USER GUIDE

Lynx L206-F2G-EX
Industrial Ethernet 6-port Switch

General information

Legal information

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Software tools

Related software tools are available at www.westermo.com/support/software-tools.

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Upon request, the applicable source code will be provided. A nominal fee may be charged to cover shipping and media. Please direct any source code request to your normal sales or support channel.

WeOS Management Guide

This product runs WeOS (Westermo Operation System). Instructions for quick start, configuration, factory reset and use of USB port are found in the WeOS Management Guide at **www.westermo.com.**

Safety and Regulations

Warning signs are provided to prevent personal injuries and/or damages to the product.

The following levels are used:

Level of warning	Description	Consequence personal injury	Consequence material damage
WARNING	Indicates a potentially hazardous situation	Possible death or major injury	Major damage to the product
CAUTION	Indicates a potentially hazardous situation	Minor or moderate injury	Moderate damage to the product
NOTICE	Provides information in order to avoid misuse of the product, confusion or misunderstanding	No personal injury	Minor damage to the product
NOTE	Used for highlighting general, but important information	No personal injury	Minor damage to the product

Before installation:

Read this manual completely and gather all information on the product. Make sure that you understand it fully. Check that your application does not exceed the safe operating specifications for this product.

WARNING - SAFETY DURING INSTALLATION

The product must be installed by qualified service personnel and built in to an apparatus cabinet or similar, where access is restricted to service personnel only.

During installation, ensure a protective earthing conductor is first connected to the protective earthing terminal (only valid for metallic housings). Westermo recommends a cross-sectional area of at least 4 mm2.

If the product does not have a protective earthing terminal, then the DINrail must be connected to protective earth. Upon removal of the product, ensure that the protective earthing conductor, or the connection to earth via the DIN-rail, is disconnected last.

WARNING - HAZARDOUS VOLTAGE

Do not open an energized product. Hazardous voltage may occur when connected to a power supply.

WARNING - PROTECTIVE FUSE

It must be possible to disconnect manually from the power supply. Ensure compliance to national installation regulations. Replacing the internal fuse must only be performed by Westermo qualified personell.

WARNING - POWER SUPPLY CONNECTION

There are safety regulations on which power sources that shall be used in conjunction with the product. Refer to Interface Specifications.

WARNING - REDUCE THE RISK OF FIRE

To reduce the risk of fire, use only telecommunication line cords with a cable diameter of AWG 26 or larger. Regarding power cable dimensions, see Interface Specifications.

CAUTION - CLASS 1 LASER PRODUCT

Do not look directly into a fibre optical port or any connected fibre, although the product is designed to meet the Class 1 Laser regulations and complies with 21 CFR 1040.10 and 1040.11.

CAUTION - HANDLING OF SFP TRANSCEIVERS

SFP transceivers are supplied with plugs to avoid contamination inside the optical port. They are very sensitive to dust and dirt. If the fibre is disconnected from the product, the protective plugs on the transmitter/receiver must be connected. The protective plugs must be kept on during transportation. The fibre optics cables must be handled the same way.

CAUTION - CORROSIVE GASES

If the product is placed in a corrosive environment, it is important that all unused connector sockets are protected with a suitable plug, in order to avoid corrosion attacks on the gold plated connector pins.

CAUTION - ELECTROSTATIC DISCHARGE (ESD)

Prevent electrostatic discharge damages to internal electronic parts by discharging your body to a grounding point (e.g. use a wrist strap).

CAUTION - HOT SURFACE

Be aware of that the surface of this product may become hot. When it is operated at high temperatures, the external surface may exceed Touch Temperature Limit according to the product's relevant electrical safety standard.

CAUTION - CABLE TEMPERATURE RATING FOR FIELD TERMINAL WIRES

There may be a requirement on the minimum temperature rating of the cable to be connected to the field wiring terminals, see Interface Specifications.

Care recommendations

Follow the care recommendations below to maintain full operation of product and to fulfill the warranty obligations:

- Do not drop, knock or shake the product. Rough handling above the specification may cause damage to internal circuit boards.
- Use a dry or slightly water-damp cloth to clean the product. Do not use harsh chemicals, cleaning solvents or strong detergents.
- Do not paint the product. Paint can clog the product and prevent proper operation.

If the product is used in a manner not according to specification, the protection provided by the equipment may be impaired.

If the product is not working properly, contact the place of purchase, nearest Westermo distributor office or Westermo technical support.

Product disposal

This symbol means that the product shall not be treated as unsorted municipal waste when disposing of it. It needs to be handed over to an applicable collection point for recycling electrical and electronic equipment.

