

FR-50

Physical Layer Repeater



DESCRIPTION

The FR-50 physical layer repeater is a cost-effective method for extending the distance or increasing the number of nodes on a LONWORKS™ XP/FT-10 Free Topology network channel utilizing any type of Free Topology Transceiver (FT 3120, FT 3150, FT-5000, FTT-10A) or Link Power (LPT-10) transceiver. The FR-50 receives LONTALK™ packets from one channel segment and then passes them immediately to another channel segment. A repeater does not perform any routing, switching or filtering of LONTALK packets and will not increase the bandwidth of a network segment by reducing unnecessary network traffic. The benefit is that a repeater does not need to be commissioned in a LON™ network and therefore reduce the installation and commissioning time.

The FR-50 is simple and easy to install. A snap on DIN rail enclosure allows fast mounting of the enclosure. Independent screw-down plug connectors allow the installer to immediately and quickly connect power wiring and the twisted pair wires from the network to each network channel segment. The FR-50 requires no system configuration and can be placed directly into service once proper power is applied. Testing of the network under worst-case traffic conditions while monitoring with a LONMANAGER™ Protocol Analyzer is highly recommended to properly evaluate system performance. LONWORKS Routers and/or changing message updates rates on a device can be used to help solve high network traffic congestion problems.

Each network channel segment has a green indicator that is illuminated when a data packet is received. Any packet received on a segment is always immediately transmitted out on the other network channel segments. A green transmit indicator is illuminated when a data packet is being transmitted out the other channel segments by the FR-50.

The FR-50 allows terminating a LON Network to be very simple and less costly. By removing the cover, option jumpers are available to independently set the termination for each network channel segment. The FR-50 provides the proper load impedances for Single Ended, Double Ended or no termination to meet the requirements of any free topology network channel segment.

FEATURES

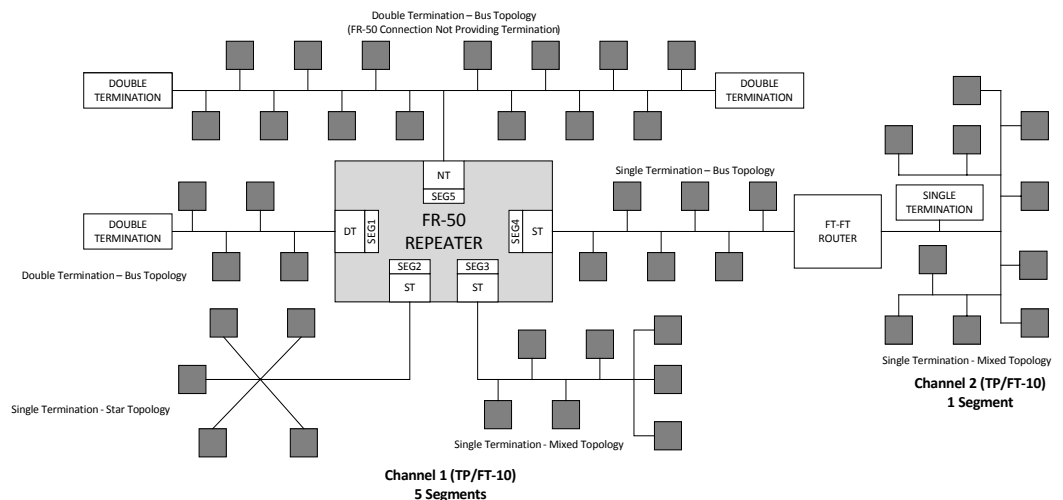
- Five (5) segment physical layer repeater
- Connect FT (Free Topology) to FT LonWorks® network segments
- Individual segment data received (Rx) status indicators
- Repeater data transmitted (Tx) status indicator
- Individual On Board Channel Segment Termination Options (Single, Double, None)
- Power Status Indicator
- Fast and easy installation into a network
- Extend a network segment beyond maximum length
- Increase total number of nodes on a network channel
- DIN-rail mounting

SPECIFICATIONS

<u>Network</u>		<u>Environmental</u>	
Channel:	TP/FT-10	Operating Temperature:	-20 °C to +70 °C, -4 °F to 158 °F
On Board Transceivers:	FTT-10A	Storage Temperature:	-40 °C to +70 °C, -40 °F to 158 °F
<u>Supply Power</u>		Operating Humidity:	5% to 95% RH (non-condensing)
Nominal Input Voltage:	24 VAC/VDC	<u>Enclosure</u>	
Input Voltage Range:	12-28 VAC or 9-38 VDC	Dimensions:	L 105 x W 86 x H 58 mm (4.13" x 3.39" x 2.28")
Maximum Consumption:	2 VA	Cover:	Lexan 940, UL94-V0 rated
<u>Termination</u>		Base:	Noryl VO1550, UL94-V) rated
Single:	52.3 ohms, 1%, 1/4W	<u>Warranty</u>	
Double:	105 ohms, 1%, 1/4W	Period:	2 Years (Limited)
Termination Decoupling:	DC Blocking Capacitors	FR-50 is compatible for use with LPT-10 Transceivers devices	

