



OTM-3000-HR

FREQUENCY AGILE - HIGH RESOLUTION

TELEVISION MODULATOR

INSTRUCTION MANUAL

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OTM-3000-HR

FREQUENCY AGILE - HIGH RESOLUTION TELEVISION MODULATOR

1) INTRODUCTION

The OTM-3000 HR is a frequency agile F.C.C. compatible television modulator that provides the ability of channel selection from 41.25MHz through 445.25MHz in 1MHz increments. All channels are selectable by front panel DIP switches, including F.C.C. offsets of +12.5KHz and +25KHz.

The OTM-3000 HR high resolution modulator used with companion OTD-2000 HR high resolution demodulator provides video bandwidth to 9.5MHz with carrier spacing as close as 12MHz. No audio capability is provided.

The OTM-3000 HR offers excellent input sensitivity and high output level, typically +60dBmV. Also, this unit has very high out-of-band carrier to noise ratio (>80dB) which allows virtually an unlimited number of modulators to be combined without the need for external bandpass filters. The OTM-3000 HR has low power consumption (14 watts @ 115 VAC) for reliable long term operation.

2) FREQUENCY SELECTION

Frequency selection is made by properly setting the two 8-position switches to the corresponding code. Select the desired frequency code from Table #1 or the code card supplied with the unit, then set the DIP switches from left to right.

The code card list standard TV channels. If these are used, select non-adjacent channels for spacings no closer than 12MHz.

Table #1 is a listing that shows the binary code for all tunable frequencies from 41.25MHz to 445.25MHz in 1MHz steps. Set each DIP switch as indicated.

3) F.C.C. OFFSET SELECTION

Each channel listed on the code card has an "OFFSET CODE" number in either the left or right hand column. "OFFSET CODE" #1 corresponds to 0KHz offset, Code #2 is 12.5KHz, and Code #3 corresponds to +25KHz offset.

To select the desired offset, simply set properly the 4-position DIP switches to the corresponding offset code as shown in Figure #1.

3) F.C.C. OFFSET SELECTION

Each channel listed on the code card has an "OFFSET CODE" number in either the left or right hand column. "OFFSET CODE" #1 corresponds to 0KHz offset, Code #2 is 12.5KHz, and Code #3 corresponds to +25KHz offset.

To select the desired offset, simply set properly the 4-position DIP switches to the corresponding offset code as shown in Figure #1.