By ensuring this product is disposed of correctly, you will help to reduce hazardous substances and prevent potential negative consequences to both environment and human health, which could be caused by inappropriate disposal.

⟨Ɛx⟩ ATEX certification

ATEX certification number
Baseefa12ATEX0119X

Standards
EN 60079-0, EN 60079-15

Certification code
Ex nA IIC T3 Gc (-40°C ≤ Ta ≤ +70°C)

ATEX code
⟨Ɛx⟩ II 3G

Specific Conditions of Use
The equipment must be installed in an area of not more than pollution degree 2 in accordance with IEC/EN 60664-1, and in an enclosure that provides a minimum degree of protection of at least IP54 and complies with the relevant requirements of EN 60079-0 and EN 60079-15.

All external connections to the equipment and, where applicable, the SFP modules must not be inserted or removed unless either the area in which the equipment is installed is known to be non-hazardous, or the circuits connected have been de-energized.

The network cables once installed must be properly fixated by the use of cable ties or similar to reduce the risk of accidently withdrawing the plugs.

Equipment input parameters
Power Connector: +DC1, +DC2 & -COM
Working Voltage Range = 24 V to 48 VDC.
I/O Connector: 'Status +' & 'Status -' and 'Digital in +' and 'Digital in -'
Maximum I/P Voltage = 60 VDC.

⟨Ex⟩ SFP option approved transceivers

SFP Transceivers, 100 Mbit	
1100-0131	MLC2, Multimode, LC-Connector, 2 km, 1310 nm
1100-0132	SLC20, Singlemode, LC-Connector, 20 km, 1310 nm
1100-0133	SLC40, Singlemode, LC-Connector, 40 km, 1310 nm
1100-0134	SLC80, Singlemode, LC-Connector, 80 km, 1550 nm
1100-0140	SLC120, Singlemode, LC-Connector, 120 km, 1550 nm
BiDi Transceivers, 100 Mbit	
1100-0145	SLC15-BiDi-A, Singlemode, BiDi, 20 km, 1310 nm TX, 1550 nm RX
1100-0146	SLC15-BiDi-B, Singlemode, BiDi, 20 km, 1550 nm TX, 1310 nm RX
1100-0152	MLC2-BiDi-A, Multimode, BiDi, 2 km, 1310 nm TX, 1550 nm RX
1100-0153	MLC2-BiDi-B, Multimode, BiDi, 2 km, 1550 nm TX, 1310 nm RX
SFP Transceivers, 1 Gbit	
1100-0144	GMLC550-SX, Multimode, LC-Connector, 550 m, 850 nm, SX
1100-0147	GMLC2-SX+, Multimode, LC-Connector, 2 km, 1310 nm, SX+
1100-0141	GSLC10-LX, Singlemode, LC-Connector, 10 km, 1310 nm, LX
1100-0142	GSLC50-XD, Singlemode, LC-Connector, 50 km, 1550 nm, XD
1100-0143	GSLC80-ZX, Singlemode, LC-Connector, 80 km, 1550 nm, ZX
1100-0171	GSLC110-EZX, Singlemode, LC-Connector, 110 km, 1550 nm, EZX
BiDi Transceiver, 1 Gbit	
1100-0156	GSLC20-BiDi-A, Singlemode, BiDi, 20 km, 1310 nm TX, 1490 nm RX
1100-0157	GSLC20-BiDi-B, Singlemode, BiDi, 20 km, 1490 nm TX, 1310 nm RX
Copper Transceiver, 1 Gbit	
1100-0148	GC100, Copper, RJ45, 100 m, 1000BaseT

⬡ ATEX-Zertifizierung

ATEX-Zulassungsnummer
Baseefa12ATEX0119X

Standards
EN 60079-0, EN 60079-15

Zertifizierungscode
Ex nA IIC T3 Gc (-40 °C ≤ Ta ≤ +70 °C)

ATEX-Code
⟨Ex⟩ II 3G

Spezifische Einsatzbedingungen

Die Geräte müssen in einem Bereich welcher einem maximalen Verschmutzungsgrad der Stufe 2 gemäß IEC/EN 60664-1 entspricht und in einem Gehäuse, das einen Schutzgrad von mindestens IP54 bietet und die relevanten Anforderungen von N 60079-0 und EN 60079-15 erfüllt, installiert werden.

Alle äußeren Anschlüsse des Gerätes und auch die SFP-Module dürfen nur dann verbunden oder getrennt werden, wenn entweder der Bereich, in dem das Gerät installiert ist, nachweislich ungefährlich ist, oder die verbundenen Stromkreise spannungsfrei sind.

