INTERFACE BOARD KIT

Ramsey Electronics Model No. IB1

Ever want to spy on a friend or an enemy without them knowing it? Well now you can with the IB-1. It is small enough that it can easily be hidden, yet it picks up audio as well as video! The Interface board picks up infra-red light, allowing it to be used at night or in dark places.

- **Quick connection to a TV or VCR**

- **Runs from a 12 to 15 volt power supply**

- **Great for watching the kids outside while you're busy inside**

- **Includes a microphone allowing audio as well as video outputs**

- **The ultimate baby monitor!**

- **Educational and fun to build!**

- **Informative manual leads you through step by step to ensure an operating unit when complete.**

- **Interface board allows for use in dark places including at night.**

RAMSEY TRANSMITTER KITS
- **FM10A, FM25B FM Stereo Transmitters**
- **TV6, Television Transmitter**
- **MR6, Model Rocket Tracking Transmitter**

RAMSEY RECEIVER KITS
- **FR1 FM Broadcast Receiver**
- **AR1 Aircraft Band Receiver**
- **SR2 Shortwave Receiver**
- **AA7 Active Antenna**
- **SC1 Shortwave Converter**

RAMSEY HOBBY KITS
- **SG7 Personal Speed Radar**
- **SS70A Speech Scrambler**
- **TT1 Telephone Recorder**
- **SP1 Speakerphone**
- **MD3 Microwave Motion Detector**
- **PH10 Peak hold Meter**
- **LC1 Inductance-Capacitance Meter**

RAMSEY AMATEUR RADIO KITS
- **DDF1 Doppler Direction Finder**
- **HR Series HF All Mode Receivers**
- **QRP Series HF CW Transmitters**
- **CPO3 Code Practice Oscillator**
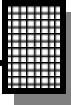- **QRP Power Amplifiers**

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.

IB1 INTERFACE BOARD KIT
Ramsey Electronics publication NO. MIB1 Rev. 1.5a
First printing: December 1994

KIT ASSEMBLY
AND INSTRUCTION MANUAL FOR

INTERFACE BOARD KIT

TABLE OF CONTENTS

IB-1 ● 3

Introduction:

It is now possible to monitor what is happening at night as well as during the daylight hours with the Interface board kit and a camera. By virtue of infrared LEDs for night vision and a microphone attached to an amplifier circuit, you can use it to spy on someone or as a means of added security. The Interface board connects directly to your choice of small video cameras and has a video and an audio output which can be plugged into a VCR or a TV (if your TV has audio and video jacks on it).

How It Works:

The circuit is powered by a 12 to 15 volt supply, used to operate the camera as well as the rest of the circuit including the optional infra-red LEDs. U1 and D1 regulate the DC supply voltage to 9 or 12 V for use in the circuit. Video is fed directly from your camera module to the video output jack, J2. Microphone audio is amplified by Q1 and Q2 and fed to audio output jack J3.

Test points E and F allow for connection to infra-red LEDs if so desired. Optional R10 and R11 are current limiting resistors.

An interesting note: Because it uses state-of-the-art CCD (charge coupled device) technology, the IB1 is extremely sensitive at low light levels, even at infrared wavelengths. It's possible to view the IR coming from your TV remote control with the IB1. Also, the IB1 can be placed behind a piece of dark Plexiglas, blocking visible light while allowing infra-red through...what an idea for covert surveillance!

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.

IB1 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

- ❐ 2   470 ohm resistors [yellow-violet -brown] (R8, R9)
- ❐ 2   1K ohm resistors [brown-black-red] (R1,R4)
- ❐ 3   10K ohm resistors [brown-black-orange] (R2, R3, R7)
- ❐ 2   22K ohms resistors [red-red-orange] (R5, R6)

CAPACITORS

- ❐ 1   .1uF capacitor (C4)
- ❐ 5   10uF electrolytic capacitors (C1, C2, C3, C5, C6)

