

EasyLon® Network Components

From Repeater to Terminator

Repeater

Compact or multi-port

Router

Structuring networks,
combining FT and IP

Link Power Supply

Supply and fieldbus on the same line

Host Controller

Embedded PC for LONWORKS

Terminator

Bus terminator for LONWORKS



EasyLon® Multiport Repeater



termination
on free on free
off bus

1
LON A
LON B
shield

Easylon® Repeater

Compact LONWORKS® Repeater

- Increase of the communication distance
- Regeneration of network signals
- AC and DC power supply
- Separation of Link Power segments
- Communication of data packets of any length
- No configuration required



Compact repeater for TP/FT and TP/LP LONWORKS networks, increasing the allowable communication distances by regeneration of the signals. A greater number of nodes within a physical network segment are also possible. The rules for repeater usage have to be observed.

In Link Power networks the Easylon Repeater realizes the connection between two segments.

By its compact size of just 45 mm width it perfectly suits into cabinets or in cable ducts. The power supply of the DIN rail module can either be AC or DC.

NETWORK INTERFACE

Transceiver	FTT-10A
Connectors	2 pairs of screw terminals on each side

POWER SUPPLY

Voltage	24 V AC \pm 20%, 1 W or
	12 – 28 V DC, 1 W
Connector	screw terminals

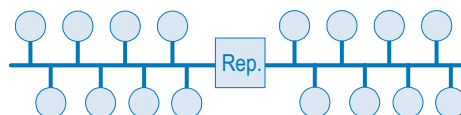
DIMENSIONS & ENVIRONMENTAL CHARACTERISTICS

Housing	type F, cf. p. 26	
Dimensions	95 x 45 x 38 [mm], 2.5 units accord. to DIN 43880	
Mounting	DIN rail (EN 60715: 35x15, 35x7.5)	
Temperature	operating	0 – +60 °C
	storage	-20 – +85 °C
Humidity	class F, accord. DIN 40040, 5 – 93 %, no condensation	
Protection class	IP 20	
EMC	emission	EN 55022 A/B
	immunity	EN 61000-6-2
Flammability	UL94-Vo, self-extinguishing	

EASYLON REPEATER

with transceiver FTT-10A

P.R10003



NETWORK INTERFACE

Transceiver	4 x FTT-10A or 3 x FTT-10A and 1x LPT-10
Connectors	3 pin screw-plug terminals, Phönix 3.81 mm
Termination	bus / free topology selectable per channel

POWER SUPPLY

Voltage ¹	Type A	24 V AC +- 20%, or 12 – 28 V DC
	Type B	230 V AC, 50 Hz
	Type C	110 V AC, 60 Hz
	Type D	Link Power over LONWORKS network

Power consumption: < 2.5 W

DISPLAY & OPERATION

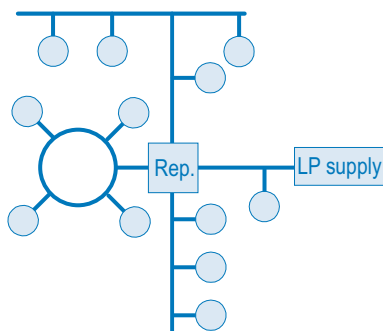
LEDs	power (green)
	traffic (yellow)
DIL switches	2 per channel: bus termination on/off and topology

DIMENSIONS & ENVIRONMENTAL CHARACTERISTICS

Housing	type A or B, cf. p. 26		
Dimensions	Repeater type A, B, C	105 x 58 x 68 [mm], 6 units accord. DIN 43880	
	type D	70 x 58 x 86 [mm], 4 units accord. DIN 43880	
Mounting	DIN rail (EN 60715: 35x15, 35x7.5)		
Temperature	operation	0 – +55 °C	
	storage	-20 – +85 °C	
	ext. temp. range	operation	-40 – +85 °C
		storage	-40 – +85 °C
Humidity	class F accord. DIN 40040 F, 5 – 93 %, no condensation		
Protection class	IP20		
EMC	emission	EN 55 022 A/B	
	immunity	EN 61000-6-2	
Flammability	UL94-Vo, self-extinguishing		

