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# Heliport Radio Controller External Contactor Option Operation Manual

Rev. B - 6/11/19

## Safety Measures

You must know whether your lighting system is powered by AC or DC before installing the controller. AC models work on a range of 120 or 240VAC and DC models operate from 12 or 24VDC.

Ensure power is off before installing or servicing lighting controller!

Follow the local electrical code!

Make sure the equipment is rated and approved for the environment in which you are intending to use it. Do not operate this equipment in humid, flammable, or explosive environments unless it has been rated for safe operation in these environments.

Use only electrical wire of sufficient gauge and insulation to handle the rated current and voltage demand.

Route electrical wiring along a protected path. Make sure they will not be damaged by moving equipment.

Protect components from harsh environment conditions.

Protect equipment with safety devices as specified by applicable safety regulations.

Before starting this equipment, check all safety interlocks, fire –detection systems, and protective devices such as panels and covers. Make sure all devices are fully functional. Do not operate the system if these devices are not working properly.

Never operate equipment with a known malfunction.

Do not attempt to operate or service electrical equipment if standing water is present.

Do not touch exposed electrical connections on equipment while the power is ON!

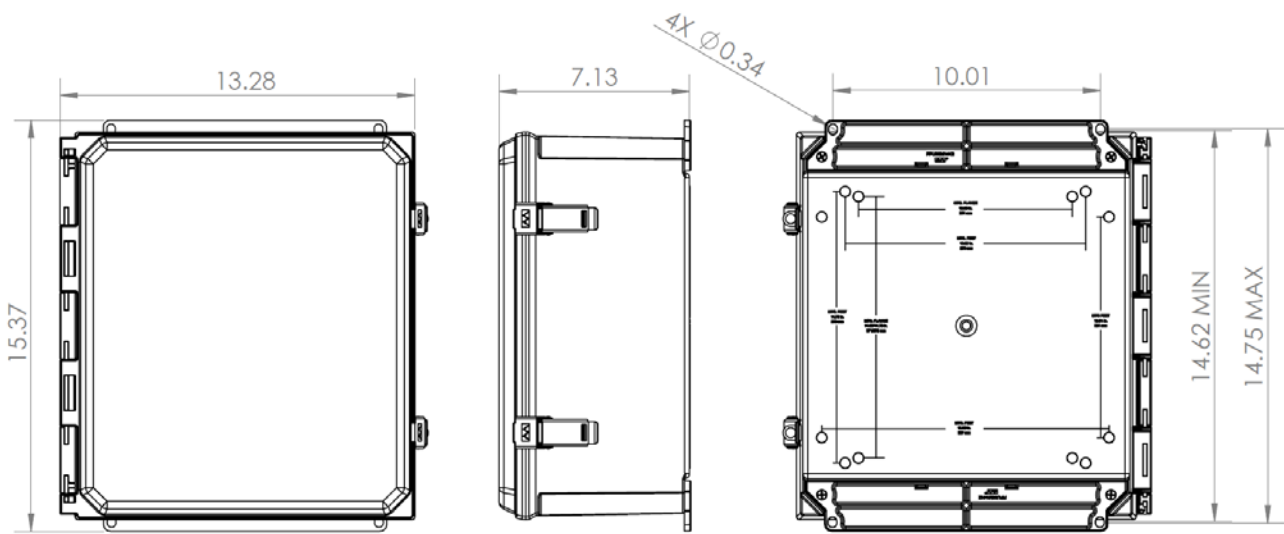
Wiring and electrical design should be authorized by an electrical contractor.

# Installation & Operating Guide

Your Flight Light Heliport Radio Controller has been designed to provide years of service from the use of the highest-quality components available. The Flight Light Radio Controller is typically used to activate power to lighting circuits with 3, 5, or 7 clicks within 5 seconds on an aircraft band frequency between 118.0 and 137.0 MHz. The radio receiver frequency is field programmable using the DIP switches on the receiver circuit board.

## 1. Installation Instructions

- a. When selecting a mounting location it is best not to mount the enclosure in direct sunlight, or next to a heat source.

