

# TRS-80<sup>®</sup>

## Modem IB

# OPERATION MANUAL

## Catalog Number 26-1175



CUSTOM MANUFACTURED IN USA BY RADIO SHACK, A DIVISION OF TANDY CORPORATION

## **SERVICE POLICY**

Radio Shack's nationwide network of service facilities provides quick, convenient, and reliable repair services for all of its computer products, in most instances. Warranty service will be performed in accordance with Radio Shack's Limited Warranty. Non-warranty service will be provided at reasonable parts and labor costs.

Because of the sensitivity of computer equipment, and the problems which can result from improper servicing, the following limitations also apply to the services offered by Radio Shack:

1. If any of the warranty seals on any Radio Shack computer products are broken, Radio Shack reserves the right to refuse to service the equipment or to void any remaining warranty on the equipment.
2. If any Radio Shack computer equipment has been modified so that it is not within manufacturer's specifications, including, but not limited to, the installation of any non-Radio Shack parts, components, or replacement boards, then Radio Shack reserves the right to refuse to service the equipment, void any remaining warranty, remove and replace any non-Radio Shack part found in the equipment, and perform whatever modifications are necessary to return the equipment to original factory manufacturer's specifications.
3. The cost for the labor and parts required to return the Radio Shack computer equipment to original manufacturer's specifications will be charged to the customer in addition to the normal repair charge.

TERMS AND CONDITIONS OF SALE AND LICENSE OF RADIO SHACK COMPUTER EQUIPMENT AND SOFTWARE  
PURCHASED FROM A RADIO SHACK COMPANY-OWNED COMPUTER CENTER, RETAIL STORE OR FROM A  
RADIO SHACK FRANCHISEE OR DEALER AT ITS AUTHORIZED LOCATION

## LIMITED WARRANTY

### I. CUSTOMER OBLIGATIONS

- A. CUSTOMER assumes full responsibility that this Radio Shack computer hardware purchased (the "Equipment"), and any copies of Radio Shack software included with the Equipment or licensed separately (the "Software") meets the specifications, capacity, capabilities, versatility, and other requirements of CUSTOMER.
- B. CUSTOMER assumes full responsibility for the condition and effectiveness of the operating environment in which the Equipment and Software are to function, and for its installation.

### II. RADIO SHACK LIMITED WARRANTIES AND CONDITIONS OF SALE

- A. For a period of ninety (90) calendar days from the date of the Radio Shack sales document received upon purchase of the Equipment, RADIO SHACK warrants to the original CUSTOMER that the Equipment and the medium upon which the Software is stored is free from manufacturing defects. THIS WARRANTY IS ONLY APPLICABLE TO PURCHASES OF RADIO SHACK EQUIPMENT BY THE ORIGINAL CUSTOMER FROM RADIO SHACK COMPANY-OWNED COMPUTER CENTERS, RETAIL STORES AND FROM RADIO SHACK FRANCHISEES AND DEALERS AT ITS AUTHORIZED LOCATION. The warranty is void if the Equipment's case or cabinet has been opened, or if the Equipment or Software has been subjected to improper or abnormal use. If a manufacturing defect is discovered during the stated warranty period, the defective Equipment must be returned to a Radio Shack Computer Center, a Radio Shack retail store, participating Radio Shack franchisee or Radio Shack dealer for repair, along with a copy of the sales document or lease agreement. The original CUSTOMER'S sole and exclusive remedy in the event of a defect is limited to the correction of the defect by repair, replacement, or refund of the purchase price, at RADIO SHACK'S election and sole expense. RADIO SHACK has no obligation to replace or repair expendable items.
- B. RADIO SHACK makes no warranty as to the design, capability, capacity, or suitability for use of the Software, except as provided in this paragraph. Software is licensed on an "AS IS" basis, without warranty. The original CUSTOMER'S exclusive remedy, in the event of a Software manufacturing defect, is its repair or replacement within thirty (30) calendar days of the date of the Radio Shack sales document received upon license of the Software. The defective Software shall be returned to a Radio Shack Computer Center, a Radio Shack retail store, participating Radio Shack franchisee or Radio Shack dealer along with the sales document.
- C. Except as provided herein no employee, agent, franchisee, dealer or other person is authorized to give any warranties of any nature on behalf of RADIO SHACK.
- D. Except as provided herein, **RADIO SHACK MAKES NO WARRANTIES, INCLUDING WARRANTIES OF MERCHANTABILITY OR FITNESS FOR A PARTICULAR PURPOSE.**
- E. Some states do not allow limitations on how long an implied warranty lasts, so the above limitation(s) may not apply to CUSTOMER.

