

# Industrial Gigabit Switch

## Lynx 5512

- **High performance and configurable**
  - 12 Gigabit ports, including 4 x SFP
  - Advanced WeOS support
- **Designed for demanding Edge Network applications**
  - Low power consumption, 9.6 to 60 VDC supply
  - All connectors on front
  - Ultra-robust IP40 metal housing
  - Multiple network resilience solutions
- **Robust for long service life**
  - -40 to +70 °C without ventilation holes
  - Industrial, marine and trackside type tested
- **Unique future proof industrial networking solutions**
  - Advanced cybersecurity features
  - Routing acceleration in hardware<sup>1</sup>
  - IEEE 1588v2 Precision Time Protocol (PTP)



## Product Description

The Lynx 5500 series is the most compact high-performance industrial Ethernet switch series on the market. It has been developed with the needs of current and future industrial data network, combining outstanding performance, durability and reliability. These switches are ideal for handling big data and high bandwidth requirements typically found within transportation, manufacturing, energy, smart cities and other applications.

Integrating hardware, software and network design support tools, this next generation switch platform offers advanced capabilities, the lowest total cost of ownership and will create the most reliable and resilient networks on the market.

The switch is engineered to maintain uninterrupted data communication, even in exceptionally harsh environments. The Lynx 5500 series is tested and certified to withstand extreme temperatures, vibrations and shocks. These switches only use industrial grade components which contributes towards a market leading mean time between failure (MTBF), maximized service life, and reduced operational and life cycle costs.

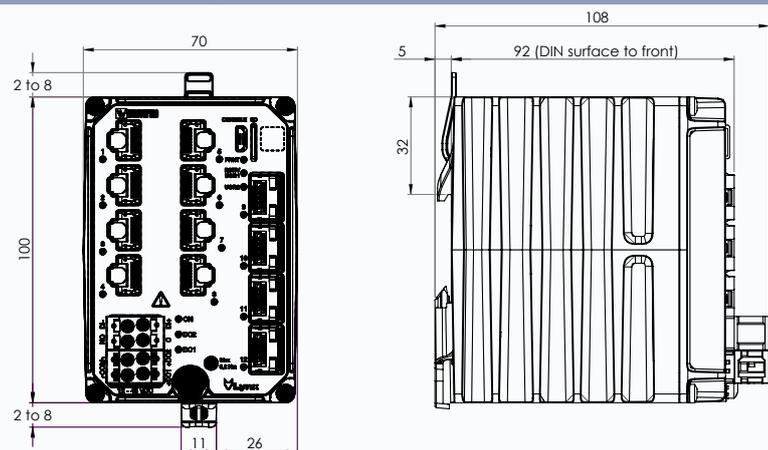
By providing full gigabit speed on all 12 ports, four flexible SFP ports and layer 2 and layer 3 functionality, a broad range of applications are possible. Powered by the next generation WeOS operating system, which ensures robust operation and support for an expanding range of protocols and features. The Lynx 5512 features intuitive set-up and configuration, removing the need for specialized IT support or training, and enabling easy and cost-efficient installation. In addition, recognizing the growing sophistication of cyberattacks, an extensive suite of cyber security tools is available.

The switches support IEEE 1588v2 PTP time synchronization, ideal for real-time applications. In addition, they are prepared for hardware accelerated routing<sup>a</sup> and hardware cybersecurity features, making them the ideal solution to meet future security and bandwidth requirements.

<sup>a</sup>Released in 2nd phase

# Specifications - Lynx 5512

## Dimensional drawing



## Housing

<b>Dimensions (W x H x D)</b>	70 x 100 x 100 mm (2.7 x 3.9 x 3.9 inches)
<b>Housing</b>	Full metal
<b>Weight</b>	690 gr

## Power parameters

<b>Rated voltage LV</b>	12 to 48 VDC
<b>Operating voltage LV</b>	9.6 to 60 VDC
<b>Rated current</b>	1.7 A at 12 VDC 0.67 A at 24 VDC 0.35 A at 48 VDC
<b>Isolation</b>	Galvanic isolation to all ports

