

PDI Headend Electronics



PDI-50121AM 12in1 Agile Multi Modulator System

| PAGES | CONTENTS |
|-------|-------------------------|
| 1 | Introduction & Features |
| 2 | Specifications |
| 4 | Front Panel Controls |
| 5 | Rear Panel Controls |
| 6 | Guide To Operation |
| 7 | Inspection & Warranty |

OPERATING INSTRUCTIONS

BEFORE OPERATING PLEASE READ THIS MANUAL
THOROUGHLY AND RETAIN IT FOR FUTURE REFERENCE.

TECHNICAL SUPPORT

CALL PDI ENGINEERING
1-800-242-1606



PDI Headend Electronics

PDI-50121AM FREQUENCY AGILE TELEVISION MODULATOR

INTRODUCTION

The PDI-50121AM is a PLL synthesized, SAW filtered, frequency agile modulator. It offers 133 TV channels at an output of 45dBmV. This exceptional unit is manufactured and tested to the highest standards and complies with all FCC requirements. The PDI-50121AM covers all cable channels from 2 through 134 (54-860MHz) including A-5 to A-1. VHF and HRC are also available. Channel selection is accomplished with "user friendly" up/down controls on the front panel. The selected channel is then automatically locked into memory to insure correct operation after a power failure. The **PDI-50121AM** consists of 12 individual, vertically mounted, frequency agile modulators and an efficient switching type power supply module mounted in one 3-1/2" high housing. It is designed for 19" rack mounting. Each modulator is SAW filtered and is factory set to the desired channel and proper offset. Recessed front panel controls are preset, at the factory, for 87.5% depth of modulation, ± 25 kHz audio deviation, and -15dBc video audio ratio. RF is set at maximum. It offers excellent video performance and high reliability in a 2U rack.

FEATURES

- +45dBmV RF output level
- Microprocessor Up/Down button to select output channel in the range of 2 to 134 (54-860MHz) including A-5 to A-1 (95 to 99)
- FCC offset externally selectable, 0kHz, +12.5kHz or +25kHz
- >-60dB spurious performance at a video output level of 45dBmV
- Professional grade SAW vestigial sideband filter for true adjacent channel operation
- UHF and HRC available
- 2 year warranty
- UL Listed Canada/U.S.
- BTSC stereo compatible
- 4.5 MHz input

OPERATING INSTRUCTIONS

BEFORE OPERATING PLEASE READ THIS MANUAL
THOROUGHLY AND RETAIN IT FOR FUTURE REFERENCE.

TECHNICAL SUPPORT

CALL PDI ENGINEERING
1-800-242-1606



PDI Headend Electronics

SPECIFICATIONS

R
F

| | |
|-----------------------------|---|
| Output Channels | UP/DOWN Selectable 2 Through 134 including A-5 to A-1 (95-99). |
| Output Level | +45dB Range |
| Output Level Adjustment | 20dB Range |
| Spurious Output | At least 60dB Below Video Carrier (@ +60dBmV Output With Aural Carrier 15dB Down) |
| Broadband Noise | 80dB Below Video Carrier (@ +60dBmV Output) |
| Frequency Stability | ±5kHz Maximum (±3kHz typical) |
| Vestigial Sideband Response | -20dB at IF Channel Edge; -60dB at Adjacent Video and Aural Carrier Frequencies and Frequencies Further Removed |

V
I
D
E
O

| | |
|----------------------|--|
| Input Type | Composite Video, Negative Sync. |
| Input Level | 0.5 Vp-p Min. for 87.5% Depth of Modulation |
| Frequency Response | +0.75dB (10Hz to 4.2MHz) |
| Differential Gain | 3% Typical at 87.5% Modulation |
| Differential Phase | <3 Degrees Typical at 87.5% Modulation |
| Hum and Noise | -60dB Min. at 87.5% Modulation |
| Tilt | 1.1% Maximum on 60Hz, 50% Square Wave |
| Group Delay Response | Meets FCC Distortion Requirements for Color Transmission |

PDI Headend Electronics

SPECIFICATIONS (CONTINUED)

A
U
D
I
O

| | |
|------------------------|------------------------------------|
| Input Type | Unbalanced (Balanced optional) |
| Input Impedance | 600 ohms |
| Input Level | 250mV Min. for 25kHz Deviation |
| Frequency Response | Mono ± 0.75 dB (30Hz to 20kHz) |
| Intercarrier Frequency | 4.5MHz ± 100 Hz |

O
P
E
R
A
T
I
O
N
A
L

| | |
|-------------------------|---|
| AC Line and Power | 85 - 265 Vac, 50,60Hz, 25 Watts |
| Operational Temperature | 0 to 50 Degrees C |
| Rear Panel Connections | RF Output F female Video Input F female Audio Input RCA |
| Front Panel Controls | UP/DOWN Channel Select CATV/UHF/HRC Mode Select (SET) RF Output Level Aural Carrier Level Video Modulation Depth Audio Deviation |
| Front Panel Indicators | Power On LED 2 Digit Channel Number +100 Range LED |

PDI Headend Electronics



PDI-50121AM FRONT PANEL CONTROLS

1. **AUDIO MOD**
Used to adjust the deviation for audio modulation. Turn control clockwise to increase deviation.
Note: Controls are adjusted for proper operation at the factory ($\pm 25\text{kHz}$ MONO)
2. **VIDEO MOD**
This control adjusts the video modulation index which is set to 87.5%. A modulator index meter is necessary to monitor.
3. **AURAL CARRIER**
The audio carrier level is controlled by this adjustment. The aural level is usually set 15 to 17dB lower than the video carrier.
4. **RF OUTPUT LEVEL**
Adjustment for output level at the RF OUTPUT. The control is adjustable over a 20dB range. Turn clockwise to increase output level.
5. **+100 RANGE**
LED on
6. **POWER INDICATOR**
Red LED lights when power is applied to the modulator.
7. **CHANNEL DISPLAY**
The output channel is displayed.
Automatic power saving mode.
8. **CHANNEL UP, DOWN**
Use channel UP (^) and/or DOWN (v) to select. Channel locks automatically.
9. **SET (MODE)**
Use to change from UHF/CATV/HRC. All units are shipped in CATV mode.

