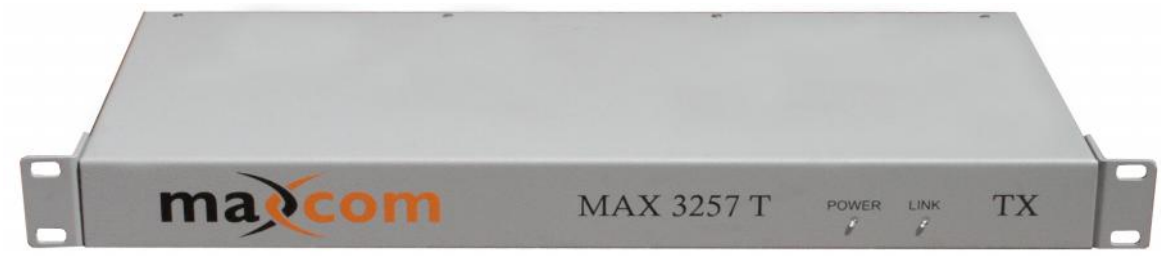
FIBER OPTIC VIDEO / AUDIO / ASI LINK

Model MX3257HD



Description

The rack-mountable MX3257HD fiber optic video multiplexer is ideal for transmitting 1 channel of video, 2 channels of audio and 1 high speed serial data channel on one fiber optic cable.

The high speed serial data channel may be either DVB-ASI or SMPTE-310M. The MX3257HD's High Speed Serial data channel employs automatic cable equalization for error free operation over long coaxial cable runs.

The MX3257HD operates by digitizing and multiplexing video, audio and high speed data onto a high-speed serial data stream, which is then transmitted via fiber optics.

Because the system employs digital transmission techniques, performance characteristics are consistent and maintained over the specified distance with no degradation of signal.

The MX3257HD is designed to work with standard singlemode or multimode fiber optic cable and can be wall mounted or rack mounted. Both transmitter and receiver come equipped with internal power supplies.

Optical Link LEDs facilitate the continuous monitoring of the fiber optic system.

Features

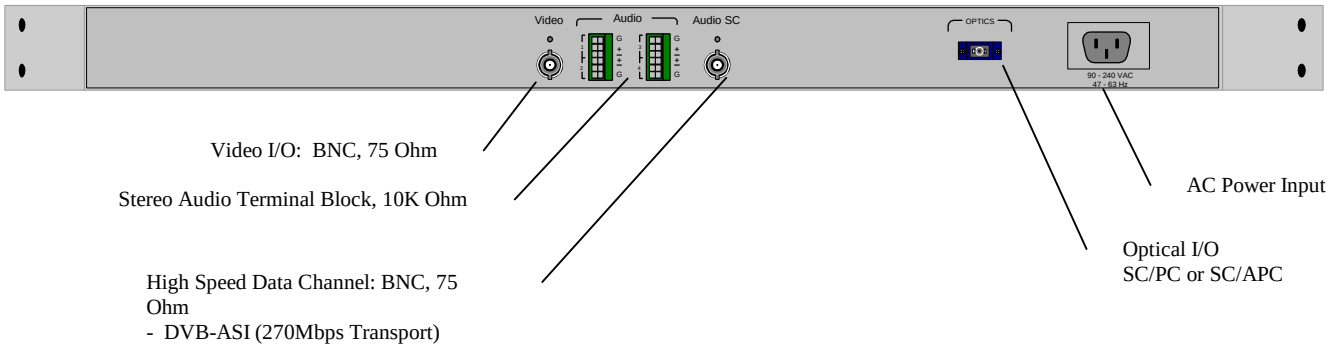
- High Quality 10 Bit Digital Sampling of Video Input
- High Speed Data Channel for DVB-ASI or SMPTE-310M
- High Speed Data Channel employs Automatic Cable Equalization
- Digital Transmission of Stereo Audio
- Baseband Video or composite Video/Audio Transmission over video channel
- External Audio Compatible with Balanced or Unbalanced Audio Formats
- High Quality Uncompressed Digital Transmission
- 67 dB SNR

