EtherWAN

EL1142 Series

IEC 61850 / IEEE 1613 Hardened
2-Port 10/100BASE-TX   to 2-Port   100BASE-FX Media Converter

User's Guide

Warranty

For details on the EtherWAN warranty replacement policy, please visit our web site at:

https://kb.etherwan.com/index.php?CategoryID=13

Products Supported by this Manual:

EL1142

Preface

Audience

This guide is designed for the person who installs, configures, deploys, and maintains the Ethernet network. This document assumes the reader has moderate hardware, computer, and Internet skills.

Document Revision Level

This section provides a history of the revision changes to this document.

Revision	Document Version	Date	Description
A	Version 1	1/3/2018	

Safety and Warnings

This guide uses the following symbols to draw your attention to certain information.

Symbol	Meaning	Description
	Note	Notes emphasize or supplement important points of the main text.
	Tip	Tips provide helpful information, guidelines, or suggestions for performing tasks more effectively.
	Warning	Warnings indicate that failure to take a specified action could result in damage to the device, or could result in serious bodily injury.
	Electric Shock Hazard	This symbol warns users of electric shock hazard. Failure to take appropriate precautions such as not opening or touching hazardous areas of the equipment could result in injury or death.

Contents

EL1142 Hardened Media Converter

2-port 10/100BASE-TX + 2-port 100BASE FX MM (SC)- 2km

2-port 10/100BASE-TX + 2-port 100BASE FX SM (SC)- 40km

The EL1142 series provides two independent media conversion paths between 2 x 10/100BASE-T and 2 x 100BASE-SX-LX fiber. Similar to the EL1141 series media converter, the EL1142 includes the hardened construction and high performance needed for mission critical applications, including power substation automation. However, the EL1142 series offers twice the port density in the same housing dimensions, providing greater flexibility and requiring less space for installation.
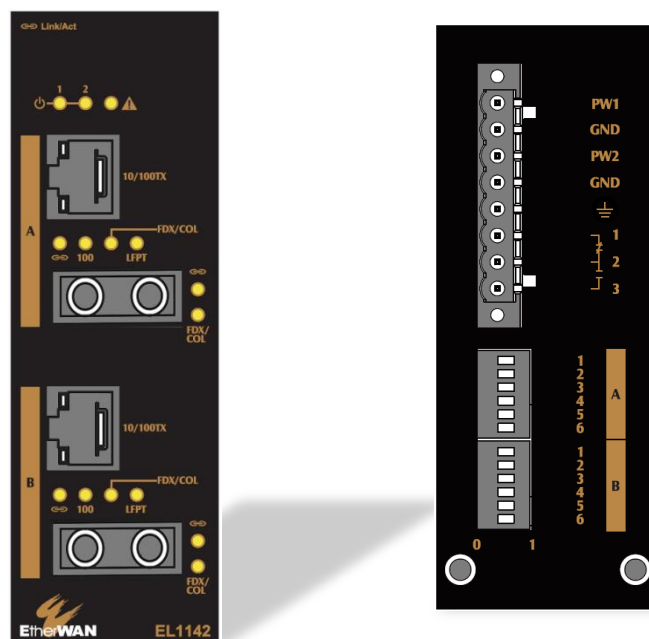
Unpacking

Open the carton and unpack the items. Your package should include an EL1142 media converter, this Quick Install Guide, and a CD containing the user's manual. If items are missing or damaged, notify your EtherWAN representative.

Select Installation Location

Installation is DIN-rail, panel or rack mounting. Ensure that the power source is within 6 feet (1.8 meters), and check that there is adequate airflow.

Place the media converter on the DIN rail from above using the slot. Push the front of the media converter toward the mounting surface until it audibly snaps into place.

Startup: Connect the supply voltage to start up the media converter via the terminal block.

Dismantling: Pull out the lower edge and then remove the media converter from the DIN rail.

