

## GEMINI ROBOT KITS

## Room Beacon Assembly Instructions

## Parts List

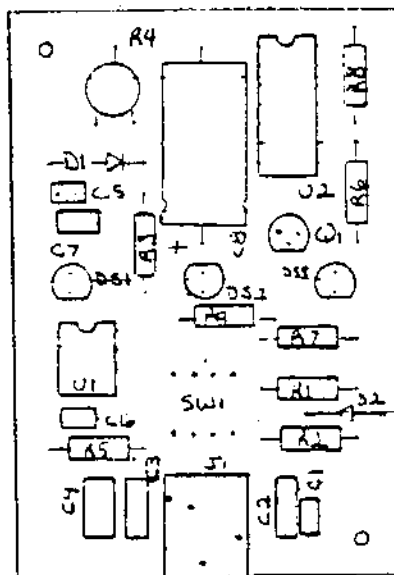
DESCRIPTION	QTY	PART #
<u>Resistors</u>		
200 (RED-BLK-BRN-GLD)	1	CCF25200
1K (BRN-BLK-RED-GLD)	1	CCF251K
5.1K (GRN-BRN-RED-GLD)	1	CCF255.1K
8.25 (GRY-RED-GRN-BRN-BRN)	1	CMR258.25K
33.2K (ORG-ORG-RED-RED-BRN)	1	CMR2533.2K
100K (BRN-BLK-YEL-GLD)	1	CCF25100K
475K (YEL-VIO-GRN-ORG-BRN)	1	CMR25475K
27 (RED-VIO-BLK-GLD)	1	CCF5027
10K Potentiometer	1	91ER10K
<u>Capacitors</u>		
.1 microfarad (104)	1	SR205E104M-AA
.1 microfarad (S104)	1	P4525
.18 microfarad (S184)	1	P4528
.39 microfarad (U394)	1	P4532
.82 microfarad (U824)	1	P4536
.0022 microfarad (green)	1	MY.0022/100
.01 microfarad (103K)	1	CK05BX103K
1000 microfarad 25v Electrolytic	1	CAE1000MF25V
<u>Diodes</u>		
1N914 or 1N4148	1	1N914
1N4740	1	1N4740
<u>Transistors</u>		
2N2907 plastic	1	PN2907A
<u>Miscellaneous</u>		
Room Beacon PC Board	1	
Phone Jack	1	274-250
4 Position Dip Switch	1	BD04
LED Holders (wht-2 halves)	2	81F4313
IR LED (Grey or Clear)	3	TIL-906
Power Supply	1	DC900
	1	

cont.

TLC7555CP (IC-U1)	1	555CP
SCL4001BE (IC-U2)	1	SCL4001BE
8 Pin Socket	1	INC-083-S3-T
14 Pin Socket	1	INC-143-S3-T
4-40 X 1/4" Screws	4	91783A106
4-40 Hex Nuts	2	91841A005
Beacon Backplate	1	GIBN-1
Beacon Front Cover	1	GIBN-2
Velcro	4"	SJ3526
Velcro	6"	SJ3527

### Assembling the Beacon

1. Please notice that this pc board has the component numbers marked, but no guide lines as to which holes they go in. Be very careful as to where you place the components. The diagram below should help.



2. Install and solder sockets into position. Please note that pin one is marked with a square on the circuit board.

- ( ) U1 - 8 Pin Socket
- ( ) U2 - 14 Pin Socket

3. Insert and solder the following resistors.

- ( ) R8 - 5.1K (GRN-BRN-RED-GLD)
- ( ) R6 - 1K (BRN-BLK-RED-GLD)
- ( ) R3 - 8.25K (GRY-RED-GRN-BRN-BRN)
- ( ) R9 - 200 (RED-BLK-BRN-GLD)
- ( ) R7 - 27 (RED-VIO-BLK-GLD) \*NOTE THAT R7 IS NOT MARKED ON PC BOARD. SEE DIAGRAM IN STEP 1 FOR LOCATION.
- ( ) R1 - 475K (YEL-VIO-GRN-ORG-BRN)
- ( ) R2 - 33.2K (ORG-ORG-RED-RED-BRN)
- ( ) R5 - 100K (BRN-BLK-YEL-GLD)

