SVI-757

MSX RS-232 INTERFACE CARTRIDGE USER'S MANUAL

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MSX

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MSX RS-232
INTERFACE CARTRIDGE
USER'S MANUAL

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INSTRUCTION MANUAL STATEMENT

This equipment generates and uses radio frequency energy and if not installed and used properly, that is, in strict accordance with the manufacturer's instructions, may cause interference to radio and television reception. It has been designed to comply with the limits for a Class B computing device in accordance with the specifications in Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference in a residential installation. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause interference to radio or television reception, which can be determined by turning equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient the receiving antenna
- Relocate the computer with respect to the receiver
- Move the computer away from the receiver
- Plug the computer into a different outlet so that computer and receiver are on different branch circuits.

If necessary, the user should consult the dealer or an experienced radio/television technician for additional suggestions. The user may find the following booklet prepared by the Federal Communications Commission helpful: "How to Identify and Resolve Radio-TV Interference Problems". This booklet is available from the U.S. Government Printing Office, Washington, DC 20402, Stock No. 004-000-00345-4.

WARNING:

This equipment has been certified to comply with the limits for a class B computing device, pursuant to Subpart J of Part 15 of FCC Rules.

INTRODUCTION

The SVI-757 MSX RS-232 Interface Cartridge is specially designed for the SVI-728, and MSX computers. This cartridge allows the user to connect his computer to any RS-232 standard data communication equipment, such as a serial printer, modem or computer. Read this User's Guide thoroughly to become familiar with the procedures for installation and operation.

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1. GETTING STARTED

1.1 PACKING

The package of the SVI-757 MSX RS-232 interface cartridge should contain the following items*:

- the SVI-757 MSX RS-232 interface cartridge
- the CP/M System Disk containing the "RS-232" program and all the CP/M command files
- this User's Guide
- the MSX RS-232-C Reference Guide

If any of the above items are missing, please check with your dealer immediately.

1.2 BASIC INSTALLATION

The following is the procedure for connecting the SVI-757 MSX RS-232 interface cartridge to a SVI-728 computer.

STEPS

1. Make sure that the power of the computer is switched off.
2. Plug the cartridge gently into the expansion slot until fully seated.

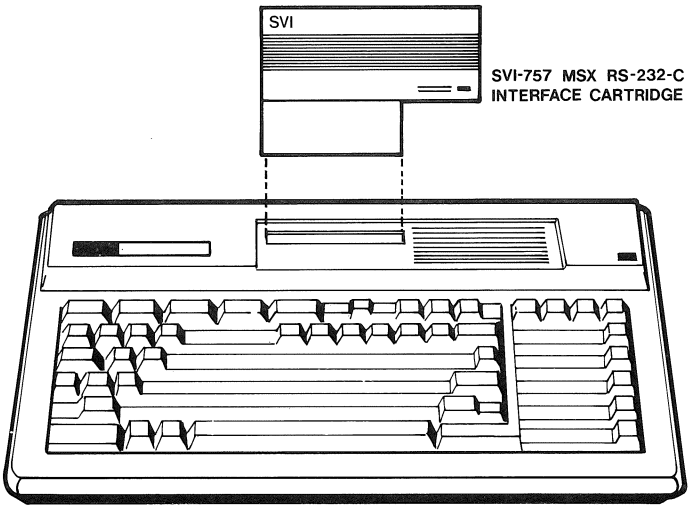


Fig. 1.1 Connecting to SVI-728

* Due to the regulatory and linguistic differences among the countries where SVI products are sold, the components of your system may vary somewhat from those listed in this manual.

2. CONNECTING TO OTHER DEVICES

The SVI-757 MSX RS-232 interface cartridge is a data communication device, which provides a link between your SVI-728 and other devices, such as a RS-232 serial printer, a modem, or another MSX or Bondwell computers.

Your SVI-728 computer is wired as a Data Terminal Equipment (**DTE**). Therefore, if you are going to connect your computer through the SVI-757 MSX RS-232 interface cartridge to a device which is also wired as a **DTE**, you have to prepare a **DTE-TO-DTE** type RS-232 cable, such as the SVI-209 Centronics interface cable, for connection.

On the other hand, if you are about to connect your computer to another device that is wired as a Data Communication Equipment (**DCE**), you should prepare a **DTE-TO-DCE** type RS-232 cable for connection beforehand. You can find out whether the device is wired as a DTE or DCE in its manual. The following is the procedure for connecting the SVI-757 RS-232 interface cartridge to another device.

