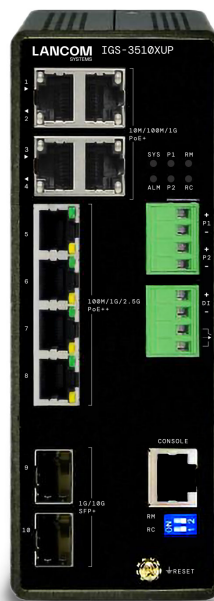# LANCOM IGS-3510XUP

Rugged, temperature-enhanced 10-port multi-Gigabit access switch with PoE++ (Type 4) and cloud management for harsh industrial environments

As a temperature-enhanced switch with cloud management functions, the 10-port industrial switch LANCOM IGS-3510XUP is the first choice for realizing reliable and secure networking in demanding industrial environments. Thanks to its hardened aluminum housing and direct DIN rail mounting, the robust switch can be used in harsh application areas, such as production plants or logistics centers, as well as critical infrastructure, such as wind power or photovoltaic systems, at temperatures ranging from -40 °C to +60 °C. Four of the eight Gigabit Ethernet ports support 2.5 Gigabit Ethernet and provide a powerful basis, e.g. for operating Wi-Fi 6E access points and other network components with high-performance requirements. In combination with the LANCOM Management Cloud, you ensure uniform network management and monitoring with time-saving automation options.

→ Industrial multi-Gigabit access switch with 4x 2.5 Gigabit Ethernet, 4x Gigabit Ethernet ports, and 2x SFP+

→ PoE support as per IEEE 802.3af/at (1G ports) and IEEE 802.3bt Type 4 (2.5G ports) to power connected devices up to 360 watts

→ Supports ERPS (ITU-T G.8032) and PTP (IEEE 1588v2) network protocols for higher resilience in the industrial sector (feature release after product launch)

→ For direct DIN rail mounting

→ Fanless, rugged all-metal housing for reliability in harsh environments and demanding temperatures (-40 °C to +60 °C)

→ Basic layer-3 features such as static routing and DHCP server

→ Security with configurable access control on all ports as per IEEE 802.1X

→ Secure remote management through TACACS+, SSH, SSL, and SNMPv3

→ Cloud-managed LAN - for easy configuration, monitoring, and troubleshooting via the LANCOM Management Cloud

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High performance on 10 ports

The LANCOM IGS-3510XUP is equipped with 4 2.5 Gigabit Ethernet ports, 4 Gigabit Ethernet ports, and 2 SFP+ ports supporting transfer rates of up to 10 Gbps. In addition, with a data throughput of 68 Gbps on the backplane, it offers full performance even at high workloads. The multi-Gigabit access switch thus forms the powerful basis for modern network infrastructures.

Designed for industrial applications

Designed for use in severe frost or extreme heat (-40 °C to +60 °C), the LANCOM IGS-3510XUP is optimally tailored to the requirements of the industrial and manufacturing sector. Its fanless and DIN-rail designed aluminum housing offers improved resistance to bumps and vibration. High flexibility and fail-safety with reliable surge protection are ensured by redundant industry-standard terminals with multiple DC input voltage options. Post-launch support for the industrial protocol ERPS (ITU-T G.8032) ensures high network availability and reliable failover thanks to fast detection and restoration of Ethernet connections. With PTP (IEEE 1588v2), which will also be released via firmware update after product launch, devices can additionally be synchronized with high precision in the sub-microsecond range, which is crucial for industrial control systems.

A high-performance basis for Wi-Fi 6(E) and Wi-Fi 7

Thanks to 4 high-performance 2.5 Gigabit Ethernet ports including PoE in accordance with IEEE 802.3bt (PoE++), the LANCOM IGS-3510XUP is the ideal basis for integrating the latest Wi-Fi standards Wi-Fi 7 and Wi-Fi 6E into particularly harsh environments. This is because Wi-Fi 7 access points or the LX-6500 as a Wi-Fi 6 access point with 4 streams and 3 bands each mean on the one hand increased performance requirements that exceed simple Gigabit Ethernet, and on the other hand, the power consumption of these access points exceeds the threshold of classic PoE+ with 30W for the first time.

Central power supply without additional wiring

As a powerful PoE switch, the LANCOM IGS-3510XUP supplies connected PoE end devices without the need for additional power supplies or power cabling. An external, optional power supply unit is required to operate the IGS-3510XUP itself. It supports the Power over Ethernet standards IEEE 802.3at/af (PoE+) and IEEE 802.3bt (PoE++, Type 4) with up to 90W per port. Thanks to high power reserves with a total output of 360 watts, it is thus ideal for efficient power supply of end devices with the highest energy requirements even in outdoor areas that are difficult to reach. In addition to multi-Gigabit-capable access points, this also includes end devices such as PoE-powered lighting, industrial displays, or heated video cameras, which can be easily supplied with power even in harsh outdoor environments.

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Cloud-managed LAN

With the LANCOM Management Cloud, the LANCOM IGS-3510XUP 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. This allows all configurations to be rolled out at the click of a mouse, making even more complex networking scenarios easy to administer. In addition, the LANCOM IGS-3510XUP as a cloud-managed industrial switch supports you in complying with NIS 2 requirements in critical infrastructure.

Configurable access control

The LANCOM IGS-3510XUP 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 IGS-3510XUP ideal for professional remote network management. The switch also support the TACACS+ protocol for authentication, authorization, and accounting. This optimized solution promises maximum security for multi-site network management and monitoring.

Static routing for efficient networks

The LANCOM IGS-3510XUP 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.

