

PDI-Headend Electronics



PDI-60AFP

Agile In, Fixed Out Processor

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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

PDI Communications, Inc. **PDI-60AFP** is a professional quality, user friendly, high performance TV signal processor designed primarily for CATV headend operation. Rock solid PLL controlled tuning by advanced microprocessor insures precise UHF, VHF or CATV (STD-HRC) channel access. Careful design of the input achieves a wide dynamic range and a very low noise figure. Input tuning covers the range of 54 to 860MHz with the ability to properly receive CATV channels already offset 12.5 or 25kHz as in node operation. The fixed channel output ranges from 54 to 860MHz plus sub channels T-7 through T-13 and is controlled by another PLL circuit. Necessary 12.5 or 25kHz offsets are factory set depending on the output frequency. The selected input channel has non-volatile memory that restores the channel automatically in the event of a power failure. SAW filtering guarantees broadcast quality pictures. A standby oscillator provides a CW video carrier level for system pilot AGC control if the input drops below a useable level.

FEATURES

- +60dBmV RF output with very low spurious response
- Microprocessor controlled PLL tuning for precise frequency control
- Non-volatile channel memories
- User friendly channel selection
- Wide input AGC holds output constant
- Professional grade SAW filters allow true adjacent channel operation
- Composite IF loop-through for scrambling or IF insertion
- BTSC stereo compatible
- HRC available
- Brushed aluminum faceplate
- 2 year warranty
- UL Listed Canada/U.S.
- ISO 9002 certified
- Also available in all PAL configurations

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PDI-60AFP SPECIFICATIONS

INPUT SECTION

Input Frequency Range	54 to 860MHz
Input Channels	UHF, VHF, CATV (STD, HRC)
Input Level Range	-20 to +20dBmV (0 to +10dBmV recommended)
Noise Figure	7.5dB @ VHF 11 dB @ UHF
AGC Range	±20dB
AGC Stability	±0.5dB
Impedance	75ohms

IF SECTION

IF Frequency	45.75MHz Picture 41.25MHz Sound
IF Output Level	+18dBmV ±2dB
IF IN/OUT Impedance	75ohms (14dB return loss min.)
VSB Response	> -60dB typical (at adjacent picture and sound)

OUTPUT SECTION

Output Frequency	54 to 860MHz plus sub frequencies T-7 through T-13
Frequency Stability	±5kHz max.
Spurious Output	-60dBc (@ 60dBmV with aural carrier - 1.5dBc)
Group Delay Response	Meets FCC requirement
Frequency Response	±1dB max. in channel

GENERAL

Power Requirements	117 VAC ±10%, 60Hz, 28 W
Temperature Range	0 to +50 degrees C
Rear Panel Connections	RF Input F Female RF Output F Female AC Convenience 3 Cond. Polarized w/Ground
Front Panel Controls	RF Output Level Adjust Audio Carrier Level Adjust Input Channel Set Test Point -30dBc
Front Panel Indicators	Input Channel Red Digital Display Power On Red LED

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OPERATING INSTRUCTIONS

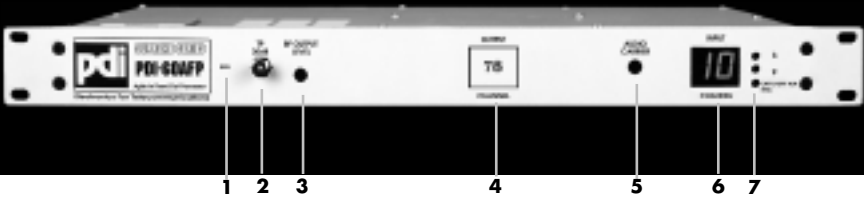
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PDI-60AFP FRONT PANEL CONTROLS