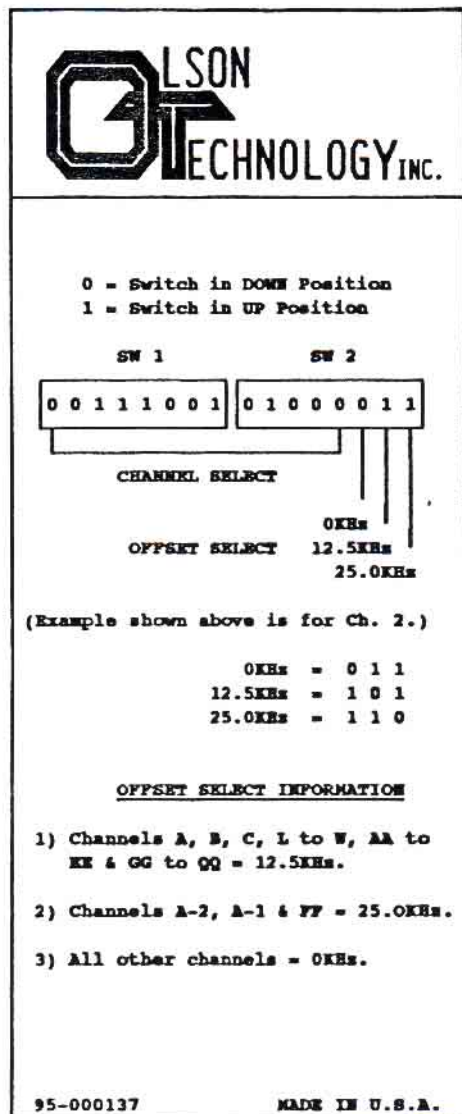


Figure 1
OFFSET SELECT CHART
OTM-3000 HR MODULATOR

4) F.C.C. OFFSET FREQUENCIES

<u>Channel #</u>	<u>F.C.C. Offset-KHz</u>	<u>Channel Frequency (Incl. Offset) - MHz</u>
A-2	25.0	109.2750
A-1	25.0	115.2750
A	12.5	121.2625
B	12.5	127.2625
C	12.5	133.2625
L	12.5	229.2625
M	12.5	235.2625
N	12.5	241.2625
O	12.5	247.2625
P	12.5	253.2625
Q	12.5	259.2625
R	12.5	265.2625
S	12.5	271.2625
T	12.5	277.2625
U	12.5	283.2625
V	12.5	289.2625
W	12.5	295.2625
AA	12.5	301.2625
BB	12.5	307.2625
CC	12.5	313.2625
DD	12.5	319.2625
EE	12.5	325.2625
FF	25.0	331.2750
GG	12.5	337.2625
HH	12.5	343.2625
II	12.5	349.2625
JJ	12.5	355.2625
KK	12.5	361.2625
LL	12.5	367.2625
MM	12.5	373.2625
NN	12.5	379.2625
OO	12.5	385.2625
PP	12.5	391.2625
QQ	12.5	397.2625

5) VIDEO MODULATION ADJUSTMENT

- A) Connect a video source of approximately 1V p-p to the video input connector (75 ohms input Z) on the rear panel.
- B) Rotate the video modulation control slowly clockwise until the video overmodulation light turns on. The light may blink with differences in average picture level. CAUTION: If the modulation is set too high, compression or lack of contrast will occur during high intensity scenes.

6) RF CARRIER LEVEL ADJUSTMENT

Using a field strength meter, set the video carrier to the desired level with the RF output level adjust pot.

7) MISCELLANEOUS

- A) This unit is equipped with a video I.F. loop. The loop is connected with a type F short jumper. If this becomes disconnected or misplaced, then the OTM-3000 HR will not perform properly.
- B) If a scrambling unit is utilized with the OTM-3000 HR, follow the instructions associated with the scrambler. The video I.F. output level is +40dBmV.
- C) This unit is equipped with a 0.5A slo-blo fuse. To maintain proper performance of the unit, please replace only with an equivalent fuse.
- D) A -26dB test point (type F connector) is provided in the rear panel.

MODULATOR SWITCH SETTING CALCULATION

The output frequency select switches may tune a unit in either 1MHz or 250KHz steps depending on the factory presetting of step size. To calculate the switch settings for a unit, the formula is as follows:

$$N = \frac{\text{OUTPUT FREQUENCY} + 2\text{ND IF FREQUENCY}}{\text{STEP SIZE IN MHz}} \quad \frac{2\text{ND IF FREQUENCY}}{\text{ALL NTSC} = 612.75}$$

$$\text{ALL PAL} = 605.75$$

OR FOR 1MHz STEP SIZE

$$N = \frac{\text{OUTPUT FREQUENCY} + 612.75}{1}$$

OR FOR .25MHz STEP SIZE

$$N = \frac{\text{OUTPUT FREQUENCY} + 612.75}{0.25}$$

Convert the number "N" to binary with the least significant bit on the left, (not the right as is customary). This binary number represents the switch settings with 1 = UP, 0 = DOWN.

BINARY CONVERSION WITH LEAST BIT ON LEFT.

EXAMPLE: CALCULATE 437 IN BINARY

- STEP 1) CONSULT CHART FOR LARGEST NUMBER LESS THAN OR EQUAL TO 437. (256)
- STEP 2) CONSULT CHART TO FIND NEXT LARGEST NUMBER WHICH ADDED TO 256 IS LESS THAN OR EQUAL TO 437. (128 + 256 = 384)
- STEP 3) CONSULT CHART TO FIND NEXT LARGEST NUMBER WHICH ADDED TO 384 IS LESS THAN OR EQUAL TO 437. (384 + 32 = 416)
- STEP 4) CONSULT CHART TO FIND NEXT LARGEST NUMBER WHICH ADDED TO 416 IS LESS THAN OR EQUAL TO 437. (416 + 16 = 432)
- STEP 5) CONSULT CHART TO FIND NEXT LARGEST NUMBER WHICH ADDED TO 432 IS LESS THAN OR EQUAL TO 437. (432 + 4 = 436)
- STEP 6) CONSULT CHART TO FIND NEXT LARGEST NUMBER WHICH ADDED TO 436 IS LESS THAN OR EQUAL TO 437. (436 + 1 = 437)
- STEP 7) EACH NUMBER CHOSEN = CODE 1 AND EACH NUMBER NOT CHOSEN = CODE 0.