### III. LIMITATION OF LIABILITY

- A. EXCEPT AS PROVIDED HEREIN, RADIO SHACK SHALL HAVE NO LIABILITY OR RESPONSIBILITY TO CUSTOMER OR ANY OTHER PERSON OR ENTITY WITH RESPECT TO ANY LIABILITY, LOSS OR DAMAGE CAUSED OR ALLEGED TO BE CAUSED DIRECTLY OR INDIRECTLY BY "EQUIPMENT" OR "SOFTWARE" SOLD, LEASED, LICENSED OR FURNISHED BY RADIO SHACK, INCLUDING, BUT NOT LIMITED TO, ANY INTERRUPTION OF SERVICE, LOSS OF BUSINESS OR ANTICIPATORY PROFITS OR CONSEQUENTIAL DAMAGES RESULTING FROM THE USE OR OPERATION OF THE "EQUIPMENT" OR "SOFTWARE". IN NO EVENT SHALL RADIO SHACK BE LIABLE FOR LOSS OF PROFITS, OR ANY INDIRECT, SPECIAL, OR CONSEQUENTIAL DAMAGES ARISING OUT OF ANY BREACH OF THIS WARRANTY OR IN ANY MANNER ARISING OUT OF OR CONNECTED WITH THE SALE, LEASE, LICENSE, USE OR ANTICIPATED USE OF THE "EQUIPMENT" OR "SOFTWARE".  
NOTWITHSTANDING THE ABOVE LIMITATIONS AND WARRANTIES, RADIO SHACK'S LIABILITY HEREUNDER FOR DAMAGES INCURRED BY CUSTOMER OR OTHERS SHALL NOT EXCEED THE AMOUNT PAID BY CUSTOMER FOR THE PARTICULAR "EQUIPMENT" OR "SOFTWARE" INVOLVED.
- B. RADIO SHACK shall not be liable for any damages caused by delay in delivering or furnishing Equipment and/or Software.
- C. No action arising out of any claimed breach of this Warranty or transactions under this Warranty may be brought more than two (2) years after the cause of action has accrued or more than four (4) years after the date of the Radio Shack sales document for the Equipment or Software, whichever first occurs.
- D. Some states do not allow the limitation or exclusion of incidental or consequential damages, so the above limitation(s) or exclusion(s) may not apply to CUSTOMER.

### IV. RADIO SHACK SOFTWARE LICENSE

RADIO SHACK grants to CUSTOMER a non-exclusive, paid-up license to use the RADIO SHACK Software on **one** computer, subject to the following provisions:

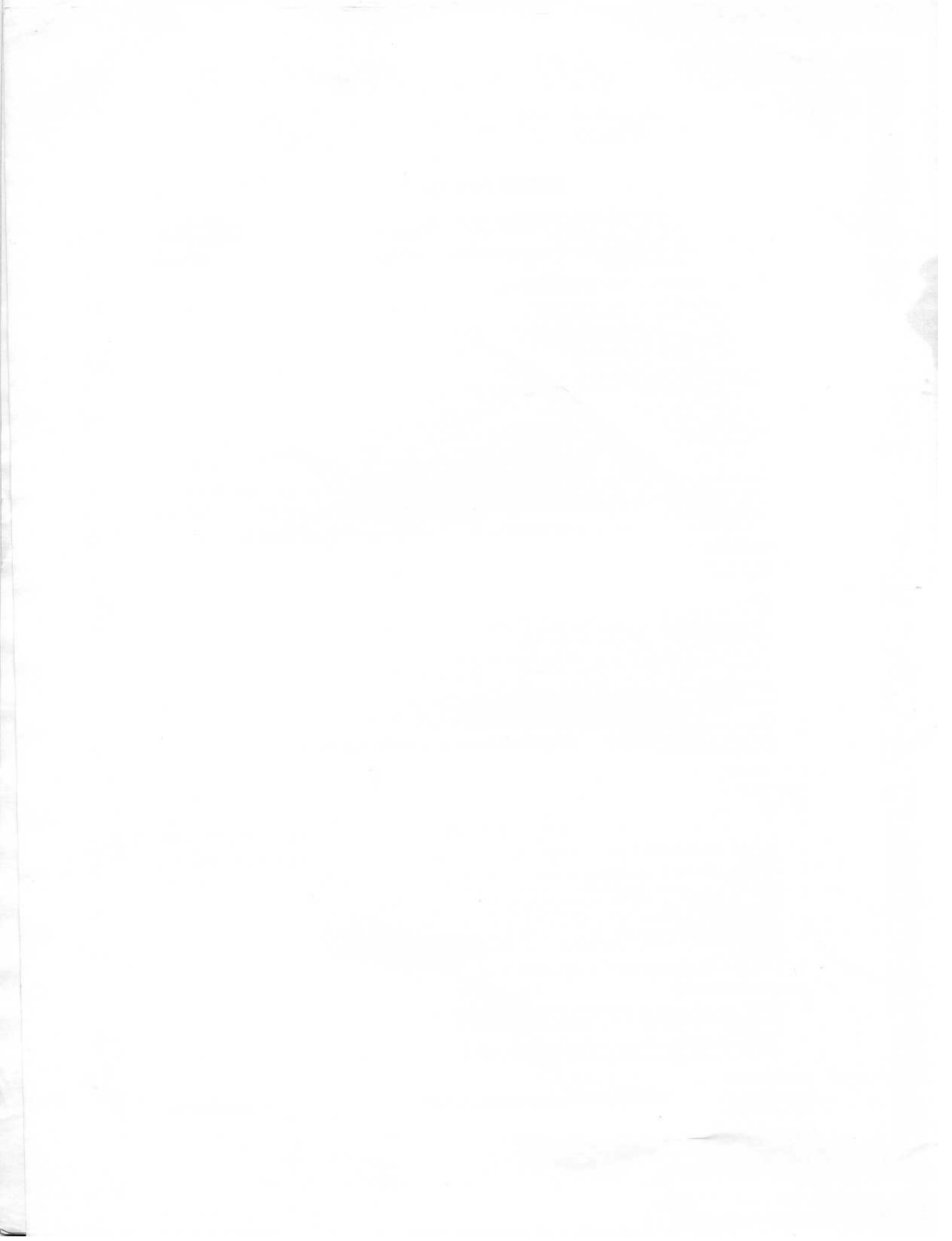
- A. Except as otherwise provided in this Software License, applicable copyright laws shall apply to the Software.
- B. Title to the medium on which the Software is recorded (cassette and/or diskette) or stored (ROM) is transferred to CUSTOMER, but not title to the Software.
- C. CUSTOMER may use Software on one host computer and access that Software through one or more terminals if the Software permits this function.
- D. CUSTOMER shall not use, make, manufacture, or reproduce copies of Software except for use on **one** computer and as is specifically provided in this Software License. Customer is expressly prohibited from disassembling the Software.
- E. CUSTOMER is permitted to make additional copies of the Software **only** for backup or archival purposes or if additional copies are required in the operation of **one** computer with the Software, but only to the extent the Software allows a backup copy to be made. However, for TRSDOS Software, CUSTOMER is permitted to make a limited number of additional copies for CUSTOMER'S own use.
- F. CUSTOMER may resell or distribute unmodified copies of the Software provided CUSTOMER has purchased one copy of the Software for each one sold or distributed. The provisions of this Software License shall also be applicable to third parties receiving copies of the Software from CUSTOMER.
- G. All copyright notices shall be retained on all copies of the Software.