EASYLON MULTIPORT REPEATER

24 V supply (Type A)	P.R10103
230 V supply (Type B)	P.R10113
110 V supply (Type C)	P.R10123
Link power supply (Type D)	P.R10133

**Easylon® Multiport Repeater**

LONWORKS® Repeater with 4 Channels

- Integrated bus termination
- Variants for 24 V, 120 V, 230 V or Link Power
- Version for extended temperature range



LONWORKS Repeater with 4 channels in variants for free topology and Link Power. By regenerating the signals it increases the allowable communication distance. Even a greater number of nodes within a physical network segment are also possible within the limits of a tolerable network load.

With up to 4 network connections the Easylon Multiport Repeater allows for a flexible network structure. Of course this repeater is also compatible to Link Power networks. For each channel a termination can be set by switches to bus or free topology network structure. The device status is displayed by a power and a traffic LED.

There are variants for power supply with 24 V AC/DC, 120 V AC or 230 V AC available. A fourth variant of the repeater is supplied by Link Power. This device with a width of only 70 mm does not require external power supply.

Easylon® Router⁺

IP Router for CEA-709.1 Compatible Networks

- Router in CEA-709.1 compatible networks
- CEA-852 router to IP networks
- Remote network interface for VNI and MIP applications
- Internal temperature sensor
- Web server for setup and diagnosis



The Easylon Router⁺ connects CEA-709.1 compatible network segments, as well as TP/FT and IP networks, according to the CEA-852 standard.

Fitted with Ethernet interface and 2 FTT transceivers the module can be used in versatile manner: As router in TP/FT networks or as router to CEA-852 based IP networks. The latter allows implementation of fast backbone structures. The device is also available as a 2-port variant with only one TP/FT interface.

For parameterization the Easylon Router⁺ offers a browser interface, by which diagnosis information can be called from the device.

PC based applications, such as the Easylon OPC server or a network management tool, accessing the TCP/IP channel will need the Easylon IP Interface.

Network Interface for Remote Access

Installed at the LONWORKS network and connected to as well as via Ethernet into the Internet the device can as well serve as a TCP/IP network interface. Using the Easylon RNI software, belonging to all Easylon interfaces, this is a cost effective and reliable solution for remote network access, compared to a special PC at the network.

INTERFACES

Network Interfaces 1, 2	
Transceiver	1 or 2 x FTT-10A, depending on variant
Connector	3 pin screw-plug terminals, Phönix 5.08 mm
Ethernet Interface	LON over IP according to CEA-852
Transmission rate	100 Mbps
Connector	RJ45
Link signal	LED at connector

POWER SUPPLY

Voltage	24 V DC (± 20%), 2.5 W max.
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DISPLAY & OPERATION

LEDs	- status - LON 1 - LON 2 - LON IP - start / reset
Push button	- service pin - factory reset
Bus termination	free or bus topology, settable by switches

FEATURES

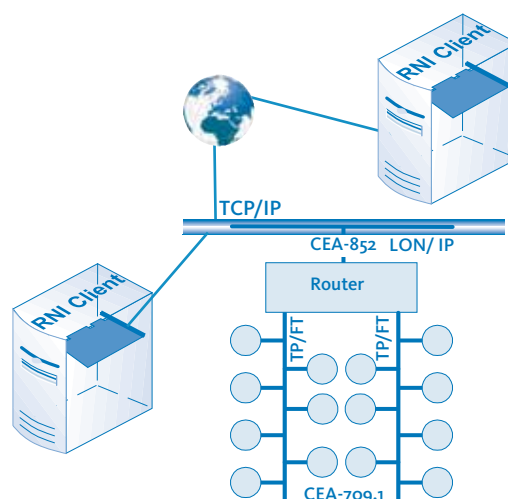
Real-time clock	Gold Cap buffered, > 36 h
Watchdog	
Voltage Monitoring	
Temperature Sensor	Display in Web Interface