Die Netzwerkkabel müssen nach der Installation mithilfe von Kabelbindern oder ähnlichem Material ordnungsgemäß befestigt werden, um ein versehentliches Abziehen der Stecker zu verhindern.

Eingangsparameter der Geräte

Stromversorgung: +DC1, +DC2 & -COM
Betriebsspannungsbereich = 24 V to 48 VDC.
I/O-Anschluss: 'Status +' & 'Status -' und 'Digital in +' und 'Digital in -'
Maximale I/P-Spannung = 60 VDC.

SFP-Transceiver, 100 Mbit	
1100-0131	MLC2, Multimode, LC-Anschluss, 2 km, 1310 nm
1100-0132	SLC20, Singlemode, LC-Anschluss, 20 km, 1310 nm
1100-0133	SLC40, Singlemode, LC-Anschluss, 40 km, 1310 nm
1100-0134	SLC80, Singlemode, LC-Anschluss, 80 km, 1550 nm
1100-0140	SLC120, Singlemode, LC-Anschluss, 120 km, 1550 nm
BiDi-Transceiver, 100 Mbit	
1100-0145	SLC15-BiDi-A, Singlemode, BiDi, 20 km, 1310 nm TX, 1550 nm RX
1100-0146	SLC15-BiDi-B, Singlemode, BiDi, 20 km, 1550 nm TX, 1310 nm RX
1100-0152	MLC2-BiDi-A, Multimode, BiDi, 2 km, 1310 nm TX, 1550 nm RX
1100-0153	MLC2-BiDi-B, Multimode, BiDi, 2 km, 1550 nm TX, 1310 nm RX
SFP-Transceiver, 1 Gbit	
1100-0144	GMLC550-SX, Multimode, LC-Anschluss, 550 m, 850 nm, SX
1100-0147	GMLC2-SX+, Multimode, LC-Anschluss, 2 km, 1310 nm, SX+
1100-0141	GSLC10-LX, Singlemode, LC-Anschluss, 10 km, 1310 nm, LX
1100-0142	GSLC50-XD, Singlemode, LC-Anschluss, 50 km, 1550 nm, XD
1100-0143	GSLC80-ZX, Singlemode, LC-Anschluss, 80 km, 1550 nm, ZX
1100-0171	GSLC110-EZX, Singlemode, LC-Anschluss, 110 km, 1550 nm, EZX
BiDi-Transceiver, 1 Gbit	
1100-0156	GSLC20-BiDi-A, Singlemode, BiDi, 20 km, 1310 nm TX, 1490 nm RX
1100-0157	GSLC20-BiDi-B, Singlemode, BiDi, 20 km, 1490 nm TX, 1310 nm RX
Kupfer-Transceiver, 1 Gbit	
1100-0148	GC100, Kupfer, RJ45, 100 m, 1000BaseT

Certification ATEX

Numéro de certification ATEX

Baseefa12ATEX0119X

Normes

EN 60079-0, EN 60079-15

Code de certification

Ex nA IIC T3 Gc (-40°C ≤ Ta ≤ +70°C)

Code ATEX

⟨Ex⟩ II 3G

Conditions spéciales d'utilisation

L'équipement doit être installé dans une zone où le degré de pollution ne dépasse pas le degré 2 conformément à l'IEC/EN 60664-1, et dans un boîtier qui fournit un niveau de protection au moins égal à IP54 et conforme aux exigences applicables à EN 60079-0 et EN 60079-15

Toutes les connexions externes à l'équipement et, le cas échéant, les modules SFP ne doivent pas être insérés ou retirés sauf si la zone dans laquelle l'équipement est installé est reconnue comme non dangereuse, ou si les circuits raccordés sont hors-tension.

Une fois les câbles réseau installés, ils doivent être correctement fixé grâce à des attaches de câbles ou autre élément semblable afin de réduire le risque de débranchement accidentel.

Paramètres d'entrée des équipements

Connecteur d'alimentation : +DC1, +DC2 & -COM
Double entrée d'alimentation 24 V à 48 VCC
Connecteur E/S : « Statut + » et « Statut - » et « Entrée digitale + » et « Entrée digitale - »
Tension maximale I/P = 60 VCC.