SEMICONDUCTORS
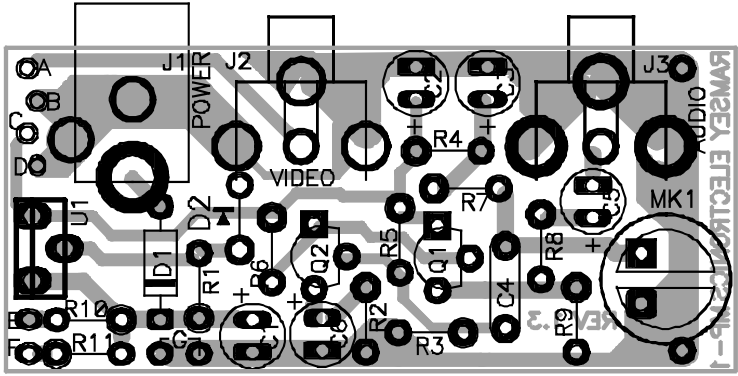
- ❐ 2   2N3904 NPN transistors (Q1, Q2)
- ❐ 1   7808, 8 volt regulator (U1)(see text)
- ❐ 1   7812, 12 volt regulator (U1)(see text)
- ❐ 2   1N4002 diodes (D1,D2)

MISCELLANEOUS PARTS AND HARDWARE

- ❐ 1   power jack (J1)
- ❐ 2   RCA jacks (J2, J3)
- ❐ 1   MC-1A microphone (MK-1)

OPTIONAL (not provided)

- ❐ 2   resistors (see chart on page 8)
- ❐ 1-6 infrared LEDs

IB-1 • 6

CONSTRUCTION OF THE IB1 INTERFACE BOARD KIT

❒ 1. Install J2 and J3, the RCA style audio and video jacks, on the PC board. These require some heat for the solder to flow so take your time.

❒ 2. Install J1, the power jack.

❒ 3. Install MK1, the microphone. If you are looking at the bottom of the microphone the two pins should be on the top and side by side. The pin on the left is positive and goes to the inside of the board.The pin on the right is negative and goes to the outside of the board.

❒ 4. Install C1, C2, C3, C5, and C6; they are all 10 uF electrolytic capacitors. Electrolytic capacitors are polarized with a (+) and a (-) lead and must be installed in the correct orientation. Ordinarily only the negative side is marked on the capacitor body with a dark band and a (-) sign clearly shown. The PC board will usually show the (+) hole location. Use care to ensure proper polarity, these components can burn out if installed incorrectly.

❒ 5. Install R1 and R4, 1K ohm resistors (brown-black-red).

❒ 6. Install R2, R3, and R7, 10K ohm resistors (brown-black-orange). By installing C3, R4, and R7 you have built an AC noise filter as well as a DC power supply to the microphone.

❒ 7. Check the paperwork that came with your camera. If you have a 12 volt camera, install the 12 volt regulator in the U1 position. If your camera runs on 9 volts, install the 8 volt regulator.   When looking at the flat side the input pin is on the left, ground is the center pin, and the output is the right pin. The flat side or the back of the regulator faces the outside of the board.

❒ 8. Install D1, the diode marked 1N4002. Follow the parts layout diagram when installing it; the end with the white line on it is the negative end. If you installed the 8 volt regulator in step 7, install D2, marked 1N4002. If you installed the 12 volt regulator, install a small jumper wire in the D2 position. The voltage regulator along with D1, D2, R1, C1, and C2 supply 9 or 12 volts to the camera.

❒ 9. Install Q1 and Q2, 2N3904 NPN transistors. When installing Q1 and Q2 observe the correct placement of the flat side. Press the transistor snugly into the board so that only a minimum of wire is exposed above the board.

❒ 10. Install C4, .1 uF capacitor (marked .1 or 104).

❒ 11. Install R8 and R9, they are 470 ohm resistors (yellow-violet-brown).

❒ 12. Install R5 and R6, they are 22 K ohm resistor (red-red-orange). These resistors along with R2, R3, R8, R9, C6, Q1, and Q2 are the audio amplifier, the heart of the audio section.

IB-1 • 7

❒   13. Connect your camera. Follow the wiring diagram on the paperwork enclosed with your camera.

OPTIONAL

If you are planning on using the Interface board at night or in dark areas you will want to install R10 and R11 along with infrared LEDs. The brightness desired can be changed by using more or less IR LEDs. The circuit is capable of supporting up to 6 LEDs. With each LED change, R10 and R11 will also change. Each LED connected to R10 (hole E) must be in series and each LED connected to R11 (hole F) must also be connected in series.

# of LEDs	R10	R11
1	470 ohms	_
2	470 ohms	470 ohms
3	330 ohms	470 ohms
4	330 ohms	330 ohms
5	220 ohms	330 ohms
6	220 ohms	220 ohms

❒   1. Install appropriate resistors R10 and R11.