Model Selection Guide

Model	Description
MX3257HDT-1S-1V-2A-ASI-SCA-40	Fiber Optic Mux TX, 1 Video, 2 Audio, 1 DVB-ASI, Singlemode, SC/APC Connector, 40 Km
MX3257HDR-1S-1V-2A-ASI-SCA-40	Fiber Optic Mux RX, 1 Video, 2 Audio, 1 DVB-ASI, Singlemode, SC/APC Connector, 40 Km
MX3257HDT-1S-1V-2A-S310-SCA-40	Fiber Optic Mux TX, 1 Video, 2 Audio, 1 SMPTE-310, Singlemode, SC/APC Connector, 40 Km
MX3257HDR-1S-1V-2A-S310-SCA-40	Fiber Optic Mux RX, 1 Video, 2 Audio, 1 SMPTE-310, Singlemode, SC/APC Connector, 40 Km
MX3257HDT-1S-1V-2A-ASI-SCA-80	Fiber Optic Mux TX, 1 Video, 2 Audio, 1 DVB-ASI, Singlemode, SC/APC Connector, 80 Km
MX3257HDR-1S-1V-2A-ASI-SCA-80	Fiber Optic Mux RX, 1 Video, 2 Audio, 1 DVB-ASI, Singlemode, SC/APC Connector, 80 Km
MX3257HDT-1S-1V-2A-S310-SCA-80	Fiber Optic Mux TX, 1 Video, 2 Audio, 1 SMPTE-310, Singlemode, SC/APC Connector, 80 Km
MX3257HDR-1S-1V-2A-S310-SCA-80	Fiber Optic Mux RX, 1 Video, 2 Audio, 1 SMPTE-310, Singlemode, SC/APC Connector, 80 Km

Other Connectors and Distances Available Upon Request

Rear Panel



Standards	NTSC, PAL, SECAM
Channels	(1) Video, (2) Audio & (1) High Speed Data
Video Bandwidth **SNR / dP / dG**	10 Hz to 6.5MHz 67 dB, < 1 deg / < 1%
Video I/O	BNC, 1V p-p, 75 Ohm
High Speed Data	BNC, 1V p-p, 75 Ohm DVB-ASI @ 270Mbps, SMPTE-310M @ 19.4 Mbps
Stereo Audio I/O	Terminal Block, 1Vp-p, 10 KOhm
Physical Dimensions	17” x 1.75” x 10”
Environment	Temperature: Operating: 0C to 50C Storage: -20C to 70C Humidity: Operating: 10% to 90% RH Storage: 5% to 90% RH
Input Power Requirements:	Voltage: 90 – 240 VAC, 47- 63 Hz

Package Includes

- Transmitter or Receiver (Must be purchased separately
- Power Cord
- Rack-mountable hardware
- Easy to follow owner's manual

Warranty

- ***5 year limited warranty***

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User's Manual

MAX3257HD Series

Model: MAX3257/4A/3HD

1 VIDEO / 4 AUDIO / 3 DVB-ASI CWDM multiplexer

Video / Audio / ASI Fiber Optic Multiplexing System

Installation and User Guide

TABLE OF CONTENTS

1 SAFETY INSTRUCTIONS

THE 3257 SYSTEM MAY CONTAIN A CLASS IIIb LASER. PLEASE OBSERVE THE FOLLOWING SAFETY PRECAUTIONS THAT APPLY TO LASER EQUIPPED UNITS.

WARNING: Do not disconnect the fiber optic external connector with the power turned on. Exposure to Class IIIb Laser radiation is possible when the external fiber connector is disconnected while the unit is still powered up. Ensure the rubber boot is in place whenever the fiber optic cable is disconnected.

CAUTION: Attempting to make adjustments or performing operations other than those specified may result in hazardous radiation exposure. Exposure for only seconds can cause permanent eye damage as well as other injuries.

2 INTRODUCTION

2.1 System Description

The 3257 HD Series is a Video / Audio / DVB-ASI fiber optic multiplexer. The 3257 Series video modules can be configured to transmit simplex (one direction) or duplex (two direction) video & audio, and 1 to 4 DVB-ASI signals using CWDM technology. Depending on the distance requirements between sites, the 3257s may be equipped to operate over multimode or single mode fiber. Distances between the transmitter and receiver can be up to 3 Km for multimode operation and up to 120 Km for single mode operation

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SYSTEM I/O CONFIGURATION

Each of the four ports can be configured for one of the following options:

- Simplex Video and Simplex Audio – 2 Channels
- Simplex Video and Simplex Audio – 4 Channels
- Simplex Video and Simplex Audio – 6 Channels
- Simplex Video and Simplex Audio – 8 Channels
- DVB-ASI – 1 to 4 channels

