, 36x 1 Gigabit Ethernet ports, 4x 10G SFP+ ports, and 2x 40G QSFP+ uplink or stacking ports
- → Full layer 3 functionality with policy-based dynamic routing and DHCP server function
- → Backplane stacking optionally (SW-defined) via SFP+ or QSFP+ ports
- → 1x hot-swappable PSU plus separate bay for adding a second PSU
- → 2x fixed, redundant fans (N+1)
- → Front-to-back ventilation design for optimal cooling in 19" racks
- → Industry standard CLI
- → Cloud-managed LAN and switch stacking for quick configuration and convenient management via the LMC
- → IPv6 and IPv4 support for modern enterprise networks
- → Limited Lifetime Warranty (LLW) included

LANCOM GS-4554X

High power output on 54 ports

The LANCOM GS-3152XSP is equipped with 48 Gigabit Ethernet ports and 4 SFP+ ports. With a data throughput of 176 Gbps on the backplane, it offers full performance even under load. This makes the access switch a high-performance basis for modern network infrastructures in any industry or field of application.

A high-performance basis for Wi-Fi 6

Thanks to 12 high-performance 2.5 Gigabit Ethernet ports, the LANCOM GS-4554X is the ideal LAN-side basis for integrating the new wireless LAN standard Wi-Fi 6 into modern infrastructures. The increased data rates when using Wi-Fi 6 require 2.5 Gigabit Ethernet, as the required performance demands exceed those of a simple Gigabit Ethernet port. This switch in combination with the corresponding PoE power thus enables the operation of up to 12 Wi-Fi 6 access points or other network components with high performance requirements – without additional electrical installation.

Redundant network topologies with high-performance stacking

Stacking allows up to eight physical switches to be combined into one logical unit for convenient maintenance and management – at a single site or even distributed across different sites. Via the nonstop forwarding function, the stack manager cyclically supplies its standby with current information such as the MAC table and its own status information. In the event of a failure, the standby manager is able to take over without noticeable network interruption via the hitless failover function. Subsequent expansion of the network is also possible, as the new switch receives its configuration automatically from the stack manager and is ready for use within seconds. The stacking function can also be activated on both the front SFP+ uplink ports and the rear QSFP+ uplink ports, enabling a mixed stack with the LANCOM XS-5110F and XS-5116QF aggregation switches.

Full control over your investment

Fully equipped ex works, ready for immediate use, everything from a single source: In accordance with the principle of "Total Cost of Ownership" (TCO), the LANCOM GS-4554X gives you planning security from the very beginning and at all times with regard to the acquisition costs for your network expansion. The full expansion with all necessary ports in the industry standard makes time-consuming and costly retrofitting of proprietary port modules a thing of the past. Furthermore, our accessories portfolio provides you with the necessary SFP modules and direct attach cables directly from us in tested LANCOM quality. In addition to the guarantee of maximum operational reliability through extensive load and long-term tests of the modules, you also avoid long delivery times.

Static routing for fast data exchange

The LANCOM GS-4554X is full layer 3 capable with policy-based dynamic routing via OSPF, providing dynamic network routes through one or more network segments. This provides tremendous increase in network efficiency for example in meshed networks with multiple aggregation switches at different locations.

LANCOM GS-4554X

Hardware redundancy

The LANCOM GS-4554X with a "hot-swappable" PSU (power supply unit) allows the power supply to be replaced quickly and without interruption in the event of a defect. A separate plug-in module allows the addition of a second PSU. With the integration of two redundant power supply units, for example, highly fail-safe scenarios can be realized or the PoE power can be bundled and thus doubled. In addition, the redundant (N+1) fan concept also ensures fail-safe switch operation in case one of the two fans fails.

Front-to-back ventilation design

The LANCOM GS-4554X protects your investment with an innovative front-to-back ventilation design. This enables optimal cooling even in 19" racks and maximizes the lifetime of the device.

Cloud-managed LAN and switch stacking

With the LANCOM Management Cloud, the LANCOM GS-4554X offers fast and easy network integration as well as automatic configuration assignment. Cloud-managed LAN replaces individual device configuration with holistic network orchestration and enables automatic VLAN assignment to the desired switch ports. Configurations can be rolled out or updated simultaneously at the click of a mouse and even more complex networking scenarios easy to administer. When using the LANCOM GS-4554X in a stack, Cloud-managed switch stacking also ensures convenient management and monitoring of the entire stack. The cloud independently detects which and how many switches belong to the stack. Learn more about professional network connectivity and configuration in the Design guide switch stacking.

Secure remote management

Secure communication protocols such as SSH, SSL and SNMPv3 mean that the LANCOM GS-4554X is ideal for professional remote network management. 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.