### V. APPLICABILITY OF WARRANTY

- A. The terms and conditions of this Warranty are applicable as between RADIO SHACK and CUSTOMER to either a sale of the Equipment and/or Software License to CUSTOMER or to a transaction whereby RADIO SHACK sells or conveys such Equipment to a third party for lease to CUSTOMER.
- B. The limitations of liability and Warranty provisions herein shall inure to the benefit of RADIO SHACK, the author, owner and/or licensor of the Software and any manufacturer of the Equipment sold by RADIO SHACK.

### VI. STATE LAW RIGHTS

The warranties granted herein give the **original** CUSTOMER specific legal rights, and the **original** CUSTOMER may have other rights which vary from state to state.



**TRS-80<sup>®</sup> Modem IB  
Operation Manual**

## Important Note

Before connecting your Modem IB to the phone lines, you must notify your local telephone company of the:

**Manufacturer:** Radio Shack  
**Model:** Modem IB, #26-1175  
**ISOC Number:** RJ11C  
**FCC Number:** AA088U-68645-DI-E  
**Ringer Equivalence Number (REN):** 0.0B

This information also appears on the bottom of the modem.

The Modem IB must not be connected to:

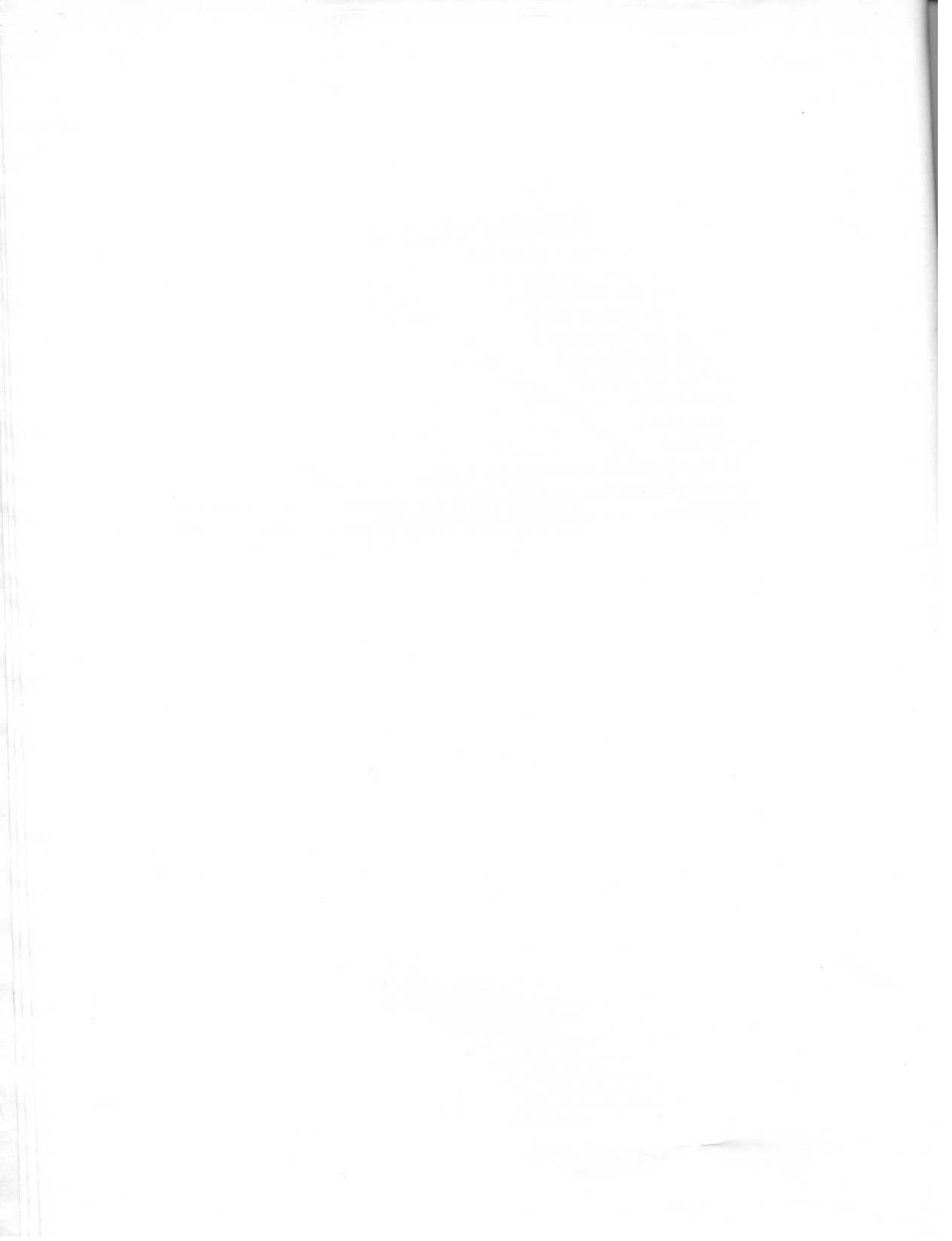
- Coin-operated phones
- Party-line phones
- Multiple-line phones