NETWORK

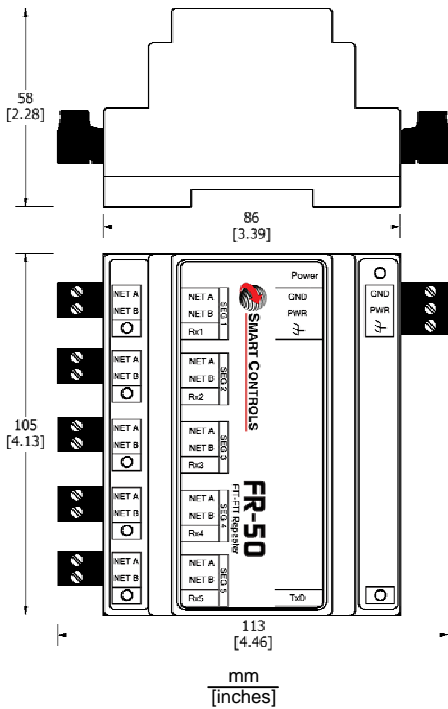
A free topology architecture allows the user to wire the FR-50 with virtually no topology restrictions. Network topologies and connections shown are for reference only.



NOTE:

- 1) Only one (1) repeater should be used on a single channel to create multiple segments. To extend a segment beyond the repeater segment, use a router. Two (2) repeaters in series on a channel is not permissible.
- 2) Link Power devices are not shown on network diagram

DIMENSIONS



CONTACT



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SELECTION GUIDE

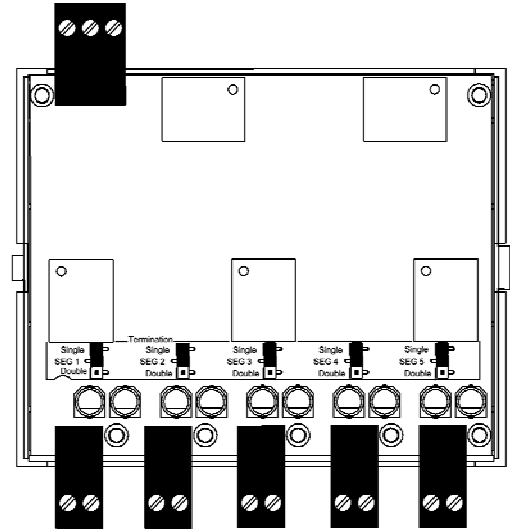
FR-50

Five (5) segment
FT to FT LonWorks
physical layer repeater

OPTION JUMPER SELECTION

Termination Settings

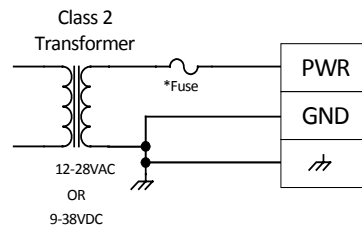
- Single ST – Single Termination
- Double
- Single DT – Double Termination
- Double
- Single NT – No Termination
- Double



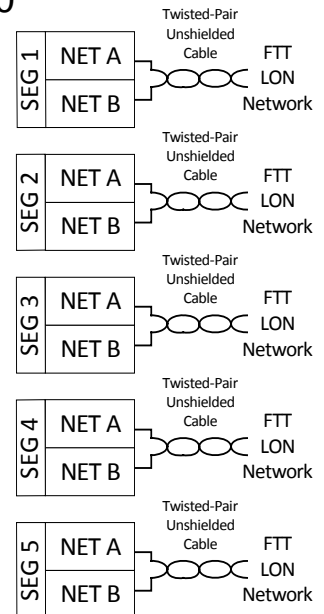
NOTE:

- 1) Jumpers are shown in Factory Default position (ST- Single Termination).
- 2) **Single** ended termination can be used on bus, mixed, star and ring topologies.
- 3) **Double** ended termination is for bus topologies only.

WIRING



FR-50



IMPORTANT WIRING INFORMATION

- 1) Secondary of Class 2 Transformer should always be earth grounded to provide reliable communication and sensor readings.
- 2) *External fuse not supplied. Size fuse according to application load and not to exceed 5 Amps.
- 3) Proper termination of LON Network not shown in this diagram. Ensure proper single or double ended termination is used on each segment.