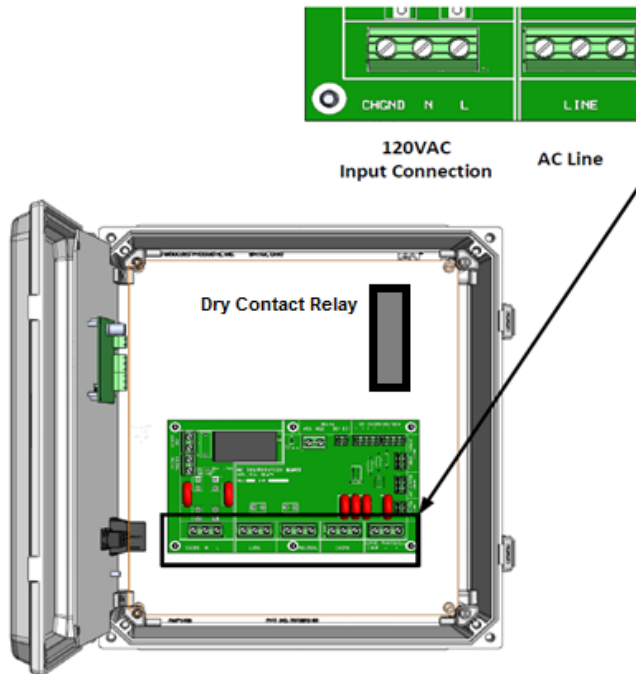


**Enclosure Overall Dimensions**

**Mounting Hole Layout**

- b. The Heliport Radio Controller enclosure is NEMA 4X compliant, however, if installed outdoors necessary precaution need to be taken to ensure a water-resistant installation.
- c. If the Heliport Radio Controller is installed indoors, ensure a minimum 3 feet distance from any other electrical equipment.
- d. The enclosure is usually mounted to a wall utilizing the four mounting holes located on the enclosure's mounting tabs (mounting hardware supplied by installer).

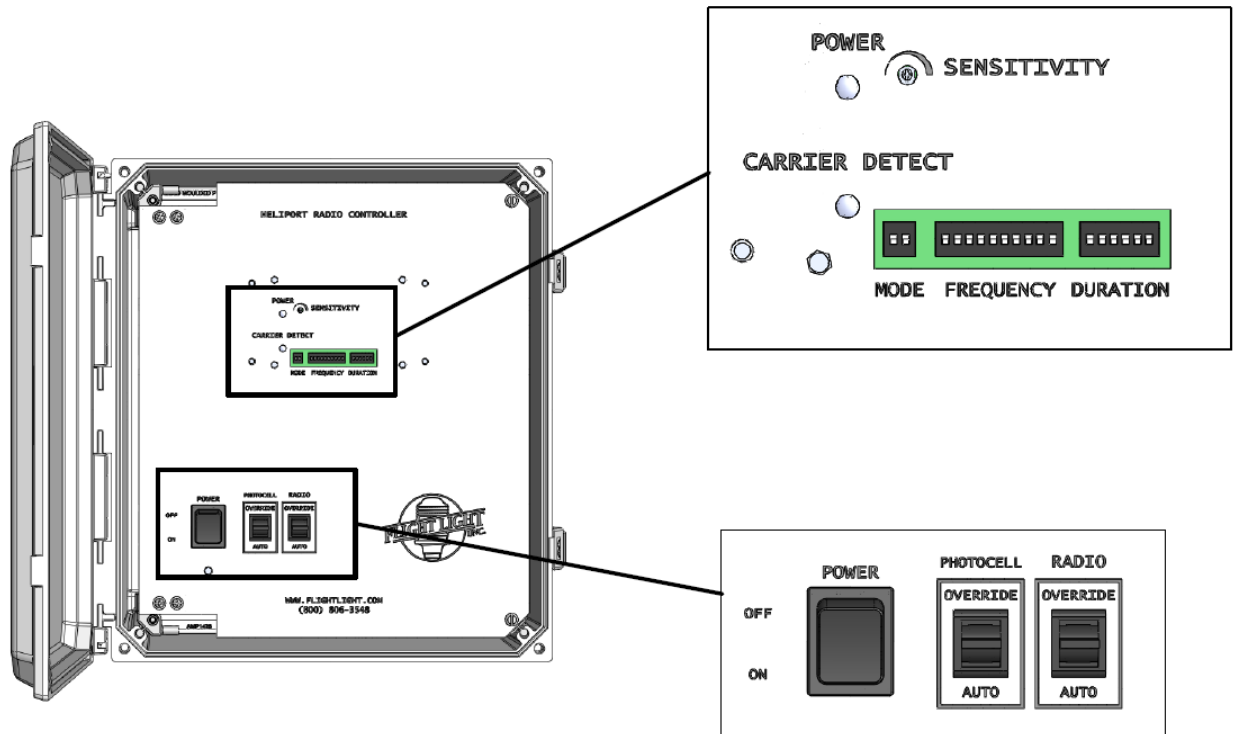
- e. It is recommended to place two holes in the bottom of the enclosure for conduit fittings, one for incoming power and one for the output. Fittings must be of suitable type and rating to maintain water tightness of the enclosure.
- f. The input to the controller is connected to the left most terminal blocks. The “Line”, “Neutral” and “CHGND” terminal blocks are for the outgoing power to the load. Connect the wires to the controller terminal blocks according to the following diagram:



