

# INFRARED (LED) LIGHTING KIT

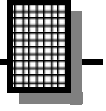


**Ramsey Electronics Model No.**

**IR1**

*The perfect companion to our Ramsey CCD TV cameras, this compact infrared lighting kit is small enough to hide easily, yet powerful enough to fill a room with infrared light. This kit makes a great spot light for those dark places you want to keep dark, but to the camera, looks like daylight!*

- **Powerful “Infrared” lighting source**
- **Keeps dark places dark (infrared light cannot be seen with the human eye)**
- **Works great with the Ramsey “Mini CCD” TV cameras or any other infrared viewing equipment**
- **Compact size is easy to hide**
- **Assembles in minutes**
- **Runs from a 12 volt power supply**
- **Informative manual leads you through step by step to ensure an operating unit when complete.**



## RAMSEY TRANSMITTER KITS

- The "Cube" MicroStation Transmitter
- FM-25 synthesized FM Transmitter
- FM-100 Stereo FM Transmitter
- AM-1 AM Transmitter

## RAMSEY RECEIVER KITS

- FR-1 FM Broadcast Receiver
- AR-1 Aircraft Band Receiver
- SR-1 Shortwave Receiver
- AA-7 Active Antenna
- SC-1 Shortwave Converter

## RAMSEY HOBBY KITS

- SG7 Personal Speed Radar
- SS70A Speech Scrambler
- BS1 "Bullshooter" Digital Voice Storage Unit
- AVS10 Automatic Sequential Video Switcher
- WCT20 Cable Wizard Cable Tracer
- LC1 Inductance-Capacitance Meter

## RAMSEY AMATEUR RADIO KITS

- FX 146 VHF Transceiver
- HR Series HF All Mode Receivers
- QRP Series HF CW Transmitters
- CW700 Micro Memory CW Keyer
- CPO3 Code Practice Oscillator
- QRP Power Amplifiers

## RAMSEY MINI-KITS

Many other kits are available for hobby, school, Scouts and just plain FUN. New kits are always under development. Write or call for our free Ramsey catalog.

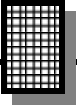


## IR1 INFRARED LIGHTING BOARD

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# KIT ASSEMBLY AND INSTRUCTION MANUAL FOR

# IR1 INFRARED LIGHTING BOARD KIT

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## **Introduction:**

Monitoring what is happening at night is now virtually as easy as it is during the day time with the Ramsey Infrared Lighting kit. Most CCD TV cameras, as well as night vision scopes, are sensitive to IR light. If you illuminate with IR, the camera will see as though being lit by a floodlight - but look completely dark to the unaided human eye. With the IR1's high intensity infrared LEDs and it's compact size, it's the perfect infrared light source for hiding in that dark hallway or any other place you want to see but not be seen.

## **Kit building tips:**

Use a good soldering technique - let your soldering iron tip gently heat the traces to which you are soldering, heating both wires and pads simultaneously. Apply the solder to the iron and the pad when the pad is hot enough to melt the solder. The finished joint should look like a drop of water on paper, somewhat soaked in.

Mount all electrical parts on the top side of the board provided. This is the side that has no traces or pads on it.

Electrical part installation - when parts are installed, the part is placed flat to the board, and the leads are bent on the backside of the board to prevent the part from falling out before soldering. The part is then soldered securely to the board; the remaining lead length is clipped off.

## **IR1 Parts List:**

It is a good idea to check off the components in the boxes provided and to separate them as you go along. This will save hunting for specific components later.