DIMENSIONS & ENVIRONMENTAL CHARACTERISTICS

Housing	type C, cf. p. 26
Dimensions	157 x 86 x 58 [mm], 9 units accord. to DIN 43880
Mounting	DIN rail (EN 60715: 35x15, 35x7.5)
Temperature	operating 0 – +55 °C storage -20 – +70 °C
Humidity	class F, accord. DIN 40040, 5 – 93 %, no condensation
Protection class	IP 20
EMC	emission EN 55 022 A/B immunity EN 61000-6-2
Flammability	UL94-Vo, self-extinguishing

EASYLON ROUTER⁺

2 x FTT-10A, 1 x CEA-852	P.l20104
1 x FTT-10A, 1 x CEA-852	P.l20114



POWER SUPPLY

Rated input voltage	230 V AC (195 – 264 V) or 120 V AC (96 – 144 V)
Rated frequency	50 Hz (47 – 63 Hz) or 60 Hz (57 – 63 Hz)
Mains failure buffering	> 20 ms at nominal input voltage
Rated input current	0.7 A / 1,4 A
Inrush current	< 20 A
Efficiency	> 75%, at nominal input voltage

OUTPUT TO BUS

Output voltage	41.5 V +/-2.2%
Residual ripple	< 80 mV at 10 kHz (200 mV at f>200 kHz)
Output current	2 A at nominal input voltage
Overload protection	typical at 2.3 A; permanent short-circuit proof with pulsing try of restart

DIMENSIONS & ENVIRONMENTAL CHARACTERISTICS

Housing	type D, cf. p. 26
Dimensions	126 x 58 x 90 [mm], 7 units accord. DIN 43880
Mounting	DIN rail (EN 60715: 35x15, 35x7.5)
Connectors	screw terminal 0.5 – 2.5 mm ²
Temperature	operating 0 – +40 °C convection storage -40 – +70 °C
Relative humidity	5 – 95 %, no condensation
Protection class	IP 20 (EN 60529) VDE0106 T1 I (with PE) (EN61140)
EMC	emission EN 61000-6-3, class B, EN 50090-2-2 immunity EN 61000-4-2/3/4/5/6, class A
Bus termination	bus or free topology, settable by switch

EASYLON LINK POWER SUPPLY

230 V input voltage	P.110002
120 V input voltage	P.110012

Easylon® Link Power Supply

Supply and Fieldbus on the Same Line

- Low residual ripple of the output voltage
- Short circuit and over current monitoring
- Type of bus termination externally selectable
- Output current limitation
- Thermal monitoring
- Variants for 120 V and 230 V supply



Power supply for LONWORKS networks in Link Power technology. The Easylon Link Power Supply is designed for the use in networks with free and bus topology. It satisfies with both, its compact design and its excellent technical features: Overload protection at 2.3 A, residual ripple of the output voltage below 80 mV, galvanic isolation of input and output voltage, internal no load, overload and short-circuit protection.

The high efficiency of the power pack of more than 75% reduces heating of switching cabinets. The EMC classification makes the module the perfect choice for industrial as well as building and home automation networks.

Automatic restart of the Easylon Link Power Supply at failures increases the usability of the device. The possibility to set the type of bus termination by a switch is comfortable.

Info**LINK POWER NETWORKS**

In Link Power Networks the twisted pair line not only transmits messages but also supplies the devices (48 V). One link power supply can energize a bus length of up to 320 m. For the network nodes a supply of 100 mA at 5 V is available. Several link power segments can be connected. Concerning their structure link power networks have to follow the rules for free topology networks. Mixed networks with link power (TP/LP) and free topology (TP/FT) transceivers can be realized.

DELTA 1000

Host Controller with Remote Access

- Remote Network Interface for VNI and MIP Applications
- Host Controller at LONWORKS Control network
- Data server for remote capturing and monitoring
- Web server for parameterization and diagnosis



DELTA 1000 is an embedded device providing many features for data communication. In addition to an Ethernet connection a modem can be plugged in optionally. Furthermore it provides two interfaces to CEA-709.1 compatible networks (LONWORKS TP/FT), making the device suitable as host controller.