Photocell Wiring	
Wire Color	Terminal
RED	LOAD
WHITE	-
BLACK	+

- g. In order to use the photocell functionality of the controller, a low voltage photocell (Flight Light P/N: FL-81020-24DC) must be wired to the right most terminal block.

## Controller Setup and Use



- a. **Sensitivity Adjustment:** Turn the squelch level adjustment clockwise to increase sensitivity.

**Caution:** Use the sensitivity adjusting knob very carefully. This is particularly sensitive and easy to damage. Don't press or pull, only gently rotate clockwise or counter clockwise with a small precision screwdriver to adjust the sensitivity.

- b. **DIP Switch Settings:**

- i. Mode: These switches control the number of radio clicks used to activate the lights.

Mode	SW 1	SW2
3 Clicks	OFF↓	ON↑
5 Clicks	ON↑	OFF↓
7 Clicks	OFF↓	OFF↓
Do Not Use	ON↑	ON↑

- ii. Frequency: The reception channel must be set via the 10 position dip switch. See list of frequencies in Appendix A.
- iii. Duration: The duration of activation is set via the first 5 switches on the 6 position dip switch according to the table below.

<b>Switch #</b>	<b>All ↑</b>	<b>1↓</b>	<b>2↓</b>	<b>3↓</b>	<b>4↓</b>	<b>5↓</b>	<b>SW 6</b>	<b>ON↑</b>	<b>OFF↓</b>
<b>Minutes</b>	<b>1</b>	<b>5</b>	<b>15</b>	<b>30</b>	<b>45</b>	<b>60</b>		<b>No Flash</b>	<b>Flash</b>

\*Switch number 6 activates a flashing warning for the last minute of activation.

Each activation will start a timer to illuminate the lights for a period of 15 min.

(The 15 minutes is the default activation period, but it can be adjusted per above table.)

The timing cycle may be restarted at any time during the cycle by repeating the specified keying sequence.

NOTE: Pilots are advised to key the activating sequence when commencing their approach, even if the aerodrome or airport lighting is on. This will restart the timing cycle so that the full time interval is available for their approach

**c. PHOTOCELL and RADIO Switches:**

PHOTOCELL	RADIO	Operation
OVERRIDE	AUTO	Lights will turn on when radio is keyed
AUTO	<b>OVERRIDE</b>	Lights will turn on during low light conditions
OVERRIDE	OVERRIDE	Lights will be on constantly
AUTO	AUTO	Lights will only turn on when the radio is keyed during low light conditions <i>-Not Recommended-</i>

## 2. Antenna Installation Instructions

- Radio Controller comes with 30 ft of RG 58 Coax Cable. Customize lengths of cable are available upon request, however, install the antenna maximum 100 feet distance from the Radio Controller.
- Ensure a clear of sight to the transmitter

### VHF Communications Antenna for General Aviation

If tuning of the antenna is required, cut the radiator and/or the radial rods according to the chart on the reverse side.

If the antenna is to be used over a range of frequencies, the element lengths should be chosen for mid-range or favor the element lengths for the most used or the frequency requiring the greatest range.

