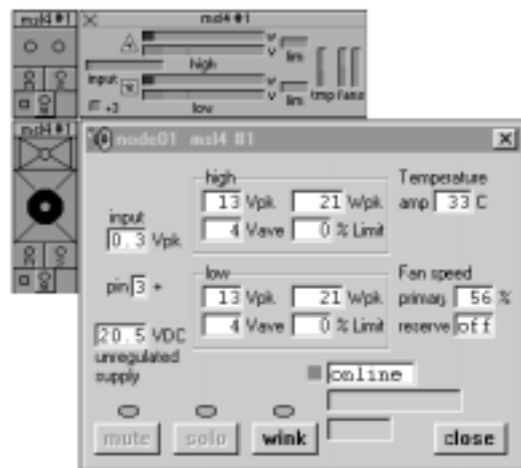




FTR Network Repeater Operating Instructions



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FTR-100 Network Repeater Operating Instructions

P/N: 05.033.075.12
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Document Title: Operating Instructions for the FTR-100 Network Repeater.

Introduction

This document is distributed with the Meyer Sound Remote Monitoring System Network Repeater Kit (P.N. 40.033.084.01). This user's guide will illustrate how to incorporate the FTR-100 Network Repeater into your RMS Network topology. The FTR-100 Repeater is required if any of the following conditions are present:

- Your RMS Network exceeds 62 speakers (maximum of 124).
- Your total network cable length exceeds 500 meters using a free-topology.
- Your total network cable length exceeds 1400 meters using a doubly-terminated bus topology.

Please insert this documentation in the Additional Documents section of your RMS binder.

You should receive the following parts in the Network Kit:

1. **AC Adapter, 12VDC 1 Amp power supply** Meyer Sound Part Number 574.007.
2. **RMS FTR-100 Network Repeater** Meyer Sound Part Number 950.045
3. **2.5m Cordset** Meyer Sound Part Number 538.012
4. **Power Cord** Meyer Sound Part Number 538.009

What is a repeater?

A repeater is a network device that connects multiple segments of a network cable, re-times and regenerates the digital signals on the cable, and sends them on their way again. A repeater forwards all digital message signals in both directions, regardless of the destination or domain of the message.

The actions of a repeater allow you to increase the geographical coverage of your network. The FTR-100 has the capability of increasing your total RMS Network cable length by a factor of four.

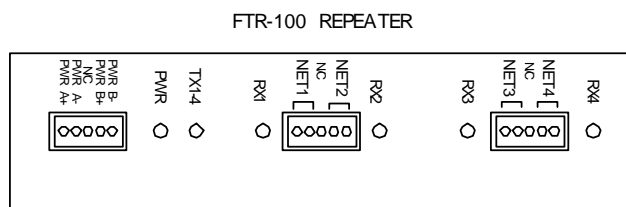
The repeater also allows for an increased number of loudspeaker "nodes" on a RMS Network. As described previously, the FTR-100 regenerates the RMS Network message. This regeneration allows for a more robust network-messaging construct, thus allowing more nodes on a single network.

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Operational Description

The FTR is a four-channel network repeater. A message generated on any network segment to which the FTR is connected is rebroadcast on the three other channels.

The following figure shows the physical specifications and the front panel:



There are six status LEDs on the unit:

- The PWR LED is the power indicator. It is ON if power is properly supplied to the unit
- The other five LEDs give an indication of the amount of network traffic. The TX1-4 LED flashes whenever a message is transmitted by the repeater. The RX1, RX2, RX3, RX4 LEDs flash whenever a message is received on a particular channel.

For example, if a message is received on channel 1, the RX1 LED would flash, the message would be transmitted on the other channels (2, 3 and 4), and the TX1-4 LED would flash.

Installation

Mechanical Installation

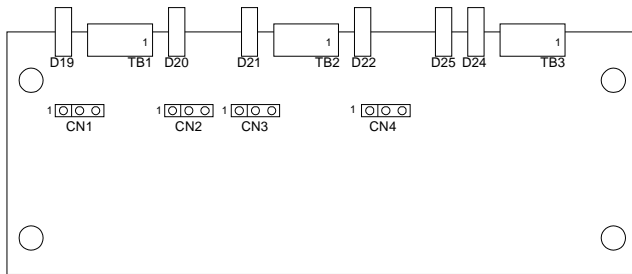
The FTR can be mounted on a wall or other surface using four #6 wood screws (or equivalent). It can be mounted horizontally with the terminal blocks facing down, or vertically with the terminal blocks on the right side. The FTR unit and associated wiring should be mounted and fastened securely, so that no stress is incurred. Do not install the FTR in a manner that would allow unanticipated disconnection.

Network Terminations

The FTR is capable of providing network termination if desired (consult the Logical Installation and Wiring Guide section of the RMS binder). As shipped, each channel on the FTR has 51 Ohm network termination resistors connected. This is the standard network termination required for the network. If no termination or 100 Ohm network terminations is required, the top must be removed and shorting jumpers reconfigured as shown following.