X X X X X X
1 2 4 8 16 32 64 128 256 512 1024 2048 4096 8192
 437 = 1 0 1 0 1 1 0 1 1 0 0 0 0 0

Table 1 - OTM-3000-HR SWITCH SETTINGS

0 = SWITCH DOWN 1 = SWITCH UP

VIDEO FREQ.	DIP SWITCH SETTING
41.250	0 1 1 1 0 0 0 1 0 1 0 0 0
42.250	1 1 1 1 0 0 0 1 0 1 0 0 0
43.250	0 0 0 0 1 0 0 1 0 1 0 0 0
44.250	1 0 0 0 1 0 0 1 0 1 0 0 0
45.250	0 1 0 0 1 0 0 1 0 1 0 0 0
46.250	1 1 0 0 1 0 0 1 0 1 0 0 0
47.250	0 0 1 0 1 0 0 1 0 1 0 0 0
48.250	1 0 1 0 1 0 0 1 0 1 0 0 0
49.250	0 1 1 0 1 0 0 1 0 1 0 0 0
50.250	1 1 1 0 1 0 0 1 0 1 0 0 0
51.250	0 0 0 1 1 0 0 1 0 1 0 0 0
52.250	1 0 0 1 1 0 0 1 0 1 0 0 0
53.250	0 1 0 1 1 0 0 1 0 1 0 0 0
54.250	1 1 0 1 1 0 0 1 0 1 0 0 0
55.250	0 0 1 1 1 0 0 1 0 1 0 0 0
56.250	1 0 1 1 1 0 0 1 0 1 0 0 0
57.250	0 1 1 1 1 0 0 1 0 1 0 0 0
58.250	1 1 1 1 1 0 0 1 0 1 0 0 0
59.250	0 0 0 0 0 1 0 1 0 1 0 0 0
60.250	1 0 0 0 0 1 0 1 0 1 0 0 0
61.250	0 1 0 0 0 1 0 1 0 1 0 0 0
62.250	1 1 0 0 0 1 0 1 0 1 0 0 0
63.250	0 0 1 0 0 1 0 1 0 1 0 0 0
64.250	1 0 1 0 0 1 0 1 0 1 0 0 0
65.250	0 1 1 0 0 1 0 1 0 1 0 0 0
66.250	1 1 1 0 0 1 0 1 0 1 0 0 0
67.250	0 0 0 1 0 1 0 1 0 1 0 0 0
68.250	1 0 0 1 0 1 0 1 0 1 0 0 0
69.250	0 1 0 1 0 1 0 1 0 1 0 0 0
70.250	1 1 0 1 0 1 0 1 0 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
71.250	0 0 1 1 0 1 0 1 0 1 0 0 0
72.250	1 0 1 1 0 1 0 1 0 1 0 0 0
73.250	0 1 1 1 0 1 0 1 0 1 0 0 0
74.250	1 1 1 1 0 1 0 1 0 1 0 0 0
75.250	0 0 0 0 1 1 0 1 0 1 0 0 0
76.250	1 0 0 0 1 1 0 1 0 1 0 0 0
77.250	0 1 0 0 1 1 0 1 0 1 0 0 0
78.250	1 1 0 0 1 1 0 1 0 1 0 0 0
79.250	0 0 1 0 1 1 0 1 0 1 0 0 0
80.250	1 0 1 0 1 1 0 1 0 1 0 0 0
81.250	0 1 1 0 1 1 0 1 0 1 0 0 0
82.250	1 1 1 0 1 1 0 1 0 1 0 0 0
83.250	0 0 0 1 1 1 0 1 0 1 0 0 0
84.250	1 0 0 1 1 1 0 1 0 1 0 0 0
85.250	0 1 0 1 1 1 0 1 0 1 0 0 0
86.250	1 1 0 1 1 1 0 1 0 1 0 0 0
87.250	0 0 1 1 1 1 0 1 0 1 0 0 0
88.250	1 0 1 1 1 1 0 1 0 1 0 0 0
89.250	0 1 1 1 1 1 0 1 0 1 0 0 0
90.250	1 1 1 1 1 1 0 1 0 1 0 0 0
91.250	0 0 0 0 0 0 1 1 0 1 0 0 0
92.250	1 0 0 0 0 0 1 1 0 1 0 0 0
93.250	0 1 0 0 0 0 1 1 0 1 0 0 0
94.250	1 1 0 0 0 0 1 1 0 1 0 0 0
95.250	0 0 1 0 0 0 1 1 0 1 0 0 0
96.250	1 0 1 0 0 0 1 1 0 1 0 0 0
97.250	0 1 1 0 0 0 1 1 0 1 0 0 0
98.250	1 1 1 0 0 0 1 1 0 1 0 0 0
99.250	0 0 0 1 0 0 1 1 0 1 0 0 0
100.250	1 0 0 1 0 0 1 1 0 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
101.250	0 1 0 1 0 0 1 1 0 1 0 0 0
102.250	1 1 0 1 0 0 1 1 0 1 0 0 0
103.250	0 0 1 1 0 0 1 1 0 1 0 0 0