VIDEO / AUDIO TECHNOLOGY:

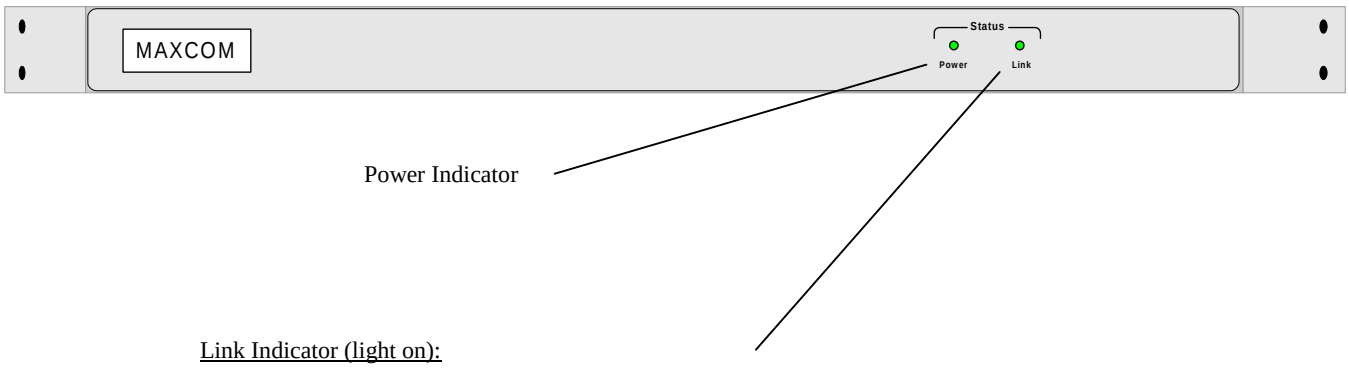
The 3257 system uses uncompressed 10 bit analog to digital modulation techniques which provides excellent video quality. The audio circuitry also digitizes the audio signals prior to transmission. The 2 channels of audio may be used for stereo audio or for two separate channels of audio.

DVB-ASI Transmission Technology

The ASI option on the 3257HD series will accept any PCM 1Vp-p, 75 ohm signal up to 600Mbps. The digital electrical signal connected to the BNC connector is converted to an optical signal. The ASI circuit's receiver takes the incoming optical signal and converts it back to electrical I/O: 75 Ohm up to 1Vp-p. The interface will NOT accept bipolar signals; such as T1, T3, E1 or E3.

2.2 Front Panel Indicators

The following diagram depicts the front panel indicators:

