IVIS MDU Solutions®

IVIS - Indoor Video Insertion System
Operation Manual

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INTRODUCTION

1. Introduction

Figure #1: IVIS Unit

This document outlines the set-up and operation of the ATX Indoor Video/Audio Inserter System – IVIS.

The IVIS takes ATX's Channel Deletion Filters and integrates them with an agile or fixed Video/Audio Modulator packaged into an indoor housing. The IVIS is mains powered for powering the internal integrated Modulators.

The IVIS allows the operator to delete one or two RF channels from the Cable TV spectrum and reinsert new programming in Analog modulation format on those deleted channel locations. The new channels can be any Video/Audio source such as a closed circuit Video Camera or a specialty service that has been demodulated to baseband Audio and Video using a Set-Top-Box / Converter / Decoder. The latter example allows the operator to move specialty services from higher tiers to the basic service.

The IVIS system can be ordered with fixed or agile modulators. If fixed modulators are ordered then their desired output channel in the Cable TV spectrum has to be specified at time of order. For both modulator types (fixed and agile) it has to be specified at time of order whether the Cable TV channels are Standard, HRC, or IRC.

The RF channel deletion filter frequencies must be specified at time of order always for both modulator types as the filter is not agile.

If an agile modulator is purchased, and the operator needs to change the channel to be deleted, only the channel deletion filter must be replaced. The agile modulator will easily tune to the new channel where fixed modulators need to be removed from the IVIS chassis and replaced with a modulator that is tuned to the new channel number. The chassis is easily opened and allows removal and replacement of the channel deletion filters and/or Video/Audio Modulators.

Each Video/Audio Modulator has one Audio and one Video Input. Those inputs are clearly marked beneath each modulator on the IVIS front panel. The Audio deviation, Video depth-of-modulation, RF Output level and Video/Audio Carrier Ratio for each modulator can be adjusted from the modulator's front panel.

Ensure that the Cable System's Analog Video Carrier levels present at the IVIS input port are between 4dBmV and 34dBmV. This ensures that the new inserted channels can be adjusted to the same Analog Video Carrier level as the rest of the Cable TV spectrum Analog channels passing through the IVIS unit.

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INSTALLATION

2. Installation

The IVIS unit can be mounted in a 19” rack housing or another appropriate cabinet for secure operation. All RF and BaseBand signal ports accept standard F connectors mounted on drop cables (RG-6/u, RG-11/u or similar).

Connect the incoming Cable TV feed to the INPUT port and connect the OUTPUT port to your distribution system. Connect Video and Audio signals to one or both (if two Video/Audio sources present) Modulators. In case of an Agile Modulator ensure that the Modulator Channel is set properly by checking the displayed Channel number on the Modulator’s front panel.

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AGILE MODULATOR OPERATION

3. Agile Modulator Operation

The utilized modulators are high quality, vestigial sideband units with synthesized visual and aural carriers. The frequency agile modulators allow front panel pushwheel switch selection of Standard, HRC or IRC Cable TV channels 2 through 135, or VHF/UHF Broadcast TV channels 2 through 69. The Cable TV Channel Plan in use - Standard, HRC, or IRC – has to be determined at time of ordering.

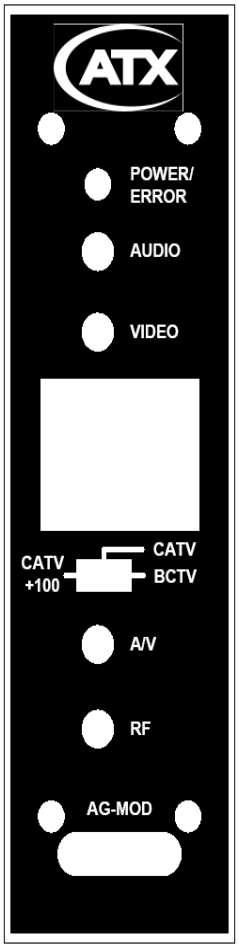
The heterodyne conversion system, in conjunction with the use of a SAW filter, ensures optimum vestigial selectivity for adjacent channel operation.

