

# LANCOM GS-3510XP

**10-port Multi Gigabit Ethernet access switch with Power over Ethernet for smaller offices**



The LANCOM GS-3510XP is a reliable basis in smaller network infrastructures for integrating components with high performance requirements, such as Wi-Fi 6 access points. Equipped with 4x 2.5G and 4x 1G Ethernet ports as well as 2x 10G SFP+ uplink ports, it networks up to 10 devices optionally with Power over Ethernet (130-watt PoE budget) for installations without additional power supplies or power cabling. With a fanless and therefore silent design, it is predestined for use in small and home offices or at the edge of a network in larger installations. Basic layer-3 functions such as static routing and a DHCP server offer intelligent management with numerous security functions.

- Fully managed access switch with 4x 2.5G, 4x 1G Ethernet downlink ports and 2x 10G SFP+ uplink ports
- PoE support as per IEEE 802.3af/at for the efficient and centralized supply of power (130 watt) to all devices connected to it
- Basic layer-3 features like static routing and a DHCP server
- Security with configurable access control on all ports as per IEEE 802.1X
- Ideal in combination with Wi-Fi 6 access points like the LX-6400 and LX-6402
- Secure remote management through TACACS+, SSH, SSL, and SNMPv3
- SD-LAN—for quick and easy configuration via the LANCOM Management Cloud
- IPv6 and IPv4 support for modern enterprise networks
- 5-year warranty on all components
- Fanless design

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## High performance on 10 ports

The LANCOM GS-3510XP is equipped with 4x 2.5G ports, 4x 1G Ethernet ports and 2x 10G SFP+ uplink ports. With a data throughput of 68 Gbps on the backplane, it offers full performance even under load. This switch is a high-performance basis for modern network infrastructures in small and home offices.

## A high-performance basis for Wi-Fi 6

Thanks to 4 high-performance 2.5-Gigabit Ethernet ports, the LANCOM GS-3510XP is the ideal LAN-side basis for integrating the new Wi-Fi 6 standard into modern infrastructures. The increased data rates when using Wi-Fi 6 requires 2.5-Gigabit Ethernet, as the potential performance requirements exceed those of a 1-Gigabit Ethernet port. Given a sufficient PoE supply, this switch enables the operation of up to 4 Wi-Fi 6 access points or other network components with high performance requirements—without additional electrical installations.

## Centralized power supply without additional electrical installations

The LANCOM GS-3510XP is a high-performance PoE switch that directly powers PoE devices connected to it; there is no need for additional power supply units or cabling. It supports the two Power-over-Ethernet standards, IEEE 802.3af and IEEE 802.3at (PoE+). It has high power-output reserves and an overall PoE budget of 130 watts for all 8 ethernet ports makes it an effective power supply for PoE devices, even with its fanless and thus silent design.

## Configurable access control

The LANCOM GS-3510XP excludes 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-based, multi-based, and MAC-based).

## Secure remote management

Secure communication protocols such as SSH, SSL and SNMPv3 make the LANCOM GS-3510XP 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.

## Static routing for fast data exchange

The LANCOM GS-3510XP supports the basic layer-3 feature static routing and thus the shift of certain routing tasks from the router to the switch. Administrator-predefined network routes, through one or multiple network segments, enable fast data transfer especially in scenarios with high data volumes and relieve the router accordingly. Newly available router capacities can then additionally be used to manage external data traffic. As a result, the entire network efficiency is increased.

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## **DHCP server functionality**

As a DHCP server, the switch is able to independently and automatically assign IP addresses to clients. The LANCOM GS-3510XP supports this basic layer-3 function and thus takes over the IP management of the connected network.

## **SD-LAN—days become minutes**

The LANCOM GS-3510XP offers fast and easy network integration and automatic configuration assignment with the LANCOM Management Cloud—without manual configuration. In this way, even complex networking scenarios are easy to administer. SD-LAN eliminates the need for a single device configuration for holistic network orchestration. In addition, automatic VLAN assignment to the desired switch ports is possible. The configurations can be coordinated with each other across locations and network architectures, and at the same time rolled out or updated at the click of a mouse.

## **IPv6 and IPv4 support**

Thanks to its dual-stack implementation, the LANCOM GS-3510XP operates in pure IPv4, pure IPv6 or in mixed networks. Applications such as SSL, SSH, Telnet or TFTP can continue to be operated on IPv6 networks. Supported IPv6 features includes stateless auto configuration, neighbor detection, and MLD snooping.