*TRS-80® Modem IB Operation Manual*  
© 1983 Tandy Corporation, Fort Worth, Texas 76102  
U.S.A. All Rights Reserved.

Reproduction or use, without express written permission from Tandy Corporation, of any portion of this manual is prohibited. While reasonable efforts have been taken in the preparation of this manual to assure its accuracy, Tandy Corporation assumes no liability resulting from any errors or omissions in this manual, or from the use of the information contained herein.

## Table of Contents

<b>Introduction.....</b>	<b>1</b>
<b>1/ Description of the Modem IB .....</b>	<b>3</b>
<b>2/ Setting Up the Modem IB .....</b>	<b>5</b>
<b>Connecting the Modem IB to a Power Source .....</b>	<b>5</b>
<b>Connecting the Modem IB to a TRS-80.....</b>	<b>5</b>
<b>Connecting the Modem IB to a Telephone .....</b>	<b>6</b>
<b>3/ Using the Modem IB.....</b>	<b>7</b>
<b>Originate Mode .....</b>	<b>7</b>
<b>Answer Mode .....</b>	<b>7</b>
<b>4/ Using the Modem IB with Videotex Software.....</b>	<b>9</b>
<b>5/ Care and Maintenance .....</b>	<b>11</b>
<b>6/ Specifications .....</b>	<b>13</b>