Transmetteurs SFP, 100 Mbit	
1100-0131	MLC2, multimode, connecteur LC, 2 km, 1310 nm
1100-0132	SLC20, monomode, connecteur LC, 20 km, 1310 nm
1100-0133	SLC40, monomode, connecteur LC, 40 km, 1310 nm
1100-0134	SLC80, monomode, connecteur LC, 80 km, 1550 nm
1100-0140	SLC120, monomode, connecteur LC, 120 km, 1550 nm
Transmetteurs Bi-Di, 100 Mbit	
1100-0145	SLC15 Bi-Di A, monomode, Bi-Di, 20 km, 1310 nm TX, 1550 nm, RX
1100-0146	SLC15-Bi-Di-B, monomode, Bi-Di, 20 km, 1550 nm TX, 1310 nm RX
1100-0152	MLC2-BiDi-A, multimode, Bi-Di, 2 km, 1310 nm TX, 1550 nm RX
1100-0153	MLC2-BiDi-B, multimode, Bi-Di, 2 km, 1550 nm TX, 1310 nm RX
Transmetteurs SFP, 1 Gbit	
1100-0144	GMLC550-SX, multimode, connecteur LC, 550 m, 850 nm, SX
1100-0147	GMLC2-SX+, multimode, connecteur LC, 2 km, 1310 nm, SX+
1100-0141	GSLC10-LX, monomode, connecteur LC, 10 km, 1310 nm, LX
1100-0142	GSLC50-XD, monomode, connecteur LC, 50 km, 1550 nm, XD
1100-0143	SLC80, monomode, connecteur LC, 80 km, 1550 nm, ZX
1100-0171	GSLC110, monomode, connecteur LC, 110 km, 1550 nm, EZX
Transmetteurs Bi-Di, 1 Gbit	
1100-0156	GSLC20-BiDi-A, monomode, Bi-Di, 20 km, 1310 nm TX, 1490 nm RX
1100-0157	GSLC20-BiDi-B, monomode, Bi-Di, 20 km, 1490 nm TX, 1310 nm RX
Transmetteurs cuivre, 1 Gbit	
1100-0148	GC100, cuivre, RJ45, 100 m, 1000BaseT

Agency approvals and standards compliance

Type	Approval / Compliance
EMC	EN 61000-6-1, Immproducty residential environments
	EN 61000-6-2, Immproducty industrial environments
	EN 61000-6-3, Emission residential environments
	EN 61000-6-4, Emission industrial environments
	EN 50121-4, Railway signalling and telecommunications apparatus
	IEC 62236-4, Railway signalling and telecommunications apparatus
Safety	UL 62368-1, Safety Communication Technology
Marine	DNV GL rules for classification - Ships and offshore products
Ex	EN 60079-0, EN 60079-15

UL 62368-1 Notice:

This product has been tested and found compliant to UL 62368-1, Safety for Communication Technology. In accordance with the definitions of the standard, this product shall be handled by instructed personell. Energy source classifications are according to following:

Electrical energy source	Power port	ES1
	Serial port	ES1
	Ethernet port	ES1, TNV-1
	I/O port	ES1
Power source	Power port	PS3
Thermal energy source	Enclosure	TS1
Mechanical energy source	Enclosure	MS1
Radiation energy source	SFP	RS1

FCC Part 15.105 Notice:

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense.

Corrosive environment Notice:

This product has been successfully tested in a corrosion test according to *IEC 60068-2-60, method 3*. This means that the product meets the requirements to be placed in an environment classified as *ISA-S71.04 class G3*.

CAUTION - CORROSIVE GASES

If the product is placed in a corrosive environment, it is important that all unused connector sockets are protected with a suitable plug, in order to avoid corrosion attacks on the gold plated connector pins.

Declaration of Conformity

Hereby, Westermo declares that this product is in compliance with applicable EU directives. The full EU declaration of conformity and other detailed information is available at **www.westermo.com/support/product-support**.

Product Description

L206-F2G-EX is an industrial switch made for harsh enviroments. The switch can be used in either 100 Mbit or Gigabit networks due to our multi-rate SFP solution. L206-F2G-EX can also be used together with our previous Lynx-series of switches.

Our unique FRNT (Fast Recovery of Network Topology) technology is the fastest protocol on the market to re-configure a network in the event of any link or hardware failure. That is why our products are used in safety critical applications such as tunnels, traffic signal control and railway systems.

Installations in harsh environments and places with heavy electrical interference require the use of a reliable media. Lynx provides a number of solutions using fibre optic transceivers.

Multi- or singlemode transceivers can be used to build point-to-point or redundant ring networks with ranges up to 120 km between each switch. Our BIDI transceiver, which transmits and receives data on a single fibre can be used in applications where the number of fibre cores are limited.

Real-time properties are implemented in the switch in order to achieve determinism for real time critical applications. Lynx supports QoS (Quality of Service) with four priority queues and strict priority scheduling as well as HoL (Head of Line Blocking Prevention). All to assure that the data network is deterministic.