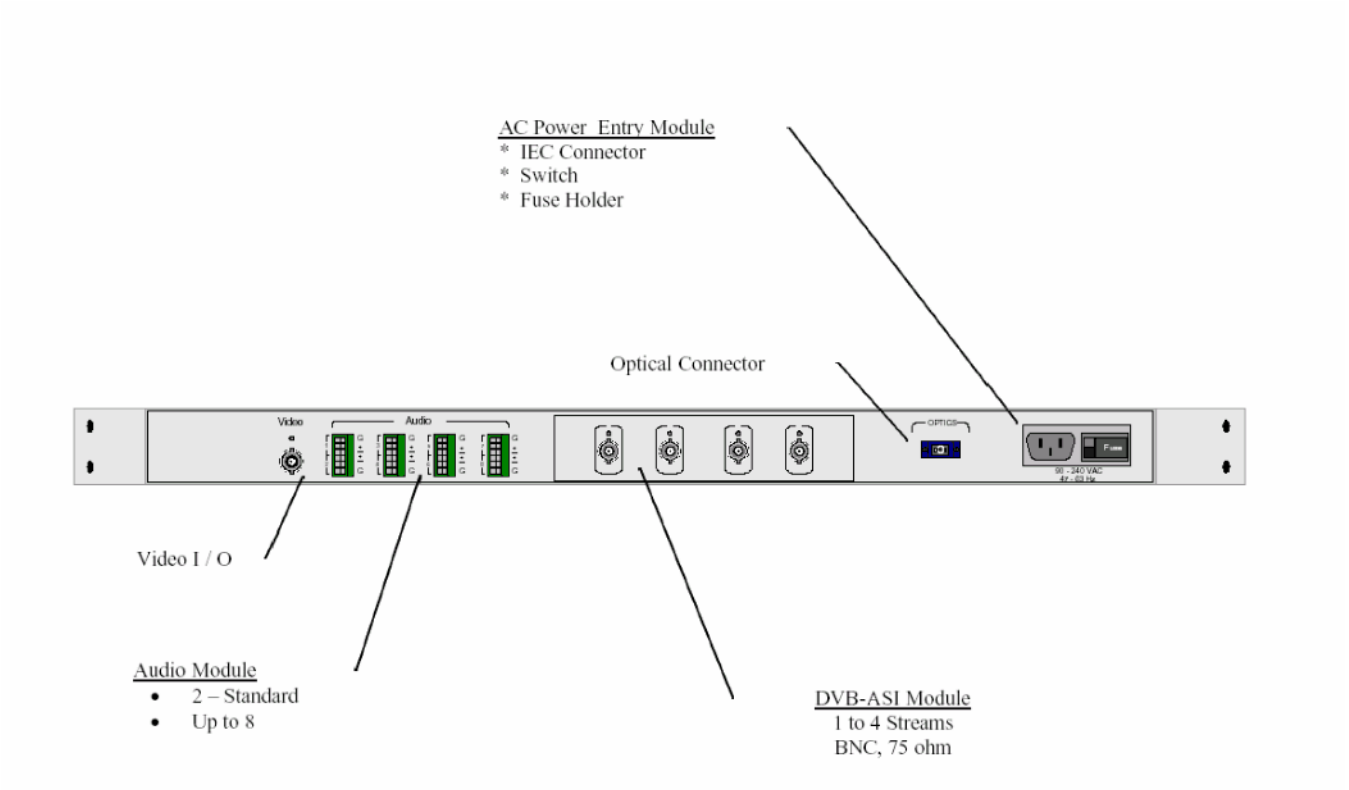


Link Indicator (light on):
TX – Transmitter status OK
RX – Optical link OK

Link Indicator (light off):
TX – Problem with Transmitter
RX – Problem with Optical link

• 2.3 Rear Panel Indicators

The following diagram depicts the 3257T and 3257R rear panel configuration with optional audio channels installed:



NOTE: Model Depicted is configured with 1 Video 8 Audio and 4 ASI Channels

3 INSTALLATION

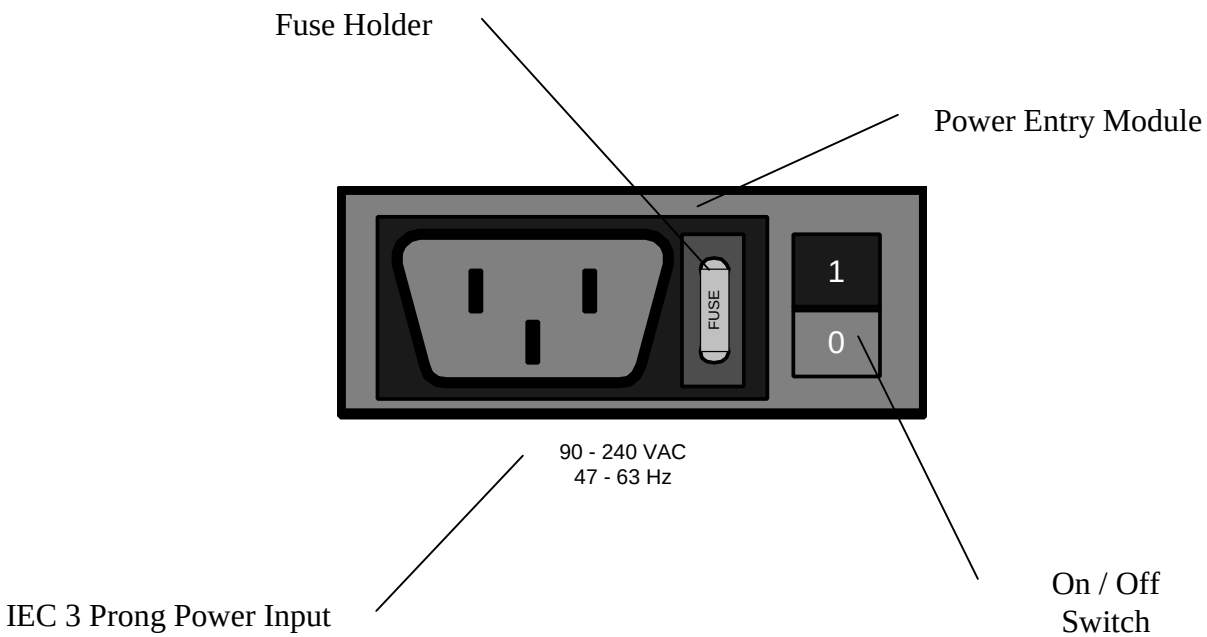
3.1 General Installation

The units may be shelf mounted, 19" EIA rack mounted or table mounted. In order to mount the units in an 19" rack, the Rack Mount Brackets must be first installed by mounting the brackets to the mounting holes in the sides of the 3257.

