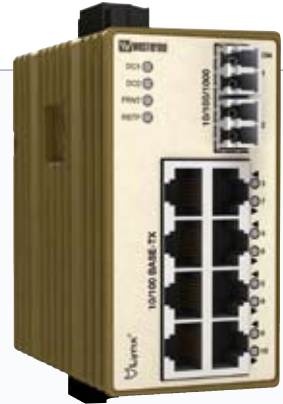




Managed Ethernet Switch

L110-F2G



- ⌘ Industrial managed switch made for harsh environments
- ⌘ Multirate transceiver support (100Mbit or 1 Gbit)
- ⌘ Real time Ethernet:
 - True industrial specification
 - Full metal housing
 - IP40
 - Wide temperature range (-40°C to +70°C)
 - Wide DC power range (19 to 60VDC)
 - No moving parts or electrolytic capacitors
 - Low power consumption
 - Redundant power input with polarity protection
 - High MTBF numbers
- ⌘ VLAN, FRNT, STP/RSTP, VLAN, IGMP Snooping, QoS, SNMP, SSH, DHCP client, DDNS
- ⌘ Configurable alarm concept
- ⌘ CLI or Web configuration



Pending

EN 61000-6-2
Industrial Immunity
EN 55022
ITE Emission

EN 61000-6-4
Industrial Emission
50121-4
Railway Trackside

The L110-F2G is a 10 port device that is suitable for advanced layer 2 switching in industrial application with extreme operating conditions. It has eight fixed 10/100/BaseTX ports and two Gigabit SFP ports that support plugable modules, enabling you to choose from a variety of transceivers.

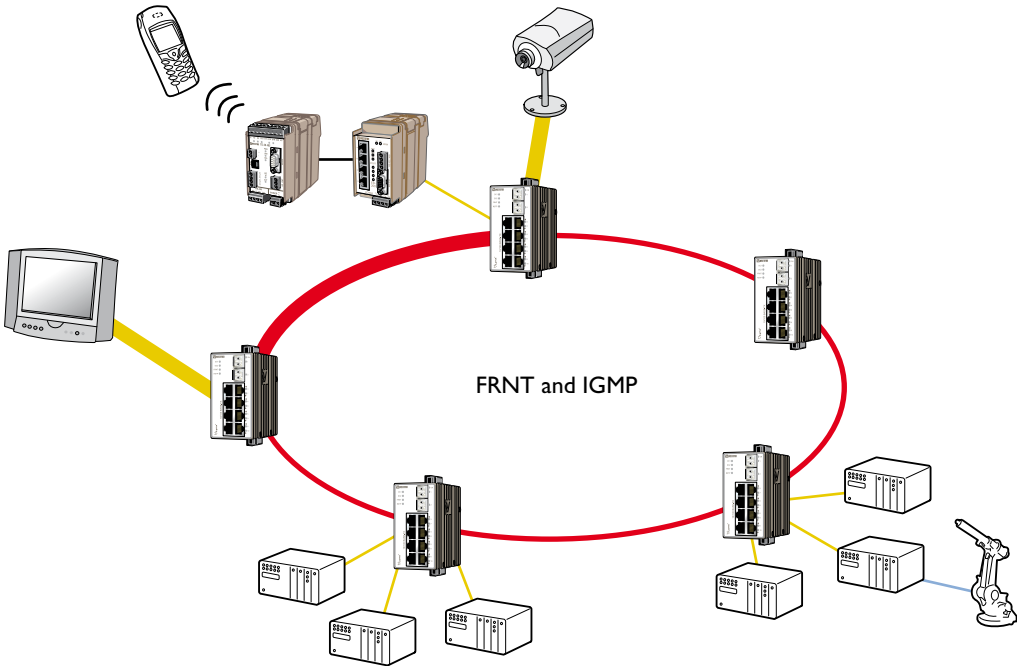
To ensure the network resilience, L110-F2G supports STP (Spanning Tree Protocol) and RSTP (Rapid STP), and also features Westermo's unique FRNT (Fast Recovery of Network Topology) redundant ring functionality. This is the fastest protocol on the market to automatically reconfigure a large network in the event of any line or hardware failure. FRNT is able to reconfigure a redundant ring network consisting of up to 200 switches within 20 ms, regardless of network load. STP/RSTP and FRNT can be combined enabling L110-F2G to be integrated with products from other vendors in redundant network solutions.