### **RESISTORS**

- 8 39 ohm resistors [orange-white-black] (R1 through R8)

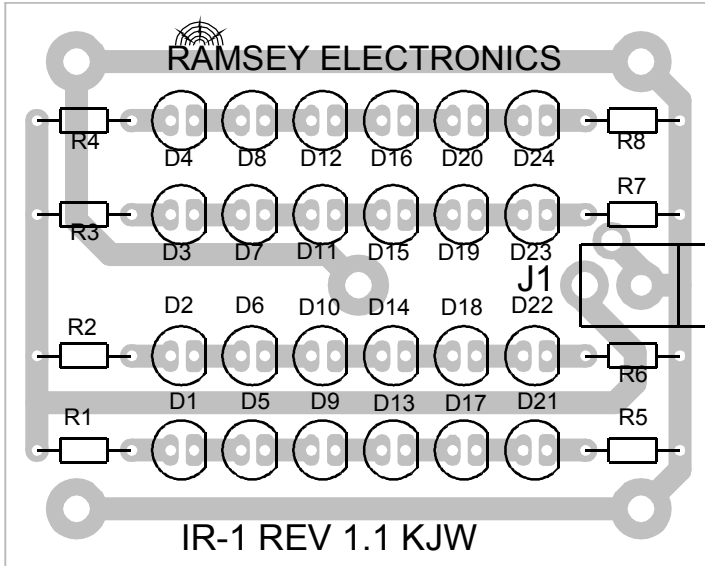
### **SEMICONDUCTORS**

- 24 Infrared LED's (clear body)

### **MISCELLANEOUS PARTS**

- 1 Power jack

# IR1 PARTS PLACEMENT DIAGRAM



# **CONSTRUCTION OF THE IR1 INFRARED LIGHTING KIT**

- ❑ 1. Install R1 through R8, 39 ohm resistor (orange-white-black).
- ❑ 2. Install D1, IR LED (clear body - 2 leads). The lip around these LED's has a flat edge on it, designating the cathode of the LED (this is also the shorter of the two leads). Make sure when installing, you orient this edge in the same direction as shown on the silk-screen on the PC board.
- ❑ 3. Install D2 through D24 using the same directions as in step 10.
- ❑ 4. Install J1, the 12 volt power jack, on the PC board. This may require some additional heat for the solder to flow so be patient and take your time.

## **SET-UP:**

### *CONGRATULATIONS*

Now that you have completed your IR1 you may want to check to make sure there are no solder bridges and that everything is in correctly. If something is not right, be sure and make the correction before energizing the circuit.

The IR1 is designed to be powered by an external power supply using jack J1. A 12 volt regulated DC supply is recommended, with the "center" pin of the connector being the positive or the (+) connection.

1. Connect a suitable power supply to the IR1 board.

## **TROUBLESHOOTING:**

1. The light emitted from the LED's is Infrared and cannot be seen with the human eye. An Infrared viewing device (i.e. Mini-peeper, night scope, etc.) must be used to see if the LED's are operating properly.
2. Check for cold solder joints. They'll look gray and dull as opposed to silver and shiny.
3. Make sure all of the Infrared LED's are installed correctly (see construction step 2, above).
4. Check to be sure the power supply has an output of 12 volts and that the polarity is correct (see 'SETUP' above).

If none of the above has helped you, then see the Ramsey kit warranty in the manual.

# **The Ramsey Kit Warranty**

**Please read carefully BEFORE calling or writing in about your kit. Most problems can be solved without contacting the factory.**

Notice that this is not a "fine print" warranty. We want you to understand your rights and ours too! All Ramsey kits will work if assembled properly. The very fact that your kit includes this new manual is your assurance that a team of knowledgeable people have field-tested several "copies" of this kit straight from the Ramsey Inventory. If you need help, please read through your manual carefully, all information required to properly build and test your kit is contained within the pages!

**1. DEFECTIVE PARTS:** It's always easy to blame a part for a problem in your kit. Before you conclude that a part may be bad, thoroughly check your work. Today's semiconductors and passive components have reached incredibly high reliability levels, and it's sad to say that our human construction skills have not! But on rare occasions a sour component can slip through. All our kit parts carry the Ramsey Electronics Warranty that they are free from defects for a full ninety (90) days from the date of purchase. Defective parts will be replaced promptly at our expense. If you suspect any part to be defective, please mail it to our factory for testing and replacement. Please send only the defective part (s), not the entire kit. The part(s) MUST be returned to us in suitable condition for testing. Please be aware that testing can usually determine if the part was truly defective or damaged by assembly or usage. Don't be afraid of telling us that you 'blew-it', we're all human and in most cases, replacement parts are very reasonably priced.