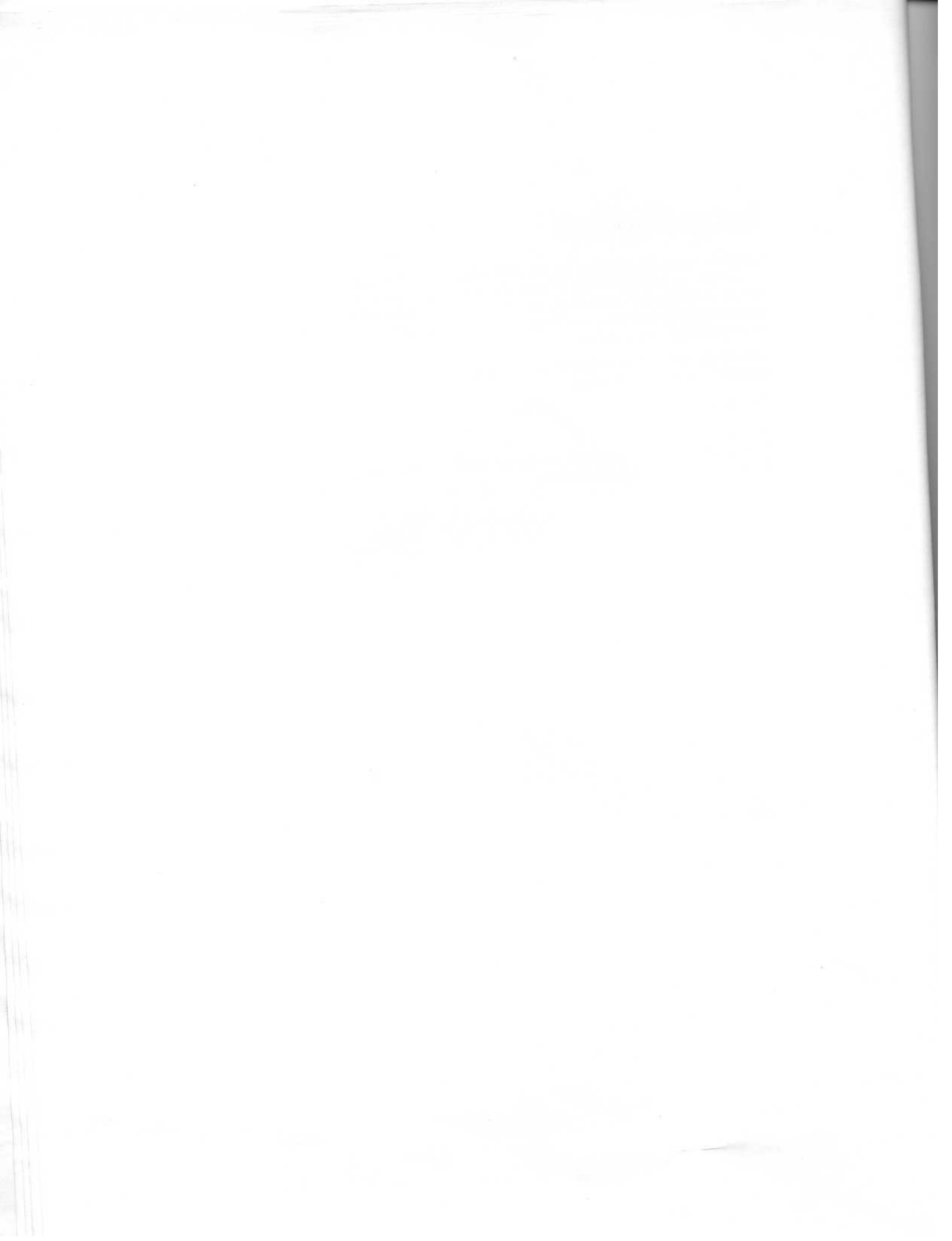
# Introduction

Congratulations for selecting the TRS-80® Modem IB. This purchase will give you the opportunity to enter the world of computer telecommunications. The Modem IB is designed to let you originate and answer calls at 300 baud. The Modem IB lets you use your computer, communications software, your telephone, and the telephone lines to send or receive programs or contact information services.

The Modem IB is designed to be used with any TRS-80 computer or data terminal that has RS232-C interface capabilities.

This manual will:

- Describe the Modem IB.
- Show you how to connect the modem to a power source and your TRS-80.
- Show you how to use the modem.

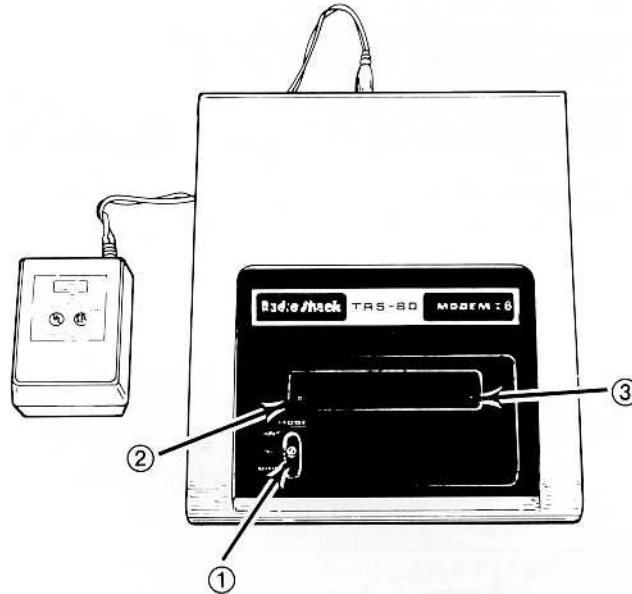


---

# 1/ Description of the Modem IB

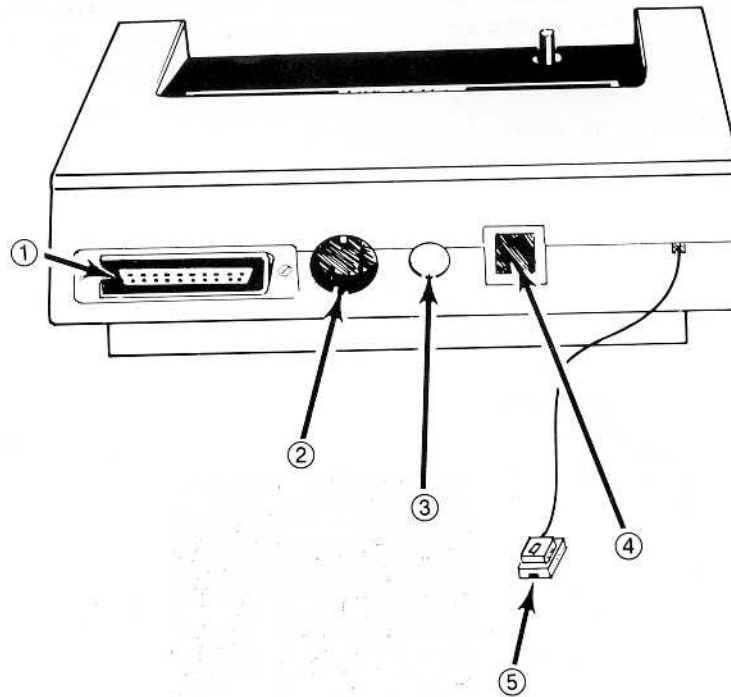
The Modem IB is a self-contained, FSK (Frequency Shift Keying) telephone interface. With the Modem connected, your phones are available for conversational use only when the MODE switch is OFF. So be sure that the MODE switch is set to OFF when you are not using the Modem.

The following illustrates the details of the Modem IB:



**Figure 1. Modem IB (Top View)**

- ① **Power/Mode Switch.** Selects either **ORIG**inate or **ANS**wer mode.
- ② **Power On Indicator.** This indicator illuminates when the Modem is **ON**.
- ③ **CARRIER Signal Indicator.** This indicator lights up when a carrier tone is detected.



**Figure 2. Modem IB (Rear View)**

- ① **RS-232C Connector.** Standard DB-25 jack for connection to the RS-232C interface of most TRS-80 computers.
- ② **Color Computer RS-232C Connector.** Connect a 4-Pin DIN plug to this connector. Connect the other end of the cable to the RS-232C interface of the TRS-80 Color Computer.
- ③ **Power Jack.** Connect the appropriate end of the AC Adapter Cable to this Jack.
- ④ **Phone Jack.** Connect the telephone's modular plug to this connector.
- ⑤ **Modem-to-Telephone Line Connector.** Connect the modem's modular plug into the telephone wall jack.

