OTD-3000-B/G

FREQUENCY AGILE
TELEVISION DEMODULATOR

PAL B/G STANDARD

INSTRUCTION MANUAL

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1) INTRODUCTION

The Olson Technology OTD-3000-B/G is a frequency agile television demodulator that will select VHF, UHF or cable channels from 48.25 to 855.25MHz. SAW filtering is used for excellent adjacent channel operation.

The OTD-3000-B/G provides 2 outputs for video (each at 1 Volt), audio (balanced) at .5 Volt, MPX audio (unbalanced, without de-emphasis) at .5 Volt, 5.5MHz aural subcarrier at > +35dBmV, and unfiltered I.F.. This unit is also capable of providing a composite video output (video with 5.5MHz aural subcarrier present). Power consumption is 10 Watts at 220 VAC.

2) INSTALLATION

Mount the unit in a standard equipment rack and provide it with a source of AC power.

For proper ventilation, it is desirable to allow an empty space above and below the unit in the rack. A space the same height as the OTD-3000-DC would be adequate. Try to avoid locations that are extremely hot or moist or which have extreme temperature variations.

3) INPUT CONNECTION

Connect the signal to be demodulated to the VHF/UHF input on the rear of the OTD-3000-DC. For optimum quality, the input signal level should be a minimum of +5dBmV and may be as high as +20dBmV. The unit will function with input levels below +5dBmV, but the signal to noise ratio will be degraded as the level is lowered.

This unit incorporates a video squelch circuit that is set to cut off the video output at input levels below approximately -30dBmV.

4) REAR PANEL OUTPUT CONNECTIONS

A) Demodulated video is available at both of the video output F-fittings. The output level is internally set for approximately 1V P-P for a fully-modulated video carrier when terminated in 75Ω.

B) Demodulated baseband audio is available at the two audio out screw terminals. This is a balanced output that will easily drive a 600 ohm load and is internally set to provide approximately .5V P-P on program peaks. Either terminal may be grounded for applications requiring an unbalanced output.

C) MPX audio (audio output without de-emphasis) is available at the unbalanced MPX output F-fitting. This output will provide approximately .5 V into 75 Ohms on program peaks.

D) The 5.5MHz aural subcarrier is available at the 5.5MHz output F-fitting. This output is typically >+35dbmV.

E) Composite video (video with the 5.5MHz subcarrier present) is available at the video output F-fittings if the rear panel composite switch is turned on. Leave this switch off if the 5.5MHz subcarrier is not required on the video output.

5) CHANNEL SELECTION

Remove the small cover plate on the front panel under "CHANNEL SELECT" to expose the two 8-position DIP switches. Channel or frequency selection is accomplished by properly setting the eight positions on each of these two switches.

A) STANDARD CHANNELS:

Look up the switch codes for the channel you want to demodulate on pages 7 and 8 in this manual. A "0" indicates a switch position as down and a "1" indicates a switch position as up. Using the codes shown for the channel you require, set the DIP switches according to the chart from left to right.

B) NON-STANDARD CHANNELS:

Switch codes for frequencies not listed may be computed using the information on pages 4, 5 and 6.

6) AFC OPERATION

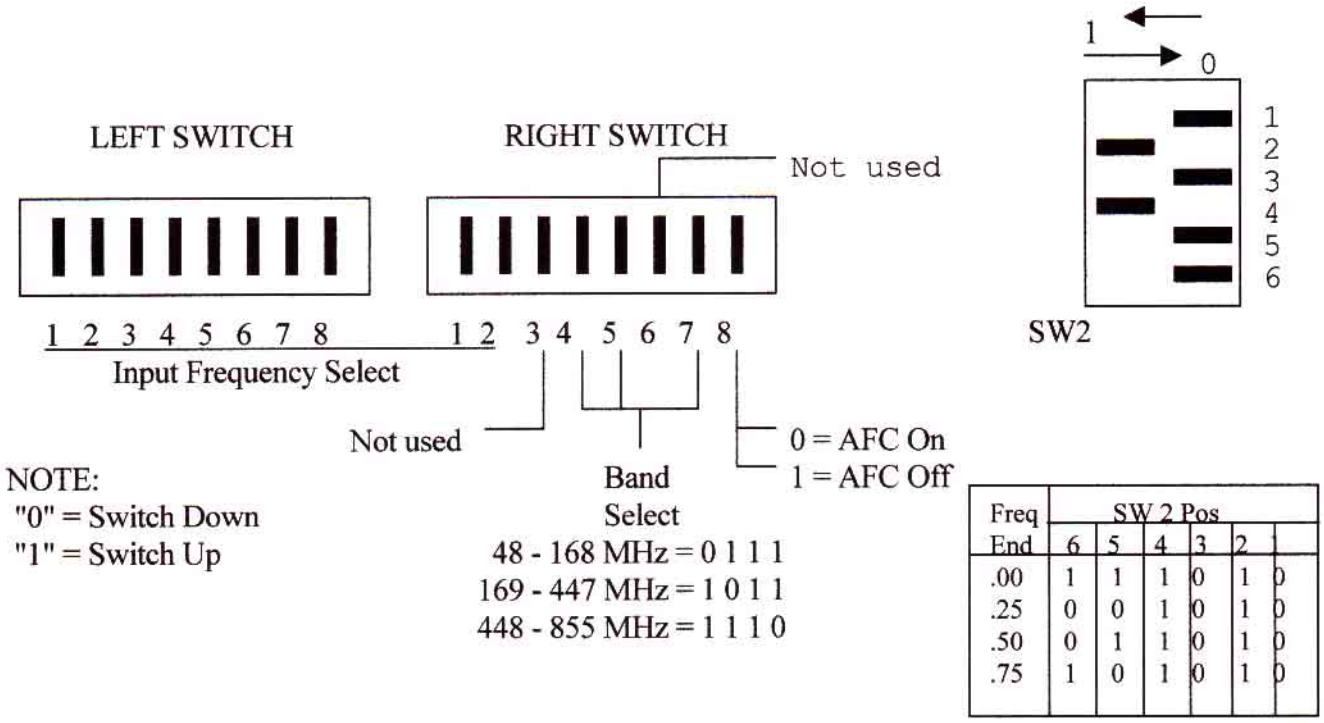
The OTD-3000-B/G has an AFC circuit which will hold the unit tuned to a selected channel should the source channel drift in frequency. This feature is usually not required but may be activated by moving the 8'th position of the right switch to down (on).