DHCP server functionality

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

IPv6 and IPv4 support

Thanks to its dual-stack implementation, the LANCOM IGS-3510XUP 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	51 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

PoE with IEEE 802.3bt and IEEE 802.3at/af

2.5G Ports	4x IEEE 802.3bt 2.5G PoE ports with up to 90W per port (type 4, compatible to IEEE 802.3at/af powered devices), limited by the maximum PoE power supplied
1G Ports	4x IEEE 802.3at PoE ports (compatible to IEEE 802.3af powered devices), limited by the maximum PoE power supplied
Power	max. 360 W total power with dynamic load balancing on all ports
Priorisation	Supports port based priority and PoE status setting

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PoE with IEEE 802.3bt and IEEE 802.3at/af

Status information	Monitoring via LED, displaying the actual power consumption per port in web interface

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 128 possible routes
DHCP Server	DHCP Server per VLAN, max. 16 pools

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 802.1ax
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 Snooping	IGMP Snooping to identify multicast groups and prevent unnecessary traffic
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 82

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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
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 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	2,0 lbs (0,9 kg)

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Hardware

Power supply	external power supply required, refer to accessory "LANCOM DPSU-480/55" → 44~57 VDC Input for IEEE 802.3af (max. 15.4W) output required → 50~57 VDC Input for IEEE802.3at (max. 30W) output required → 50~57 VDC Input for IEEE802.3bt Type 3 (max. 60W) output required → 52~57 VDC Input for IEEE802.3bt Type 4 (max. 90W) output required
Environment	Temperature range -40 – 60°C; humidity 10 – 90%; non-condensing
Housing	hardened metal housing for DIN rails, 70 x 168 x 130 mm > W x H x D) 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	375W
Power consumption (idle)	15W
PoE Budget	360W
Heat power (max)	51 BTU/h

Software

LCOS version	based on LCOS SX 4.30
Lifecycle Management	After discontinuation (End of Sale), the device is subject to the LANCOM Lifecycle Management. Details can be found at: www.lancom-systems.com/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)

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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 802.3af	Power over Ethernet (PoE)
IEEE 802.3at	Power over Ethernet Plus (PoE+)
IEEE 802.3bt	Power over Ethernet++(PoE++) Type 4
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
RFC 1213	MIB II
RFC 1215	SNMP Generic Traps

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Supported RFC standards

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 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)

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Supported RFC standards

RFC 4541	IGMP- and MLD-Snooping
RFC 4668	RADIUS Authentication Client MIB
RFC 4670	RADIUS Accounting MIB
RFC 5519	Multicast Group Membership Discovery MIB

special industry standards

IEEE 1588v2	Precision time protocol (PTP)
ITU-T G.8032	Ethernet ring protection switching(ERPS)
IEC 62439	Media redundancy protocol (MRP)

Scope of delivery

Manual	Hardware Quick Reference (DE/EN), Installation Guide (DE/EN)
Cable	Serial configuration cable, 1.5m

Support

Warranty extension	Free warranty extension up to 5 years (replacement service for defects), for details, please refer to the service and support conditions at: www.lancom-systems.com/support-conditions or at www.lancom-systems.com/rma
Security updates	Up to 2 years after End of Sale of the device (but min. 5 years, see www.lancom-systems.com/product-tables), can be extended by purchasing LANcare products
Software Updates	Regular free updates including new features as part of the LANCOM Lifecycle Management www.lancom-systems.com/lifecycle)
Manufacturer support	For LANcommunity partners up to the End of Life of the device. For end customers with LANcare Direct or LANcare Premium Support during the LANcare validity
LANcare Advanced S	Security updates until EOL (min. 5 years) and 5 years NBD advance replacement with delivery of the replacement device within one business day (8/5/NBD), item no. 10730
LANcare Direct Advanced 24/7 S	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. 10776, 10777 or 10778)
LANcare Direct 24/7 S	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. 10752, 10753 or 10754)

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Support

LANcare Direct Advanced 10/5 S	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. 10764, 10765 or 10766)
LANcare Direct 10/5 S	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. 10740, 10741 or 10742)

LANCOM Management Cloud

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

Accessories*

1000Base-SX SFP transceiver module	LANCOM SFP-SX-LC1, item no. 61556
1000Base-SX SFP transceiver module	LANCOM SFP-SX2-LC1, item no. 60183
1000Base-LX SFP transceiver module	LANCOM SFP-LX-LC1, item no. 61557
1000Base-LX SFP BiDi transceiver module	LANCOM SFP-BiDi1550-SC1, item no. 60201
10GBase-SX SFP transceiver module	LANCOM SFP-SX-LC10, item no. 61485
10GBase-LX SFP transceiver module	LANCOM SFP-LX-LC10, item no. 61497
10GBase-LX SFP transceiver module	LANCOM SFP-LR40-LC10, item no. 60182
10GBase-LX SFP BiDi transceiver module	LANCOM SFP-BiDi1310-LC10, item no. 60202
10G multi gigabit Ethernet copper module	LANCOM SFP-CO10-MG, Art.-Nr.: 60170, max. 1 module usable due to increased power consumption and associated heat
10G Direct Attach Cable 1m	LANCOM SFP-DAC10-1m, Art.-Nr.: 61495
10G Direct Attach Cable 3m	LANCOM SFP-DAC10-3m, Art.-Nr.: 60175
recommended din rail power supply	→ LANCOM DPSU-480/55, item no. 61435 → PULS CPS20.481 (alternative LANCOM qualified third party PSU)

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Accessories*	
*) Note	Support for third-party accessories (SFP and DAC) is excluded and cannot be granted

Item number(s)	
LANCOM IGS-3510XUP	61912

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