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TWO-WAY AUDIO AND DATA
MODELS 249D1, 249D2, AND 249D2L

OPERATING INSTRUCTIONS
SERIES 249D

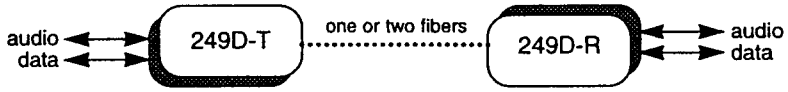
MODELS/FEATURES CROSS REFERENCE

Model Number	Description	Product Code	Fiber Qty / Size	Maximum Attenuation	Wavelength
249D1-T*	Transmitter	1B**	1 / 62.5 µ	13 dB	850/1300 nm
249D1-R*	Receiver	1B**			
249D2-T	Transmitter	1B**	2 / 62.5 µ	13 dB	850 nm
249D2-R	Receiver	1B**			
249D2L-T	Transmitter	1B**	2 / 62.5 µ	13 dB	1300 nm
249D2L-R	Receiver	1B**			

* Optical multiplexing used for two-way transmission over one fiber. Functionally these units are transceivers with the -T in the model number indicating transmission at 850 nm and the -R indicating transmission at 1300 nm.

** Product code suffix indicates data format, e.g., 11 = TTL; 22 = RS232; 33 = relay; 44 = RS422; 55 = Manchester (biphase).

Units for rack mounting include a -R at the end of the model number.



GENERAL

Series 249D Systems combine bidirectional transmission of audio and control data signals over one or two 62.5 µ multimode optical fibers.

Units are offered with a choice of control formats: RS232, RS422, TTL, Manchester (biphase), or relay/ contact closure. The units that have been shipped with this instruction sheet have been configured for the control data format that was specified at the time of order.

CONNECTING THE UNITS

Units are designed for use in *Fiber Options'* 515R Card Cage, 517R Racking System, or 502R Miniature Rack. If you have ordered standalone units, they have been shipped in a 502R (as shown on page 2).

Each unit occupies two card-cage slots. Units using the 515R or the 517R are powered from the rack.

If using the 502R Miniature Rack, the *Fiber Options'* 12 VDC, 1.0 amp power supply, model number 612P is required (ordered separately).

Use shielded twisted pair for the audio and data lines.

IN CASE OF PROBLEMS

If problems should be encountered, first check to be sure power is properly connected to the modules. Then check the Level/Loss indicators. If they are any shade of green, the fiber optic cable connection is functional.

Refer to the chart on page 2 for more details on LED indicators.

If it is necessary to call *Fiber Options*, ask for Customer Support, and have the following information available: exact model numbers, product codes, and serial numbers of your fiber-optic links. Also a listing of the diagnostic indicators and their respective colors/conditions is helpful.

SYSTEM SPECIFICATIONS

ELECTRICAL

Power Requirements: + 12 ~ 16 VDC @ 500 mA.

Input/Output Levels: 6.6 V p-p max. unity.

Input/Output Impedance: 600 ohm.

Signal-to-Noise Ratio: > 54 dB.

System Bandwidth: 20 Hz to 18 kHz.

Gain Control: Fully automatic (AGC).

Control Format: RS232, RS422, TTL, Manchester, or relay/contact closure as ordered.

Data Rate: 19.2 kbps.

CONNECTORS

Audio/Data: 6-pin screw terminal (2 each).

Optical: AT&T Type ST.

Power: 3-pin screw terminal.

MECHANICAL

Size: Standalone Units in 502R: 9.25" D x 6.33" W x 2.05" H (23.5 x 16.08 x 5.2 cm).

Racked units occupy two rack slots.

Weight: Standalone units in 502R: 21 oz (595 g).

ENVIRONMENTAL

Ambient Temperature Range: 32° F to +122° F (0° C to +50° C).