104.250	1 0 1 1 0 0 1 1 0 1 0 0 0
105.250	0 1 1 1 0 0 1 1 0 1 0 0 0
106.250	1 1 1 1 0 0 1 1 0 1 0 0 0
107.250	0 0 0 0 1 0 1 1 0 1 0 0 0
108.250	1 0 0 0 1 0 1 1 0 1 0 0 0
109.250	0 1 0 0 1 0 1 1 0 1 0 0 0
110.250	1 1 0 0 1 0 1 1 0 1 0 0 0
111.250	0 0 1 0 1 0 1 1 0 1 0 0 0
112.250	1 0 1 0 1 0 1 1 0 1 0 0 0
113.250	0 1 1 0 1 0 1 1 0 1 0 0 0
114.250	1 1 1 0 1 0 1 1 0 1 0 0 0
115.250	0 0 0 1 1 0 1 1 0 1 0 0 0
116.250	1 0 0 1 1 0 1 1 0 1 0 0 0
117.250	0 1 0 1 1 0 1 1 0 1 0 0 0
118.250	1 1 0 1 1 0 1 1 0 1 0 0 0
119.250	0 0 1 1 1 0 1 1 0 1 0 0 0
120.250	1 0 1 1 1 0 1 1 0 1 0 0 0
121.250	0 1 1 1 1 0 1 1 0 1 0 0 0
122.250	1 1 1 1 1 0 1 1 0 1 0 0 0
123.250	0 0 0 0 0 1 1 1 0 1 0 0 0
124.250	1 0 0 0 0 1 1 1 0 1 0 0 0
125.250	0 1 0 0 0 1 1 1 0 1 0 0 0
126.250	1 1 0 0 0 1 1 1 0 1 0 0 0
127.250	0 0 1 0 0 1 1 1 0 1 0 0 0
128.250	1 0 1 0 0 1 1 1 0 1 0 0 0
129.250	0 1 1 0 0 1 1 1 0 1 0 0 0
130.250	1 1 1 0 0 1 1 1 0 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
131.250	0 0 0 1 0 1 1 1 0 1 0 0 0
132.250	1 0 0 1 0 1 1 1 0 1 0 0 0
133.250	0 1 0 1 0 1 1 1 0 1 0 0 0
134.250	1 1 0 1 0 1 1 1 0 1 0 0 0
135.250	0 0 1 1 0 1 1 1 0 1 0 0 0
136.250	1 0 1 1 0 1 1 1 0 1 0 0 0
137.250	0 1 1 1 0 1 1 1 0 1 0 0 0
138.250	1 1 1 1 0 1 1 1 0 1 0 0 0
139.250	0 0 0 0 1 1 1 1 0 1 0 0 0
140.250	1 0 0 0 1 1 1 1 0 1 0 0 0
141.250	0 1 0 0 1 1 1 1 0 1 0 0 0
142.250	1 1 0 0 1 1 1 1 0 1 0 0 0
143.250	0 0 1 0 1 1 1 1 0 1 0 0 0
144.250	1 0 1 0 1 1 1 1 0 1 0 0 0
145.250	0 1 1 0 1 1 1 1 0 1 0 0 0
146.250	1 1 1 0 1 1 1 1 0 1 0 0 0
147.250	0 0 0 1 1 1 1 1 0 1 0 0 0
148.250	1 0 0 1 1 1 1 1 0 1 0 0 0
149.250	0 1 0 1 1 1 1 1 0 1 0 0 0
150.250	1 1 0 1 1 1 1 1 0 1 0 0 0
151.250	0 0 1 1 1 1 1 1 0 1 0 0 0
152.250	1 0 1 1 1 1 1 1 0 1 0 0 0
153.250	0 1 1 1 1 1 1 1 0 1 0 0 0
154.250	1 1 1 1 1 1 1 1 0 1 0 0 0
155.250	0 0 0 0 0 0 0 0 1 1 0 0 0
156.250	1 0 0 0 0 0 0 0 1 1 0 0 0
157.250	0 1 0 0 0 0 0 0 1 1 0 0 0
158.250	1 1 0 0 0 0 0 0 1 1 0 0 0
159.250	0 0 1 0 0 0 0 0 1 1 0 0 0
160.250	1 0 1 0 0 0 0 0 1 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
161.250	0 1 1 0 0 0 0 0 1 1 0 0 0
162.250	1 1 1 0 0 0 0 0 1 1 0 0 0
163.250	0 0 0 1 0 0 0 0 1 1 0 0 0
164.250	1 0 0 1 0 0 0 0 1 1 0 0 0
165.250	0 1 0 1 0 0 0 0 1 1 0 0 0
166.250	1 1 0 1 0 0 0 0 1 1 0 0 0
167.250	0 0 1 1 0 0 0 0 1 1 0 0 0
168.250	1 0 1 1 0 0 0 0 1 1 0 0 0
169.250	0 1 1 1 0 0 0 0 1 1 0 0 0
170.250	1 1 1 1 0 0 0 0 1 1 0 0 0
