

# PDI-Headend Electronics



## **PDI-50121SE**

**MTS STEREO ENCODER**

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### **OPERATING INSTRUCTIONS**

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

### **TECHNICAL SUPPORT**

CALL PDI ENGINEERING  
1-800-242-1606



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## INTRODUCTION

The PDI-50121SE is a high quality MTS Stereo Encoder accepting Left and Right audio signals and generating a composite BTSC format stereo signal. The 50121SE is specially designed to work with our PDI-50121CM series MULTI MOD™ system without the need of complicated wiring or special instrumentation for set up. Basically it is a "plug and play" unit. With a simple flip of a front panel switch, the PDI-50121SE is able to work with most manufactures modulator systems.

## FEATURES

- Easy set-up
- BTSC format stereo output
- Broadcasts Surround Sound information
- Single left and right level control
- UL Listed Canada/U.S.
- ISO 9002 certified

## SPECIFICATIONS

<b>Operating Voltage</b>	+12VDC
<b>Frequency Response</b>	20HZ to 14kHz +/- 1dB
<b>Separation</b>	26dB 20HZ to 14kHz typical
<b>Pilot Rejection</b>	50dB
<b>Signal To Noise Ratio</b>	-65dB, overall through receiver or precision demodulator
<b>Compressor</b>	L-R
<b>Audio Input Impedance</b>	10kohms, Unbalanced
<b>Normal Input Level (APL)</b>	0 dBm, adjustable +/- 10dB
<b>Distortion</b>	0.5% maximum TDH
<b>Output Level</b>	3.5Vp-p at 600 ohms
<b>Deviation</b>	±25kHz, mono ±50kHz, stereo ±100kHz, maximum
<b>Dimensions</b>	.93" W x 9" D x 3.5" H 19" W x 9.5" D x 3.5" H (mounted in 19" rack)
<b>Power Requirement</b>	117Vac, 60Hz, 25 watts
<b>Weight</b>	10.7 oz.

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### TECHNICAL SUPPORT

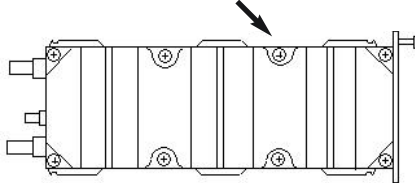
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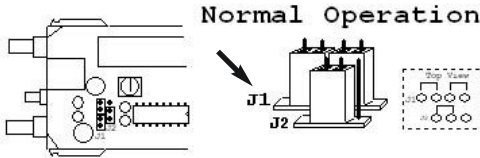
## OPERATING INSTRUCTIONS

### SET UP FOR USE WITH PDI-50121CM "MULTI MOD™" SYSTEM

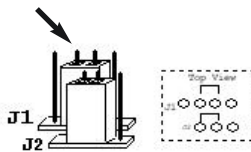
1. Disconnect Power From your PDI-50121CM Unit.
2. Remove all eight screws from top cover.



3. Observe J1 near the rear of the unit. J1 will be configured for normal operation (see diagram). If J1 does not exist, This is an earlier unit and you must proceed to **SET UP FOR USE WITH Other Manufacturers Modulators** (page 3).



4. On J1, Remove both jumpers and place only one jumper in the center.

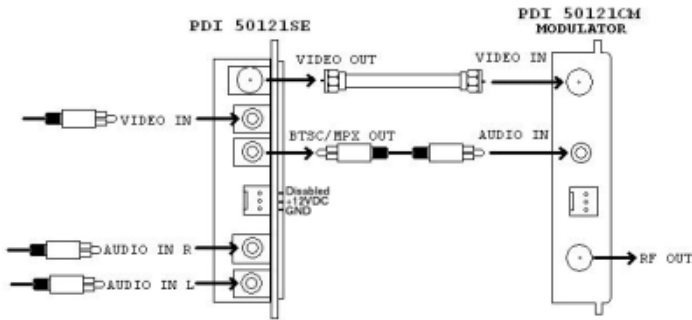


5. Observe J2. If J2 does not have any jumper on it, do not be concerned. This is **Pre-emphasis Defeat**, explained in the next section.
6. Re-attach the cover and all screws.

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## OPERATING INSTRUCTIONS (CONT.)

- HOOK up the 50121SE to the 50121CM as per diagram.



- Set the PRE-EMPHASIS Switch on front panel to the **PDI** position.



- Set up is complete. Your unit will now broadcast in STEREO. To adjust the volume, use the audio level control on the 50121SE. Left and Right audio levels will track together.

## SET UP FOR USE WITH *Other Manufacturers Modulators*

The TV modulator you wish to use with our 50121SE stereo encoder must be capable of defeating its **Pre-emphasis network**. In most cases, this is accomplished by moving a jumper or flipping a switch on the modulator. If you are not familiar with this procedure, you can contact your modulator manufacturer for proper set up. Set up should be, Audio Response 'FLAT' (Pre-Emphasis defeated).

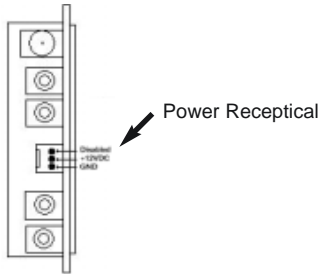
### METHOD 1 (with Spectrum Analyzer)

- Ensure that the Pre-emphasis network of the modulator you wish to encode is defeated.