- 1. Power Indicator**
Red LED lights when power is applied to the modulator.
- 2. Test Point**
Output levels read at this point will be down 30dB from actual output.
- 3. RF Output Level**
Adjustment for the output level at RF OUTPUT. The control is adjustable over a 20dB range. Turn clockwise to increase output level.
- 4. Output Channel Selection**
Any fixed channel from 2 to 134 and A-1 to A-5 is available and is set at the factory.
- 5. Audio Carrier**
The audio carrier level can be set by adjusting this control. The setting usually set 15 to 17dB lower than the video carrier.
- 6. Input Channel Display**
The channel number received by the processor is displayed.
- 7. Input Channel Selection**
Any UHF, VHF, CATV including A-5 to A-1 can be selected by pushing channel up (^) or channel down (v) until the proper number is displayed. Use the accompanying "HEADEND DISPLAY CONVERSION CHART" to select the correct display number for the UHF and "A minus" channels.
- 8. Instruction Labels**
A handy instruction label for setting processor input and modes is affixed to the top of the processor housing.

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PDI-60AFP REAR PANEL CONTROLS

- 1. RF Input**
Connect to antenna or other RF source. Ideal operating level is approximately +9dBmV.
- 2. IF Out**
A composite IF signal connection is provided for a scrambling encoder or an emergency alert system. The output level is +18dBmV \pm 2dBmV. Install a jumper cable from this output to IF IN when no external equipment is used.
- 3. IF In**
The IF signal from a scrambling encoder or emergency alert systems IF OUTPUT, connects to this point. The recommended input level is approximately +18dBmV. A jumper cable must be installed from IF OUT to this input when no external equipment is used.
- 4. RF Output**
A +60dBmV modulated CATV signal in the frequency range of 54 to 860MHz (CH.2-134) plus T-7 through T-13 is provided at this connection.
- 5. Power Cord**
Connect this power cord to 117 VAC, 60Hz Power source only.
- 6. AC Power Socket**
An unswitched, AC convenience power source is provided by this socket. Power drain should not exceed 600 watts.

OPERATING INSTRUCTIONS

- 1. Jumper**
Connect the enclosed jumper from IF OUT to IF IN on the rear of the unit.
- 2. AC Power**
Plug the unit in and let it warm up for approximately 40 minutes before setting controls.
- 3. Processor Input**
Set input level to approximately +9dBmV. All processors are set at the factory to accept STANDARD CATV and OFF AIR signals at the input.

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OPERATING INSTRUCTIONS (CONTINUED)

To change the input frequency to accept CATV and HRC:

- 1) Press the (CATV/OFF AIR) button on front panel.
- 2) Press the up down arrow for either **b0** (OFF AIR), **b1** (CATV), **b2** (HRC)
- c) Press the (CATV/OFF AIR) button again.
- d) You are now in the mode you selected.

Note: Above instructions are also affixed to the top cover of the processor housing.

4. Processor Output

The processor fixed output frequencies are set at the factory for STANDARD CATV channels 2 to 134 (54 -860MHz) including A-1 to A-5 and sub channels T-7 through T-13. The channel number is affixed to the middle of the front panel.

Call PDI Engineering at (800) 242-1606 for any needed assistance. A "Technical Support" label with phone number is affixed at the rear of the processor.

5. RF and Audio Carrier Level Adjustment

Connect a signal level meter or the measuring device to the RF output on the rear panel. After tuning the meter to the output frequency of the PDI-60AFP, adjust for the desired level using the RF OUTPUT control on the front panel. For optimum performance, we recommend setting the RF OUTPUT control 3dB below maximum and using in-line pads to achieve the desired output level. The RF OUTPUT control can then be used to fine tune to the desired level over a range of 2 to 3dB. Return the signal level meter to the audio carrier frequency and use the front panel AUDIO CARRIER control to set the desired visual to aural carrier ratio (-15 to -17dB typical).

6. Input Display Settings

Input setting are achieved by pressing either the (^) channel up or (v) channel down buttons located on the front panel next to the digital input display. Refer to the "HEADEND DISPLAY CONVERSION CHART" enclosed.

7. Output Settings

The output setting is fixed and the channel number is displayed by a label affixed to the middle of the front panel and the left side of the rear panel.

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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 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.