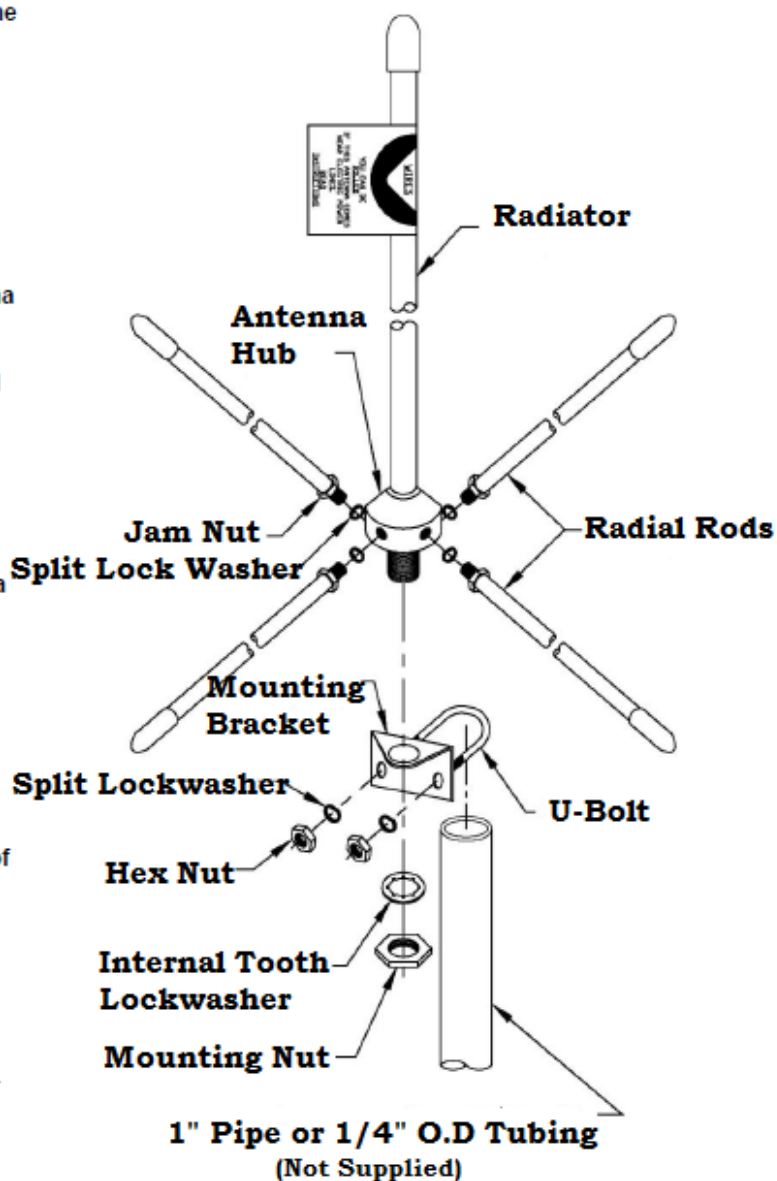
#### Installation Instructions

##### *Antenna Assembly:*

- 1.) Loosen the mounting nut from the antenna hub.
- 2.) Apply the synthetic lubricant provided to the threads of the (4) radial rods provided prior to assembly. This will protect from weather and ease future disassembly.
- 3.) Thread the provided #4-40 jam nuts onto the (4) radial rods and slide the lock washers on.
- 4.) Thread the (4) radial rods into the antenna hub and secure with jam nuts.
- 5.) Place vinyl caps on the end of each (4) radial rod.

##### *Mounting the Antenna:*

- 1.) Straddle the U-bolt provided around a 1" dia. pipe or up to a 1 1/4" O.D. tube (not supplied).
- 2.) Slide the mounting bracket and (2) lock washers provided over the thread studs of the U-bolt and secure with the (2) 1/4-20 hex nuts provided.
- 3.) Remove the mounting nut and internal tooth lock washer from the connector of the antenna hub.
- 4.) Insert antenna into mounting hole in bracket. Replace the lock washer and mounting nut back onto on the connector of the antenna hub.
- 5.) Attach "DANGER" label provided to a plainly visible part of the base or the supporting structure.
- 6.) Secure a cable with the appropriate connectors (not supplied) to the mounting pipe with a strap or plastic tape to avoid any cable strain on connector.



## **System Trouble Shooting**

Yearly maintenance recommendations for the Radio Controller:

- Carefully check the operation of all parts of the panel. Make sure that all electrical connections are in good condition.
- Check the operation of radio-controller heliport/helipad lighting by keying a portable transmitter and observing the actuation of the light fixtures and switching mechanism. If a fault is detected, contact the manufacturer.
- Inspect all miscellaneous controller items, such as circuit breakers, terminal blocks, switches. Make sure they are clean and all connections are tight.
- Check the conductor and insulation resistance of all power and control cables. Record all measurement to compare them with previous readings for signs of degradation.