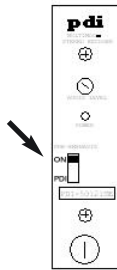
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## OPERATING INSTRUCTIONS (CONT.)

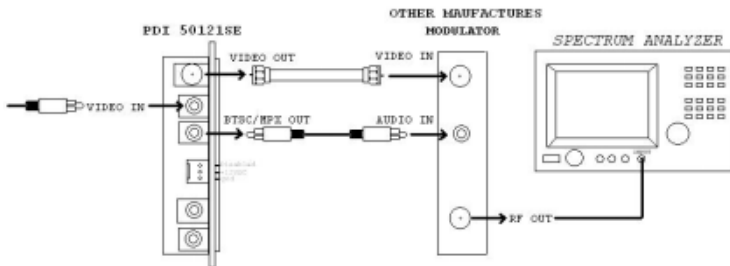
2. Make sure that the source power connector is compatible with the PDI-50121SE's power receptacle. If not, PDI will supply an adaptor upon request.



3. Set the pre-emphasis switch on the front panel to the **ON** position.



4. Hook up the PDI-50121SE unit to your modulator as shown and supply power to both units. **DO NOT** hook audio into the PDI-50121SE at this time.

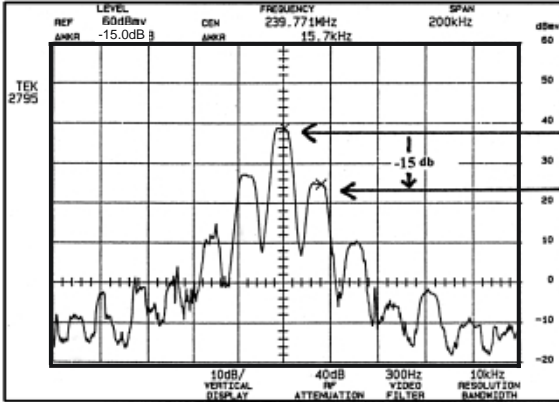


- 5a. Observe the RF out of the TV modulator in the Spectrum Analyzer. Place the aural carrier on center frequency. Set amplitude to 10dBmV/per div. Set the span/horizontal to 200kHz. (20kHz per div.) For best picture, 3kHz to 10kHz resolution bandwidth is suggested.

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## OPERATING INSTRUCTIONS (CONT.)

- 5b. To set the deviation correctly, observe the aural carrier in the spectrum analyzer. Check the amplitude of the 15.734kHz stereo sidebands relative to the audio carrier. Still with **NO** audio signal present, adjust the audio deviation control on the TV modulator so that the upper 15.734kHz stereo pilot sideband to the right of the aural carrier to -15dB down (+/- .25 dB) from the aural carrier.



Aural carrier

15.734kHz Sideband

5c.) **IMPORTANT!**

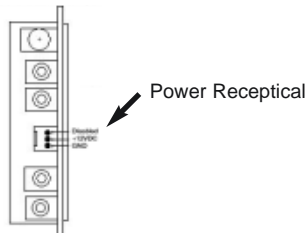
Once this level is set, the audio level/deviation control on the TV modulator should not be adjusted any further. If more or less volume is needed during operation, adjust the level from the PDI-50121 SE Stereo Encoder level control or at the audio source.

6. You Can Now hook up the Left and Right audio to the PDI-50121SE Stereo Encoder.  
**SET UP IS COMPLETE.**

## METHOD 2

(If a Spectrum Analyzer is not available)

1. Ensure that the pre-emphasis network of the modulator you wish to encode is defeated.
2. Make sure that the source power connector is compatible with the PDI-50121SE's power receptacle (see diagram). If not, PDI will supply an adaptor upon request.



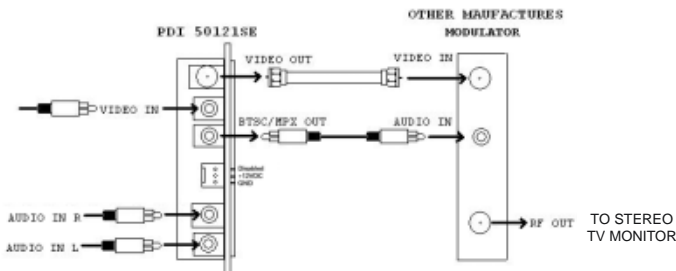
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## OPERATING INSTRUCTIONS (CONT.)

3. Set the pre-emphasis switch on the front panel to the **ON** position..



4. HOOK up the PDI-50121SE unit to your modulator as shown and supply power to both units.



5. Hook a stereo TV monitor to the RF out of your modulator.
6. While listening to the stereo TV, set the audio modulation on your modulator for a maximum (STEREO) separation. Basically, you are setting the  $-15\text{dB}$  down as shown in Method 1, but you are setting it by ear. Listen for the best position where you can hear a definite stereo separation.
7. Once this is set, do not adjust the audio modulation any further. If more or less volume is needed during operation, adjust the audio level from the PDI-50121SE Stereo Encoder's level control or at the audio source.

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## PDI-SE-1 and PDI-SE-2

### 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 5 years

Passive Devices, Inc. (PDI) 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 two 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 shipments 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.