---

## 2/ Setting Up the Modem IB

Be sure the Modem IB is properly connected to the power supply source and your TRS-80 before you try to use it. This section will describe how to make these connections.

### Connecting the Modem IB to a Power Source

The Modem IB comes with an AC Adapter. Connect the appropriate end of the the AC Adapter to the modem. Connect the two-prong plug to a 120V wall-outlet or approved power strip, such as Radio Shack's Automatic Control Power Strip (26-1429).

### Connecting the Modem IB to a TRS-80

When connecting the Modem IB to a TRS-80 computer or data terminal, *be sure to use* the correct cable. The cable you use will depend on the TRS-80 you have. Table 1 will describe the appropriate cables; Table 2 will provide quick instructions on the TRS-80 connection locations. See your TRS-80 owner's manual for more details.

Modem to TRS-80 RS-232C Cables	
26-1408	Model I/II/III/4/12/16/DT-1
26-3014	Color Computer (4-Pin DIN)

Table 1

TRS-80 RS-232C Connection Points	
TRS-80	Location
Model I	Left Side of Expansion Interface
Model II/12/16	Rear Panel
Model III/4	Underneath Panel
Color Computer/MC-10	Rear Panel

Table 2

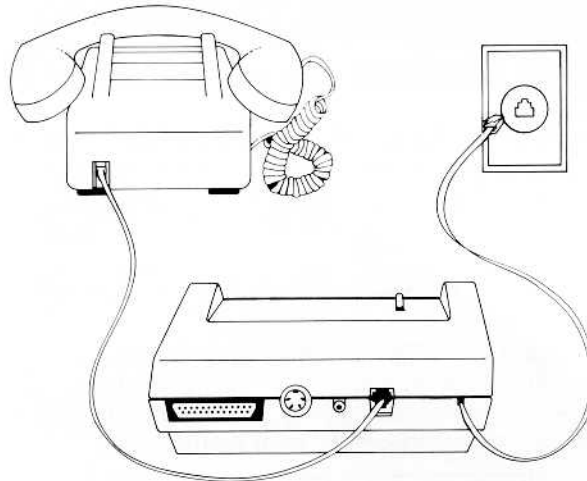
### To connect the Modem IB and your TRS-80 . . .

1. Connect one end of the appropriate cable to the Modem IB's RS-232C Connector.
2. Connect the other end of the cable to the TRS-80's RS-232C Interface Connector.

---

## Connecting the Modem IB to a Telephone . . .

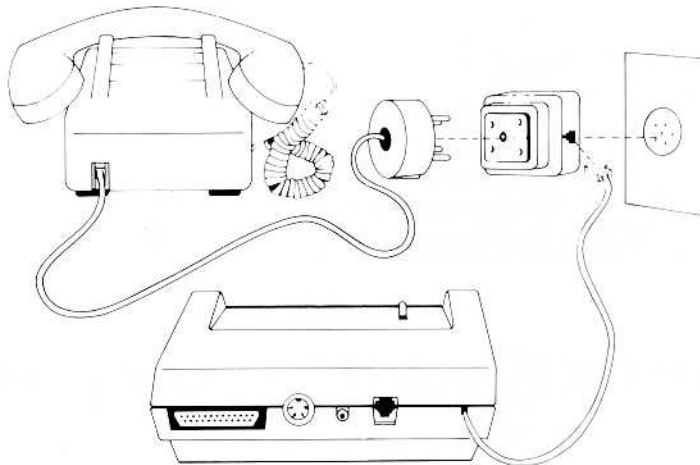
The way you connect the Modem IB to a telephone depends on how your telephone is connected to the wall. The following three figures illustrate these conditions.



**Figure 3. The Modem IB/Telephone Connection**

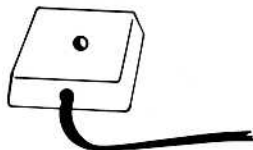
If your telephone has this type of connection, attach the Modem IB as shown.

If you're using your Modem IB outside the USA, you may need a *Modular-to-Modular Cable* (279-374) and a *Duplex Modular Jack*.



**Figure 4. Connection to Four-Prong Jacks**

If your telephone has the older style, four-prong connection, use an adapter (279-360) to connect it to your Modem IB as shown.



**Figure 5. Wall Connector**

If your telephone is wired directly to the wall, contact your telephone company.

---

---

## 3/ Using the Modem IB

Once the Modem IB is properly connected to a power source and a TRS-80, you'll find the modem extremely easy to use.

You can use the Modem IB in two ways:

- To call a Host computer or information service (i.e., you originate the call).
- To have a Host computer call you (i.e., you answer the call).

### Originate Mode

When you want to place a call to a Host computer or information service, you will "originate" the call.

1. Dial the number on the phone to contact the remote computer and listen for a high-pitched tone. Set the Power/Mode Switch to **ORIG**. When the tone changes, hang up the phone.
2. When the Carrier LED illuminates (CD), the Modem is ready to handle data communications.
3. To terminate the call, set the Power/Mode Switch to **OFF**. This will automatically hang up the phone.

### Answer Mode

When you are contacted by a Host computer, use the following steps to "answer" a call and establish communications.