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HEADEND DISPLAY CONVERSION CHART INPUT b0 OFF AIR

ORG Channel	Display	Carrier Freq. (MHz)
2	2	55.25
3	3	61.25
4	4	67.25
5	5	77.25
6	6	83.25
7	7	175.25
8	8	181.25
9	9	187.25
10	10	193.25
11	11	199.25
12	12	205.25
13	13	211.25
14	14	471.25
15	15	477.25
16	16	483.25
17	17	489.25
18	18	495.25
19	19	501.25
20	20	507.25
21	21	513.25
22	22	519.25
23	23	525.25
24	24	531.25
25	25	537.25
26	26	543.25
27	27	549.25
28	28	555.25
29	29	561.25
30	30	567.25
31	31	573.25
32	32	579.25
33	33	585.25
34	34	591.25
35	35	597.25
36	36	603.25
37	37	609.25
38	38	615.25
39	39	621.25
40	40	627.25
41	41	633.25
42	42	639.25
43	43	645.25
44	44	651.25

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HEADEND DISPLAY CONVERSION CHART INPUT b0 OFF AIR

ORG Channel	Display	Carrier Freq. (MHz)
45	45	657.25
46	46	663.25
47	47	669.25
48	48	675.25
49	49	681.25
50	50	687.25
51	51	693.25
52	52	699.25
53	53	705.25
54	54	711.25
55	55	717.25
56	56	723.25
57	57	729.25
58	58	735.25
59	59	741.25
60	60	747.25
61	61	753.25
62	62	759.25
63	63	765.25
64	64	771.25
65	65	777.25
66	66	783.25
67	67	789.25
68	68	795.25
69	69	801.25

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HEADEND DISPLAY CONVERSION CHART INPUT b1 CATV

U.S.A. CATV Channel	Display	Carrier Freq. (MHz)
2	2	55.25
3	3	61.25
4	4	67.25
5	5	77.25
6	6	83.25
7	7	175.25
8	8	181.25
9	9	187.25
10	10	193.25
11	11	199.25
12	12	205.25
13	13	211.25
14	14	121.25
15	15	127.25
16	16	133.25
17	17	139.25
18	18	145.25
19	19	151.25
20	20	157.25
21	21	163.25
22	22	169.25
23	23	217.25
24	24	223.25
25	25	229.25
26	26	235.25
27	27	241.25
28	28	247.25
29	29	253.25
30	30	259.25
31	31	265.25
32	32	271.25
33	33	277.25
34	34	283.25
35	35	289.25
36	36	295.25
37	37	301.25
38	38	307.25
39	39	313.25
40	40	319.25
41	41	325.25
42	42	331.25
43	43	337.25
44	44	343.25

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HEADEND DISPLAY CONVERSION CHART INPUT b1 CATV

U.S.A. CATV Channel	Display	Carrier Freq. (MHz)
45	45	349.25
46	46	355.25
47	47	361.25
48	48	367.25
49	49	373.25
50	50	379.25
51	51	385.25
52	52	391.25
53	53	397.25
54	54	403.25
55	55	409.25
56	56	415.25
57	57	421.25
58	58	427.25
59	59	433.25
60	60	439.25
61	61	445.25
62	62	451.25
63	63	457.25
64	64	463.25
65	65	469.25
66	66	475.25
67	67	481.25
68	68	487.25
69	69	493.25
70	70	499.25
71	71	505.25
72	72	511.25
73	73	517.25
74	74	523.25
75	75	529.25
76	76	535.25
77	77	541.25
78	78	547.25
79	79	553.25
80	80	559.25
81	81	565.25
82	82	571.25
83	83	577.25
84	84	583.25
85	85	589.25
86	86	595.25
87	87	601.25
88	88	607.25
89	89	613.25

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HEADEND DISPLAY CONVERSION CHART INPUT b1 CATV