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Network termination can be changed by moving the shorting jumper on CN1, CN2, CN3, or CN4. The following figure and table describe the jumper positions:



Channel	No. Termination	5Ω Termination	100Ω Termination
Channel 1	CN4 No Jumper	CN4-jump 1 and 2	CN4-jump 2 and 3
Channel 2	CN3 No Jumper	CN3-jump 1 and 2	CN3-jump 2 and 3
Channel 3	CN2 No Jumper	CN2-jump 1 and 2	CN2-jump 2 and 3
Channel 4	CN1 No Jumper	CN1-jump 1 and 2	CN1-jump 2 and 3

Wiring

The FTR is wired using five position terminal blocks. The wiring pin-out for the FTR module is shown below.

Pin Description	Functionality
PWR A+	Power A+ positive supply connection
PWR A-	Power A- negative supply connection
N/C	No connection (Reserved)
PWR B+	Power B+ positive supply connection
PWR B-	Power B- negative supply connection
NET1	Network channel 1 connection
NET1	Network channel 1 connection
N/C	No connection (Reserved)
NET2	Network channel 2 connection
NET2	Network channel 2 connection
NET3	Network channel 3 connection
NET3	Network channel 3 connection
N/C	No connection (Reserved)
NET4	Network channel 4 connection
NET4	Network channel 4 connection



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Power A+ and Power A- are the power supply inputs. Connect the positive lead of the power supply to the terminal block Power A+ and the negative lead of the power supply to the terminal block Power A-.

If a redundant supply is required, connect it to Power B+ and Power B-. Connect the positive lead of the redundant power supply to the terminal block Power B+ and the negative lead of the power supply to the terminal block Power B-.

Network 1-4 are the network connections. Network 1 is the channel 1 network connection. Connect the first network twisted pair to the terminal block NET1 positions. The wiring is polarity-independent so it does not matter which wire in the pair is connected to which position on the terminal block. Connect the rest of the network twisted pairs to the other channels. Leave any unused channels unconnected.

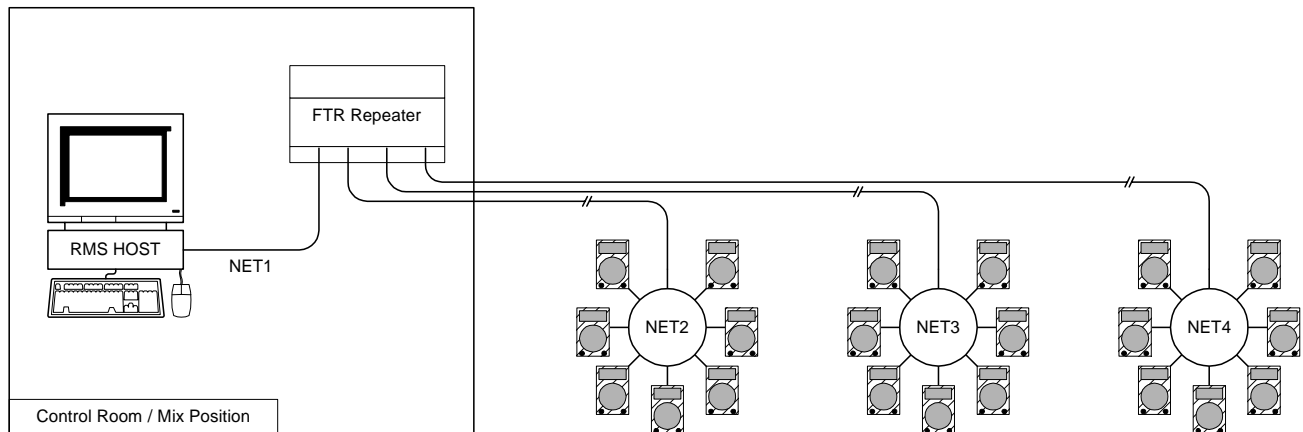
Universal Power Supply

The universal power supply included in the repeater kit allows for FTR operation around the world. The supply accepts any input voltage from 100 to 240VAC, and produces the required 12VDC output. The male IEC input allows for any locale-specific adapter to be used with the supply.

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RMS Integration

The following diagram depicts a recommended RMS Network setup using the FTR repeater:



The total length of each NET cannot exceed 500 meters using this free topology form. The FTR Repeater should be kept close to the RMS Host Station, in a contained environment free from possibilities of disconnection. In any case, the length of NET1 cannot exceed 500 meters.

More elaborate setups are possible, of course. When designing an RMS network, please review all of the available RMS literature on wiring, termination, and functionality. If in doubt, verify a design before incorporating it into a fixed installation.



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Appendix

FTR-100 Specifications

Power Supply	+12VDC to +24VDC +/- 10% @ 100mA
Data Communications	Differential Manchester Coding
Network Polarity	Polarity Insensitive
Transmission Speed	78 kilobits per second
EMI	Complies with FCC Part 15 Class A
Operating Temperature	-40°C to +60°C
Storage Temperature	-40°C to +85°C
Operating Humidity	25% to 90% @ 50°C non-condensing
Storage Humidity	0% to 95% @ 50°C non-condensing
Approximate Dimensions	245mm L x 634mm H x 143mm W (9.65" x 2.50" x 5.65")
Approximate Weight	1 lb. (625 g.)
Packaging	Aluminum enclosure

Documentation Reference

- RMS User's Guide (05.033.075.01)
- Self-Powered Loudspeaker Installation and Wiring Guide (05.033.075.07)
- The Connectors/ Terminator section of the RMS binder (Drawings 28.033.060 and 40.033.061)