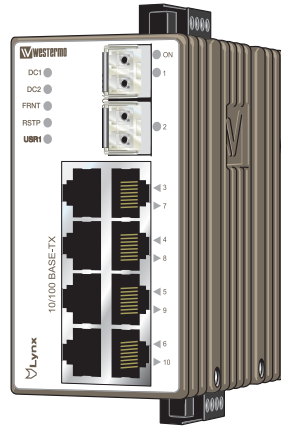


User Guide  
6643-22601



# Lynx

L110 F2G EX / L210 F2G EX



*Industrial Ethernet  
10-port Switch*

[www.westermo.com](http://www.westermo.com)

# Safety



## Warning

Do not open connected unit. Hazardous voltage may occur within this unit when connected to power supply.

Note that this unit can be connected to two different power sources.

When this unit is operated at an ambient temperature above +55°C (+131°F), the External Surface of Equipment may exceed Touch Temperature Limit according to EN/IEC/UL 60950-1.

To reduce the risk of fire, use only No. 26 AWG or larger telecommunication line cord.

*For more information see General safety 100-5001.*



## Software tools

Related software tools are available in the folder software tools under technical support on the Westermo website.

## License Information

This device contains public available software which is under the GPL license.

For more information see legal.pdf included with all firmware releases.

This product includes software developed by the OpenSSL Project for use in the **OpenSSL Toolkit**. <http://www.openssl.org>

## Legal information

The contents of this document are provided "as is". Except as required by applicable law, no warranties of any kind, either express or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, are made in relation to the accuracy and reliability or contents of this document. Westermo reserves the right to revise this document or withdraw it at any time without prior notice.

Under no circumstances shall Westermo be responsible for any loss of data or income or any special, incidental, and consequential or indirect damages howsoever caused.

More information about Westermo can be found at the following Internet address:

**<http://www.westermo.com>**



## **ATEX certification number**

Baseefa12ATEX0119X

## **Standards**

EN 60079-0:2012, EN 60079-15:2010, EN 60079-28:2007

## **Certification code**

Ex nA [op is T4] IIC T3 Gc ( $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ )

## **ATEX code**

 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 accidentally 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.



## SFP option approved transceivers



<b>SFP Transceivers, 100 Mbit</b>	
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
<b>BiDi Transceivers, 100 Mbit</b>	
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
<b>SFP Transceivers, 1 Gbit</b>	
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
<b>BiDi Transceiver, 1 Gbit</b>	
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
<b>Copper Transceiver, 1 Gbit</b>	
1100-0148	GC100, Copper, RJ45, 100 m, 1000BaseT

**ATEX-Zulassungsnummer**

Baseefa12ATEX0119X

**Standards**

EN 60079-0:2012, EN 60079-15:2010, EN 60079-28:2007

**Zertifizierungscode**

Ex nA [op ist T4] IIC T3 Gc ( $-40\text{ °C} \leq T_a \leq +70\text{ °C}$ )

**ATEX-Code**

 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 Netzkabel 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.



## Für SFP-Option zugelassene Transceiver



<b>SFP-Transceiver, 100 Mbit</b>	
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
<b>BiDi-Transceiver, 100 Mbit</b>	
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
<b>SFP-Transceiver, 1 Gbit</b>	
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
<b>BiDi-Transceiver, 1 Gbit</b>	
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
<b>Kupfer-Transceiver, 1 Gbit</b>	
1100-0148	GC100, Kupfer, RJ45, 100 m, 1000BaseT



**Certification ATEX**



## **Numéro de certification ATEX**

Baseefa12ATEX0119X

## **Normes**

EN 60079-0:2012, EN 60079-15:2010, EN 60079-28:2007

## **Code de certification**

Ex nA [op is T4] IIC T3 Gc ( $-40^{\circ}\text{C} \leq T_a \leq +70^{\circ}\text{C}$ )

## **Code ATEX**

 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 optionnels SFP certifiés



<b>Transmetteurs SFP, 100 Mbit</b>	
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
<b>Transmetteurs Bi-Di, 100 Mbit</b>	
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
<b>Transmetteurs SFP, 1 Gbit</b>	
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
<b>Transmetteurs Bi-Di, 1 Gbit</b>	
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
<b>Transmetteurs cuivre, 1 Gbit</b>	
1100-0148	GC100, cuivre, RJ45, 100 m, 1000BaseT



## Maintenance

No maintenance is required, as long as the unit is used as intended within the specified conditions.