## Environmental

<b>Operating temperature</b>	-40 to +70°C (-40 to +158°F)
<b>Storage and transport temperatures</b>	-50 to +85°C (-58 to +185°F)
<b>Ingress protection</b>	IP40
<b>Humidity (operating)</b>	5-95% relative humidity
<b>Corrosive gases</b>	IEC 60068-2-60
<b>Altitude</b>	2000 m/80 kPa
<b>MTBF Telcordia</b>	955,000 hours
<b>MTBF MIL-HBDK-217F</b>	506,000 hours

Interface	Ports	Fibre SFP	Copper RJ-45
<b>Lynx-5512-F4G-T8G-LV</b>	12	4	8
<b>Lynx-5512-E-F4G-T8G-LV</b>	12	4	8
<b>Console</b>	Micro USB		
<b>Micro SD</b>	Secure Digital 2.0		
<b>Digital I/O</b>	4-pin detachable push-in terminal		
<b>Ethernet</b>	8 x 10/100/1000 Mbit/s, Ethernet TX, RJ-45 4 x 100/1000 Mbit/s, SFP		

## Approvals

<b>EMC</b>	EN/IEC 61000-6-1, Immunity residential environments EN/IEC 61000-6-2, Immunity industrial environments EN/IEC 61000-6-3, Emission residential environments EN/IEC 61000-6-4, Emission industrial environments
<b>Trackside</b>	EN 50121-4/IEC 62236-4, Railway signalling and telecommunications apparatus

Approvals	
<b>Safety</b>	EN/IEC/UL 61010-1, -2-201, Safety requirements for electrical equipment for measurement, control, and laboratory use
<b>Marine</b>	DNV rules for classification - Ships and offshore units
<b>Environmental</b>	NEMA TS 2, Traffic Controller Assemblies with NTCIP Requirements AREMA

Switch properties	
<b>Number of VLAN</b>	64
<b>Priority queues</b>	8

Software	
<b>WeOS</b>	WeOS 5; <a href="http://westermo.com/solutions/weos">westermo.com/solutions/weos</a>
<b>WeConfig</b>	<a href="http://westermo.com/solutions/weconfig">westermo.com/solutions/weconfig</a>

Warranty	
<b>Validity</b>	5 years

Ordering information	
Art. no.	Description
<b>3643-0300</b>	Lynx-5512-F4G-T8G-LV
<b>3643-0305</b>	Lynx-5512-E-F4G-T8G-LV <sup>a</sup> .

<sup>a</sup>Lynx-5512-E is the same as Lynx-5512, with addition of layer 3 WeOS Extended functionality.

Accessories	
<b>3125-0150</b>	PS-60, power supply
<b>100 Mbit transceivers 1 Gbit transceivers</b>	<a href="http://westermo.com/products/accessories/sfp-transceivers">westermo.com/products/accessories/sfp-transceivers</a>

## Specification WeOS 5

The WeOS operating system has been developed by Westermo for its current as well as future range of Ethernet hardware products. This layer 2 and layer 3 switching solution enables Westermo to create complex multimedia ring networks and routing solutions. WeOS not only provides solutions to many challenging industrial networking issues, but also helps to protect investments by ensuring the future availability of fully compatible solutions. WeOS is the core of our latest ranges of Ethernet hardware allowing complex multimedia ring networks and routing solutions to be created.

Westermo has many years of experience developing products for industrial applications. At the heart of all Westermo networking solutions is the need for ease of use. By standardising on a single operating system for all Westermo Ethernet products this helps to simplify the installation, operation and maintenance of individual devices and complete networks. Once a user is familiar with a Westermo product, that knowledge can be readily applied to all our other devices. A web screen simplifies the configuration of many functions, whilst a command line interface allows for fine tuning.

