



The Copperlink 2302 & 2304 Series of 3G/HD/SD-SDI distribution amplifiers offer features and performance rarely found in distribution amplifiers.

Copperlink™ 2302 & 2304 Series

3G/HD/SD-SDI Distribution Amplifier



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Welcome

Thank you for purchasing Communications Specialties, Inc.'s Copperlink™ 2302 or 2304 Series. The 2302 and 2304 Series is used to distribute 3G/HD/SD-SDI with or without embedded audio and data. The 2302 Series is a 1x2 distribution amplifier and the 2304 Series is a 1x4 distribution amplifier.

Features

- Distribute 3G/HD/SD-SDI with embedded audio and data
- All outputs are independently buffered and non-inverting for proper DVB-ASI support
- Supports pathological patterns over the entire operating temperature range
- Supports SMPTE 3G/HD-SD-SDI and DVB-ASI signals to 2.97 Gbps
- Automatic equalization and reclocking of input signal
- Compliant with SMPTE 259M, 292, 424M-2006, 305M, 310M, 344M and DVB-ASI
- Embedded audio and data is passed through
- 3 Gbps rated BNC connectors
- ESD protected input and outputs to 15 kV
- Wide range, low power AC/DC input from 9-24 volts

Package Contents

- One Copperlink™ 2302 or 2304
- This User's Manual

Technical Specifications

General Specifications

Indicators	Power, Data Rate Lock (3G/HD, SD/DVB-ASI) Alarm (Card version only)
Dimensions	5.21 x 3.50 x 1.15 (in) 133 x 89 x 30 (mm)
Weight	7.9 ounces, 210 grams
Number of slots in card cage	Model 2302: 1 Model 2304: 2
Power	9-24 volts, AC or DC 6.14 BTU/Hr 1.8 watts
Operating Temperature	-30° C to +70° C
MTBF	250,000 Hours

Serial Video BNC Input

Number of Inputs	1
Data Rate Range	19.4 Mbps to 2.97 Gbps
Supported Standards	SMPTE 259M, 292, 424M-2006, 305M, 310M, 344M, DVB-ASI
Re-clocked Data Rates	270 Mbps (SMPTE 259M, DVB-ASI-270), 1.485 Gbps (SMPTE 292) 2.97 Gbps (SMPTE 424M-2006)
Equalization	Automatic up to 120m of Belden 1694A at 2.97 Gbps, 175m at 1.485 Gbps and 350m at 400 Mbps
Return Loss	>10dB up to 2.97 Gbps

Technical Specifications

Serial Video BNC Outputs

Number of Outputs	Model 2302: 2 Model 2304: 4
Signal Level	800mV \pm 10%
DC Offset	0V \pm 0.1V
Rise/Fall Time	< 135 ps at 2.97 Gbps per SMPTE 424M; < 270 ps at 1.485 Gbps per SMPTE 292; 0.4 ns to 1.5 ns at 270 Mbps per SMPTE 259M
Overshoot	< 10% of amplitude
Timing Jitter	< 0.2 UI at 270 Mbps; < 1.0 UI at 1.485 Gbps; < 2.0 UI at 2.97 Gbps with color bar signal
Alignment Jitter	< 0.2 UI at 270 Mbps; < 0.2 UI at 1.485 Gbps; < 0.3 UI at 2.97 Gbps with color bar signal
Re-clocking	At 270 Mbps, 1.485 Gbps & 2.97 Gbps

Installation Instructions

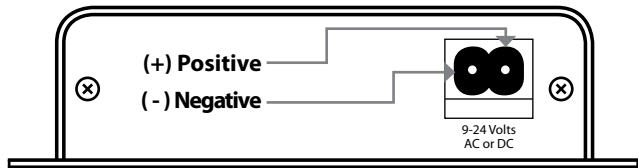
The Copperlink™ 2302 & 2304 Series of 3G/HD/SD-SDI distribution amplifiers are ready for immediate use and do not require any special tools.

The following procedure presumes you have followed the instructions for installing your converter unit.

The following instructions describe the typical installation procedure:

- 1) Connect the SDI coax cable to the SDI input BNC connector of the unit.
- 2) Connect the SDI coax cable(s) to the SDI output BNC connector(s) of the unit.
- 3) Terminate any unused BNC output connector at 75 Ohms.
- 4) Connect the Universal Power Supply to the converter.
Please refer to figure 1.
- 5) When power is applied, the green POWER LED should illuminate, indicating the presence of operating power. The 3G/HD/SD RATE LED will give an indication as described in the Indicator LED's section of this manual.
- 6) The system should now be operational.

Figure 1:
Power Connector
DC Input Polarity



Indicator LEDs

The Copperlink™ 2302 & 2304 Series has 4 integral indicator LEDs that are used to monitor the state of the unit.

Indicator LEDs		
LED	Status	Definition
Power	On	Indicates that correct power has been applied.
3G/HD Rate	Off On	Indicates no 3G-SDI or HD-SDI data rate lock Indicates 3G-SDI data rate lock at 2.97 Gbps or 2.97/1.001 Gbps or HD-SDI data rate lock at 1.485 Gbps or 1.485/1.001 Gbps
SD Rate	Off On	Indicates no SD-SDI or DVB-ASI data rate lock Indicates SD-SDI or DVB-ASI data rate lock at 270 Mbps
Alarm (Card Version Only)	On	No input signal
<i>Note: The 3G/HD, and SD LEDs indicators are off when a non-standard signal is applied.</i>		

Maintenance and Repairs

The Copperlink™ 2302 & 2304 Series has been manufactured using the latest semiconductor devices and techniques that electronic technology has to offer. They have been designed for long, reliable and trouble-free service and are not normally field repairable.

Should difficulty be encountered, Communications Specialties maintains a complete service facility to render accurate, timely and reliable service of all products.

All other questions or comments should be directed to our Customer Service Department. It should be noted that many “problems” can easily be solved by a simple telephone call.

Certifications





Communications Specialties, Inc. (CSI) warrants that, for a period of three years after purchase by the Buyer, this product will be free from defects in material and workmanship under normal use and service. A Return Material Authorization (RMA) number must be obtained from CSI before any equipment is returned by the Buyer. All materials must be shipped to CSI at the expense and risk of the Buyer.

CSI's obligation under this warranty will be limited, at its option, to either the repair or replacement of defective units, including free materials and labor. In no event shall CSI be responsible for any incidental or consequential damages or loss of profits or goodwill.

CSI shall not be obligated to replace or repair equipment that has been damaged by fire, war, acts of God, or similar causes, or equipment that has been serviced by unauthorized personnel, altered, improperly installed, or abused.

RMA numbers and repairs can be obtained from:

Communications Specialties, Inc.

55 Cabot Court

Hauppauge, NY 11788 USA

Tel: (631) 273-0404

Fax: (631) 273-1638

RMA numbers can also be obtained from our web site: commspecial.com

Please have your serial number available.



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