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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 16K MAC addresses
Throughput	Max. 68 Gbps on the backplane
Maximum packet processing	102 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 10240 bytes

## Layer 3 features

Number of L3 interfaces	up to 128
Static routing (IPv4/IPv6)	Hardware based static routing (IPv4/IPv6) with a number of 128 possible routes
DHCP Server	DHCP Server per VLAN

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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 26 groups containing up to 4 ports each according to IEEE 802.3ad
VLAN	Support for up to 4K VLANs simultaneously (out of 4093 VLAN Ids); matching due to port, IEEE 802.1q tagged VLANs, MAC addresses, 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
Supported DHCP options	→ DHCP option 66 → DHCP option 67 → DHCP option 82

## Interfaces

Ethernet	→ 4 TP ports 10/100/1000 Mbps → 4 TP ports 100/1000/2500 Mbps → 2 SFP+ ports 1/10 Gbps → 10 concurrent Ethernet ports in total
Console port	RJ45 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

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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 9 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 and LANconfig → Dual firmware image to update during operation
Secure Copy	Securely import and export files
DHCP client	Automatic assignment 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 analysisation to protect your network against dangers

## Hardware

Weight	5,18 lbs (2,35 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 (220 x 44 x 242 mm > W x H x D) with removable mounting brackets, network connectors on the front
Fans	None; fanless design without rotating parts, high MTBF
Power consumption (max) without powered devices	35W
Power consumption (max) at full PoE power delivery	165W
Power consumption (idle)	15W
PoE Budget	130W
Heat power (max)	120 BTU/h

## Software

LCOS version	based on LCOS SX 4.00
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## Software

**Software Lifecycle Management** After discontinuation, the device is subject to the LANCOM Software Lifecycle Management. Details can be found at: [www.lancom.de/lifecycle](http://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](http://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 802.1ak 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 Protocol (RSTP)

IEEE 802.1X Port Based Network Access Control

IEEE 802.3 10Base-T Ethernet

IEEE 802.3ab 1000Base-TX Ethernet

IEEE 802.3ad Link Aggregation Control Protocol (LACP)

IEEE 802.3ae 10 Gigabit Ethernet over fiber

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**Supported IEEE standards**

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IEEE 802.3af	Power over Ethernet (PoE)
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IEEE 802.3at	Power over Ethernet Plus (PoE+)
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IEEE 802.3az	Energy Efficient Ethernet
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IEEE 802.3u	100Base-T Ethernet
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IEEE 802.3x	Flow Control
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IEEE 802.3z	1000Base-X Ethernet
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**Supported RFC standards**

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RFC 854	Telnet Protocol Specification
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RFC 1213	MIB II
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RFC 1215	SNMP Generic Traps
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RFC 1493	Bridge MIB
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RFC 1769	Simple Network Time Protocol (SNTP)
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RFC 2021	Remote Network Monitoring MIB v2 (RMONv2)
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RFC 2233	Interface MIB
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RFC 2460	Internet Protocol Version 6 (IPv6)
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RFC 2613	SMON MIB
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RFC 2617	HTTP Authentication
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RFC 2665	Ethernet-Like MIB
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RFC 2674	IEEE 802.1p and IEEE 802.1q Bridge MIB
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RFC 2818	Hypertext Transfer Protocol Secure (HTTPS)
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RFC 2819	Remote Network Monitoring MIB (RMON)
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RFC 2863	Interface Group MIB using SMIv2
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RFC 2933	IGMP MIB
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RFC 3019	MLDv1 MIB
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RFC 3414	User based Security Model for SNMPv3
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## Supported RFC standards

RFC 3415	View based Access Control Model for SNMP
RFC 3587	IPv6 Global Unicast Address Format
RFC 3621	Power Ethernet MIB
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 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

## 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

Warranty	5 years, for details, please refer to the General Warranty Conditions at: <a href="http://www.lancom-systems.com/warranty-conditions">www.lancom-systems.com/warranty-conditions</a>
LANCOM support	Free technical manufacturer support as part of the LANCOM Software Lifecycle Management <a href="http://www.lancom.de/lifecycle">www.lancom.de/lifecycle</a>
LANCOM Warranty Advanced Option S	Option for replacement of a defective device, item no. 10715

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## LANCOM Management Cloud

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LANCOM LMC-A-1Y LMC License	LANCOM LMC-A-1Y License (1 Year), enables the management of one category A device for one year via the LANCOM Management Cloud, item no. 50100
LANCOM LMC-A-3Y LMC License	LANCOM LMC-A-3Y License (3 Years), enables the management of one category A device for three years via the LANCOM Management Cloud, item no. 50101
LANCOM LMC-A-5Y LMC License	LANCOM LMC-A-5Y License (5 Years), enables the management of one category A device for five years via the LANCOM Management Cloud, item no. 50102
LANCOM LMC-A-10Y LMC License	LANCOM LMC-A-10Y License (10 Years), enables the management of one category A device for ten years via the LANCOM Management Cloud, item no. 50132

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## Accessories\*

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1000Base-SX SFP module	LANCOM SFP-SX-LC1, item no. 61556
1000Base-LX SFP module	LANCOM SFP-LX-LC1, item no. 61557
10GBase-SX SFP module	LANCOM SFP-SX-LC10, item no. 61485
10GBase-LX SFP module	LANCOM SFP-LX-LC10, item no. 61497
10G multi gigabit Ethernet copper module	LANCOM SFP-CO10-MG, Art.-Nr.: 60170
10G Direct Attach Cable 1m	LANCOM SFP-DAC10-1m, Art.-Nr.: 61495
10G Direct Attach Cable 3m	LANCOM SFP-DAC10-3m, Art.-Nr.: 60175
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

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# LANCOM GS-3510XP

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**Item number(s)**

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LANCOM GS-3510XP

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