If your system does not operate as expected contact FLI Technical Support at 800-806-3548/916-394-2800.



## Frequency DIP Switch Settings

1=UP    0=Down

118.000	1111111111	118.900	1101101111	119.875	0010110111	120.850	1011000111
118.025	0111111111	118.925	0101101111	119.900	1100110111	120.875	0011000111
118.050	1011111111	118.950	1001101111	119.925	0100110111	120.900	1101000111
118.075	0011111111	118.975	0001101111	119.950	1000110111	120.925	0101000111
118.100	1101111111	119.000	1110101111	119.975	0000110111	120.950	1001000111
118.125	0101111111	119.025	0110101111	120.000	1111010111	120.975	0001000111
118.150	1001111111	119.050	1010101111	120.025	0111010111	121.000	1110000111
118.175	0001111111	119.075	0010101111	120.050	1011010111	121.025	0110000111
118.200	1110111111	119.100	1100101111	120.075	0011010111	121.050	1010000111
118.225	0110111111	119.125	0100101111	120.100	1101010111	121.075	0010000111
118.250	1010111111	119.150	1000101111	120.125	0101010111	121.100	1100000111
118.275	0010111111	119.175	0000101111	120.150	1001010111	121.125	0100000111
118.300	1100111111	119.200	1111001111	120.175	0001010111	121.150	1000000111
118.325	0100111111	119.225	0111001111	120.200	1110010111	121.175	0000000111
118.350	1000111111	119.250	1011001111	120.225	0110010111	121.200	1111111011
118.375	0000111111	119.275	0011001111	120.250	1010010111	121.225	0111111011
118.400	1111011111	119.300	1101001111	120.275	0010010111	121.250	1011111011
118.425	0111011111	119.325	0101001111	120.300	1100010111	121.275	0011111011
118.450	1011011111	119.350	1001001111	120.325	0100010111	121.300	1101111011
118.475	0011011111	119.375	0001001111	120.350	1000010111	121.325	0101111011
118.500	1101011111	119.400	1110001111	120.375	0000010111	121.350	1001111011
118.525	0101011111	119.425	0110001111	120.400	1111100111	121.375	0001111011
118.550	1001011111	119.450	1010001111	120.425	0111100111	121.400	1110111011
118.575	0001011111	119.475	0010001111	120.450	1011100111	121.425	0110111011
118.600	1110011111	119.500	1100001111	120.475	0011100111	121.450	1010111011
118.625	0110011111	119.525	0100001111	120.500	1101100111	121.475	0010111011
118.650	1010011111	119.550	1000001111	120.525	0101100111	121.500	1100111011
118.675	0010011111	119.575	0000001111	120.550	1001100111	121.525	0100111011
118.700	1100011111	119.600	1111110111	120.575	0001100111	121.550	1000111011
118.725	0100011111	119.625	0111110111	120.600	1110100111	121.575	0000111011
118.750	1000011111	119.650	1011110111	120.625	0110100111	121.600	1111011011
118.775	0000011111	119.675	0011110111	120.650	1010100111	121.625	0111011011
118.800	1111101111	119.700	1101110111	120.675	0010100111	121.650	1011011011
118.825	0111101111	119.725	0101110111	120.700	1100100111	121.675	0011011011
118.850	1011101111	119.750	1001110111	120.725	0100100111	121.700	1101011011
118.875	0011101111	119.775	0001110111	120.750	1000100111	121.725	0101011011
		119.800	1110110111	120.775	0000100111	121.750	1001011011
		119.825	0110110111	120.800	1111000111	121.775	0001011011
		119.850	1010110111	120.825	0111000111	121.800	1110011011

### Frequency DIP Switch Settings

1=UP    0=Down

121.825	0110011011
121.850	1010011011
121.875	0010011011
121.900	1100011011
121.925	0100011011
121.950	1000011011
121.975	0000011011
122.000	1111101011
122.025	0111101011
122.050	1011101011
122.075	0011101011
122.100	1101101011
122.125	0101101011
122.150	1001101011
122.175	0001101011
122.200	1110101011
122.225	0110101011
122.250	1010101011
122.275	0010101011
122.300	1100101011
122.325	0100101011
122.350	1000101011
122.375	0000101011
122.400	1111001011
122.425	0111001011
122.450	1011001011
122.475	0011001011
122.500	1101001011
122.525	0101001011
122.550	1001001011
122.575	0001001011
122.600	1110001011
122.625	0110001011
122.650	1010001011
122.675	0010001011
122.700	1100001011
122.725	0100001011
122.750	1000001011
122.775	0000001011
122.800	111110011
122.825	011110011