## Agency approvals and standards compliance

Type	Approval / Compliance
EMC	EN 61000-6-1, Immunity residential environments
	EN 61000-6-2, Immunity industrial environments
	EN 61000-6-4, Emission industrial environments
	EN 55022 +A1, Emission IT equipment
	EN 55024, Immunity IT equipment
	FCC part 15 Class A
	EN 50121-4, Railway signalling and telecommunications apparatus
	IEC 62236-4, Railway signalling and telecommunications apparatus
Safety	UL/IEC/EN 60950-1, IT equipment
Marine	DNV Standard for Certification no. 2.4
Ex	EN 60079-0, EN 60079-15 and EN 60079-28

### 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.

**Note!** If the product is placed in a corrosive environment, it is important that all un-used connector sockets are protected with a suitable plug in order to avoid corrosion attacks on the gold plated pins in connectors.

# Declaration of Conformity



Westermo Teleindustri AB

## Declaration of conformity

The manufacturer Westermo Teleindustri AB  
SE-640 40 Stora Sundby, Sweden

Herewith declares that the product(s)

Type of product	Model <sup>1</sup>
Ethernet switch	Lynx L*10-F2G-EX*

is in conformity with the following EC directive(s).

No	Short name
2004/108/EC	Electromagnetic Compatibility (EMC)
2011/65/EU	Restriction of the use of certain hazardous substances in electrical and electronic equipment (RoHS)
94/9/EC	Equipment Explosive Atmospheres (ATEX)

References of standards applied for this EC declaration of conformity.

No	Title	Issue
EN 61000-6-1	Electromagnetic compatibility – Immunity for residential environments	2007
EN 61000-6-2	Electromagnetic compatibility – Immunity for industrial environments	2005
EN 61000-6-4	Electromagnetic compatibility – Emission for industrial environments	2007
EN 55024	Information technology equipment - Immunity	1998 +A1:2001 +A2:2003
EN 55022	Information technology equipment - Emission	2006 +A1:2007
EN 50121-4	Railway applications - Electromagnetic compatibility Emission and immunity of the signalling and telecommunications apparatus	2006
EN 60079-0	Explosive atmospheres Equipment – General requirements	2012
EN 60079-15	Electrical apparatus for explosive gas atmospheres – Construction, test and marking of type of protection “n”	2010
EN 60079-28	Explosive atmospheres - Protection of equipment and transmission systems using optical radiation	2007

The last two digits of the year in which the CE marking was affixed: 13

  
Signature

Pierre Öberg  
Technical Manager  
08<sup>th</sup> December 2013

<sup>1</sup> The first “\*” in the model name can be any alphanumeric character, indicating software version. The second “\*” in the model name can be any alphanumeric characters indicating customer specific models, or blank.

Postadress/Postal address	Tel.	Telefax	Postgiro	Bankgiro	Org.nr/ Corp. identity number	Registered office
S-640 40 Stora Sundby Sweden	016-428000 Int+46 16428000	016-428001 Int+46 16428001	52 72 79-4	5671-5550	556361-2604	Eskilstuna

## Type tests and environmental conditions

Environmental phenomena	Basic standard	Description	Test levels
ESD	EN 61000-4-2	Enclosure	Contact: $\pm 6$ kV Air: $\pm 8$ kV
Fast transients	EN 61000-4-4	Power port	$\pm 2$ kV
		Signal ports	$\pm 2$ kV
		Earth port	$\pm 1$ kV
Surge	EN 61000-4-5	Power port	L-E: $\pm 0.5$ kV, 12 $\Omega$ , 9 $\mu$ F L-L: $\pm 0.5$ kV, 2 $\Omega$ , 18 $\mu$ F L-E: $\pm 2$ kV, 42 $\Omega$ , 0.5 $\mu$ F L-L: $\pm 2$ kV, 42 $\Omega$ , 0.5 $\mu$ F L-E: $\pm 2$ kV, 12 $\Omega$ , 9 $\mu$ F L-L: $\pm 1$ kV, 12 $\Omega$ , 9 $\mu$ F
		Signal ports	L-E: $\pm 1$ kV, 2 $\Omega$ L-E: $\pm 2$ kV, 42 $\Omega$ , 0.5 $\mu$ 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
<b>Environmental</b>			
Temperatures		Operating	-40 to +70°C (-40 to +158°F)*
		Storage and transport	-50 to +85°C (-58 to +185°F)
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
Reliability prediction (MTBF)	MIL-HDBK- 217F	Operating	630 000 hours
Vibration	IEC 60068-2-6 (sine)	Operating	3 – 13.2 Hz: 1mm
			5.5 – 30 Hz: 1.5 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
<b>Packaging</b>			
Enclosure	EN 60950-1	Zinc	Fire enclosure
Dimension W x H x D			52.5 x 100 x 101 mm
With connectors			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 unit.