Depending on project requirements socket modems (analog, ISDN or GSM) can also be used for a remote connection. Thus the DELTA 1000 is perfectly suitable for the use in data capturing and monitoring systems with remote access, running user provided software. The device software includes an SQL data base, a web server and an CEA-852 compliant LON/IP interface.

With the DELTA 1000 the following solutions can be realized in a LONWORKS environment:

- Data capturing and communication with remote systems
- Ethernet interface to the control network
- Analyzer node (using the optionally available Analyzer software from a networked PC)

A browser interface is available for parameterization which can also be used for diagnosis purposes.

INTERFACES

LONWORKS 2

Transceiver	2 x FTT-10A
Connector	3 pin screw-plug terminals, Phönix 5.08 mm
Serial Interface	EIA-232, not optically isolated
Connector	9 pin D-type
Ethernet Interface	according to CEA-852
Transmission rate	100 Mbps
Connector	RJ45
USB Host	acc. full speed USB standard 2.0
Connector	USB type B
Modem	optional PSTN, ISDN or GSM modem

POWER SUPPLY

Voltage	24 V DC ($\pm 20\%$),
Consumption	10 W max. w/o modem

DISPLAY & OPERATION

LEDs	- Status - LON 1 - LON 2 - LON IP - USB active
Push button	- service pin - stop USB
DIL switches	- bus termination, free or bus topology - watchdog - boot mode

DIMENSIONS & ENVIRONMENTAL CHARACTERISTICS

Housing	type C, cf. p. 26	
Dimensions	157 x 86 x 58 [mm], 9 units accord. to DIN 43880	
Mounting	DIN rail (EN 60715: 35x15, 35x7.5)	
Temperature	operating	0 – +55 °C
	storage	-20 – +70 °C
Humidity	class F, accord. DIN 40040, 5 – 93 %, no condensation	
Protection class	IP 20	
EMC	emission	EN 55 022 A/B
	immunity	EN 61000-6-2
Flammability	UL94-Vo, self-extinguishing	

DELTA 1000

Hardware configurations:

- 2x FTT-10, CEA-852
- 2x FTT-10, CEA-852, PSTN Modem
- 2x FTT-10, CEA-852, ISDN Modem
- 2x FTT-10, CEA-852, GSM Modem

Please contact us for available software.

NETWORK INTERFACEConnector screw terminal 0.5 – 2.5 mm²**DIMENSIONS & ENVIRONMENTAL CHARACTERISTICS**

Housing	type F, cf. p. 26	
Dimensions	75 x 55 x 10 [mm]	
Mounting	DIN rail (EN 50 022, 35x15)	
Temperature	operating	- 0 – +60 °C
	storage	-20 – +70 °C
Humidity	class F, accord. DIN 40 040,	
	5 – 93 %, no condensation	
Protection class	IP 20	
Flammability	UL94-Vo, self-extinguishing	

EASYLON BUS-TERMINATOR

FTT-10/LPT-10 for	- free topology	P.Z10013
	- bus topology	P.Z10023
TP/XF-1250, -78	- bus topology	P.Z10001

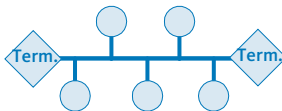
Easylon® Bus-Terminator

Bus Terminator for LONWORKS®

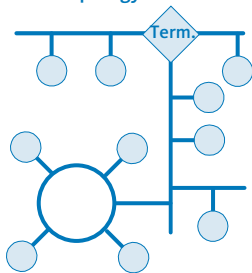
- For FTT-10, LPT-10 and TP/XF networks
- Variants for free and bus topology
- Top hat rail installation



Bus (line)



Free Topology



A bus terminator is required for correct operation of a LONWORKS network. The type of the bus terminator depends on the used transmission technology and the network topology. Easylon Terminators for TP/FT-networks are available for bus or free topology. These are as well suited for LPT-10 (link power) networks. A separate variant is available for TP/XF networks.

