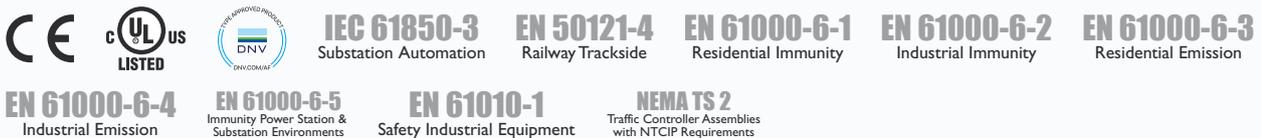


# DIN-rail Substation Automation Switch

## Lynx 5612

- **Ideal for substations and their communication networks**
  - Supporting various substation topologies
  - Dedicated IEEE 1588v2 PTP hardware
  - Multiple network resilience solutions
- **Uncompromising performance at class-leading compactness**
  - Markets most compact high performance IEC 61850-3 switch
  - Bandwidth for today and the futures network expansions
  - An evolving platform providing maximum service life
  - Featuring 5th generation WeOS including an array of cybersecurity features
- **Proven robustness and reliability**
  - Designed for demanding mission critical applications
  - High EMI immunity with comprehensive approvals
  - Diminishing risk for downtime and maintenance-free operation for years



## Product Description

The Lynx 5612 is a high-performance substation automation-approved Ethernet switch ideal for energy and substation automation applications.

It is the most compact high-performance switch for energy systems on the market. It has been developed with the needs of current and future networks in mind. Combining outstanding performance, durability and reliability, it is ideal switch for handling big data and high bandwidth requirements.

Critical energy infrastructure cannot tolerate interruptions of service which is why the switch is engineered to maintain uninterrupted data communication even in exceptionally harsh environments. Lynx-5612 has been tested and verified to withstand extreme temperatures, vibrations and EMI aligned with IEC 61850-3 Ed.2

Furthermore only industrial grade components are used which contributes towards a market leading mean time between failure (MTBF), maximized service life and reduced operational and life cycle costs.

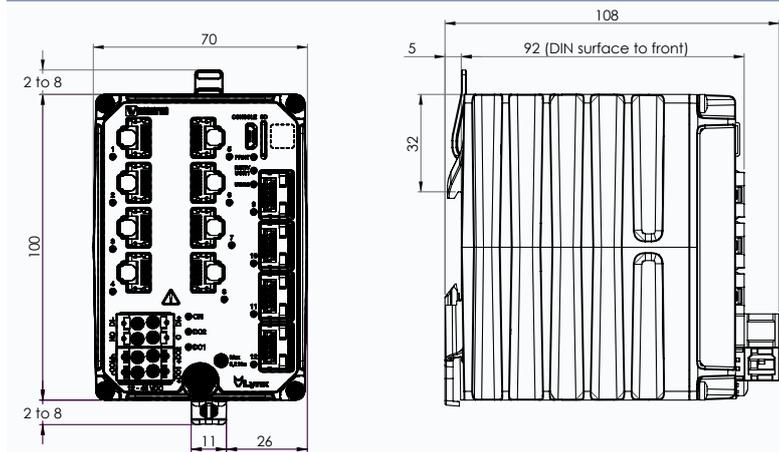
By providing full gigabit speed on all 12 ports, four flexible SFP ports and layer 2 and layer 3 functionality, a broad range of applications are possible. Powered by the next generation WeOS operating system, which ensures robust operation and support for an expanding range of protocols and features. 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>1</sup> and hardware cybersecurity features, making them the ideal solution to meet future security and bandwidth requirements.

<sup>1</sup>Released in 2nd phase

# Specifications - Lynx 5612

## Dimensional drawing



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

Power parameters		Lynx-5612 + PS-60
Rated voltage	12 to 48 VDC	100 to 240 VAC, 50 to 60 Hz or 110 to 250 VDC (combined with PS-60)
Operating voltage	9.6 to 60 VDC	85 to 264 VAC, 45 to 66 Hz or 88 to 350 VDC (combined with PS-60)
Rated current	1.7 A at 12 VDC 0.67 A at 24 VDC 0.35 A at 48 VDC	
Hold up time	5 periods (combined with PS-60)	
Isolation	1.5 kVrms galvanic isolation to all ports	

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

Interface	Ports	Fibre SFP	Copper RJ-45
Lynx-5612-F4G-T8G-LV	12	4	8
Lynx-5612-E-F4G-T8G-LV	12	4	8
Console	Micro USB		
Micro SD	Secure Digital 2.0		
Digital I/O	4-pin detachable push-in terminal (SELV)		
Ethernet	8 x 10/100/1000 Mbit/s, Ethernet TX, RJ-45 4 x 100/1000 Mbit/s, SFP		

Approvals	
<b>EMC</b>	IEC 61850-3, 2nd Ed, Class 1, Communication networks and systems for power utility automation <sup>a</sup> 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 EN/IEC 61000-6-5, Immunity power & substation environments
<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 GL rules for classification - Ships and offshore units
<b>Trackside</b>	EN 50121-4/IEC 62236-4, Railway signalling and telecommunications apparatus
<b>Environmental</b>	NEMA TS 2, Traffic Controller Assemblies with NTCIP Requirements AREMA

<sup>a</sup>Applicable for Power Stations and MV-substation combined with PS-60. Applicable for shielded area without PS-60.

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

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

Warranty	
<b>Validity</b>	5 years

Ordering information	
Art. no.	Description
<b>3643-0400</b>	Lynx 5612-F4G-T8G-LV
<b>3643-0405</b>	Lynx 5612-E-F4G-T8G-LV <sup>a</sup>

<sup>a</sup>Lynx-5612-E is the same as Lynx-5612, with addition of layer 3 WeOS Extended functionality.

Accessories	
3125-0150	PS-60, power supply

# 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, RFC4363 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