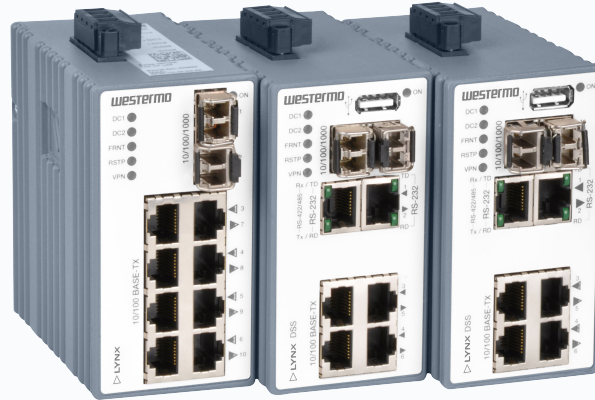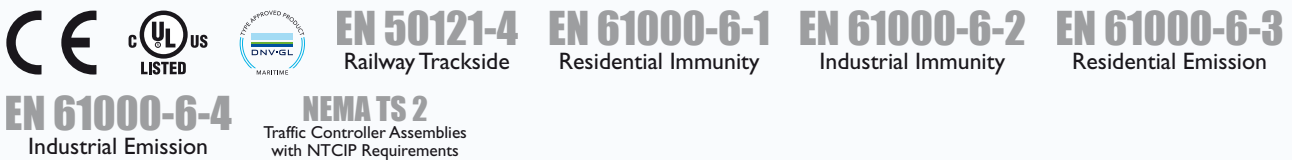# WESTERMO

Managed Ethernet Switch

Lynx Series

- **Compact industrial Ethernet switch design**
  - Flexible SFP transceiver design
  - Switch or Device Server
  - Low power consumption
- **Designed for use in industrial applications**
  - Redundant 12-48 VDC dual input power supply
  - Highly configurable fault I/O contact
  - Robust metal DIN rail housing

- **Robust and reliable for long service life**
  - Up to 667.000 hours MTBF (MIL-HDBK-217K)
  - Industrial temperature specifications
  - Industrial EMC, shock and vibration testing
- **Unique future proof industrial networking solutions**
  - 20 ms network ring recovery time
  - Layer 2 or layer 3 switch
  - Design based on IEC 62443 demands

CE c(UL)us LISTED DNV·GL TYPE APPROVED PRODUCT MARITIME

EN 50121-4 Railway Trackside **EN 61000-6-1** Residential Immunity **EN 61000-6-2** Industrial Immunity **EN 61000-6-3** Residential Emission

EN 61000-6-4 Industrial Emission **NEMA TS 2** Traffic Controller Assemblies with NTCIP Requirements

The Lynx series consists of layer 2 or layer 3 industrial Ethernet switches, powered by WeOS, the Westermo network operating system. The Lynx switches are the most compact switches or device servers on the market, available with up to 10 Ethernet ports whereof two are 100 Mbit or Gbit SFP transceivers.

The Lynx series is designed for simple use in industrial applications, from the robust DIN rail clip solution to the configurable fault contact and the industrial level of dual power inputs.

Only industrial grade components are used which gives the Lynx series an MTBF of up to 677,000 hours and ensures a long service life. A wide operating temperature range of -40 to +70/74°C (-40 to +158/165°F) can be achieved with no moving parts or cooling holes in the case.

The Lynx series has been tested both by Westermo and external test institutes to meet many EMC, isolation, vibration and shock standards, all to the highest levels suitable for heavy industrial environments and rail trackside applications.

WeOS has been developed by Westermo to offer cross platform and future proof solutions. WeOS delivers unique functionality in legacy IP solutions, supporting Modbus Gateway, virtual COM, modem replacement or several options in dual TCP applications. For more WeOS functionality, please see the WeOS datasheet.

Specifications - Lynx Series
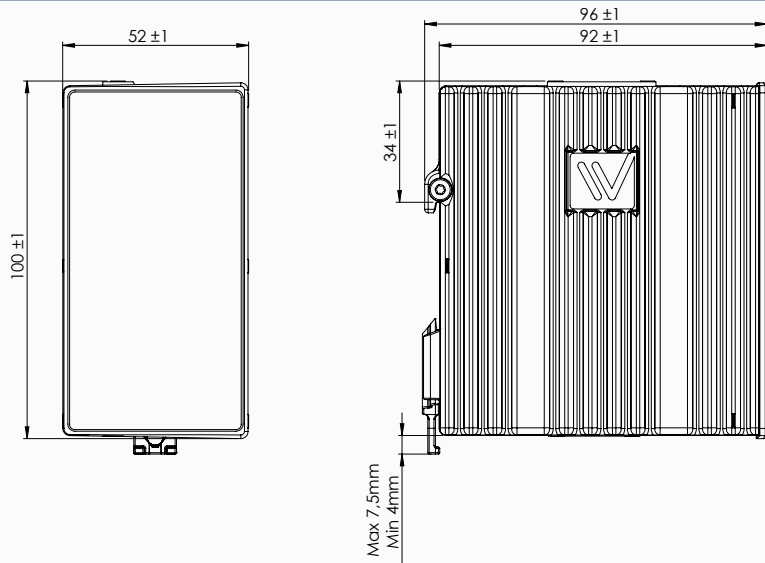
Housing

Dimensions (W × H × D)	52 × 100 × 101 mm (2.04 × 3.93 × 3.97 inches)
Housing	Full metal
Weight	0.7 kg