## Description

Lynx is an Industrial switch made for harsh environments. The switch can be used in either 100 Mbit or Gigabit networks due to our multi-rate SFP solution. Lynx 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 Lynx is 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.

## Interface specifications

<b>Power</b>	
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 <sub>2t</sub>	22.7·10 <sup>-3</sup> A <sup>2</sup> s @ 48 VDC
Startup current*	2 x 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 <sup>2</sup> (AWG 24 – 12)
Shielded cable	Not required

\* External supply current capability for proper start-up

<b>Ethernet TX</b>	
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.

\*\* 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.

<b>Ethernet SFP pluggable connections (FX or TX)</b>	
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

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

<b>I/O / Digital input</b>	
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 <sup>2</sup> (AWG 24 – 12)

<b>Console</b>	
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

### 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 unit will no longer be UL approved. Temp.specifications are also depending on the used transeivers.

**Note:** To comply with UL60950-1 only UL recognized SFP transceivers should be used.

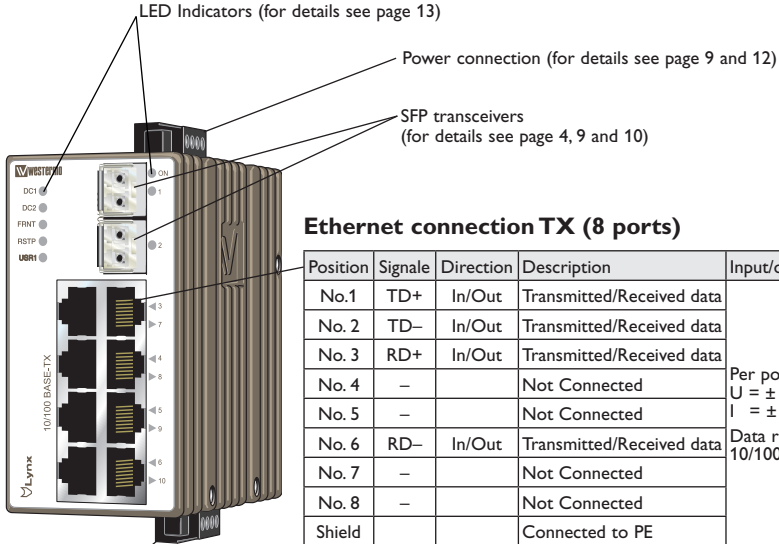
### Deviations

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.

# Safety control drawing

Location of interface ports and LED's



## Ethernet connection TX (8 ports)

Position	Signal	Direction	Description	Input/output values
No.1	TD+	In/Out	Transmitted/Received data	Per port: U = ± 1 V (4µV/s) I = ± 20 mA Data rate: 10/100 Mbit/s
No. 2	TD-	In/Out	Transmitted/Received data	
No. 3	RD+	In/Out	Transmitted/Received data	
No. 4	-		Not Connected	
No. 5	-		Not Connected	
No. 6	RD-	In/Out	Transmitted/Received data	
No. 7	-		Not Connected	
No. 8	-		Not Connected	
Shield			Connected to PE	

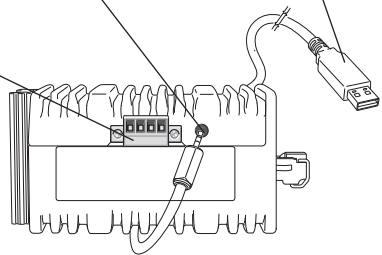
Galvanically isolated via signal transformers and capacitively isolated to GND/PE through a 2kV 1000pF capacitor.  
See user manual for proven transient protection.

I/O connection (for details see page 10 and 12)

Console port (for details see page 10 and 12)

Cable 1211-2027

Bottom view



## Connection to console port

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

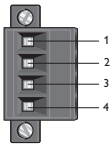
### The following steps needs to be taken

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.