7) SELECTION OF NON-LISTED FREQUENCIES

Video carrier frequencies between 48.25 and 855.25 in .25MHz steps may be selected by following the procedure below.

The 16 positions of the two DIP switches behind the "CHANNEL SELECT" cover plate have specific functions as shown in Figure 1 and noted below.

SW 2 is a 6 position DIP switch on the PC board just behind and left of the front panel DIP switches. Remove top cover for access. Figure 1 shows SW 2 set for frequency ending in .25MHz. The chart shows settings for other frequencies.



Freq End	SW 2 Pos 6	5	4	3	2	1
.00	1	1	1	0	1	0
.25	0	0	1	0	1	0
.50	0	1	1	0	1	0
.75	1	0	1	0	1	0

Figure 1 - DIP SWITCH FUNCTIONS

Positions 1 through 8 of the left switch and positions 1 and 2 of the right switch select the input frequency in 1MHz increments. At the right switch, positions 4, 5 and 7 select the proper frequency band for the input tuner and position 8 switches the AFC feature on and off. Positions 3 and 6 are not used.

COMPUTING SWITCH SETTINGS FOR NON-STANDARD FREQUENCIES

Positions 1 through 8 of the left switch and positions 1 and 2 of the right switch each have numerical values as shown in figure 2 below. Each switch position is either UP = OFF = (value) or is DOWN = ON = 0. The TOTAL SWITCH VALUE is the sum of these individual values and set the frequency in 1MHz steps.

	LEFT SWITCH								RIGHT SWITCH	
Switch position	1	2	3	4	5	6	7	8	1	2
Value up	1	2	4	8	16	32	64	128	256	512
Value down	0	0	0	0	0	0	0	0	0	0

i.e.: 115 = 1 + 2 + 16 + 32 + 64

Figure 2 - DIP SWITCH VALUES

A) Decide on the required frequency yyy.xx.

B) Temporarily drop the .xx part and compute the total switch value required by adding 39.0 to the remaining number.

C) Set the DIP switches to equal the total required value.

D) Change the SW 2 setting if frequency ends with .00, .05, or .75. Factory setting is .25MHz.

E) Select the proper input tuner band and set the appropriate switch to activate this band.

EXAMPLE:

A) Example frequency of 76.25MHz is desired.

B) 76.25 - .25 = 76.0 + 39.0 = 115, the total switch value required.

C) The switch settings for a total of 115 would be: 1100 1110 00. Set the 1st 10 positions to this value 1 = Up, 0 = Down.

D) .25 is the default for SW 2 so it does not require changing.

E) 76.25MHz is in the 48-168MHz band, so set position 4 of the right switch down (on) to select this band.

Figure 3 - SWITCHES SET FOR 76.25MHz

The first time you perform this procedure, it may help to practice with a frequency whose switch settings are illustrated in one of the switch tables in this manual.

8) MISCELLANEOUS

The OTD-3000-B/G is equipped with a 0.25 slo-blo fuse. For safety, and to maintain proper performance of the unit, please replace only with an equivalent fuse.