Info**USING TERMINATORS****TP/FT and TP/LP networks**

Free topology: One terminator per segment is required, which can be connected at any place.

Bus topology: Two terminators are required, which must be placed at both ends.

TP/XF networks

Bus topology: Two terminators are required, which must be placed at both ends.

The Easylon Link Power Supply, Multiport Repeater and Router⁺ have integrated bus terminators.

Housings

HOUSING TYPE A

Multiport Repeater

Material

Top: Lexan 940

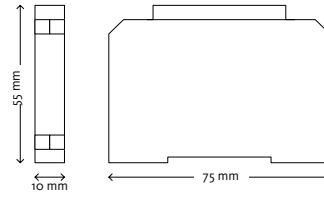
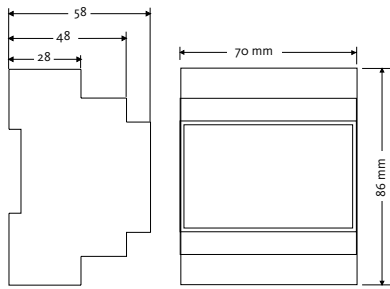
Base: Noryl VO 1550

Flammability: UL94-Vo

Color

Top: RAL 7035 (grey)

Base: RAL 7021 (black)



HOUSING TYPE B

Multiport Repeater

Material

Top: Lexan 940

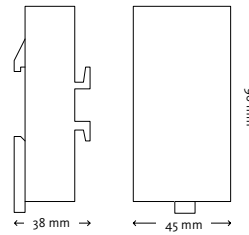
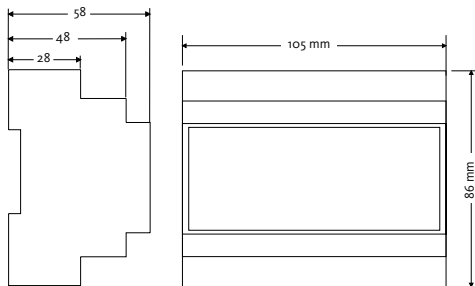
Base: Noryl VO 1550

Flammability: UL94-Vo

Color

Top: RAL 7035 (grey)

Base: RAL 7021 (black)



HOUSING TYPE C

Router⁺, DELTA 1000

Material

Top: Lexan 940

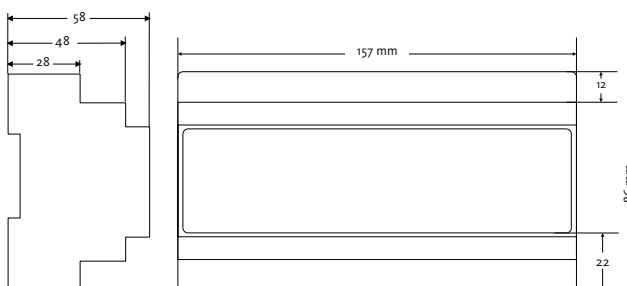
Base: Noryl VO 1550

Flammability: UL94-Vo

Color

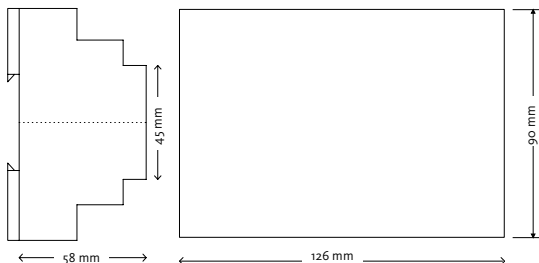
Top: RAL 7035 (grey)

Base: RAL 7021 (black)



HOUSING TYPE D

Link Power Supply



HOUSING TYPE E

Terminator

Material: Polycarbonate

Flammability: UL94-Vo

Color: green

HOUSING TYPE F

Repeater

Material: Makrolon 9425

Flammability: UL94-Vo

Color: grey