122.850	1011110011
122.875	0011110011
122.900	1101110011
122.925	0101110011
122.950	1001110011
122.975	0001110011
123.000	1110110011
123.025	0110110011
123.050	1010110011
123.075	0010110011
123.100	1100110011
123.125	0100110011
123.150	1000110011
123.175	0000110011
123.200	1111010011
123.225	0111010011
123.250	1011010011
123.275	0011010011
123.300	1101010011
123.325	0101010011
123.350	1001010011
123.375	0001010011
123.400	1110010011
123.425	0110010011
123.450	1010010011
123.475	0010010011
123.500	1100010011
123.525	0100010011
123.550	1000010011
123.575	0000010011
123.600	1111100011
123.625	0111100011
123.650	1011100011
123.675	0011100011
123.700	1101100011
123.725	0101100011
123.750	1001100011
123.775	0001100011
123.800	1110100011
123.825	0110100011
123.850	1010100011

123.875	0010100011
123.900	1100100011
123.925	0100100011
123.950	1000100011
123.975	0000100011
124.000	1111000011
124.025	0111000011
124.050	1011000011
124.075	0011000011
124.100	1101000011
124.125	0101000011
124.150	1001000011
124.175	0001000011
124.200	1110000011
124.225	0110000011
124.250	1010000011
124.275	0010000011
124.300	1100000011
124.325	0100000011
124.350	1000000011
124.375	0000000011
124.400	1111111101
124.425	0111111101
124.450	1011111101
124.475	0011111101
124.500	1101111101
124.525	0101111101
124.550	1001111101
124.575	0001111101
124.600	1110111101
124.625	0110111101
124.650	1010111101
124.675	0010111101
124.700	1100111101
124.725	0100111101
124.750	1000111101
124.775	0000111101
124.800	1111011101
124.825	0111011101
124.850	1011011101
124.875	0011011101

124.900	1101011101
124.925	0101011101
124.950	1001011101
124.975	0001011101
125.000	1110011101
125.025	0110011101
125.050	1010011101
125.075	0010011101
125.100	1100011101
125.125	0100011101
125.150	1000011101
125.175	0000011101
125.200	1111101101
125.225	0111101101
125.250	1011101101
125.275	0011101101
125.300	1101101101
125.325	0101101101
125.350	1001101101
125.375	0001101101
125.400	1110101101
125.425	0110101101
125.450	1010101101
125.475	0010101101
125.500	1100101101
125.525	0100101101
125.550	1000101101
125.575	0000101101
125.600	1111001101
125.625	0111001101
125.650	1011001101
125.675	0011001101
125.700	1101001101
125.725	0101001101
125.750	1001001101
125.775	0001001101
125.800	1110001101
125.825	0110001101
125.850	1010001101
125.875	0010001101
125.900	1100001101

### Frequency DIP Switch Settings

1=UP    0=Down

125.925	0100001101
125.950	1000001101
125.975	0000001101
126.000	1111110101
126.025	0111110101
126.050	1011110101
126.075	0011110101
126.100	1101110101
126.125	0101110101
126.150	1001110101
126.175	0001110101
126.200	1110110101
126.225	0110110101
126.250	1010110101
126.275	0010110101
126.300	1100110101
126.325	0100110101
126.350	1000110101
126.375	0000110101
126.400	1111010101
126.425	0111010101
126.450	1011010101
126.475	0011010101
126.500	1101010101
126.525	0101010101
126.550	1001010101
126.575	0001010101
126.600	1110010101
126.625	0110010101
126.650	1010010101
126.675	0010010101
126.700	1100010101
126.725	0100010101
126.750	1000010101
126.775	0000010101
126.800	1111100101
126.825	0111100101
126.850	1011100101
126.875	0011100101
126.900	1101100101
126.925	0101100101