Hardware Overview

Location of interface ports and LEDs

LED Indicators

Power connection

SFP transceivers

I/O connection

USB

Position	Direction* / description	Output values
1	Out / VBUS	
2	In/out / D-	
3	In/out / D+	U_{out} = 5 VDC max
4	GND	I_{out} = 400 mA max
Shield	PE	

Ethernet connection TX (4 ports)

Position	Signale	Direction	Description	Input/output values
No.1	TD+	In/Out	Transmitted/Received data	
No. 2	TD-	In/Out	Transmitted/Received data	
No. 3	RD+	In/Out	Transmitted/Received data	
No. 4	-		Not Connected	Per port:
No. 5	-		Not Connected	$U = \pm 1$ V (4V/µs)
No. 6	RD-	In/Out	Transmitted/Received data	$I = \pm 20$ mA
No. 7	-		Not Connected	Data rate:
No. 8	-		Not Connected	10/100 Mbit/s
Shield			Connected to PE	
Galvanically isolated via signal transformers and capacitively isolated to GND/PE through a 2kV 1000pF capacitor.				

Interface specifications

Power	
Operating voltage	Rated: 24 to 48 VDC Operating: 19 to 60 VDC
Rated current	180 mA (330 mA) @ 24 VDC (with 500 mA USB load) 90 mA (170 mA) @ 48 VDC (with 500 mA USB load)
Rated frequency	DC
Inrush current, I^2t	$22.7 \cdot 10^{-3}$ A^{2}s @ 48 VDC
Startup current*	2 x Rated current
Polarity	Reverse polarity protected
Redundant power input	Yes
Isolation to	All other ports
Connection	Detachable screw terminal
Conductor cross section	0.2 - 2.5 mm^2 (AWG 24 - 12)
Stripping length cable	7 mm
Tightening torque, terminal screw	0.5 -0.6 Nm
Tightening torque, screw flange	0.3 Nm
Shielded cable	Not required

* Recommended external supply current capability for proper startup

Ethernet TX	
Electrical specification	IEEE std 802.3
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 ports
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	4

* Refer to Safety section.
** 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
Data rate	100 Mbit/s or 1000 Mbit/s transceivers supported
Duplex	Full or Auto, depending on transceiver
Transmission range	Depending on tranceiver
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 ports
Connection	Detachable screw terminal
Conductor cross section	0.14 - 1.5 mm^2 (AWG 28 - 16)
Stripping length cable	7 mm
Tightening torque, terminal screw	0.22 -0.25 Nm
Tightening torque, screw flange	0.3 Nm

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
Conductor cross section	0.14 - 1.5 mm^2 (AWG 28- 16)
Stripping length cable	7 mm
Tightening torque, terminal screw	0.22 -0.25 Nm
Tightening torque, screw flange	0.3 Nm

USB

Electrical specification	USB 2.0 host interface
Data rate	Up to 12 Mbit/s (full-speed mode)
Circuit type	SELV
Maximum supply current	400 mA
Connection	USB receptacle connector type A

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

SFP Transceivers

The product supports UL and IEC certified transceivers only. See Westermo's modular transceivers datasheets 100 Mbit and 1 Gbit for supported SFP transceivers, which can be downloaded from the product support pages at www.westermo.com/support/productsupport.

Each SFP slot can hold one SFP transceiver. See "Transceiver User Guide 6100-0000" for transceiver handling instructions, which also can be downloaded from the product support pages at www.westermo.com/support/product-support.

In the event of contamination, the optical connectors in the SFP transceivers should only be cleaned by the use of forced nitrogen and some kind of cleaning stick. Recommended cleaning fluids are methyl-, ethyl-, isopropyl- or isobutyl alcohol, hexane or naphtha

Supported transceivers

Firmware prior to 4.4.0 accepts Westermo branded transceivers only. From 4.5.0 other transceivers are accepted with a notice and the product will no longer be UL approved. Temp.specifications are also depending on the used transeivers.

Note: To comply with UL 62368-1, only UL recognized SFP transceivers should be used.

CAUTION - HANDLING OF SFP TRANSCEIVERS

SFP transceivers are supplied with plugs to avoid contamination inside the optical port. They are very sensitive to dust and dirt. If the fibre is disconnected from the product, the protective plugs on the transmitter/receiver must be connected. The protective plugs must be kept on during transportation. The fibre optics cables must be handled the same way.

Deviations

With copper transceiver 1100-0148 the specified operating temperature on Lynx is 0 to +50°C (32 to +122°F). FRNT reconfiguration times can not be guaranteed with copper transceivers.