PAL B, 7MHz CHANNEL SPACING

CHANNEL	FREQ.	DIP SWITCH SETTINGS	FREQ.	DIP SWITCH SETTINGS
2 E2	48.250	1110 1010 0000 1111	301.250	0010 1010 1001 0111
3 E3	55.250	0111 1010 0000 1111	308.250	1101 1010 1001 0111
4 E4	62.250	1010 0110 0000 1111	315.250	0100 0110 1001 0111
X	69.250	0011 0110 0000 1111	322.250	1001 0110 1001 0111
Y	76.250	1100 1110 0000 1111	329.250	0000 1110 1001 0111
Z	83.250	0101 1110 0000 1111	336.250	1110 1110 1001 0111
Z+1	90.250	1000 0001 0000 1111	343.250	0111 1110 1001 0111
Z+2	97.250	0001 0001 0000 1111	350.250	1010 0001 1001 0111
			357.250	0011 0001 1001 0111
S1	105.250	0000 1001 0000 1111	364.250	1100 1001 1001 0111
S2	112.250	1110 1001 0000 1111		
S3	119.250	0111 1001 0000 1111	371.250	0101 1001 1001 0111
S4	126.250	1010 0101 0000 1111	378.250	1000 0101 1001 0111
S5	133.250	0011 0101 0000 1111	385.250	0001 0101 1001 0111
			392.250	1111 0101 1001 0111
S6	140.250	1100 1101 0000 1111	399.250	0110 1101 1001 0111
S7	147.250	0101 1101 0000 1111		
S8	154.250	1000 0011 0000 1111	406.250	1011 1101 1001 0111
S9	161.250	0001 0011 0000 1111	413.250	0010 0011 1001 0111
S10	168.250	1111 0011 0000 1111	420.250	1101 0011 1001 0111
			427.250	0100 1011 1001 0111
5 E5	175.250	0110 1011 0001 0111	434.250	1001 1011 1001 0111
6 E6	182.250	1011 1011 0001 0111		
7 E7	189.250	0010 0111 0001 0111	441.250	0000 0111 1001 0111
8 E8	196.250	1101 0111 0001 0111	448.250	1110 0111 1001 1101
9 E9	203.250	0100 1111 0001 0111	455.250	0111 0111 1001 1101
			462.250	1010 1111 1001 1101
10 E10	210.250	1001 1111 0001 0111	469.250	0011 1111 1001 1101
11 E11	217.250	0000 0000 1001 0111		
12 E12	224.250	1110 0000 1001 0111	476.250	1100 0000 0101 1101
			483.250	0101 0000 0101 1101
S11	231.250	0111 0000 1001 0111	490.250	1000 1000 0101 1101
S12	238.250	1010 1000 1001 0111	497.250	0001 1000 0101 1101
			504.250	1111 1000 0101 1101
S13	245.250	0011 1000 1001 0111		
S14	252.250	1100 0100 1001 0111	511.250	0110 0100 0101 1101
S15	259.250	0101 0100 1001 0111	518.250	1011 0100 0101 1101
S16	266.250	1000 1100 1001 0111	525.250	0010 1100 0101 1101
S17	273.250	0001 1100 1001 0111	532.250	1101 1100 0101 1101
			539.250	0100 0010 0101 1101
S18	280.250	1111 1100 1001 0111		
S19	287.250	0110 0010 1001 0111	546.250	1001 0010 0101 1101
S20	294.250	1011 0010 1001 0111	553.250	0000 1010 0101 1101

PAL G, 8MHz CHANNEL SPACING

CH.	FREQ.	DIP SWITCH SETTINGS	CH.	FREQ.	DIP SWITCH SETTINGS
21	471.250	0111 1111 1001 1101	46	671.250	0110 0011 0101 1101
22	479.250	0110 0000 0101 1101	47	679.250	0111 0011 0101 1101
23	487.250	0111 0000 0101 1101	48	687.250	0110 1011 0101 1101
24	495.250	0110 1000 0101 1101	49	695.250	0111 1011 0101 1101
25	503.250	0111 1000 0101 1101	50	703.250	0110 0111 0101 1101
26	511.250	0110 0100 0101 1101	51	711.250	0111 0111 0101 1101
27	519.250	0111 0100 0101 1101	52	719.250	0110 1111 0101 1101
28	527.250	0110 1100 0101 1101	53	727.250	0111 1111 0101 1101
29	535.250	0111 1100 0101 1101	54	735.250	0110 0000 1101 1101
30	543.250	0110 0010 0101 1101	55	743.250	0111 0000 1101 1101
31	551.250	0111 0010 0101 1101	56	751.250	0110 1000 1101 1101
32	559.250	0110 1010 0101 1101	57	759.250	0111 1000 1101 1101
33	567.250	0111 1010 0101 1101	58	767.250	0110 0100 1101 1101
34	575.250	0110 0110 0101 1101	59	775.250	0111 0100 1101 1101
35	583.250	0111 0110 0101 1101	60	783.250	0110 1100 1101 1101
36	591.250	0110 1110 0101 1101	61	791.250	0111 1100 1101 1101
37	599.250	0111 1110 0101 1101	62	799.250	0110 0010 1101 1101
38	607.250	0110 0001 0101 1101	63	807.250	0111 0010 1101 1101
39	615.250	0111 0001 0101 1101	64	815.250	0110 1010 1101 1101
40	623.250	0110 1001 0101 1101	65	823.250	0111 1010 1101 1101
41	631.250	0111 1001 0101 1101	66	831.250	0110 0110 1101 1101
42	639.250	0110 0101 0101 1101	67	839.250	0111 0110 1101 1101
43	647.250	0111 0101 0101 1101	68	847.250	0110 1110 1101 1101
44	655.250	0110 1101 0101 1101	69	855.250	0111 1110 1101 1101
45	663.250	0111 1101 0101 1101			