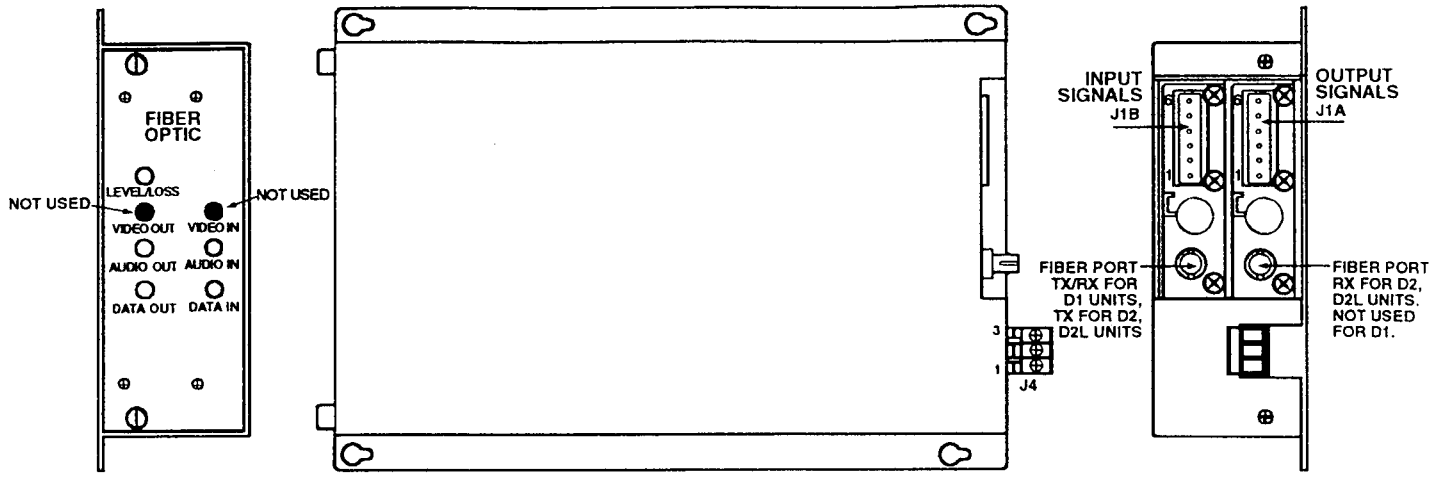
Storage Temperature Range: -40° F to +185°F (-40° C to +85° C).

OPTIONS

DC Adapter: Use 612P if units are for standalone operation in a 502R Miniature Enclosure.

Document No. 202491.3

80 Orville Drive, Suite 102, Bohemia, New York 11716-2533 USA • 516-567-8320 or 1-800-342-3748 • FAX 516-567-8322
Oakwell Industrial Park, Oakwell Way, Birstall, West Yorkshire, WF17 9LU, UK • 44-01924-359990 • FAX 44-01924-359991
Internet http://www.fiberoptions.com E-mail info@fiberoptions.com



Rack units ordered for standalone operation are furnished in the 502R Miniature Enclosure (shown above). Note on the drawing

PIN CONNECTIONS

AUDIO INPUT

Pin #	
J1B-1	Audio In (+)
J1B-2	Audio In (-)
J1B-3	Audio Shield

For unbalanced audio, install jumper J1B-2 to J1B-3.

AUDIO OUTPUT

Pin #	
J1A-1	Audio Out (+)
J1A-2	Audio Out (-)
J1A-3	Audio Shield

For unbalanced audio use J1A-1 and J1A-3.

DATA* INPUT

Pin #	
J1B-4	Ground
J1B-5	Data In (+)
J1B-6	Data In (-)

For relay operation:

J1B-5	Ground to activate

DATA* OUTPUT

Pin #	
J1A-4	Ground
J1A-5	Data Out (+)
J1A-6	Data Out (-)

For relay operation:
J1A-5 and J1A-6 relay terminals.
Contact rating = 0.5 amp @ 12 VDC.

POWER

Pin #	All Units
J4-1	Ground
J4-3	+ DC

*Units are configured for data format selected at the time of order. See chart on page 1.

DIAGNOSTIC LED INDICATORS

INDICATOR	DISPLAY	INDICATES/ACTION
Level/Loss	Green (varying)	Sufficient light is at the receiver.
	Red	Optical power not being received. Fiber open or transmitter inoperative. Check fiber loss, connectors, and splices (if any). On two-fiber units verify Tx port connects to Rx port.
Audio In/Out	Green	System is functioning properly. Occasional red peaks are normal.
	Red (steady)	A potential overload condition, one which will occur if input exceeds 7 V peak-to-peak. Reduce audio level.
	Unlit	No audio coming in or being transmitted out, or low audio level. Check audio into the device and audio pin connections.
Data In/Out	Green	Valid data signals are being received in and transmitted out.
	Unlit	Data is not being received in or transmitted out. Verify data source, data format, and check data pin connections.

If it is necessary to call *Fiber Options*, ask for Customer Support, and please have the following information available: exact model number, product code, and serial number of your fiber-optic links, and a listing of the diagnostic indicators and their respective colors/conditions.

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