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	
		Earth port	±1 kV
Surge	EN 61000-4-5	Power port	L-E: ±2 kV, 42 Ω, 0.5 μF, 1.2/50 μs L-L: ±2 kV, 42 Ω, 0.5 μF, 1.2/50 μs L-E: ±2 kV, 12 Ω, 9 μF, 1.2/50 μs L-L: ±1 kV, 2 Ω, 18 μF, 1.2/50 μs
		Ethernet ports	L-E: ±2 kV, 12 Ω, 1.2/50 μs
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	20 V/m @ (80 - 2700) MHz 10 V/m @ (2700 - 6000) 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	
		Earth port	
Radiated RF emission	CISPR 16-2-3 ANSI C63.4	Enclosure	Class A (Industrial), 30 MHz to 6 GHz FCC Part 15 B, Class A, 30 MHz to 6.5 GHz
Conducted RF emission	CISPR 16-2-1 ANSI C63.4	Power port	Class B
		Signal ports	
Dielectric strength	UL 62368-1	Power port to all other ports	1.5 kVrms, 50 Hz, 1 min
		Signal ports to all other ports	
Environmental			
Temperatures	EN 60068-2-1	Operating	-40 to +70°C (-40 to +158°F)*
	EN 60068-2-2	Storage and transport	-50 to +85°C (-58 to +185°F)
Humidity	EN 60068-2-30	Operating	5 to 95 % relative humidity
		Storage and transport	
Altitude		Operating	2 000 m / 70 kPa
Service life		Operating	10 years
Reliability prediction (MTBF)	MIL-HDBK- 217F	Operating	615,000 hours
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, x1000
Packaging			
Enclosure	UL 62368-1	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.

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

Console Port

I/O connection

Console port

Cable 1211-2027

Bottom view
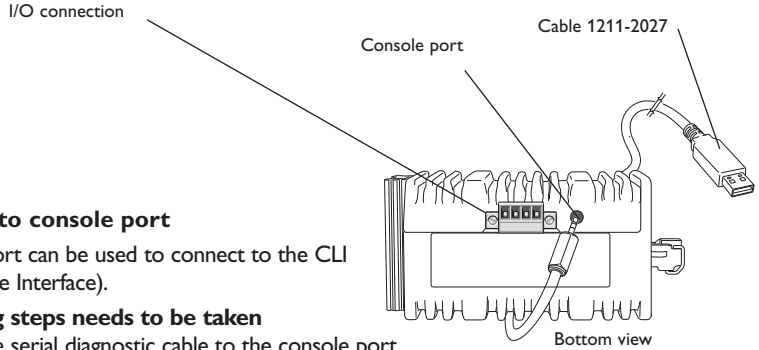
Connection to console port

The console port can be used to connect to the CLI (Command Line Interface).
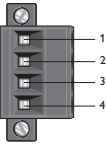
The following steps needs to be taken

1. Connect the serial diagnostic cable to the console port (use only Westermo cable 1211-2027).
2. Connect cable to your computer (USB port, if drivers are needed they can be downloaded from our Web page).
3. Use a terminal emulator and connect with correct speed and format (115200, 8N1) to the assigned port.

For more information about the CLI, see the WeOS management guide.

Accessories	
Description	**Art no**
Westermo console cable	1211-2027
RJ45 to terminal block	1200-2490
RJ45 to DB9 cable	1211-2210
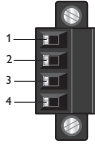
Connector Information

Power connection

	4-position	Product marking	Direction	Description	Input values
	No. 1	+DC1	Input	Supply voltage input DC1	
	No. 2	+DC2	Input	Supply voltage input DC2	U_{in} = (19 - 60) VDC
	No. 3	-COM	Input	Common	I_{in} = 330 mA @ 24 VDC
	No. 4	-COM	Input	Common	P_{In} = 8 W @ 24 VDC

Lynx supports redundant power connection. The positive inputs are +DC1 and +DC2, the negative input for both supplies are -COM. Connect the primary voltage (e.g. +24 VDC) to the +DC1 pin and return to one of the -COM pins on the power input.

I/O connection

|	4-position	Product marking	Direction	Description	Input / Output values
	No. 1	Status +	Output	Alarm relay (status) contact	U_{in} = 60 VDC max
	No. 2	Status -	Output	Alarm relay (status) contact	I_{in} = 80 mA max
	No. 3	Digital in +	Input	Digital in +	U_{in} = 60 VDC max
	No. 4	Digital in -	Input	Digital in -	I_{in} = 2 mA max

The Status output is a potential free, opto-isolated normally closed solid-state relay.
This can be configured to monitor various alarm events within the Lynx product, see WeOS Management Guide.
An external load in series with an external voltage source is required for proper functionality.
For voltage/current ratings, see Interface Specification section.