126.950	1001100101
126.975	0001100101
127.000	1110100101
127.025	0110100101
127.050	1010100101
127.075	0010100101
127.100	1100100101
127.125	0100100101
127.150	1000100101
127.175	0000100101
127.200	1111000101
127.225	0111000101
127.250	1011000101
127.275	0011000101
127.300	1101000101
127.325	0101000101
127.350	1001000101
127.375	0001000101
127.400	1110000101
127.425	0110000101
127.450	1010000101
127.475	0010000101
127.500	1100000101
127.525	0100000101
127.550	1000000101
127.575	0000000101
127.600	1111111001
127.625	0111111001
127.650	1011111001
127.675	0011111001
127.700	1101111001
127.725	0101111001
127.750	1001111001
127.775	0001111001
127.800	1110111001
127.825	0110111001
127.850	1010111001
127.875	0010111001
127.900	1100111001
127.925	0100111001
127.950	1000111001

127.975	0000111001
128.000	1111011001
128.025	0111011001
128.050	1011011001
128.075	0011011001
128.100	1101011001
128.125	0101011001
128.150	1001011001
128.175	0001011001
128.200	1110011001
128.225	0110011001
128.250	1010011001
128.275	0010011001
128.300	1100011001
128.325	0100011001
128.350	1000011001
128.375	0000011001
128.400	1111101001
128.425	0111101001
128.450	1011101001
128.475	0011101001
128.500	1101101001
128.525	0101101001
128.550	1001101001
128.575	0001101001
128.600	1110101001
128.625	0110101001
128.650	1010101001
128.675	0010101001
128.700	1100101001
128.725	0100101001
128.750	1000101001
128.775	0000101001
128.800	1111001001
128.825	0111001001
128.850	1011001001
128.875	0011001001
128.900	1101001001
128.925	0101001001
128.950	1001001001
128.975	0001001001

129.000	1110001001
129.025	0110001001
129.050	1010001001
129.075	0010001001
129.100	1100001001
129.125	0100001001
129.150	1000001001
129.175	0000001001
129.200	1111110001
129.225	0111110001
129.250	1011110001
129.275	0011110001
129.300	1101110001
129.325	0101110001
129.350	1001110001
129.375	0001110001
129.400	1110110001
129.425	0110110001
129.450	1010110001
129.475	0010110001
129.500	1100110001
129.525	0100110001
129.550	1000110001
129.575	0000110001
129.600	1111010001
129.625	0111010001
129.650	1011010001
129.675	0011010001
129.700	1101010001
129.725	0101010001
129.750	1001010001
129.775	0001010001
129.800	1110010001
129.825	0110010001
129.850	1010010001
129.875	0010010001
129.900	1100010001
129.925	0100010001
129.950	1000010001
129.975	0000010001
130.000	1111100001

### Frequency DIP Switch Settings

1=UP    0=Down

130.025	0111100001
130.050	1011100001
130.075	0011100001
130.100	1101100001
130.125	0101100001
130.150	1001100001
130.175	0001100001
130.200	1110100001
130.225	0110100001
130.250	1010100001
130.275	0010100001
130.300	1100100001
130.325	0100100001
130.350	1000100001
130.375	0000100001
130.400	1111000001
130.425	0111000001
130.450	1011000001
130.475	0011000001
130.500	1101000001
130.525	0101000001
130.550	1001000001
130.575	0001000001
130.600	1110000001
130.625	0110000001
130.650	1010000001
130.675	0010000001
130.700	1100000001
130.725	0100000001
130.750	1000000001
130.775	0000000001
130.800	1111111110
130.825	0111111110
130.850	1011111110
130.875	0011111110
130.900	1101111110
130.925	0101111110
130.950	1001111110
130.975	0001111110
131.000	1110111110
131.025	0110111110

131.050	1010111110
131.075	0010111110
131.100	1100111110
131.125	0100111110
131.150	1000111110
131.175	0000111110
131.200	1111011110
131.225	0111011110
131.250	1011011110
131.275	0011011110
131.300	1101011110
131.325	0101011110
131.350	1001011110
131.375	0001011110
131.400	1110011110
131.425	0110011110
131.450	1010011110
131.475	0010011110
131.500	1100011110
131.525	0100011110
131.550	1000011110
131.575	0000011110
131.600	1111011110
131.625	0111011110
131.650	1011011110
131.675	0011011110
131.700	1101011110
131.725	0101011110
131.750	1001011110
131.775	0001011110
131.800	1110101110
131.825	0110101110
131.850	1010101110
131.875	0010101110
131.900	1100101110
131.925	0100101110
131.950	1000101110
131.975	0000101110
132.000	1111001110
132.025	0111001110
132.050	1011001110