Environmental

Temperature, operating	-40 to +70°C (-40 to +158°F)[a]
Temperature, storage and transport	-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/70 kPA

[a]For Lx10-F2G-12VDC: -40 to +74°C (-40 to +165°F)

Model	L106-F2G L206-F2G	L110-F2G L210-F2G	L110/210-F2G-12VDC	L105-S1 L205-S1	L106-S2 L206-S2	L108-F2G-S2 L208-F2G-S2	L108-F2G-S2-12VDC

MTBF hours

	L106-F2G L206-F2G	L110-F2G L210-F2G	L110/210-F2G-12VDC	L105-S1 L205-S1	L106-S2 L206-S2	L108-F2G-S2 L208-F2G-S2	L108-F2G-S2-12VDC
MIL-HDBK-217-F	615,000	630,000	630,000	677,000	593,000	517,000	517,000

Interfaces

	L106-F2G L206-F2G	L110-F2G L210-F2G	L110/210-F2G-12VDC	L105-S1 L205-S1	L106-S2 L206-S2	L108-F2G-S2 L208-F2G-S2	L108-F2G-S2-12VDC
Copper ports	4	8	8	4	4	4	4
Fibre ports (SFP)	2	2	2			2	2
RS-232				1	1	1	1
RS-232 or RS-485					1	1	1
USB	1			1	1	1	1
I/O Digital input	1	1	1	1	1	1	1
I/O Digital output	1	1	1	1	1	1	1
Console	1	1	1	1	1	1	1

Approvals

Approvals		
EMC	EN 61000-6-1, Immunity residential environments	
	EN 61000-6-2, Immunity industrial environments	
	EN 61000-6-3, Emission residential environments[a]	
	EN 61000-6-4, Emission industrial environments	
	EN 50121-4/IEC 62236-4, Railway and telecommunications apparatus	
Environmental	NEMA TS2[b]	
	AREMA[c]	
Safety	UL 62368-1, Safety Communication Technology	
Marine	DNV GL rules for classification - Ships and offshore units[d]	

[a]Valid for all except Lx10-F2G and Lx10-F2G-12VDC
[b]Valid for Lx10-F2G-12VDC
[c]Valid for L108-F2G-S2-12VDC
[d]Valid for all except L108-F2G-S2-12VDC and Lx10-F2G-12VDC

Model	L106-F2G L206-F2G	L110-F2G L210-F2G	L110/210-F2G-12VDC	L105-S1 L205-S1	L106-S2 L206-S2	L108-F2G-S2 L208-F2G-S2	L108-F2G-S2-12VDC
Approvals EMI							
FCC Part 15.105 class A	◆	◆	◆				
FCC Part 15.105 class B				◆	◆	◆	◆
Power parameters							
Rated voltage 24 to 48 VDC / Operating voltage 19 to 60 VDC	◆	◆		◆	◆	◆	
Rated voltage 12 to 48 VDC / Operating voltage 9.8 to 60 VDC			◆				
Rated voltage 12 to 24 VDC / Operating voltage 9.8 to 36 VDC							◆
Rated current at 12 VDC			420 mA				470 mA
Rated current at 24 VDC	180 mA	240 mA	220 mA	140 mA	150 mA	250 mA	230 mA
Rated current at 48 VDC	90 mA	120 mA	115 mA	70 mA	80 mA	120 mA	
Galvanic isolation to all ports	◆	◆	◆	◆	◆	◆	◆

Switch properties	
Number of VLAN	64
Priority queues	4

Software	
WeOS	https://www.westermo.com/solutions/weos
WeConfig	https://www.westermo.com/solutions/weconfig

Warranty	
Validity	5 years

Art.no.	Product	Functionality
3643-0230	L106-F2G	Layer 2
3643-0100	L110-F2G	Layer 2
3643-0110	L110-F2G-12VDC	Layer 2
3643-0210	L105-S1	Layer 2
3643-0220	L106-S2	Layer 2
3643-0200	L108-F2G-S2	Layer 2
3643-0240	L108-F2G-S2-12VDC	Layer 2
3643-0235	L206-F2G	Layer 3
3643-0105	L210-F2G	Layer 3
3643-0115	L210-F2G-12VDC	Layer 3
3643-0215	L205-S1	Layer 3
3643-0225	L206-S2	Layer 3
3642-0205	L208-F2G-S2	Layer 3