Console port

Position	Direction* / description	Input/output values
No.1	In / out / GND	
No. 2	Out / Tx	U = 3.3 VDC max
No. 3	In / Rx	I = 24 mA max

* Direction relative to this product.

The Digital in is an opto-isolated digital input which can be used to monitor external events. For voltage/current ratings, see Interface Specification section:
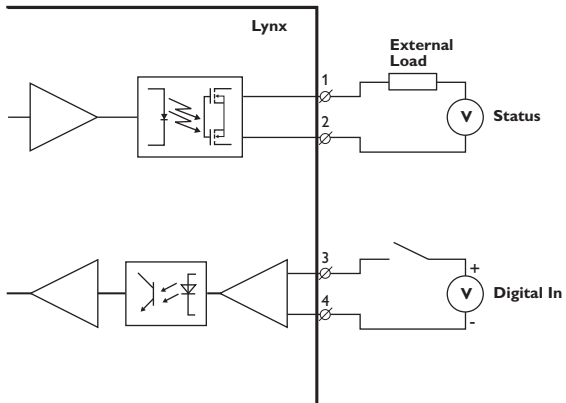
LED indicators

| LED	Status	Description
ON	OFF	Product has no power.
	GREEN	All OK, no alarm condition.
	RED	Alarm condition, or until product has started up. (Alarm conditions are configurable, see "WeOS Management Guide").
	BLINK	Location indicator ("Here I am!"). Activated when connected to IPConfig Tool, or upon request from Web or CLI.
DC1	OFF	Product has no power
	GREEN	Voltage present on DC1*
	RED	No voltage present on DC1
DC2	OFF	Product has no power
	GREEN	Voltage present on DC2*
	RED	No voltage present on DC2.
FRNT	OFF	FRNT disabled.
	GREEN	FRNT OK.
	RED	FRNT Error.
	BLINK	Product configured as FRNT Focal Point.
RSTP	OFF	RSTP disabled.
	GREEN	RSTP enabled.
	BLINK	Product elected as RSTP/STP root switch.
USR1	OFF	
	GREEN	Configurable, see WeOS Management Guide.
	RED	
1 to 6	OFF	No Link.
	GREEN	Link established.
	GREEN FLASH	Data traffic indication.
	YELLOW	Port alarm and no link. Or if FRNT or RSTP mode, port is blocked.

*Note: Supply voltage levels must be ensured externally. A green LED may not guarantee a valid operating voltage level.
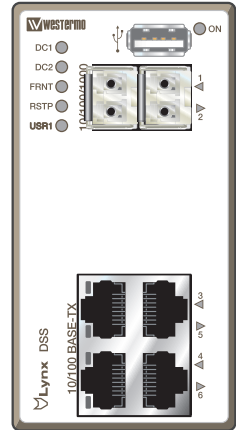
Mounting

This product should be mounted on 35 mm DIN-rail, which is horizontally mounted inside an apparatus cabinet or similar. It is recommended that the DIN-rail is connected to ground. Snap on the product to the DIN-rail according to the figure.

Mounting Lynx with integrated DIN-clip:
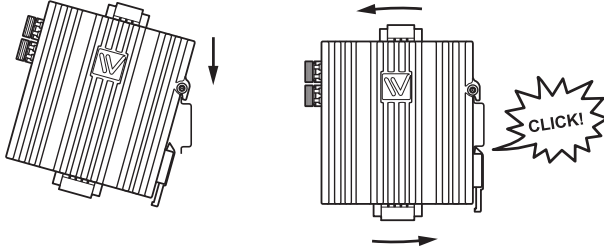
Removal

This product has an integrated DIN-clip. To remove the product, press down the support at the back with a screwdriver and lift it off the DIN-rail.
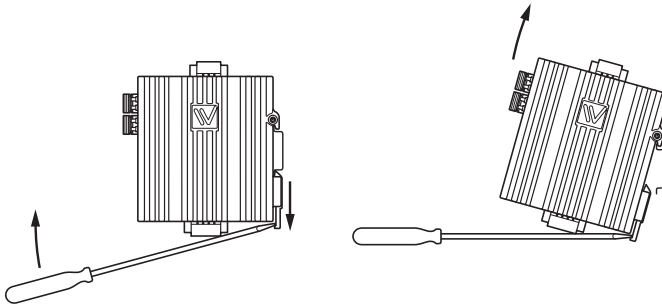
Cooling