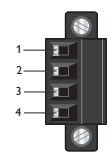
# Safety control drawing

## Power connection

	4-position	Product marking	Direction	Description	Input values
1	No. 1	+DC1	Input	Supply voltage input DC1	$U_{in} = (19 - 60) \text{ VDC}$ $I_{in} = 240 \text{ mA @ } 24 \text{ VDC}$ $P_{in} = 5.8 \text{ W @ } 24 \text{ VDC}$
2	No. 2	+DC2	Input	Supply voltage input DC2	
3	No. 3	-COM	Input	Common	
4	No. 4	-COM	Input	Common	

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. +24VDC) 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
1	No. 1	Status +	Output	Alarm relay (status) contact	$U_{in} = 60 \text{ VDC max}$
2	No. 2	Status -	Output	Alarm relay (status) contact	$I_{in} = 80 \text{ mA max}$
3	No. 3	Digital in +	Input	Digital in +	$U_{in} = 60 \text{ VDC max}$
4	No. 4	Digital in -	Input	Digital in -	$I_{in} = 2 \text{ mA max}$

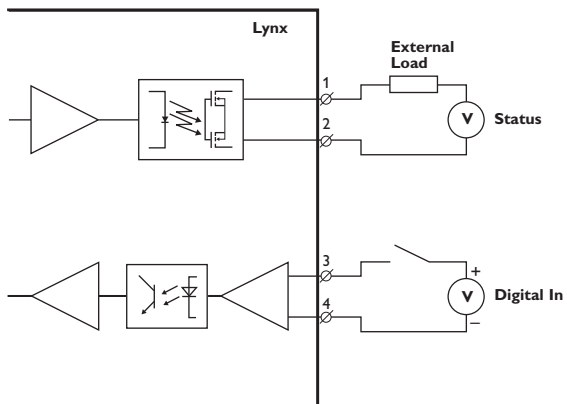
The Status output is a potential free, opto-isolated normally closed solid-state relay. This can be configured to monitor various alarm events within the Lynx unit, see WeOS Management Guide. An external load in series with an external voltage source is required for proper functionality. For voltage/current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

## Console port

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

\* Direction relative to this unit.

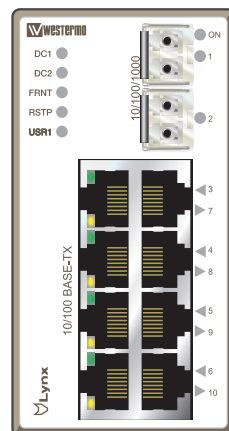
The Digital in is an opto-isolated digital input which can be used to monitor external events. For voltage/current ratings, see Interface Specification section:





## LED indicators

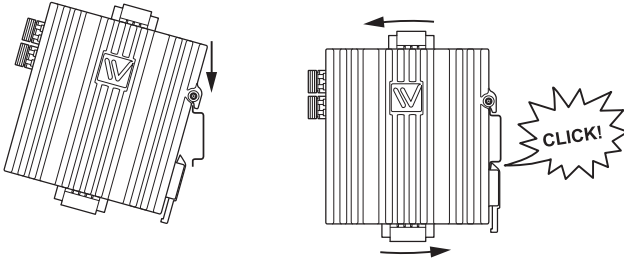
LED	Status	Description
ON	OFF	Unit has no power.
	GREEN	All OK, no alarm condition.
	RED	Alarm condition, or until unit has started up. (Alarm conditions are configurable, see "WeOS Management Guide").
	BLINK	Location indicator ("Here I am!"). Activated when connected to IPConfig Tool, or upon request from Web or CLI.
DC1	OFF	Unit has no power.
	GREEN	Power OK on DC1.
	RED	Power failure on +DC1.
DC2	OFF	Unit has no power.
	GREEN	Power OK on DC2.
	RED	Power failure on +DC2.
FRNT	OFF	FRNT disabled.
	GREEN	FRNT OK.
	RED	FRNT Error.
	BLINK	Unit configured as FRNT Focal Point.
RSTP	OFF	RSTP disabled.
	GREEN	RSTP enabled.
	BLINK	Unit elected as RSTP/STP root switch.
USR1	OFF	Configurable, see WeOS Management Guide.
	GREEN	
	RED	
1 to 10	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.



## Mounting

This unit 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 mounting, see figure.

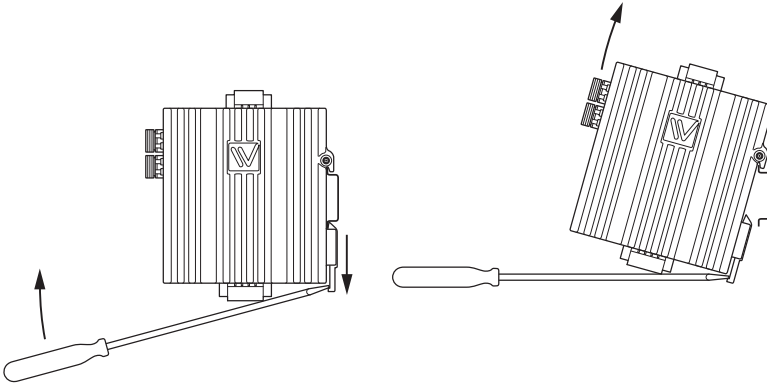
Mounting Lynx with integrated DIN-clip:



## Removal

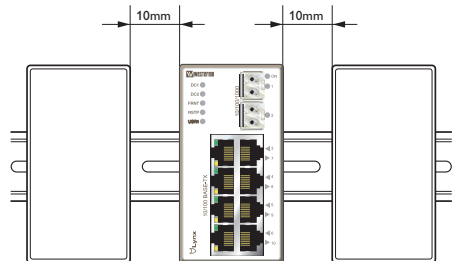
Removing Lynx with integrated DIN-clip:

Press down the support at the back of the unit using a screwdriver. See figure.