The modulator is designed to accept any standard audio/video source such as NTSC video and audio baseband signals from a satellite receiver, TV camera, videotape recorder, TV demodulator, Cable Set Top Box Converter, or similar signal source. The modulator is designed to accept standard (negative sync) polarity video at nominal 1 V p-p level.

All level controls are located on the front panel for ease of operation.

The modulator's maximum RF Output level at IVIS Output connector is +33 dBmV and is adjustable over a 10 dB range on the modulator front panel by using RF Output Level control, and is adjustable an additional 20 dB by utilizing the common front panel attenuator.

3.1. Agile Modulator Front Panel Controls



POWER/ERROR Indicator

Lights when the unit is powered. A flashing condition indicates an invalid channel setting or other conditions that would cause the unit to operate on an invalid channel. The RF output is switched OFF for flashing (ERROR) conditions.

AUDIO Level Control

The setting of this screwdriver adjustment determines the aural carrier deviation. Clockwise rotation increases the carrier deviation.

VIDEO Level Control

The setting of this screwdriver adjustment determines the video modulation level. Clockwise rotation increases the modulation depth.

Channel Number Switch

Sets the desired operating channel for Cable TV channels 2 through 135, or Broadcast TV channels 2 through 69.

Mode Switch

Sets the type of channel, Cable TV (CATV) or Broadcast TV (BCTV). The first left position of the switch (CATV +100) sets a leading "1" FOR Cable TV channels 100 through 135.

A/V Ratio Control

This screwdriver adjustment varies the level of the aural carrier over a range from 12 to 22 dB below the visual carrier. The aural carrier should be adjusted to approximately 15 dB below the visual carrier (normal operation). Clockwise rotation increases the aural carrier level.

RF Output Level

This screwdriver adjustment permits decreasing the RF output level a maximum of 10 dB as the control is rotated counterclockwise.

CAUTION: USE AN INSULATED SCREWDRIVER BLADE WHEN ADJUSTING THE AUDIO, VIDEO, A/V, OR RF ADJUSTMENTS. THIS WILL PREVENT THE POSSIBILITY OF SHORTING CIRCUITRY TO THE FRONT PANEL IN THE EVENT THAT THE SCREWDRIVER SLIPS OUT OF THE SLOT IN THE PLASTIC SHAFT OF THE POTENTIOMETER.

Figure #2: Agile Modulator

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RF LEVEL ADJUSTMENT

4. RF Level Adjustment

Once you have connected the INPUT and OUTPUT ports to respectively the incoming Cable Feed and the Distribution System, as well as Audio and Video Source Signals to corresponding Modulator Audio and Video Inputs, while monitoring the signal level at the IVIS -20 dB RF OUT TEST Point with a Spectrum Analyzer or RF Signal Level Meter, you should be able to measure the new Modulator's Video and Audio carrier levels as well as the Video carrier levels for Analog signals or QAM Power Levels for Digital signals of the existing cable system's adjacent channels.

While monitoring the meter or analyzer, adjust the Modulator's Video Carrier Levels by adjusting the common attenuator on the front of the IVIS unit until you obtain an equal level as the adjacent Cable system's Analog channel Video Carrier Level, or 6 dB higher than the adjacent 256QAM Digital signal Power Level or 10 dB higher than the adjacent 64QAM Digital signal Power Level. If you require additional and/or finer RF Output Level adjustment for either of the two modulators mounted in the IVIS, adjust the RF Output Level potentiometer on the front panel of the Modulator as described in previous section.

From the factory the modulator front panel RF Output Level potentiometer is set to maximum RF output level, this will give you the best Signal to Noise Ratio. Always attempt to make all Video Carrier Level adjustments using the common attenuator on the IVIS front panel.

Verify that the Modulator's Audio carrier is 15 dB below the Video Carrier. If not adjust the A/V potentiometer on the Modulator's front panel until the Audio to Video Ratio is set to -15 dB.

All previous measurements are to be done using a spectrum analyzer or RF signal level meter.