EL1142 Hardened Media Converter
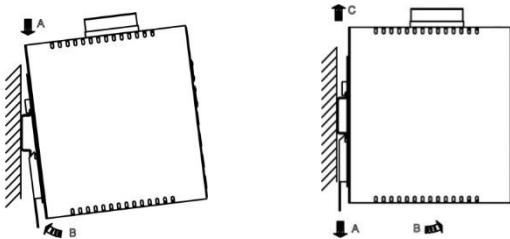
Connect Power

The media converter is equipped with an eight-contact terminal block. The terminal block provides dual DC power inputs, and a relay output contact. Redundant power supply is supported, but only one power input is required for operation. Note that the media converter does not have a power switch; it is turned on/off by connecting/disconnecting power.

Input voltage is **12 to 48VDC.**

The power dissipation under full load is as follows:

12V/0.4A, 24V/0.19A, 48V/0.11A
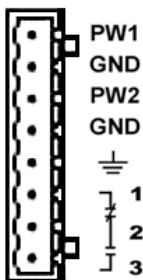
Pin	Description
PW1	12-48VDC
GND	Power Ground
PW2	12-48VDC
GND	Power Ground
⏚	Earth Terminal

⚠**Note:** Use qualified power supply by SELV or double

insulation of UL 60950 or UL 61010-1 or UL 61010-2-201 standards.

Insert the DC input wires into the corresponding terminals, and tighten the clamp screws to hold them in place. Make sure that the plastic terminal block connector prongs are plugged firmly into the terminal block receptacles.

Power wiring information:
Use cable type - AWG (American Wire Gauge) 18-24 and the corresponding pin type cable terminals.
Use torque value 1.7 lb-in, do not use excessive force when fixing wiring.

⚠ The wire rating must be at least 105°C

Label clean up:
Indoor use and pollution degree II, it must be wiped with a dry cloth for clean up the labelling.
If the equipment is used in a manner not specified by the manufacturer, the protection provided by the equipment may be impaired.
The media converter shall be mounted in an industrial control panel and ambient temperature is not exceed 75 degree C.
Altitude up to 2000 meters.
Humidity range (Operational): 5% to 95%, non-condensation.
The product is open type.
The product is for indoor use.

LED Indicators

LED	State	Indication
Fault (Red)	Steady	Power redundancy or port malfunction
	Off	Power redundancy and ports functioning normally
Power1 (Green)	Steady	Power 1 on
	Off	Power 1 off
Power2 (Green)	Steady	Power 2 on
	Off	Power 2 off
100 (Mbps)	Steady	Connection at 100Mbps
	Off	Connection at 10Mbps
LFPT (Green)	Steady	LFPT function enabled
	Off	LFPT function disabled
LNK/ACT (Green)	Steady	Network connection established
	Flashing	Transmitting or receiving data
	Off	No valid network connection established
FDX/COL (Green)	Steady	Full duplex mode
	Flashing	Collision occurred
	Off	Half-duplex mode

EL1142 Hardened Media Converter
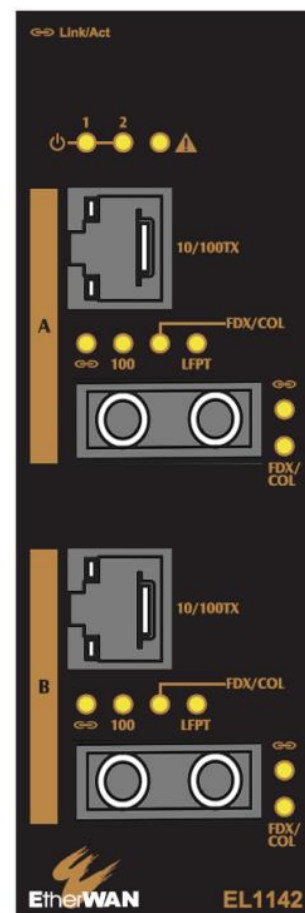
DIP Switches

Port, power and LFPT settings are made very simple by means of two sets of six DIP (Dual Inline Package) switches on the top panel of the hardened media converter. Default position for all DIP switches is '0'.

| DIP Switch	0	1
1	Disable LFPT	Enable LFPT
2	Enable Auto Negotiation for TX port	Enable Forced Mode for TX port
3	TX port forced to 100Mbps	TX port forced to 10Mbps
4	TX port forced to full duplex mode	TX port forced to half duplex mode
5	FX port forced to full duplex mode	FX port forced to half duplex mode
6	Disable link down alarm	Enable link down alarm

* **LFPT=Link Fault Pass Through**

If Force mode is enabled, the media converter must be restarted in order for the new setting to take effect.