Accessories	
3125-0150	PS-60, power supply, DIN-mounted
100 Mbit transceivers	https://www.westermo.com/products/accessories/sfp-transceivers/100m-sfp-transceivers
Gbit transceivers	https://www.westermo.com/products/accessories/sfp-transceivers/1gbit-sfp-transceivers
WeConfig	https://www.westermo.com/products/software/weconfig

Specification WeOS 4

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 incorporates unique functions that allow Westermo solutions to provide integration paths for legacy equipment. WeOS also enables Westermo to deliver a range of unique network security solutions, utilising elements such as stateful inspection firewalls and the IEEE 802.1X standard. Remote secure access can be provided using encrypted VPN tunnels. The WeOS Management Guide, 6101-3201, explains how many of these functions can be set up.

Specification WeOS 4

WeOS Standard - Layer 2 protocols and functionality

Resilience and High Availability

FRNTv0/v2 flexible ring topologies (multiring, subrings and ring coupling), Multilink dual homing, IEC 62439-2 Media Redundancy Protocol (MRP)[a], IEEE 802.1AX/802.3ad Link Aggregation (LACP and static), IEEE 802.1D Spanning Tree Protocol (STP) and IEEE 802.1w Rapid Spanning Tree Protocol (RSTP)

Layer 2 Switching

IEEE 802.1Q Static VLAN and VLAN Tagging, VLAN Q-in-Q tunnelling, VLAN transparency, IEEE 802.3x Flow Control, IGMPv2/v3 Snooping, AVT Dynamic VLAN (Adaptive VLAN Trunking), Management VLAN (Management Interface concept), Static Multicast MAC filters, IEEE 802.1AB Link Layer Discovery Protocol (LLDP)

Layer 2 QoS

IEEE 802.1p Class of Service, Ingress/inbound rate limiting, Egress/outbound traffic shaping

Layer 2 Security

IEEE 802.1X Port Access Control, MAC Authentication, IP/MAC address conflict detection, Port Auto-Disable

Serial Port Technologies[b]

Serial over IP (Serial Extender and Virtual Serial Port), Modem replacement, Modbus Gateway, Microlok II Gateway

Manageability

WeConfig, Web interface (HTTP and HTTPS), Command Line Interface (CLI) via console port, (SSHv2 and Telnet), Local and central user authentication (RADIUS and TACACS+), SNMPv1/v2c/v3. Secure Copy (SCP), USB configuration and backup[c], BOOTP client, flexible alarm/event handling system, Syslog (log files and remote syslog server), Digital I/O, Persistent Port Monitoring, SNTP (NTP client), NTP Server, DHCP client (including options 60 and 61), DHCP server (including options 1, 3, 6, 12, 15, 42, 61, 66, 67 and 82), DHCP relay agent (including options 54 and 82), DDNS

SNMP MIB Support

RFC1213 MIB-2, RFC 2819 RMON MIB, RFC 2863 Interface MIB, RFC 3411 SNMP Framework MIB, RFC 3433 Entity Sensor MIB, RFC 3621 Power Ethernet MIB, RFC 3635 Ethernet-like MIB, RFC 4133 Entity MIB, RFC4188 Bridge MIB, RFC4318 RSTP MIB, RFC4363 Q-BRIDGE MIB, RFC4836 MAU MIB, RFC4319 HDSL2/SHDSL MIB, IEEE 802.1AB LLDP MIB, IEEE 802.1AX LAG MIB, IEC 62439-2 MRP, UCD SNMP MIB, WESTERMO-WEOS MIB, WESTERMO-FRNT MIB, WESTERMO-INTERFACE MIB

[a]Available as add-on-function. Please see your local Westermo sales contact to purchase a licence for your product.
[b]Available in products with serial port
[c]Available in products with USB port

WeOS Extended - Layer 3 protocols and functionality[a]

IP Routing, Cyber Security and VPN

Static IP routing, Floating Static Routes, Dynamic IP routing (OSPFv2, RIPv1/v2), VRRPv2/v3, Static Multicast Routing, Stateful Inspection Firewall, NAT, 1-1 NAT, Proxy ARP for 1-1 NAT, Port Forwarding, DSCP/TOS modification, IPsec VPN (IKEv1 certificates and PSK, ESP, VPN failover), SSL VPN (Client and Server, Local and central authentication with RADIUS, address pool and address per CN, TLS authentication, WeConnect), GRE, Multinetting

Serial Port Technologies[b]

PPP dial in/dial out

SNMP MIB Support

RFC 2787 VRRPv2 MIB, RFC 6527 VRRPv3 MIB

[a]Products with software level WeOS Extended include all functionality listed for WeOS Standard
[b]Available in products with serial port