171.250	0 0 0 0 1 0 0 0 1 1 0 0 0
172.250	1 0 0 0 1 0 0 0 1 1 0 0 0
173.250	0 1 0 0 1 0 0 0 1 1 0 0 0
174.250	1 1 0 0 1 0 0 0 1 1 0 0 0
175.250	0 0 1 0 1 0 0 0 1 1 0 0 0
176.250	1 0 1 0 1 0 0 0 1 1 0 0 0
177.250	0 1 1 0 1 0 0 0 1 1 0 0 0
178.250	1 1 1 0 1 0 0 0 1 1 0 0 0
179.250	0 0 0 1 1 0 0 0 1 1 0 0 0
180.250	1 0 0 1 1 0 0 0 1 1 0 0 0
181.250	0 1 0 1 1 0 0 0 1 1 0 0 0
182.250	1 1 0 1 1 0 0 0 1 1 0 0 0
183.250	0 0 1 1 1 0 0 0 1 1 0 0 0
184.250	1 0 1 1 1 0 0 0 1 1 0 0 0
185.250	0 1 1 1 1 0 0 0 1 1 0 0 0
186.250	1 1 1 1 1 0 0 0 1 1 0 0 0
187.250	0 0 0 0 0 1 0 0 1 1 0 0 0
188.250	1 0 0 0 0 1 0 0 1 1 0 0 0
189.250	0 1 0 0 0 1 0 0 1 1 0 0 0
190.250	1 1 0 0 0 1 0 0 1 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
191.250	0 0 1 0 0 1 0 0 1 1 0 0 0
192.250	1 0 1 0 0 1 0 0 1 1 0 0 0
193.250	0 1 1 0 0 1 0 0 1 1 0 0 0
194.250	1 1 1 0 0 1 0 0 1 1 0 0 0
195.250	0 0 0 1 0 1 0 0 1 1 0 0 0
196.250	1 0 0 1 0 1 0 0 1 1 0 0 0
197.250	0 1 0 1 0 1 0 0 1 1 0 0 0
198.250	1 1 0 1 0 1 0 0 1 1 0 0 0
199.250	0 0 1 1 0 1 0 0 1 1 0 0 0
200.250	1 0 1 1 0 1 0 0 1 1 0 0 0
201.250	0 1 1 1 0 1 0 0 1 1 0 0 0
202.250	1 1 1 1 0 1 0 0 1 1 0 0 0
203.250	0 0 0 0 1 1 0 0 1 1 0 0 0
204.250	1 0 0 0 1 1 0 0 1 1 0 0 0
205.250	0 1 0 0 1 1 0 0 1 1 0 0 0
206.250	1 1 0 0 1 1 0 0 1 1 0 0 0
207.250	0 0 1 0 1 1 0 0 1 1 0 0 0
208.250	1 0 1 0 1 1 0 0 1 1 0 0 0
209.250	0 1 1 0 1 1 0 0 1 1 0 0 0
210.250	1 1 1 0 1 1 0 0 1 1 0 0 0
211.250	0 0 0 1 1 1 0 0 1 1 0 0 0
212.250	1 0 0 1 1 1 0 0 1 1 0 0 0
213.250	0 1 0 1 1 1 0 0 1 1 0 0 0
214.250	1 1 0 1 1 1 0 0 1 1 0 0 0
215.250	0 0 1 1 1 1 0 0 1 1 0 0 0
216.250	1 0 1 1 1 1 0 0 1 1 0 0 0
217.250	0 1 1 1 1 1 0 0 1 1 0 0 0
218.250	1 1 1 1 1 1 0 0 1 1 0 0 0
219.250	0 0 0 0 0 0 1 0 1 1 0 0 0
220.250	1 0 0 0 0 0 1 0 1 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
221.250	0 1 0 0 0 0 1 0 1 1 0 0 0
222.250	1 1 0 0 0 0 1 0 1 1 0 0 0
223.250	0 0 1 0 0 0 1 0 1 1 0 0 0
224.250	1 0 1 0 0 0 1 0 1 1 0 0 0
225.250	0 1 1 0 0 0 1 0 1 1 0 0 0
226.250	1 1 1 0 0 0 1 0 1 1 0 0 0
227.250	0 0 0 1 0 0 1 0 1 1 0 0 0
228.250	1 0 0 1 0 0 1 0 1 1 0 0 0
229.250	0 1 0 1 0 0 1 0 1 1 0 0 0
230.250	1 1 0 1 0 0 1 0 1 1 0 0 0
231.250	0 0 1 1 0 0 1 0 1 1 0 0 0
232.250	1 0 1 1 0 0 1 0 1 1 0 0 0
233.250	0 1 1 1 0 0 1 0 1 1 0 0 0
234.250	1 1 1 1 0 0 1 0 1 1 0 0 0
235.250	0 0 0 0 1 0 1 0 1 1 0 0 0
236.250	1 0 0 0 1 0 1 0 1 1 0 0 0