4. Insert and solder all diodes in place.

- ( ) D1 - IN914 or IN4148
- ( ) D2 - IN4740

5. Install the 10K potentiometer (marked on end with only 1 lead) at location ( ) R4.

6. Position the transistor as shown in diagram on page 2.

- ( ) Q1 - 2N2907

7. Install the following capacitors.

- ( ) C5 - .0022 mf (green)
- ( ) C7 - .1 mf (104)
- ( ) C8 - 1000 mf 25v Electrolytic
- ( ) C6 - .01 mf (103K)
- ( ) C4 - .82 mf (U824)
- ( ) C3 - .39 mf (U394)
- ( ) C2 - .18 mf (S184)
- ( ) C1 - .1 mf (S104)

8. Install the 4 position dip switch on the underside of the pc board with switch one placed in the square pad. Solder component side of board.

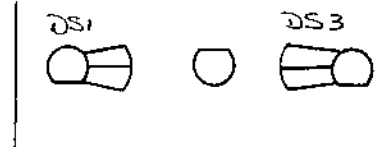
- ( ) SW1 - Dip Switch

9. Insert and solder phone jack. Try to have the phone jack as straight as possible before soldering.

- ( ) J1 - Phone Jack

10. Insert and solder the Infra Red LED's into place. DS1 and DS3 will be placed through a white standoff so that each LED faces the outer edge of the circuit board. See the circuit layout on page 2 to determine which direction the flat side of the LED faces.

- ( ) DS1 - LED and Standoff
- ( ) DS2 - LED
- ( ) DS3 - LED and Standoff



11. At this point we recommend that you clean the circuit board. You can use alcohol and a scrub brush or you can purchase Flux Remover at your nearest electronics supply store.

12. Insert the IC's into their sockets. We recommend that you ground yourself while doing this. Use caution and make sure all the pins on the chips go into the socket.

- ( ) U1 - TLC7555
- ( ) U2 - SCL4001BE

13. To mount the circuit board inside the enclosure, remove the jack nut from the end of the phone jack, place the 4-40 X 1/4" screws through the holes in each corner and tighten the hex nuts onto the screws about half way. Place the pc board inside the bottom piece (metal) of the enclosure so that the screws line up with the standoff and tighten the screw into the standoff. Place the lid on the unit so that the stem of the phone jack is sticking out through the hole in one end of the lid. Secure with the 4-40 X 1/4" screws.

14. If you wish to use Velco to mount the beacons, two strips have been provided for the beacon. We have found it easier on walls if you hang a velcro covered metal strip and then adjust the beacons position on it.

The table below gives the switch settings for the different room codes. Remember that the "HOME" Beacon must be Room 1.

SW4	SW3	SW2	SW1	PERIOD(MS)	ROOM CODE	
0	0	0	0	Not Allowed	N/A	
0	0	0	1	7.26	01	(1)
0	0	1	0	13.07	02	(2)
0	0	1	1	20.33	03	(3)
0	1	0	0	28.31	04	(4)
0	1	0	1	35.57	05	(5)
0	1	1	0	41.38	06	(6)
0	1	1	1	48.64	07	(7)
1	0	0	0	59.53	08	(8)
1	0	0	1	66.79	09	(9)
1	0	1	0	72.60	0A	(10)
1	0	1	1	79.86	0B	(11)
1	1	0	0	87.85	0C	(12)
1	1	0	1	95.11	0D	(13)
1	1	1	0	100.91	0E	(14)
1	1	1	1	108.17	0F	(15)

0=OFF, 1=ON