Limited Lifetime Warranty (LLW)

This enterprise switch is covered ex works by the LANCOM Limited Lifetime Warranty. Regardless of the operating time, the replacement service is valid until the End of Life status of the device (max. 10 years). For next-business-day delivery of a replacement device, we recommend LANcare NBD Replacement as well as LANcare Direct Advanced in 24/7 or 10/5 variants. LANcare Direct Advanced also offers technical manufacturer support with guaranteed service and response times.

LANCOM GS-4554X

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. Support of 1023 ACEs per ACL and up to 16384 entries in total.
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.
DHCP Snooping	Protection against rogue DHCP servers on the network - Outgoing DHCP-server packets are only allowed on specific ports.
Dynamic ARP Inspection	Dynamic ARP Inspection to prevent man-in-the-middle attacks incl. proxy ARP
ARP Request Poisoning	Protection against ARP Request Poisoning (ARP Spoofing)
IPv6 First Hop	IPv6 First Hop Security by Snooping Guard, DHCPv6 Guard, Source Guard, Prefix Guard
Denial-of-Service	Protection against Denial-of-Service attacks to prevent the loss of important protocol functions

Performance	
Switching technology	Store and forward with latency less than 4 microseconds
MAC addresses	Support of max 32K MAC addresses
Throughput	Max. 372 Gbps on the backplane
Maximum packet processing	277 million packets per second (mpps) at 64-byte packets
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 12288 bytes

LANCOM GS-4554X

Performance	
Packet Buffer	4 MB
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
Layer 3 features	
Number of L3 inferfaces	up to 128
Static routing (IPv4/IPv6)	Hardware based static routing (IPv4/IPv6) with a number of 16,000 possible routes
DHCP Server	DHCP Server per VLAN, max. 16 pools
VRRP	Virtual Router Redundancy Protocol
VRF	Virtual Routing and Forwarding
Dynamic routing (IPv4/IPv6)	dynamic routing by OSPFv2 and OSPFv3
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 64 groups containing up to 8 ports each according to IEEE 802.1ax
VLAN	Support for up to 4K VLANs simultaneously (out of 4093 VLAN Ids); matching due to port, IEEE 802.1q tagged VLANs, MAC adresses, IP subnet and Private VLAN Edge function ("protected ports")
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 1024 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
MLD v1/v2	Multicast Listener Discovery - IPv6 multicast packets are transmitted to interested listeners only
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

LANCOM GS-4554X

Layer 2 switching	
Supported DHCP options	all options listed in RFC2132
Stacking	
Stacking Option	Stacking via SFP+ uplink (10G) or QSFP+ uplink ports (40G)
Interfaces	
Ethernet	→ 12 TP ports 100/1000/2500 Mbps → 36 TP ports 10/100/1000 Mbps → 4 SFP+ ports 1/10 Gbps → 2 QSFP+ Uplink or Stacking ports 40 GBit/s → 54 concurrent Ethernet ports in total
Console port	Micro-USB and RJ45 configuration port for command line access
Out of band management port	Out of band management RJ45 configuration port for command line access via terminal server
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
Port Mirroring	Traffic can be mirrored from on port to another for investigation with network analyzer or RMON probe. Up to 51 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) → Update via TFTP, SCP, and LANconfig → Update via LANCOM Management Cloud → 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)

LANCOM GS-4554X

Management and monitoring	
s-flow v5	Standard for monitoring of high-speed-networks. Visualization of network use, accounting an analysation to protect your network against dangers
Hardware	
Weight	13,89 lbs (6,3 kg)
Power supply	Two bays for swappable power supply units (100 – 240 V, 50 – 60 Hz)
Environment	Temperature range 0 – 40° C; short term temperature conditions 0 – 50°C; humidity 10 – 90%; non-condensing
Housing	Robust metal housing, 19" 1U (442 x 44 x 440 mm > W x H x D) with removable mounting brackets, network connectors on the front
Fans	3 (4 when using 2 PSUs) redundant, but not hot swappable
Power consumption (max)	82 W
Power consumption (idle)	45 W
Acoustic noise (typ)	50 dBa
Heat power (max)	280 BTU/h
Software	
LCOS version	based on LCOS SX 5.20
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
Declarations of conformity*	
Europe/EFTA	CE
North America	FCC/IC
Australia / New Zealand	ACMA
*) 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)

LANCOM GS-4554X

Supported IEEE standards	
IEEE 802.1AB	LLDP-MED
IEEE 802.1ad	Q-in-Q tagging
IEEE 802.1ak	MRP and MVRP - Multiple Registration Protocol and Multiple VLAN Registration Protocol
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
IEEE 802.3ac	VLAN tagging
IEEE 802.3bj-CL91	Forward Error Correction (FEC)
IEEE 802.1ak	Multiple Registration Protocol (MRP)
IEEE 802.1Qat	Multiple Stream Reservation Protocol (MSRP)
IEEE 802.1Qav	Forwarding and Queuing Enhancements for Time-Sensitive Streams
IEEE 802.1Qbb	Priority-based Flow control
IEEE 802.1v	Protocol-based VLANs