237.250	0 1 0 0 1 0 1 0 1 1 0 0 0
238.250	1 1 0 0 1 0 1 0 1 1 0 0 0
239.250	0 0 1 0 1 0 1 0 1 1 0 0 0
240.250	1 0 1 0 1 0 1 0 1 1 0 0 0
241.250	0 1 1 0 1 0 1 0 1 1 0 0 0
242.250	1 1 1 0 1 0 1 0 1 1 0 0 0
243.250	0 0 0 1 1 0 1 0 1 1 0 0 0
244.250	1 0 0 1 1 0 1 0 1 1 0 0 0
245.250	0 1 0 1 1 0 1 0 1 1 0 0 0
246.250	1 1 0 1 1 0 1 0 1 1 0 0 0
247.250	0 0 1 1 1 0 1 0 1 1 0 0 0
248.250	1 0 1 1 1 0 1 0 1 1 0 0 0
249.250	0 1 1 1 1 0 1 0 1 1 0 0 0
250.250	1 1 1 1 1 0 1 0 1 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
251.250	0 0 0 0 0 1 1 0 1 1 0 0 0
252.250	1 0 0 0 0 1 1 0 1 1 0 0 0
253.250	0 1 0 0 0 1 1 0 1 1 0 0 0
254.250	1 1 0 0 0 1 1 0 1 1 0 0 0
255.250	0 0 1 0 0 1 1 0 1 1 0 0 0
256.250	1 0 1 0 0 1 1 0 1 1 0 0 0
257.250	0 1 1 0 0 1 1 0 1 1 0 0 0
258.250	1 1 1 0 0 1 1 0 1 1 0 0 0
259.250	0 0 0 1 0 1 1 0 1 1 0 0 0
260.250	1 0 0 1 0 1 1 0 1 1 0 0 0
261.250	0 1 0 1 0 1 1 0 1 1 0 0 0
262.250	1 1 0 1 0 1 1 0 1 1 0 0 0
263.250	0 0 1 1 0 1 1 0 1 1 0 0 0
264.250	1 0 1 1 0 1 1 0 1 1 0 0 0
265.250	0 1 1 1 0 1 1 0 1 1 0 0 0
266.250	1 1 1 1 0 1 1 0 1 1 0 0 0
267.250	0 0 0 0 1 1 1 0 1 1 0 0 0
268.250	1 0 0 0 1 1 1 0 1 1 0 0 0
269.250	0 1 0 0 1 1 1 0 1 1 0 0 0
270.250	1 1 0 0 1 1 1 0 1 1 0 0 0
271.250	0 0 1 0 1 1 1 0 1 1 0 0 0
272.250	1 0 1 0 1 1 1 0 1 1 0 0 0
273.250	0 1 1 0 1 1 1 0 1 1 0 0 0
274.250	1 1 1 0 1 1 1 0 1 1 0 0 0
275.250	0 0 0 1 1 1 1 0 1 1 0 0 0
276.250	1 0 0 1 1 1 1 0 1 1 0 0 0
277.250	0 1 0 1 1 1 1 0 1 1 0 0 0
278.250	1 1 0 1 1 1 1 0 1 1 0 0 0
279.250	0 0 1 1 1 1 1 0 1 1 0 0 0
280.250	1 0 1 1 1 1 1 0 1 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
281.250	0 1 1 1 1 1 1 0 1 1 0 0 0
282.250	1 1 1 1 1 1 1 0 1 1 0 0 0
283.250	0 0 0 0 0 0 0 1 1 1 0 0 0
284.250	1 0 0 0 0 0 0 1 1 1 0 0 0
285.250	0 1 0 0 0 0 0 1 1 1 0 0 0
286.250	1 1 0 0 0 0 0 1 1 1 0 0 0
287.250	0 0 1 0 0 0 0 1 1 1 0 0 0
288.250	1 0 1 0 0 0 0 1 1 1 0 0 0
289.250	0 1 1 0 0 0 0 1 1 1 0 0 0
290.250	1 1 1 0 0 0 0 1 1 1 0 0 0
291.250	0 0 0 1 0 0 0 1 1 1 0 0 0
292.250	1 0 0 1 0 0 0 1 1 1 0 0 0
293.250	0 1 0 1 0 0 0 1 1 1 0 0 0
294.250	1 1 0 1 0 0 0 1 1 1 0 0 0
295.250	0 0 1 1 0 0 0 1 1 1 0 0 0
296.250	1 0 1 1 0 0 0 1 1 1 0 0 0
297.250	0 1 1 1 0 0 0 1 1 1 0 0 0
298.250	1 1 1 1 0 0 0 1 1 1 0 0 0
299.250	0 0 0 0 1 0 0 1 1 1 0 0 0
300.250	1 0 0 0 1 0 0 1 1 1 0 0 0
301.250	0 1 0 0 1 0 0 1 1 1 0 0 0
302.250	1 1 0 0 1 0 0 1 1 1 0 0 0
303.250	0 0 1 0 1 0 0 1 1 1 0 0 0
