



4160 Audio Series

Sixteen independent audio channels digitally transmitted over one fiber with optional redundancy

Ideal Applications:

Rental, Staging, Theater, Stadiums, Theme Parks, Broadcast

Signal	Channels	Direction
Audio	16	→



Features

Transmits over one multimode or single mode fiber at 850, 1310 or 1550 nm

Optional redundant optical input/output

System consists of transmitter and receiver unit

No adjustments; pure digital processing and transmission

24 bit/96 kHz sampling; maximum audio level +24 dBu

20 Hz to 20 kHz frequency response

Line level, balanced or unbalanced audio operation

Indicator LEDs monitor audio signals and power

Wide range internal power supply

Unit stands 1 RU high. Rackmount ears are included

Ordering Information

Part Number	Description	Fiber Cores
4160-z ₁ z ₂ -y ₁ y ₂ -pp	Transmitter, Box Version	1
4161-z ₁ z ₂ -y ₁ y ₂ -pp	Receiver, Box Version	1

Power Supply Suffix Codes (pp) for AC Line Cord:

NA - North America	AU - Australia	EU - Europe
JP - Japan	UK - United Kingdom	

z₁ = optical connector type for main output (4160) and main input (4161). An option **must** be specified.

S	ST connector
F	FC connector

y₁ = wavelength selection for main output (4160) and main input (4161). An option **must** be specified.

1	850 nm multimode
3	1310 nm multimode
7	1310 nm single mode
9	1550 nm single mode

z₂ = optical connector type for **optional** second output (4160) and input (4161).

N	no second input/output
S	ST connector
F	FC connector

y₂ = wavelength selection for **optional** second/redundant output (4160) and input (4161).

0	no second input/output
1	850 nm multimode
3	1310 nm multimode
7	1310 nm single mode
9	1550 nm single mode

Sales



**Communications
Specialties, Inc.**

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4160 Audio Series



Schedule
Contract GS-03F-5063C



Operating Loss Budget & Maximum Usable Distance*

Wavelength	Loss(dB)	Distance (km)
850 MM	0-20	0-2
1310 MM	0-25	0-10
1310 SM	0-23	0-55
1550 SM	0-25	0-80

SM = Single Mode Fiber

MM = MultiMode Fiber

*Distance specifications are only approximate and are not guaranteed. Operating loss budget must not be exceeded.

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Sales



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Audio Specifications

Number of Audio Channels	16, balanced or unbalanced
Frequency Response	20 Hz - 20 kHz, +0/-0.5 dB
Bits-per-Sample/Sampling Rate	24 bits; 96 kHz
Maximum Audio Level	+24 dBu
SNR (A-Weighted)	95 dB
THD+N	0.002%; 20 Hz - 20 kHz
Channel Phase Differential	0.1°
System Latency	200 uS + fiber cable propagation delay (typically 5 uS/km of fiber)
Input Impedance	600 Ohms terminated; 24 k Ohms unterminated
Output Impedance	50 Ohms
Audio Connectors	Removeable screw terminal
Switches	Dip switches to select input termination, balanced or unbalanced input/output. Selectable on a per-channel basis

General Specifications

LED Indicators	Power; Audio Present (per channel)
Power Requirements*	95-250 volts AC, 47-63 Hz
Operating Temperature Range	-35° to +55° C
Relative Humidity	10%-90% (non-condensing)
Optical Connectors	ST or FCPC
Operating Wavelength	850, 1310 or 1550 nm
Physical Size	1.75 H x 16.75 W x 10 D (inches) 44 H x 425 W x 254 D (mm) Unit stands 1 RU high
Weight	Approximately 5 lbs.; 2.25 kg

About CSI

Communications Specialties, Inc. (CSI) is an award-winning manufacturer of Pro A/V products for the distribution, conversion or transmission of television and computer video signals, including fiber optic transmission systems, scan converters and video scalars. The company was founded in 1983 by veterans of the broadcast industry. Since then, CSI has managed to consistently design innovative products that are used worldwide by Fortune 500 Companies in a variety of markets such as Broadcast/Professional A/V, Video Conferencing, Education, Home Theater, Security, ITS, Industrial Monitoring, and more!

Also from CSI: Scan Do® Scan Converters and Deuce® Video Scalars