Comprehensive VLAN (Virtual LAN) support for up to 64 virtual networks increases security and network bandwidth and improves manageability. VLANs can also be allocated to particular switch ports and centrally configured. L110-F2G also supports IGMPv2/v3 (Internet Group Management Protocol) snooping, which provides filtering techniques to manage the flow of data around the ring in such a way as to optimise the bandwidth - ideal for video streaming applications

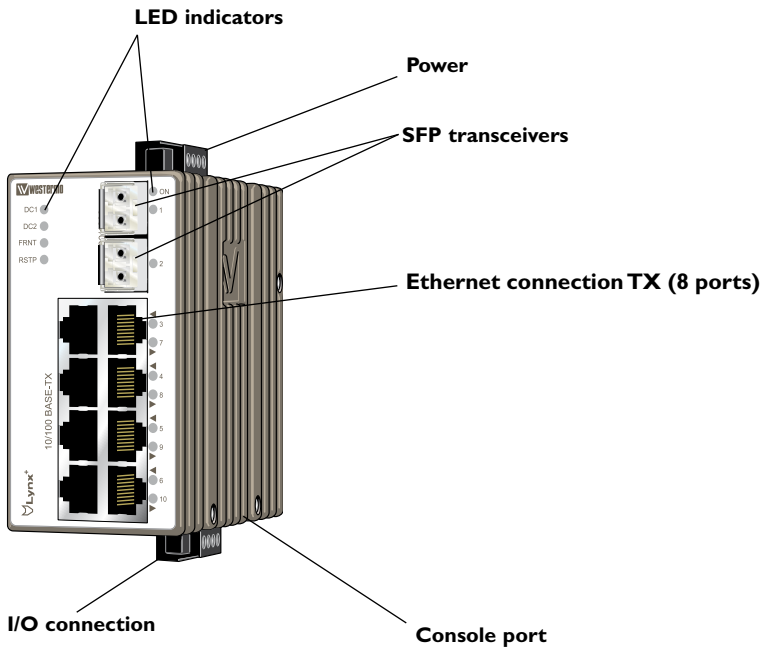
Ordering Information

Art.no	Description
3643-0100	L110-F2G, 8 x 10/100BaseT, 2 x 100/1000 Mbit/s SFP slots, L2 support

Application



Interfaces



Specifications

Power	
Operating voltage	Rated: 24 to 48 VDC Operating: 19 to 60 VDC
Rated current	240 mA @ 24 VDC 120 mA @ 48 VDC
Rated frequency	DC
Inrush current, I _{it}	6.4 · 10 ⁻³ A ² s @ 48 VDC
Startup current*	2 * Rated current
Polarity	Reverse polarity protected
Redundant power input	Yes
Isolation to	All other
Connection	Detachable screw terminal
Connector size	0.2 – 2.5 mm ² (AWG 24 – 12)
Shielded cable	Not required

* External supply current capability for proper start-up

Ethernet TX	
Electrical specification	IEEE std 802.3. 2005 Edition
Data rate	10 Mbit/s, 100 Mbit/s, manual or auto
Duplex	Full or half, manual or auto
Circuit type	TNV-1
Transmission range	Up to 150 m with CAT5e cable or better*
Isolation to	All other
Connection	RJ-45, auto MDI/MDI-X
Shielded cable	Not required, except when installed in Railway applications as signalling and telecommunications apparatus and located close to rails.**
Conductive housing	Yes
Number of ports	8

* Refer to "Safety" section in Lynx+ User Guide

** To minimise the risk of interference, a shielded cable is recommended when the cable is located inside 3 m boundary or the cable is longer than 30 m and inside 10 m boundary to the rails and connected to this port.

Ethernet SFP pluggable connections (FX or TX)	
Electrical specification	IEEE std 802.3. 2005 Edition
Data rate	100 Mbit/s or 1000 Mbit/s transceivers supported
Duplex	Full or Auto, depending on transceiver
Transmission range	Depending on transceiver
Connection	SFP slot holding fibre transceiver or copper transceiver
Number of ports	1 or 2

I/O / Relay output	
Maximum voltage/current	60 VDC / 80 mA
Contact resistance	Max 30 Ω
Isolation to	All other
Connection	Detachable screw terminal
Connector size	0.2 – 2.5 mm ² (AWG 24 – 12)

I/O / Digital input	
Maximum voltage/load current	60 VDC / 2 mA
Voltage levels	Logic one: >12V Logic zero: <1V
Isolation to	All other
Connection	Detachable screw terminal
Connector size	0.2 – 2.5 mm ² (AWG 24 – 12)

Console	
Electrical specification	TTL-level
Data rate	115.2 kbit/s
Data format	8 data bits, no parity, 1 stop bit, no flow control
Circuit type	SELV
Connection	2.5 mm jack, use only Westermo cable 1211-2027