Make sure that there is enough space to pull and connect both the electrical data and optical cables without stressing them beyond the manufacturer's limitation strain specifications or exceeding the cable's minimum bend radius.

3.2 Power Connection

The 3257 Series is compatible with 90 - 240 VAC power, 47Hz – 63Hz.
The Power Entry Module incorporates an IEC 3 prong power input connector, a switch and a fuse holder, shown below:



3.3 Fiber optic cable connection

Verify that the fiber cable meets the 3257 Series' transmission requirements. Relevant cable specifications include loss, distance (dispersion) and return loss.

Optical Specifications: For MX3257/2HD

Service	wavelength	Tx Output Power	Rx Receiver sensitivity	Loss in Fiber
Video +Audio	1310nm	-5dbm	-30dbm	0.35dbm/Km
HD Ch 1	1510nm	-3dbm	-24dbm	0.27dbm/km
HD Ch 2	1550nm	-3bbm	-24dbm	0.25dbm/km

Optical Specifications: For MX3257/3HD

Service	wavelength	Tx Output Power	Rx Receiver sensitivity	Loss in Fiber
Video +Audio	1510nm	-3dbm	-24dbm	0.27dbm/Km
HD Ch 1	1530nm	-3dbm	-24dbm	0.26dbm/km
HD Ch 2	1550nm	-3bbm	-24dbm	0.25dbm/km
HD Ch 3	1570nm	-3dbm	-24dbm	0.26dbm/Km

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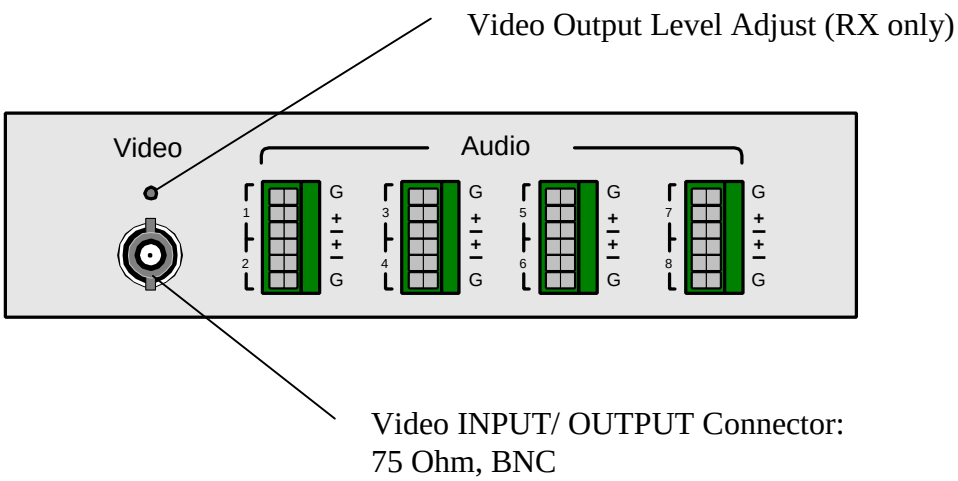
3.4 Video Connections

Video signals are sent over a **75 ohm coax cable terminated in a BNC connector** (e.g. RG 59U with a BNC connector)

a. At the TX end (3257T), connect the video source to the VIDEO BNC connector.

b. At the RX end (3257R), connect the VIDEO BNC to monitor. The output video level may be adjusted by using a small screwdriver to turn the screw above the output video connector, as shown below:



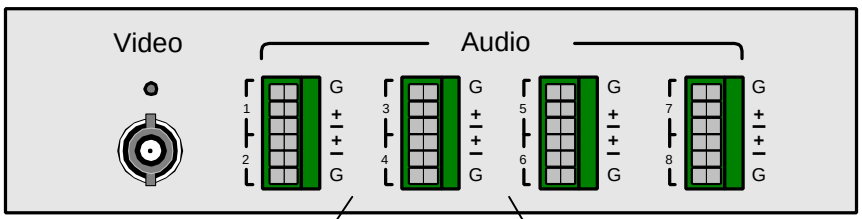
3.5 Audio Connection

The 3257 Models have either simplex or duplex audio. The 3257 supports both balanced audio and unbalanced audio. Accessing the audio I/O requires connecting to one or both channels of audio. The audio input and output impedance is 10Kohms.