132.075	0011001110
132.100	1101001110
132.125	0101001110
132.150	1001001110
132.175	0001001110
132.200	1110001110
132.225	0110001110
132.250	1010001110
132.275	0010001110
132.300	1100001110
132.325	0100001110
132.350	1000001110
132.375	0000001110
132.400	1111101110
132.425	0111101110
132.450	1011101110
132.475	0011101110
132.500	1101101110
132.525	0101101110
132.550	1001101110
132.575	0001101110
132.600	1110101110
132.625	0110101110
132.650	1010101110
132.675	0010101110
132.700	1100101110
132.725	0100101110
132.750	1000101110
132.775	0000101110
132.800	1111010110
132.825	0111010110
132.850	1011010110
132.875	0011010110
132.900	1101010110
132.925	0101010110
132.950	1001010110
132.975	0001010110
133.000	1110010110
133.025	0110010110
133.050	1010010110
133.075	0010010110

133.100	1100010110
133.125	0100010110
133.150	1000010110
133.175	0000010110
133.200	1111001110
133.225	0111001110
133.250	1011001110
133.275	0011001110
133.300	1101001110
133.325	0101001110
133.350	1001001110
133.375	0001001110
133.400	1110100110
133.425	0110100110
133.450	1010100110
133.475	0010100110
133.500	1100100110
133.525	0100100110
133.550	1000100110
133.575	0000100110
133.600	1111000110
133.625	0111000110
133.650	1011000110
133.675	0011000110
133.700	1101000110
133.725	0101000110
133.750	1001000110
133.775	0001000110
133.800	1110000110
133.825	0110000110
133.850	1010000110
133.875	0010000110
133.900	1100000110
133.925	0100000110
133.950	1000000110
133.975	0000000110
134.000	111111010
134.025	011111010
134.050	101111010
134.075	001111010
134.100	110111010

### Frequency DIP Switch Settings

1=UP    0=Down

134.125	0101111010
134.150	1001111010
134.175	0001111010
134.200	1110111010
134.225	0110111010
134.250	1010111010
134.275	0010111010
134.300	1100111010
134.325	0100111010
134.350	1000111010
134.375	0000111010
134.400	1111011010
134.425	0111011010
134.450	1011011010
134.475	0011011010
134.500	1101011010
134.525	0101011010
134.550	1001011010
134.575	0001011010
134.600	1110011010
134.625	0110011010
134.650	1010011010
134.675	0010011010
134.700	1100011010
134.725	0100011010
134.750	1000011010
134.775	0000011010
134.800	111101010
134.825	011101010
134.850	101101010
134.875	001101010
134.900	110101010
134.925	010101010
134.950	100101010
134.975	000101010
135.000	1110101010
135.025	0110101010
135.050	1010101010
135.075	0010101010
135.100	1100101010
135.125	0100101010

135.150	1000101010
135.175	0000101010
135.200	1111001010
135.225	0111001010
135.250	1011001010
135.275	0011001010
135.300	1101001010
135.325	0101001010
135.350	1001001010
135.375	0001001010
135.400	1110001010
135.425	0110001010
135.450	1010001010
135.475	0010001010
135.500	1100001010
135.525	0100001010
135.550	1000001010
135.575	0000001010
135.600	111110010
135.625	011110010
135.650	101110010
135.675	001110010
135.700	110110010
135.725	010110010
135.750	100110010
135.775	000110010
135.800	1110110010
135.825	0110110010
135.850	1010110010
135.875	0010110010
135.900	1100110010
135.925	0100110010
135.950	1000110010
135.975	0000110010
136.000	1111010010
136.025	0111010010
136.050	1011010010
136.075	0011010010
136.100	1101010010
136.125	0101010010
136.150	1001010010

136.175	0001010010
136.200	1110010010
136.225	0110010010
136.250	1010010010
136.275	0010010010
136.300	1100010010
136.325	0100010010
136.350	1000010010
136.375	0000010010
136.400	1111100010
136.425	0111100010
136.450	1011100010
136.475	0011100010
136.500	1101100010
136.525	0101100010
136.550	1001100010
136.575	0001100010
136.600	1110100010
136.625	0110100010
136.650	1010100010
136.675	0010100010
136.700	1100100010
136.725	0100100010
136.750	1000100010
136.775	0000100010
136.800	1111000010
136.825	0111000010
136.850	1011000010
136.875	0011000010
136.900	1101000010
136.925	0101000010
136.950	1001000010
136.975	0001000010
137.000	1110000010