❒   2. Install infrared LEDs. Be sure that you connect them with the correct orientation. The long lead is the anode (positive) and the short lead is the cathode(negative). The anode is connected to either hole F or E on the PC and the cathode is connected to hole G. You may want to use a wire to connect the LED(s) to the PC so that they can be moved while the Interface board itself does not.

CONGRATULATIONS
Now that you have completed your IB1 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.

SET-UP:

The IB1 is designed to be powered by an external power supply using jack J1. A 12 to 15 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 IB1 board.
2. Connect the video output of the IB1 to the video input of your TV or VCR.
3. Connect the audio output of the IB1 to the audio input of your TV or VCR.
4. Adjust your TV to its auxiliary channel if you're not using a VCR, if you are using a VCR adjust your TV to either channel three or four; whichever the VCR is set to. You may have to adjust the tracking on your VCR.
5. If you have a clear picture along with good audio you can breath a sigh of relief. If you don't then look at the next section, trouble-shooting.

TROUBLESHOOTING:

1. Check for cold solder joints. They'll look gray and dull as opposed to silver and shiny.
2. NO VIDEO.
   Make sure that the RCA connections are correct and check the TV/VCR adjustments, channel and/or input settings.
3. NO VIDEO.
   See if the correct voltage is being supplied to the camera at the camera connection hole marked C. If not, make sure that you have power to the PC board.
4. NO AUDIO.
   If you don't have voltage to the camera, as mentioned earlier, you also don't have any voltage going to the audio section of circuitry.
5. VERY LITTLE AUDIO
   Check to make sure that Q1 and Q2 are installed properly and also the resistors that are directly connected to them are the correct value.

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

CONCEALMENT IDEAS:

There are many places that the Interface board and a small CCD camera (check the Ramsey catalog or website at www.ramseykits.com) can be hidden because of their size and maneuverability. The best place for you depends on your application and what type of setting it is to be used in. The Interface board and a camera could be used to watch the children, for security outside as well as inside, or to capture the 10 thousand dollar home video. Here are a few ideas that we came up with:

1. Looking out from behind a picture hanging on the wall.
2. In a ceiling tile
3. Behind the front grill of a speaker
4. Behind a mirror
5. In a register
6. Hanging up in back of the eaves
7. The inside of a garage door
8. In a bush
9. On a window sill behind a curtain
10. In a flower pot
11. In a cabinet with a glass door
12. Inside of a child's doll or toy

We have experimented and installed the Interface board and a camera temporarily in a couple of offices. They were hidden in plants and air vents. The wires were run into an adjacent office where the uninformed victims were shown on television. It was great watching people get mad at their computers, printers, and other instruments. There were a few choice words that people came up with while they were a little upset. All in all, it was a blast watching people do things that they wouldn't normally do with others around.

<u>*The Ramsey Kit Warranty*</u>

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.

Interface board Kit
Quick Reference Page Guide

REQUIRED TOOLS

- Soldering Iron Ramsey WLC100
- Thin Rosin Core Solder Ramsey RTS12
- Needle Nose Pliers Ramsey MPP4 or RTS05
- Small Diagonal Cutters Ramsey RTS04

<OR> Technician's Tool Kit TK405

ADDITIONAL SUGGESTED ITEMS

- Holder for PC Board/Parts Ramsey HH3
- Desoldering Braid Ramsey RTS08
- Digital Multimeter Ramsey M133

TOTAL SOLDER POINTS
70
ESTIMATED ASSEMBLY TIME
Beginner...............2.1 hrs
Intermediate.........1.2 hrs
Advanced ....0.9 hrs

Price: $5.00
Ramsey Publication No. IB1
Assembly and Instruction manual for:
RAMSEY MODEL NO. IB1 INTERFACE BOARD KIT

RAMSEY ELECTRONICS, INC.
590 Fishers Station Drive
Victor, New York 14564
Phone (585) 924-4560
Fax (585) 924-4555

Free Manuals Download Website

http://myh66.com

http://usermanuals.us

http://www.somanuals.com

http://www.4manuals.cc

http://www.manual-lib.com

http://www.404manual.com

http://www.luxmanual.com

http://aubethermostatmanual.com

Golf course search by state

http://golfingnear.com

Email search by domain

http://emailbydomain.com

Auto manuals search

http://auto.somanuals.com

TV manuals search

http://tv.somanuals.com