1. Make sure the Host's baud rate is 300.
2. Answer the telephone (call from remote terminal). Make sure that the phone connection is a clear, noise-free one.
3. Set the Power/Mode Switch to **ANS**. When the tone changes, hang up the phone.
4. When the Carrier LED illuminates, proceed with data exchange.
5. To terminate a call, set the Power/Mode Switch to **OFF**.





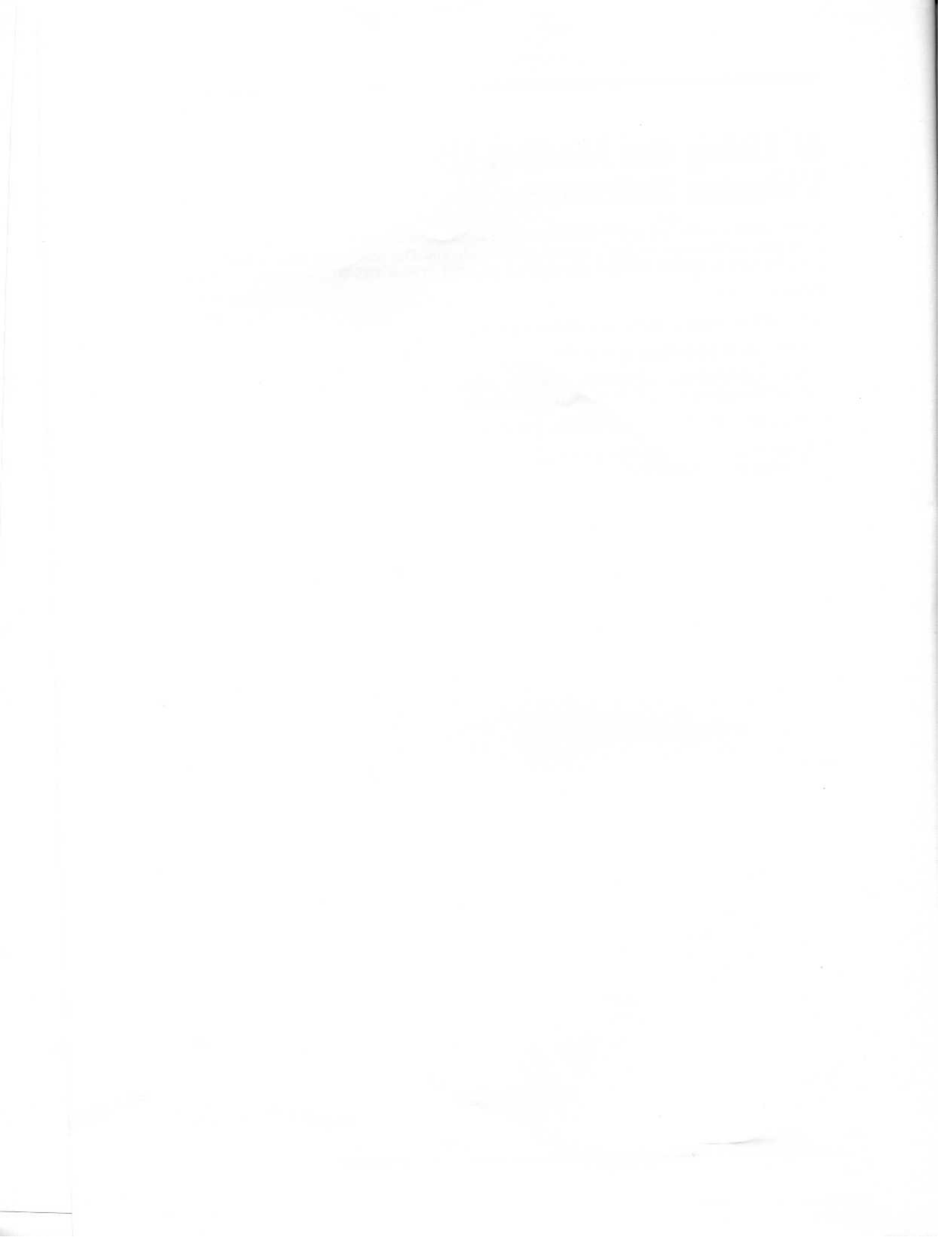
---

## 4/ Using the Modem IB with Videotex Software

A modem that is connected to a TRS-80 running a videotex software package constitutes one of the most common (and exciting!) ways to use your Modem. This section will describe how to use the Modem IB with VIDTEX (the videotex program) on most TRS-80 Computers.

Follow this procedure:

1. Connect the system as described earlier in this manual.
2. Load and run your version of VIDTEX.
3. Dial an information service's telephone number and listen for a high-pitched tone. Set the Power/Mode Switch to **ORIG**. When the tone changes, hang up the phone.
4. When the Carrier LED illuminates (CD), you are ready for communication.
5. Complete the log-on sequence for your information service and follow the procedure described in your videotex package and information service user's guide.