Link Fault Pass Through (LFPT)

LFPT (Link Fault Pass Through) is a feature that will pass a link fault through the device at each segment. If either of the copper TX links fail, the media converter will pass the fail state on throughout the link, taking down the middle fiber as well as the copper link on the opposite end. This prevents the connected switches from sending packets that would end up lost. LFTP is designed for use with media converters arranged in pairs, and both devices must support LFPT.
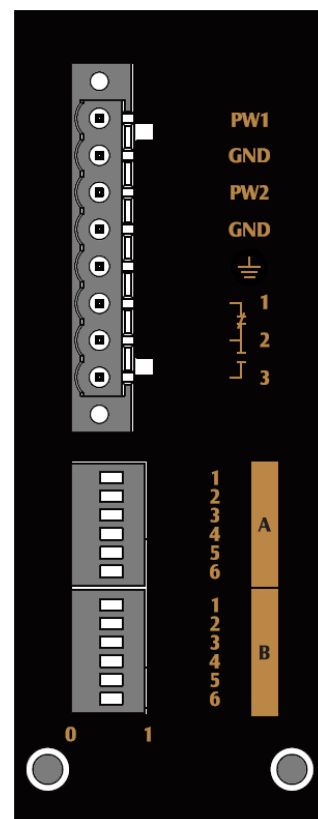
Relay Output Alarm

The media converter is equipped with relay output contacts on the terminal block for signaling of a power or port failure. The relay output can be connected to an alarm signaling device. Current is 0.6A @ 30VDC. Default is PW1 and PW2 both off and points 2 & 3 open.
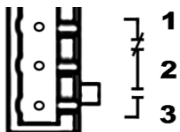
Relay contact	PW1	PW2	Point 1 - 2	Point 2 - 3
Alarm	Off	Off	Closed	Open
Alarm	Off	On	Closed	Open
Alarm	On	Off	Closed	Open
Non-Alarm	On	On	Open	Closed

Specifications

Applicable standards	IEEE802.3 10BASE-T IEEE802.3u 100BASE-TX/FX IEEE802.3x Full duplex and flow control
Fixed ports	2 copper ports, 2 100BASE fiber ports (MM or SM)SC
Forwarding rate	14,880/148,810pps for 10/100Mbps
Dimensions	50 × 110 x 135mm (W x D x H) (2" x 4.3" x 5.3")
Weight	1.2Kg (2.6lb.)
Power	Terminal Block: 12-48VDC x 2
Operating Temperature	-40°C ~ 75°C (-40°F ~ 167°F)
Storage Temperature	-40°C ~ 85°C (-40°F ~ 185°F)
Humidity	5 ~ 95%, non-condensing
Safety	UL 61010
EMI	FCC Part 15B, Class A VCCI Class A CE(EN 61000-6-4 / EN 61000-6-2), Class A EN 55032 Class A
EMS	EN 61000-6-2: EN 61000-4-2 (ESD Standard) EN 61000-4-3 (Radiated RFI Standards) EN 61000-4-4 (Burst Standards) EN 61000-4-5 (Surge Standards) EN 61000-4-6 (Induced RFI Standards) EN 61000-4-8 (Magnetic Field Standards)
Environmental Test Compliance	IEC 60068-2-6 Fc (Vibration Resistance) IEC 60068-2-27 Ea (Shock) FED STD 101C Method 5007.1 (Free Fall)
Industrial	IEC 61850-3 IEEE 1613 EN 50121-4

Manufacturer's Information

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