**2. MISSING PARTS:** Before assuming a part value is incorrect, check the parts listing carefully to see if it is a critical value such as a specific coil or IC, or whether a RANGE of values is suitable (such as "100 to 500 uF"). Often times, common sense will solve a mysterious missing part problem. If you're missing five 10K ohm resistors and received five extra 1K resistors, you can pretty much be assured that the '1K ohm' resistors are actually the 'missing' 10 K parts ("Hum-m-m, I guess the 'red' band really does look orange!") Ramsey Electronics project kits are packed with pride in the USA. If you believe we packed an incorrect part or omitted a part clearly indicated in your assembly manual as supplied with the basic kit by Ramsey, please write or call us with information on the part you need and proof of kit purchase.

### **3. FACTORY REPAIR OF ASSEMBLED KITS:**

To qualify for Ramsey Electronics factory repair, kits MUST:

1. NOT be assembled with acid core solder or flux.
2. NOT be modified in any manner.
3. BE returned in fully-assembled form, not partially assembled.
4. BE accompanied by the proper repair fee. No repair will be undertaken until we have received the MINIMUM repair fee (1/2 hour labor) of \$18.00, or authorization to charge it to your credit card account.
5. INCLUDE a description of the problem and legible return address. DO NOT send a separate letter; include all correspondence with the unit. Please do not include your own hardware such as non-Ramsey cabinets, knobs, cables, external battery packs and the like. Ramsey Electronics, Inc., reserves the right to refuse repair on ANY item in which we find excessive problems or damage due to construction methods. To assist customers in such situations, Ramsey Electronics, Inc., reserves the right to solve their needs on a case-by-case basis.

The repair is \$36.00 per hour, regardless of the cost of the kit. Please understand that our technicians are not volunteers and that set-up, testing, diagnosis, repair and repackaging and paperwork can take nearly an hour of paid employee time on even a simple kit. Of course, if we find that a part was defective in manufacture, there will be no charge to repair your kit (But please realize that our technicians know the difference between a defective part and parts burned out or damaged through improper use or assembly).

**4. REFUNDS:** You are given ten (10) days to examine our products. If you are not satisfied, you may return your unassembled kit with all the parts and instructions and proof of purchase to the factory for a full refund. The return package should be packed securely. Insurance is recommended. Please do not cause needless delays, read all information carefully.

Infrared Lighting Kit  
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**REQUIRED TOOLS**

- Soldering Iron - Ramsey #RTS06, (Radio Shack #RS64-2072)
- Thin Rosin Core Solder - RTS12, (RS64-025)
- Needle Nose Pliers - RTS05, (RS64-1844)
- Small Diagonal Cutters - RTS04, (RS64-1845)
- <OR> Complete Soldering Tool Set - (RS64-2801)

**ADDITIONAL SUGGESTED ITEMS**

- Soldering Iron Holder/Cleaner (RS-64-2078)
- Holder for PC Board/Parts - RTS13 (Inc. base), (RS64-2094)
- Desoldering Braid - RTS08, (RS-2090)

Price: \$5.00

Ramsey Publication No. MIR1  
Assembly and Instruction manual for:

***RAMSEY MODEL NO. IRI  
INFRARED LIGHTING KIT***

**TOTAL SOLDER POINTS**

**72**

**ESTIMATED ASSEMBLY  
TIME**

**Beginner ..... 1.9 hrs.  
Intermediate ..... 1.0 hrs.  
Advanced ..... 0.8 hrs.**

  
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