The Audio Terminal Block on the Video/Audio module provides the connectivity for transmitting and receiving audio. The illustrations below show how to connect balanced and unbalanced audio:

3.6 Balanced Audio (Differential)

For Balanced audio connections, connect the audio "+" lead to the respective audio channel "+" input and the "-" lead to the audio channel "-' lead, as shown below.



Balanced Audio Input

Audio Channel 1, 3, 5, 7
Connect Ground to TB Pin 1
Connect Input + to TB Pin 2
Connect Input – to TB Pin 3

Audio Channel 2, 4, 6, 8
Connect Input + to TB Pin 4
Connect Input – to TB Pin 5
Connect Ground to TB Pin 6

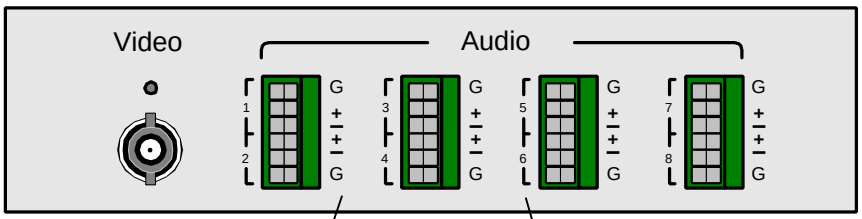
Balanced Audio Output

Audio Channel 1, 3, 5, 7
Connect Ground to TB Pin 1
Connect Input + to TB Pin 2
Connect Input – to TB Pin 3

Audio Channel 2, 4, 6, 8
Connect Input + to TB Pin 4
Connect Input – to TB Pin 5
Connect Ground to TB Pin 6

3.7 Unbalanced Audio (Single Ended)

For Unbalanced audio connections, connect the audio I/O to the respective "+" and "GND" leads on the output audio connector, as shown below.



UnBalanced Audio Input

Audio Channel 1, 3, 5, 7
Connect Ground to TB Pin 1
Connect Input + to TB Pin 2

Audio Channel 2, 4, 6, 8
Connect Input + to TB Pin 4
Connect Ground to TB Pin 6

UnBalanced Audio Output

Audio Channel 1, 3, 5, 7
Connect Ground to TB Pin 1
Connect Input + to TB Pin 2

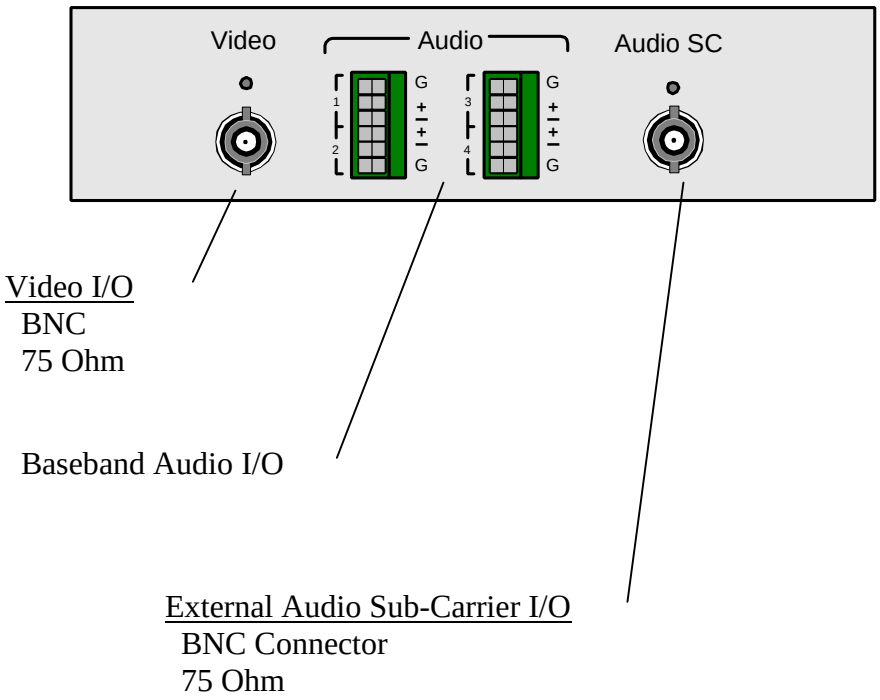
Audio Channel 2, 4, 6, 8
Connect Input + to TB Pin 4
Connect Ground to TB Pin 6