LANCOM GS-4554X

Supported RFC standards	
RFC 854	Telnet Protocol Specification
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 2460	Internet Protocol Version 6 (IPv6)
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 3587	IPv6 Global Unicast Address Format
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)

LANCOM GS-4554X

Supported RFC standards	
RFC 4291	IP Version 6 Addressing Architecture
RFC 4443	Internet Control Message Protocol (ICMPv6)
RFC 4668	RADIUS Authentication Client MIB
RFC 4670	RADIUS Accounting MIB
RFC 5519	Multicast Group Membership Discovery MIB
RFC 7513	DHCP Snooping
RFC 5519	IGMP- and MLD-Snooping
RFC 5519	Unidirectional Link Detection Protocol (UDLD)
RFC 2618	RADIUS Authentication Client MIB
RFC 2737	Entity MIB v2
RFC 3276	RMON Groups 1,2,3 and 9
RFC 1534	Routing Information Protocol - RIPv2
RFC 1534	Interoperation between DHCP and BootP

Scope of delivery	
Manual	Hardware Quick Reference (DE/EN), Installation Guide (DE/EN)
Cable	Serial configuration cable, 1.5m
Cable	Micro-USB configuration cable, 1.0m
Cable	IEC power cord
Power supply	1 hot-swappable power supply
19" brackets	Two 19" brackets for rackmounting

Support	
Warranty	LANCOM Limited Lifetime Warranty – Hardware warranty until the End of Life status of the device (maximum 10 years). For details, please refer to the General Warranty Conditions at: www.lancom.de/garantiebedingungen.
Manufacturer support	Technical manufacturer support as part of a support contract (LANcommunity partner, LANcare Direct, or LANcare Premium Support)

LANCOM GS-4554X

Support	
LANcare Direct 24/7 Advanced XL	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. 10785, 10786 or 10787)
LANcare Direct 24/7 XL	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. 10761, 10762 or 10763)
LANcare Direct 10/5 Advanced XL	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. 10773, 10774 or 10775)
LANcare Direct 10/5 XL	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. 10749, 10750 oder 10751)
LANcare NBD Replacement XL	Addition of the Limited Lifetime Warranty with NBD advance replacement with delivery of the device on the next business day in case of hardware defect, item no.61323

LANCOM Management Cloud	
LANCOM LMC-D-1Y LMC License	LANCOM LMC-D-1Y License (1 Year), enables the management of one category D device for one year via the LANCOM Management Cloud, item no. 50109
LANCOM LMC-D-3Y LMC License	LANCOM LMC-D-3Y License (3 Years), enables the management of one category D device for three years via the LANCOM Management Cloud, item no. 50110
LANCOM LMC-D-5Y LMC License	LANCOM LMC-D-5Y License (5 Years), enables the management of one category D device for five years via the LANCOM Management Cloud, item no. 50111

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
10G multi gigabit Ethernet copper module	LANCOM SFP-CO10-MG, Art.-Nr.: 60170, max. 2 modules to be used simultaneously due to increased power consumption and associated heat

LANCOM GS-4554X

Accessories*	
40GBase-SX SFP module	LANCOM SFP-SR-MPO40, Art.-Nr.: 60173
40GBase-LX SFP module	LANCOM SFP-LR-LC40, Art.-Nr.: 60174
10G Direct Attach Cable 1m	LANCOM SFP-DAC10-1m, Art.-Nr.: 61495
10G Direct Attach Cable 3m	LANCOM SFP-DAC10-3m, Art.-Nr.: 60175
40G Direct Attach Cable 1m	LANCOM SFP-DAC40-1m, Art.-Nr.: 60176
40G Direct Attach Cable 3m	LANCOM SFP-DAC40-3m, Art.-Nr.: 60177
Power supply (swappable)	LANCOM SPSU-250, item no. 61499 **)
Rack mount rails	LANCOM Switch rack mount rails, item no. 61432
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
**) Note	In case of unavailability of the 250W power supply, a 550W power supply can also be enclosed

lancom-systems.com

LANCOM GS-4554X

Item number(s)	
LANCOM GS-4554X	61869



LANCOM Systems GmbH
A Rohde & Schwarz Company
Adenauerstr. 20/B2
52146 Wuerselen | Germany
info@lancom.de | www.lancom-systems.com

LANCOM, LANCOM Systems, LCOS, LANcommunity and Hyper Integration are registered trademarks. All other names or descriptions used may be trademarks or registered trademarks of their owners. This document contains statements relating to future products and their attributes. LANCOM Systems reserves the right to change these without notice. No liability for technical errors and/or omissions. 07/24