U.S.A. CATV Channel	Display	Carrier Freq. (MHz)
90	90	619.25
91	91	625.25
92	92	631.25
93	93	637.25
94	94	643.25
A-5	95	91.25
A-4	96	97.25
A-3	97	103.25
A-2	98	109.25
A-1	99	115.25
100	100	649.25
101	101	655.25
102	102	661.25
103	103	667.25
104	104	673.25
105	105	679.25
106	106	685.25
107	107	691.25
108	108	697.25
109	109	703.25
110	110	709.25
111	111	715.25
112	112	721.25
113	113	727.25
114	114	733.25
115	115	739.25
116	116	745.25
117	117	751.25
118	118	757.25
119	119	763.25
120	120	769.25
121	121	775.25
122	122	781.25
123	123	787.25
124	124	793.25
125	125	799.25
126	126	805.25
127	127	811.25
128	128	817.25
129	129	823.25
130	130	829.25
131	131	835.25
132	132	841.25
133	133	847.25
134	134	853.25

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HEADEND DISPLAY CONVERSION CHART INPUT b2 HRC

U.S.A. CATV Channel	Display	Carrier Freq. (MHz)
2	2	55.0027
3	3	60.0030
4	4	66.0060
5	5	78.0039
6	6	84.0042
7	7	174.0087
8	8	180.0090
9	9	186.0093
10	10	192.0096
11	11	198.0099
12	12	204.0102
13	13	210.0105
14	14	120.0060
15	15	126.0063
16	16	132.0066
17	17	138.0069
18	18	144.0072
19	19	150.0075
20	20	156.0078
21	21	162.0081
22	22	168.0084
23	23	216.0108
24	24	222.0084
25	25	228.0114
26	26	234.0117
27	27	240.0120
28	28	246.0123
29	29	252.0126
30	30	258.0129
31	31	264.0132
32	32	270.0135
33	33	276.0138
34	34	282.0141
35	35	288.0144
36	36	294.0147
37	37	300.0150
38	38	306.0153
39	39	312.0156
40	40	318.0159
41	41	324.0162
42	42	330.0165
43	43	336.0168
44	44	342.0171

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HEADEND DISPLAY CONVERSION CHART INPUT b2 HRC

U.S.A. CATV Channel	Display	Carrier Freq. (MHz)
45	45	348.0174
46	46	354.0177
47	47	360.0180
48	48	366.0183
49	49	372.0186
50	50	378.0189
51	51	384.0192
52	52	390.0195
53	53	396.0198
54	54	402.0201
55	55	408.0204
56	56	414.0207
57	57	420.0210
58	58	426.0213
59	59	432.0216
60	60	438.0219
61	61	444.0222
62	62	450.0225
63	63	456.0228
64	64	462.0231
65	65	468.0234
66	66	474.0237
67	67	480.0240
68	68	486.0243
69	69	492.0246
70	70	498.0249
71	71	504.0252
72	72	510.0255
73	73	516.0258
74	74	522.0261
75	75	528.0264
76	76	534.0267
77	77	540.0270
78	78	546.0273
79	79	552.0276
80	80	558.0279
81	81	564.0282
82	82	570.0285
83	83	576.0288
84	84	582.0291
85	85	588.0294
86	86	594.0297
87	87	600.0300
88	88	606.0303
89	89	612.0306

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HEADEND DISPLAY CONVERSION CHART INPUT b2 HRC

U.S.A. CATV Channel	Display	Carrier Freq. (MHz)
90	90	618.0309
91	91	624.0282
92	92	630.0315
93	93	636.0318
94	94	642.0321
A-5	95	90.0045
A-5	96	96.0048
A-3	97	102.0051
A-2	98	108.0250
A-1	99	114.0250
100	100	648.0324
101	101	654.0327
102	102	660.0330
103	103	666.0333
104	104	672.0336
105	105	678.0339
106	106	684.0342
107	107	690.0345
108	108	696.0348
109	109	702.0351
110	110	708.0354
111	111	714.0357
112	112	720.0360
113	113	726.0363
114	114	732.0366
115	115	738.0369
116	116	744.0372
117	117	750.0375
118	118	756.0378
119	119	762.0381
120	120	768.0384
121	121	774.0396
122	122	780.0390
123	123	786.0393
124	124	792.0396
125	125	798.0399

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