304.250	1 0 1 0 1 0 0 1 1 1 0 0 0
305.250	0 1 1 0 1 0 0 1 1 1 0 0 0
306.250	1 1 1 0 1 0 0 1 1 1 0 0 0
307.250	0 0 0 1 1 0 0 1 1 1 0 0 0
308.250	1 0 0 1 1 0 0 1 1 1 0 0 0
309.250	0 1 0 1 1 0 0 1 1 1 0 0 0
310.250	1 1 0 1 1 0 0 1 1 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
311.250	0 0 1 1 1 0 0 1 1 1 0 0 0
312.250	1 0 1 1 1 0 0 1 1 1 0 0 0
313.250	0 1 1 1 1 0 0 1 1 1 0 0 0
314.250	1 1 1 1 1 0 0 1 1 1 0 0 0
315.250	0 0 0 0 0 1 0 1 1 1 0 0 0
316.250	1 0 0 0 0 1 0 1 1 1 0 0 0
317.250	0 1 0 0 0 1 0 1 1 1 0 0 0
318.250	1 1 0 0 0 1 0 1 1 1 0 0 0
319.250	0 0 1 0 0 1 0 1 1 1 0 0 0
320.250	1 0 1 0 0 1 0 1 1 1 0 0 0
321.250	0 1 1 0 0 1 0 1 1 1 0 0 0
322.250	1 1 1 0 0 1 0 1 1 1 0 0 0
323.250	0 0 0 1 0 1 0 1 1 1 0 0 0
324.250	1 0 0 1 0 1 0 1 1 1 0 0 0
325.250	0 1 0 1 0 1 0 1 1 1 0 0 0
326.250	1 1 0 1 0 1 0 1 1 1 0 0 0
327.250	0 0 1 1 0 1 0 1 1 1 0 0 0
328.250	1 0 1 1 0 1 0 1 1 1 0 0 0
329.250	0 1 1 1 0 1 0 1 1 1 0 0 0
330.250	1 1 1 1 0 1 0 1 1 1 0 0 0
331.250	0 0 0 0 1 1 0 1 1 1 0 0 0
332.250	1 0 0 0 1 1 0 1 1 1 0 0 0
333.250	0 1 0 0 1 1 0 1 1 1 0 0 0
334.250	1 1 0 0 1 1 0 1 1 1 0 0 0
335.250	0 0 1 0 1 1 0 1 1 1 0 0 0
336.250	1 0 1 0 1 1 0 1 1 1 0 0 0
337.250	0 1 1 0 1 1 0 1 1 1 0 0 0
338.250	1 1 1 0 1 1 0 1 1 1 0 0 0
339.250	0 0 0 1 1 1 0 1 1 1 0 0 0
340.250	1 0 0 1 1 1 0 1 1 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
341.250	0 1 0 1 1 1 0 1 1 1 0 0 0
342.250	1 1 0 1 1 1 0 1 1 1 0 0 0
343.250	0 0 1 1 1 1 0 1 1 1 0 0 0
344.250	1 0 1 1 1 1 0 1 1 1 0 0 0
345.250	0 1 1 1 1 1 0 1 1 1 0 0 0
346.250	1 1 1 1 1 1 0 1 1 1 0 0 0
347.250	0 0 0 0 0 0 1 1 1 1 0 0 0
348.250	1 0 0 0 0 0 1 1 1 1 0 0 0
349.250	0 1 0 0 0 0 1 1 1 1 0 0 0
350.250	1 1 0 0 0 0 1 1 1 1 0 0 0
351.250	0 0 1 0 0 0 1 1 1 1 0 0 0
352.250	1 0 1 0 0 0 1 1 1 1 0 0 0
353.250	0 1 1 0 0 0 1 1 1 1 0 0 0
354.250	1 1 1 0 0 0 1 1 1 1 0 0 0
355.250	0 0 0 1 0 0 1 1 1 1 0 0 0
356.250	1 0 0 1 0 0 1 1 1 1 0 0 0
357.250	0 1 0 1 0 0 1 1 1 1 0 0 0
358.250	1 1 0 1 0 0 1 1 1 1 0 0 0
359.250	0 0 1 1 0 0 1 1 1 1 0 0 0
360.250	1 0 1 1 0 0 1 1 1 1 0 0 0
361.250	0 1 1 1 0 0 1 1 1 1 0 0 0
362.250	1 1 1 1 0 0 1 1 1 1 0 0 0
363.250	0 0 0 0 1 0 1 1 1 1 0 0 0
364.250	1 0 0 0 1 0 1 1 1 1 0 0 0
365.250	0 1 0 0 1 0 1 1 1 1 0 0 0
366.250	1 1 0 0 1 0 1 1 1 1 0 0 0
367.250	0 0 1 0 1 0 1 1 1 1 0 0 0
368.250	1 0 1 0 1 0 1 1 1 1 0 0 0
369.250	0 1 1 0 1 0 1 1 1 1 0 0 0
370.250	1 1 1 0 1 0 1 1 1 1 0 0 0