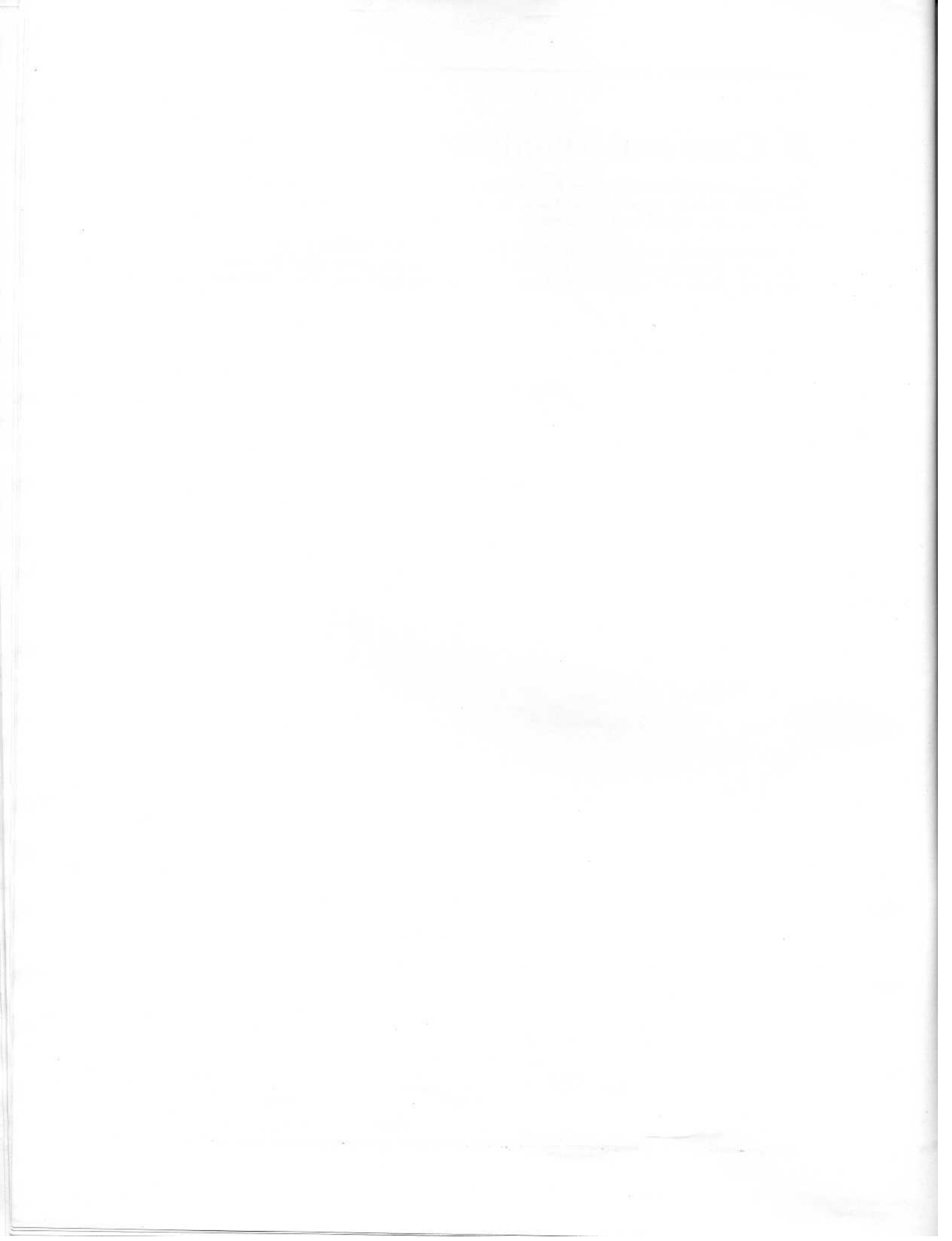


---

## 5/ Care and Maintenance

The most common cause of problems is a bad telephone connection. Noise on the line or a weak signal can result in lost or invalid data. Try to re-dial the call to insure that the connection is free of noise and interference.

The only maintenance your Modem IB should require is a periodic checking of cables and connections. If you are experiencing problems during data transfer, always check the cable connections. If you still experience problems, check with your Radio Shack Computer Center.



---

## 6/ Specifications

<b>Receive Frequencies</b>	<b>Answer</b> Mark 1270 Hz; Space 1070 Hz
	<b>Originate</b> Mark 2225 Hz; Space 2025 Hz
<b>Transmit Frequencies</b>	<b>Answer</b> Mark 2225 Hz; Space 2025 Hz
	<b>Originate</b> Mark 1270 Hz; Space 1070 Hz
<b>Transmit Power</b>	-13 dBm, +/- 1dB
<b>Receive Sensitivity</b>	-40 dBm
<b>Baud Rate</b>	300
<b>Operating Temperature</b>	55°F-85°F (12.8°C-29.4°C)
<b>Electrical Requirements</b>	15 VAC at 300 mA supplied by UL listed AC adapter
<b>Dimensions</b>	6.5" × 7.5" × 2" (16.5 × 19.1 × 5.1 cm)
<b>Weight</b>	3.304 lbs (1.49 kg)
<b>Humidity</b>	<b>Operating environment:</b> 90% relative humidity (no condensation) <b>Storage:</b> 90% (no condensation)

**RADIO SHACK, A DIVISION OF TANDY CORPORATION**

**U.S.A.: FORT WORTH, TEXAS 76102  
CANADA: BARRIE, ONTARIO L4M 4W5**

---

**TANDY CORPORATION**

**AUSTRALIA**

**91 KURRAJONG ROAD  
MOUNT DRUITT, N.S.W. 2770**

**BELGIUM**

**PARC INDUSTRIEL DE NANINNE  
5140 NANINNE**

**U. K.**

**BILSTON ROAD WEDNESBURY  
WEST MIDLANDS WS10 7JN**