Note: Unbalanced Audio output will be 3dB less than input

Note: DO NOT connect the (-) lead to ground on the audio OUTPUT as this may create noise on the ground, which may distort the video signals.

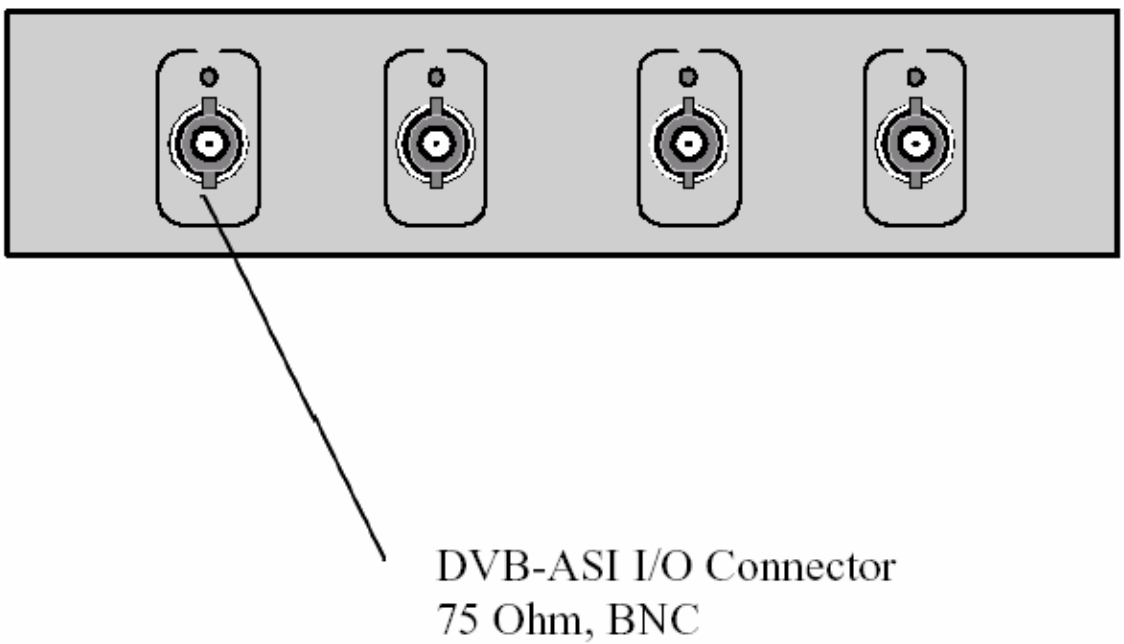
3.8 External 4.5Mhz Audio Sub-Carrier

The 3257 Series also includes an option for transmitting video, audio and a 4.5Mhz audio sub-carrier as an external signal. The figure below depicts the 3257 set up with video, 4 channels of baseband audio and an external audio sub-carrier channel. The audio sub-carrier channel uses a BNC connector with 75 ohm impedance.



3.9 DVB-ASI Connections

DVB-ASI signals are sent over a **75 ohm coax cable terminated in a BNC connector** (e.g. RG 59U with a BNC connector)
The DVB-ASI I/O will accept ANY PCM signal from 1Mbps to 600Mbps that is less than 1Vp-p and is compatible with 75 ohm terminations.
The DVB-ASI connection is NOT compatible with T-3 (DS3), T1 (DS1), or any bipolar Signal .Each HD transport stream is send on different CWDM optical wavelength



4 Operation

Turn-On Procedure

To operate the 3257 video transmission system:

1. Install the 3257 units to the appropriate power supply using the power entry module to provide power via an IEC 3 prong cable.
2. The indicator "POWER" on the front panel shows that the unit is properly powered.
3. Install the fiber optic cables to the 3257
4. Verify that the LINK lights are illuminated. This indicates that the unit has a good optical link.
5. Connect the Video and Audio Input and Output Signals

Verify that video and audio is being received properly.