VIDEO FREQ.	DIP SWITCH SETTING
371.250	0 0 0 1 1 0 1 1 1 1 0 0 0
372.250	1 0 0 1 1 0 1 1 1 1 0 0 0
373.250	0 1 0 1 1 0 1 1 1 1 0 0 0
374.250	1 1 0 1 1 0 1 1 1 1 0 0 0
375.250	0 0 1 1 1 0 1 1 1 1 0 0 0
376.250	1 0 1 1 1 0 1 1 1 1 0 0 0
377.250	0 1 1 1 1 0 1 1 1 1 0 0 0
378.250	1 1 1 1 1 0 1 1 1 1 0 0 0
379.250	0 0 0 0 0 1 1 1 1 1 0 0 0
380.250	1 0 0 0 0 1 1 1 1 1 0 0 0
381.250	0 1 0 0 0 1 1 1 1 1 0 0 0
382.250	1 1 0 0 0 1 1 1 1 1 0 0 0
383.250	0 0 1 0 0 1 1 1 1 1 0 0 0
384.250	1 0 1 0 0 1 1 1 1 1 0 0 0
385.250	0 1 1 0 0 1 1 1 1 1 0 0 0
386.250	1 1 1 0 0 1 1 1 1 1 0 0 0
387.250	0 0 0 1 0 1 1 1 1 1 0 0 0
388.250	1 0 0 1 0 1 1 1 1 1 0 0 0
389.250	0 1 0 1 0 1 1 1 1 1 0 0 0
390.250	1 1 0 1 0 1 1 1 1 1 0 0 0
391.250	0 0 1 1 0 1 1 1 1 1 0 0 0
392.250	1 0 1 1 0 1 1 1 1 1 0 0 0
393.250	0 1 1 1 0 1 1 1 1 1 0 0 0
394.250	1 1 1 1 0 1 1 1 1 1 0 0 0
395.250	0 0 0 0 1 1 1 1 1 1 0 0 0
396.250	1 0 0 0 1 1 1 1 1 1 0 0 0
397.250	0 1 0 0 1 1 1 1 1 1 0 0 0
398.250	1 1 0 0 1 1 1 1 1 1 0 0 0
399.250	0 0 1 0 1 1 1 1 1 1 0 0 0
400.250	1 0 1 0 1 1 1 1 1 1 0 0 0