## Cooling

This unit uses convection cooling. To avoid obstructing the airflow around the unit, use the following spacing rules. Minimum spacing 25 mm (1.0 inch) above / below and 10 mm (0.4 inches) left / right the unit. Spacing is recommended for the use of unit 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 unit.

- **IPConfig tool**  
This is a custom Westermo tool used for discovery of attached Westermo units.
- **Web**  
Configuration of the unit using the web browser.
- **CLI**  
Configuration of the unit 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 unit. 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.

Factory default	<i>IP address:</i>	192.168.2.200
	<i>Netmask:</i>	255.255.255.0
	<i>Gateway:</i>	Disabled

**Note!** If you are not sure about the subnet – consult your network administrator.

## Configuration

### Configure the unit via Web browser

The unit 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 task when configuring a new switch is 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 L110 EX / L210 EX

It is possible to set the unit 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 10, and the other between Ethernet ports 6 and 7.  
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 unit.
4. Wait for the unit to start up. Control that the ON LED is flashing red.

The ON LED flashing indicates that the unit 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 after approximately 1 minute the unit 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.

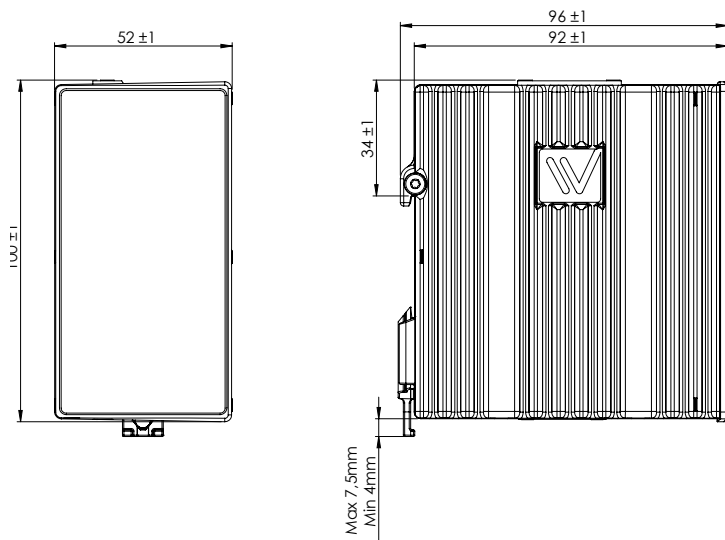
- Skip the factory reset:

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 unit while the factory reset process is in progress.

## Dimensions

Measurements are stated in millimeters.









Westermo • SE-640 40 Stora Sundby, Sweden  
Tel +46 16 42 80 00 Fax +46 16 42 80 01  
E-mail: [info@westermo.com](mailto:info@westermo.com)  
[www.westermo.com](http://www.westermo.com)

## Sales Units

### Westermo Data Communications

---

#### China

[sales.cn@westermo.com](mailto:sales.cn@westermo.com)  
[www.cn.westermo.com](http://www.cn.westermo.com)

#### France

[infos@westermo.fr](mailto:infos@westermo.fr)  
[www.westermo.fr](http://www.westermo.fr)

#### Germany

[info@westermo.de](mailto:info@westermo.de)  
[www.westermo.de](http://www.westermo.de)

#### North America

[info@westermo.com](mailto:info@westermo.com)  
[www.westermo.com](http://www.westermo.com)

#### Singapore

[sales@westermo.com.sg](mailto:sales@westermo.com.sg)  
[www.westermo.com](http://www.westermo.com)

#### Sweden

[info.sverige@westermo.se](mailto:info.sverige@westermo.se)  
[www.westermo.se](http://www.westermo.se)

#### United Kingdom

[sales@westermo.co.uk](mailto:sales@westermo.co.uk)  
[www.westermo.co.uk](http://www.westermo.co.uk)

#### Other Offices



*For complete contact information, please visit our website at [www.westermo.com/contact](http://www.westermo.com/contact) or scan the QR code*