This product uses convection cooling. To avoid obstructing the airflow around the product, use the following spacing rules. Minimum spacing 25 mm (1.0 inch) above / below and 10 mm (0.4 inches) left / right the product. Spacing is recommended for the use of product in full operating temperature range and service life.
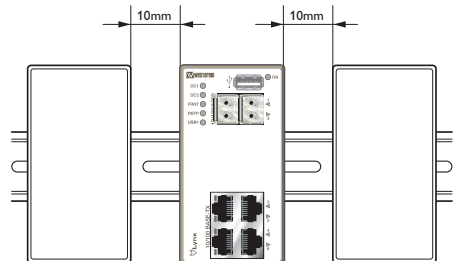
Getting Started

This product runs Westermo Operating System (WeOS) which provides several management tools that can be used for configuration of the product.

- **WeConfig tool**
  This is a custom Westermo tool used for discovery of attached Westermo products.
- **Web**
  Configuration of the product using the web browser.
- **CLI**
  Configuration of the product via the Command Line Interface.
  Username: admin
  Password: westermo

If the computer is located in the same subnet as the switch you can easily use a web browser to configure the product. Within the web you can configure most of the available functions.

For advanced network settings and more diagnostic information, please use the CLI. Detailed documentation is available in the chapter "The Command Line Management Tool" in the WeOS management guide. If you are not sure about the subnet - consult your network administrator.

Factory default	*IP address:*	192.168.2.200
	Netmask:	255.255.255.0
	Gateway:	Disabled

Configuration

Configure the product via web browser

The product can easily be configured via a web browser. Open the link http://192.168.2.200 in your web browser, and you will be prompted with a login screen, where the default settings for username and password are:

Username: admin
Password: westermo

Once you have logged in, you can use the extensive integrated help function describing all configuration options. Two common tasks when configuring a new switch are to assign appropriate IP settings, and to change the password of the admin account.

The password can be up to 64 characters long, and should consist of printable ASCII characters (ASCII 33-126); 'Space' is not a valid password character.

Note
Version of IP Config tool must be 10.3.0 or higher.

Referring documents

Type	Description	Document number
Management Guide	Westermo OS management guide	6101-3201

Factory default on L206-F2G EX

It is possible to set the product to factory default settings by using two straight standard Ethernet RJ-45 cables.

1. Power off the switch and disconnect all Ethernet cables (copper and fibre).

2. Connect one Ethernet cable between Ethernet ports 3 and 6, and the other between Ethernet ports 4 and 5.
   The ports need to be connected directly by an Ethernet cable, i.e., not via a hub or switch. Use a straight cable - not a cross-over cable - when connecting the ports.

3. Power on the product.

4. Wait for the product to start up. Control that the ON LED is flashing red.
   The ON LED flashing indicates that the product is now ready to be reset to factory default. You now have the choice to go ahead with the factory reset, or to skip factory reset and boot as normal.

   • Go ahead with factory reset:
     Acknowledge that you wish to conduct the factory reset by unplugging the Ethernet cables. The ON LED will stop flashing.
     This initiates the factory reset process*, and the product will restart with factory default settings. When the switch has booted up, the ON LED will show a green light, and is now ready to use.

   • Skip the factory reset:
     To skip the factory reset process, just wait for approximately 30 seconds (after the ON LED starts flashing RED) without unplugging the Ethernet cables. The switch will conduct a normal boot with the existing settings.
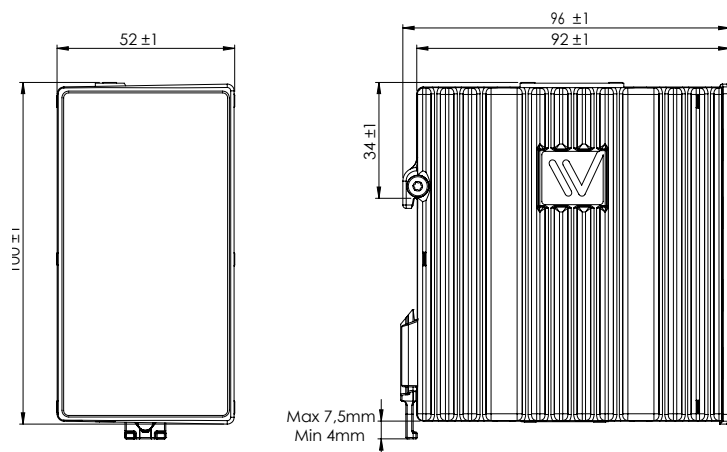
Note
Do not power off the product while the factory reset process is in progress.

Dimensions

Measurements are stated in millimeters.

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