If using Spectrum Analyzer *for measuring Analog and Digital RF Signals: Be sure to have taken into account RBW settings and have made corrections to the Spectrum Analyzers Reading while measuring Digital QAM Signals. Make use of Band Power Measurement option for measuring Digital QAM signals, if supported by Spectrum Analyzer.*

If using RF Signal Level Meter *for measuring Analog and Digital RF Signals: Be sure to have selected the correct measurement mode for measuring Analog and Digital Signals.*

After RF level adjustment is finished, the Video Carrier Levels of the inserted one or two new Analog signals shall equal the Video Carrier Levels of the Cable system's existing adjacent Analog signals Video Carriers or be 6 dB higher than adjacent 256QAM signals or be 10 dB higher than adjacent 64QAM signals.

If required, set the Audio deviation by adjusting the AUDIO potentiometer on the front panel of the modulator as described in previous section. Also, if required, set the VIDEO Modulation depth by adjusting the VIDEO potentiometer on the front panel of the modulator as described in previous section.

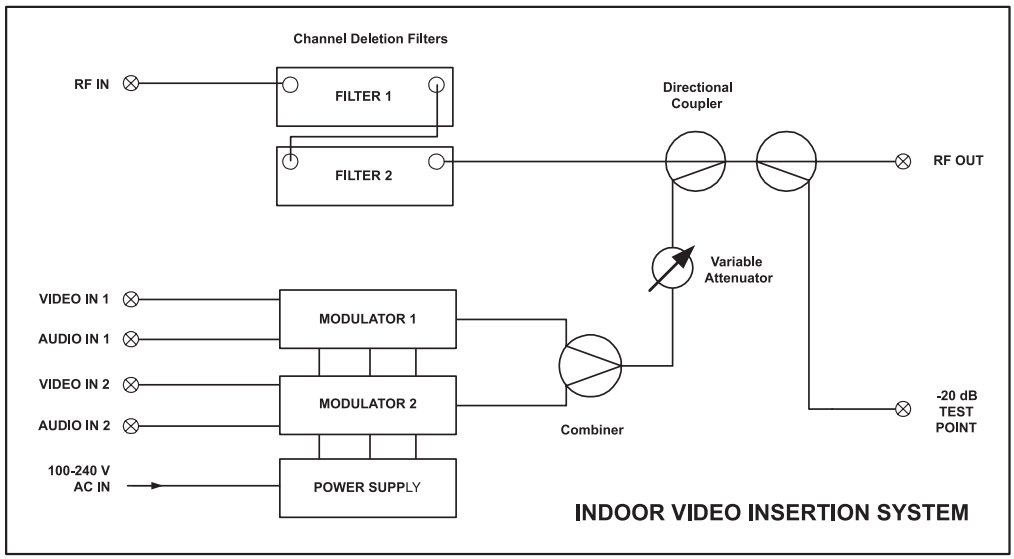

Figure #3: Functional Schematic

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SERVICE & SUPPORT

5. Service & Support

5.1. Contact ATX Networks

Please contact ATX Technical Support for assistance with any ATX products. Please contact ATX Customer Service to obtain a valid RMA number for any ATX products that require service and are in or out-of-warranty before returning a failed module to the factory.

ATX Networks
1-501 Clements Road West
Ajax, ON L1S 7H4 Canada

Tel: (905) 428-6068
Toll Free: (800) 565-7488
Fax: (905) 427-1964
Toll Free Fax: (866) 427-1964
Web: www.atxnetworks.com
E-mail: support@atxnetworks.com

5.2. Warranty Information

All of ATX Networks' products have a 1-year warranty that covers manufacturer's defects or failures.

5.3. Safety

IMPORTANT! FOR YOUR PROTECTION, PLEASE READ THE FOLLOWING:

WATER AND MOISTURE: Care should be taken so that objects do not fall and liquids are not spilled into the enclosure through openings.

POWER SOURCES: The device should be connected to a power supply only of the type described in the operating instructions or as marked on the device.

GROUNDING OR POLARIZATION: Precautions should be taken so that the grounding or polarization means of the device is not defeated.

POWER CORD PROTECTION: Power supply cords should be routed so that they are not likely to be pinched by items placed upon or against them, paying particular attention to cords at plugs, convenience receptacles, and the point where they exit from the device.

SERVICING: The user should not attempt to service the device beyond that described in the operating instructions. All other servicing should be referred to qualified service personnel.

FUSING: If your device is equipped with a fused receptacle, replace only with the same type fuse. Refer to replacement text on the unit for correct fuse type.

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