WeOS Standard - Layer 2 protocols and functionality
<b>Resilience and High Availability</b> FRNTv0/v2 flexible ring topologies (multiring, subrings and ring coupling), IEEE 802.1D/802.1w (RSTP), IEEE 802.1AX/802.3ad Link Aggregation (LACP and Static), IEC 62439-2 Media Redundancy Protocol (MRP; single instance or dual instances at MRP master) <sup>a</sup> .
<b>Layer 2 Switching</b> IEEE 802.1D MAC Bridges, IEEE 802.1Q Static VLAN and VLAN Tagging, Q-in-Q Tunnelling, IEEE 802.1AB LLDP, IGMPv1/v2/v3 Snooping, Static Multicast MAC filters, MLDv1/v2 Snooping
<b>Layer 2 QoS</b> IEEE 802.1p Class of Service with flexible classification (VLAN tag priority, IP DSCP/ToS, Port ID), MAC Authentication, IEEE 802.1X Port Access Control, Ingress and Egress Rate limiting
<b>IP Host Services</b> Static IPv4/v6 Address, DHCP Client, DNS Client, DDNS, ZeroConf (mDNS and SSDP), NTP Client (NTPv4), IPv4/v6 Interfaces (Ethernet, VLAN, Loopback and Blackhole)
<b>Network Servers</b> DHCP Server (including options 1, 3, 6, 7, 12, 15, 42, 61, 66, 68 and 82), DHCP Relay Agent (including options 54 and 82), DNS Proxy Server (DNS forwarder and Host records), NTP client/server (NTPv4), IEEE 1588/PTP Transparent Clock (including Power Profile v1/v2)
<b>Management Tools</b> Westermo configuration tool WeConfig, Web interface (HTTP and HTTPS), Command Line Interface (CLI) via console port, SSHv2 and Telnet, Local and Central Authentication (RADIUS/TACACS+), Role Based Access Control (RBAC), Password Compliance Policy, SNMPv1/v2c/v3, Secure Copy (SCP) for remote file upload and download, Local file management (via HTTP, FTP, TFTP and SCP), Load/save files from/to external memory <sup>b</sup> , Configuration and Deployment using external memory <sup>b</sup> , Tech support button, Flexible alarm and event handling system, RFC5424/RFC3164 Syslog (log files and remote syslog server), Port monitoring
<b>SNMP MIB Support (read-only)</b> RFC 1213 MIB-2, RFC 2819 RMON MIB, RFC 2863 Interface MIB, RFC 3433 Entity Sensor MIB, RFC 3635 Ether-like Interface MIB, RFC 4133 Entity MIB, RFC 4188 Bridge MIB, RFC 4318 RSTP MIB, RFC 4363 Q-BRIDGE MIB, RFC 4836 MAU MIB, IEEE 802.1AB LLDP MIB, IEEE 802.1AX LAG MIB, IEC 62439-2 MRP MIB, WESTERMO-DDM MIB (SFP), WESTERMO-EVENT MIB, WESTERMO-FRNT MIB, WESTERMO-INTERFACE MIB, WESTERMO-TCN MIB

<sup>a</sup>Available as add-on-function. Please see your local Westermo sales contact to purchase a license for your product.

<sup>b</sup>Only applicable for models with SD card slot

WeOS Extended - Layer 3 protocols and functionality <sup>a</sup>
<b>IP Host Services</b> IP Interfaces (SSL, VPN, GRE)
<b>IP Routing and VPN</b> Static IP Routing, Floating Static Routes, Multinetting, Proxy ARP, Dynamic IP routing (OSPFv2, RIPv1/v2), VRRPv2/v3, Protocol Independent Multicast - Sparse-Mode (PIM-SM), Static Multicast Routing, Stateful Inspection Firewall, Firewall Hit Counters, IP Masquerading (NAT/NAPT), Port Forwarding, Stateless NAT (1-1 NAT), IPsec VPN (IKEv2 PSK), SSL VPN (Client and Server, Certificate Authentication, Pre-shared Key (PSK) Point-to-Point Mode, Layer-2 and Layer-3 VPN, Layer-2 VPN bridging, Address pool and address per CN, TLS Authentication), Generic Routing Encapsulation (GRE), Policy Based Routing, Equal-Cost Multi-Path (ECMP), OpenVPN Multipath TCP (MPTCP), Route monitor
<b>SNMP MIB Support (read-only)</b> RFC 2787 VRRPv2 MIB, RFC 6527 VRRPv3 MIB

<sup>a</sup>Products with software level WeOS Extended include all functionality listed for WeOS Standard