PDI Headend Electronics

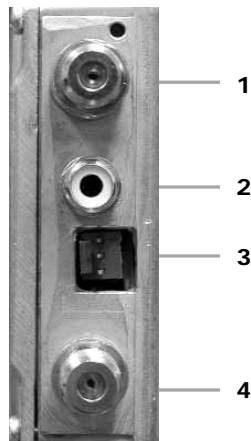


5

1 2 3 4

PDI-50121AM REAR PANEL CONTROLS

- 1. VIDEO INPUT**
Feed this F type input with video signal in the range of 0.75-1.5 Vp-p. Input impedance is 75ohms.
- 2. AUDIO INPUT**
The audio signal is connected to this RCA input in the range of -12 to +10dBm.
- 3. HARNESS CONNECTORS**
Connect the wire harness from the power supply to this point.
- 4. RF OUTPUT**
A modulated CATV signal (in the range of channels 2-134 (54-860MHz) at +45dBmV minimum output is provided at this port.
- 5. POWER CORD SOCKET**
A power cord with any worldwide AC configuration may be plugged in here.



5

OPERATING INSTRUCTIONS

BEFORE OPERATING PLEASE READ THIS MANUAL
THOROUGHLY AND RETAIN IT FOR FUTURE REFERENCE.

TECHNICAL SUPPORT

CALL PDI ENGINEERING
1-800-242-1606



PDI Headend Electronics

GUIDE TO OPERATION

HRC MODE

All units are shipped in CATV mode. To change from CATV to HRC:

1. Press the set button on the front panel until "b2" appears in the display.
2. Press the UP or DOWN arrow to select the desired channel.
All output channels are now in HRC mode.

UHF MODE

To Change to UHF mode:

1. Press the set button until "b0" appears in the display.
2. Press the UP or DOWN arrow to select the desired channel.
All output channels are now in UHF mode.

CATV MODE

To Change to CATV mode:

1. Press the set button until "b1" appears in the display.
2. Press the UP or DOWN arrow to select the desired channel.
All output channels are now in CATV mode.

UHF="b0" CATV="b1" HRC="b2"

VIDEO MODULATION ADJUST

Connect a video source of the proper characteristics (1Vp-p negative sync.) to the VIDEO INPUT on the rear panel. Monitor the modulation index when adjusting the VIDEO MOD on the front panel. Set the modulation index at 87.5%. The correct setting may vary slightly with differences in picture content. Note: The factory settings on each unit should be very close to your final settings.

AUDIO MODULATION ADJUST

Connect an audio source of at least 250mV to the AUDIO INPUT terminal on the rear panel. Connect an audio deviation meter to the RF OUT of the modulator. Turn the AUDIO MOD control clockwise until the audio modulation deviation is ± 25 kHz. Note: The factory setting should be very close to your final settings.

EXTERNAL STEREO OPERATION

1. You must set an internal jumper if applying a 4.5MHz BTSC signal to the AUDIO IN on the rear panel. **Please call PDI Technical Support for proper set-up.**
2. An encoded stereo baseband signal may also be applied to the regular AUDIO INPUT terminal when an internal jumper is set to stereo. **Please call PDI Technical Support for proper set-up.**

PDI Headend Electronics

PDI-50121AM

INSPECTION

When the unit is delivered, immediately inspect the unopened box for signs of obvious damage. Note any problem on the carrier's delivery tickets before signing. If later inspection reveals concealed damage, a claim must be filed with the carrier within 10 days. Save all packing materials for inspection by the carrier or in case the unit should ever need to be returned to the factory for service. In case of obvious physical damage do not attempt to operate the modulator as further damage could result. Contact your distributor or the factory if you need assistance. The unit should be allowed to warm up for at least an hour before testing to assure that it meets specifications. Any unused port should be terminated after the setup procedure is completed.

WARRANTY 2 years

PDI Communications Inc. equipment has been thoroughly tested and found to be in proper operating condition when shipped from the factory and is warranted to be free from defects in materials or workmanship that may develop within five years of the date of purchase.

PDI agrees to remedy such or furnish a new part, or at its option an entire unit, or any part of a unit that discloses such defect, provided that the unit or part is returned to PDI or a PDI authorized service facility according to the terms listed below.

Prior authorization with a return authorization number issued by PDI or its representative is required for all returns. The purchaser shall be responsible for all freight charges on shipment to PDI unless otherwise authorized. Charges to return a unit or part to a purchaser will be paid by PDI. Claims for damage in shipment to the purchaser must be filed by the purchaser with the carrier in accordance with the carrier's regulations. All PDI shipping containers meet the requirements of the consolidated freight classification standard.