Protocols and Functionality

Ethernet Technologies	IEEE 802.3 for 10BaseT IEEE 802.3u for 100BaseTX and 100Base FX IEEE 802.3ab for 1000BaseT IEEE 802.3z for 1000BaseX
Resiliency and High Availability	Fast Reconfiguration of Network Topology (FRNT) FRNT Link Health Protocol (FLHP) IEEE 802.1D Spanning Tree Protocol (STP) IEEE 802.1w Rapid STP (RSTP)
Layer-2 Switching	IEEE 802.1Q Static VLAN and VLAN Tagging IEEE 802.3x Flow Control IGMPv2/v3 snooping AVT Dynamic VLAN (Westermo Adaptive VLAN Trunking) Management VLAN (Westermo Management Interface concept)
Layer-2 QoS	IEEE 802.1p Class of Service Flexible classification VLAN tag, VLAN ID, IP DSCP/ToS, Port ID)
Manageability	Management tools <ul style="list-style-type: none"> • Web interface (HTTP and HTTPS) • Command Line Interface (CLI) via console port and SSHv2 • Westermo IPConfig tool • SNMPv1/v2c/v3 • Flexible management of configuration and log files • Secure Copy (SCP) for remote file upload and download • Local file management via HTTP, FTP, TFTP and SCP Syslog (log files and remote syslog server) Digital I/O Port Monitoring SNTP (NTP client) DHCP client DDNS
SNMP MIB support	RFC1213 MIB-2 RFC2863 Interface MIB (ifXTable) RFC2819 RMON MIB (etherStatsTable) RFC4188 Bridge MIB RFC4318 RSTP MIB RFC4363 Q-BRIDGE MIB (dot1qVlan and dot1qVlanStaticTable) RFC4836 MAU MIB (dot3IfMauBasicGroup and dot3IfMauAutoNegGroup) RFC4133 Entity MIB (entityPhysical) RFC3433 Entity Sensor MIB WESTERMO PRIVATE MIB

Type tests and environmental conditions

Environmental phenomena	Basic standard	Description	Test levels	
ESD	EN 61000-4-2	Enclosure	Contact: ± 6 kV Air: ± 8 kV	
Fast transients	EN 61000-4-4	Power port	± 2 kV	
		Signal ports	± 2 kV	
		Earth port	± 1 kV	
Surge	EN 61000-4-5	Power port	L-E: ± 0.5 kV, 12 Ω , 9 μ F L-L: ± 0.5 kV, 2 Ω , 18 μ F L-E: ± 2 kV, 42 Ω , 0.5 μ F L-L: ± 2 kV, 42 Ω , 0.5 μ F L-E: ± 2 kV, 12 Ω , 9 μ F L-L: ± 1 kV, 12 Ω , 9 μ F	
		Signal ports	L-E: ± 1 kV, 2 Ω L-E: ± 2 kV, 42 Ω , 0.5 μ F	
Power frequency magnetic field	EN 61000-4-8	Enclosure	300 A/m; 0, 16.7, 50 Hz	
Pulsed magnetic field	EN 61000-4-9	Enclosure	300 A/m	
Radiated RF immunity	EN 61000-4-3	Enclosure	10 V/m @ (80 – 800) MHz 20 V/m @ (800 – 1000) MHz 10 V/m @ (1400 – 2100) MHz 5 V/m @ (2100 – 2500) MHz 1 V/m @ (2500 – 2700) MHz 1 kHz sine, 80% AM	
Conducted RF immunity	EN 61000-4-6	Power port	10 V, 80% AM, 1 kHz; (0.15 – 80) MHz	
		Signal ports	10 V, 80% AM, 1 kHz; (0.15 – 80) MHz	
		Earth port	10 V, 80% AM, 1 kHz; (0.15 – 80) MHz	
Radiated RF emission	EN 55022	Enclosure	Class A	
	FCC Part 15		Class A	
Conducted RF emission	EN 55022	Power port	Class B	
		Signal ports	Class B	
Dielectric strength	EN 60950-1	Power port to all other ports	1.5 kVrms, 50 Hz, 1 min	
		Signal ports to all other ports	1.5 kVrms, 50 Hz, 1 min	
Environmental				
Temperatures		Operating	-40 to +70°C*	
		Storage and transport	-50 to +85°C	
Humidity		Operating	5 to 95 % relative humidity	
		Storage and transport	5 to 95 % relative humidity	
Altitude		Operating	2 000 m / 70 kPa	
Service life		Operating	10 year	
Vibration	IEC 60068-2-6 (sine)	Operating	3 – 13.2 Hz: 1mm	5.5 – 30 Hz: 1.5 g
			13.2 – 100 Hz: 0.7 g	30 – 50 Hz: 0.42 mm 50 – 500 Hz: 4.2 g**
Shock	IEC 60068-2-27	Operating	30 g, 11 ms 100 g, 6 ms**	
Bump	IEC 60068-2-27	Operating	10 g, 11 ms	
Packaging				
Enclosure	EN 60950-1	Zinc	Fire enclosure	
Dimension W x H x D With connectors			52.5 x 100 x 101 mm	
			52.5 x 119 x 101 mm	
Weight			0.7 kg	
Degree of protection	EN 60529	Enclosure	IP 40	
Cooling			Convection	

* Refer to "Safety" section in Lynx+ User Guide.

** Might require Ethernet cables to be fastened close to the unit.