STEPS

1. Make sure that the power of your computer and the device you are going to connect to is switched off.

2. Connect one end of the RS-232 cable to the RS-232 connector on the SVI-757 MSX RS-232 interface cartridge.

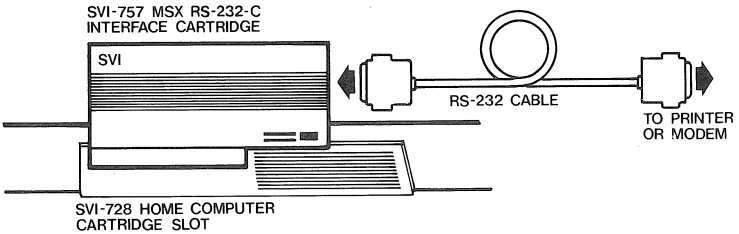


Fig. 2.1 Connecting the RS-232 Cable to the Cartridge

3. Connect the other end of the RS-232 cable to the RS-232 connector on the device.

3. SETTING UP

In order to communicate with another device, your computer must be set up to send and receive information at a speed and in a format that the device can understand. In other words, both the sending and receiving devices must match in terms of their communication parameters before they can start transmitting data.

Since your SVI-728 computer can run both CP/M and MSX BASIC, we will explain how to set up the Communication Parameters of the SVI-728 under these two operating systems separately. Run the "RS-232" program to set the parameters while using CP/M, and use the "COMINI" and "COMHELP" commands while under MSX BASIC.

3.1 UNDER CP/M

All the utilities provided by the SVI-757 interface cartridge are integrated into a program called "RS-232" which enables your computer to TRANSFER FILE, CONVERSE WITH ANOTHER COMPUTER, and SELECT THE PROPER PARAMETERS.

STEPS

1. Load CP/M.

2. TYPE: RS232 [ENTER]

   The application menu will appear as follows:

There are four communication parameters we have to set up in order to match the SVI-728 with the other device. They are:

1. BAUD RATE	The number of bits transferred per second.
2. STOP BIT	The number of stop bits in each transmitted or received character.
3. PARITY BIT	Specifies the way in which the computer determines whether an error has occurred.
4. BIT/CHARACTER	Specifies the word length; that is the number of bits per word.

Table 3.1 RS-232 Parameters

3. To choose the SELECT PARAMETER MODE from the menu,

   TYPE: 3

4. The screen will display the parameters sequentially and your response to each is requested.

	VALUE	DEFAULT VALUE
TRANSMITTER BAUD RATE	50 - 19200	300
RECEIVER BAUD RATE	50 - 19200	300
WORD LENGTH	5 - 8 BITS	8
NUMBER OF STOP BIT(S)	1, 1.5 OR 2	2
PARITY	ODD OR EVEN OR NO PARITY	ODD

Table 3.2 Parameter Mode

5. Set the parameters as you desire from the above table.

6. Once you have set all the parameters, confirm your choices by typing Y.

   If you want to change any parameters, type N for entering again.

   If you do not want any changes at all and would like to return to the main menu, press CTRL - C.

3.2 UNDER MSX BASIC

In order to match with the other device, two commands, **COMHELP** & **COMINI**, will help you to set up the RS-232 interface.

Under MSX BASIC, there are 11 parameters you may have to change. They are:

PARAMETER	DESCRIPTION
1. DEVICE	A communication channel through which information is sent.
2. BAUD RATE	The number of bits transferred per second.

PARAMETER	DESCRIPTION
3. STOP BIT	The number of stop bits in each transmitted or received character.
4. PARITY BIT	Specifies the way in which the computer determines whether an error has occurred.
5. BIT/CHARACTER	The number of bits per word.
6. XON/XOFF	Informs the sender when to discontinue transmission and when to resume transmission.
7. CTS HAND-SHAKE	Informs the sender when the receiver is ready to receive information.
8. AUTO LF ON RECEIVE	Specifies whether ther cursor will move automatically to the next line when a carriage return code is received.

PARAMETER	DESCRIPTION
9. AUTO LF ON TRANSMIT	Specifies whether the cursor will move automatically to the next line when sending a carriage return code.
10. SI/SO	Specifies whether the sender will modify the characters which are sent out.
11. TIME OUT	Specifies how long the program will wait for a delayed transmission.

Table 3.3 Parameters Under MSX BASIC

STEPS

1. Turn on the computer.

2. When the **OK** prompt appears,

   TYPE: CALL COMHELP [ENTER]

3. The screen will display the parameters. And all default values ("O:8N1XHNNN",1200,1200,0) for the parameters are displayed at the bottom of the screen.

	VALUE	DEFAULT VALUE
DEVICE		Must choose default value 0.
BAUD RATE	50 - 19200	1200
STOP BIT	1, 1.5 OR 2	1
PARITY BIT	(O)DD or (E)VEN or (N)O parity	N
BIT/ CHARACTER	5 - 8 BITS	8
XON/XOFF	(X) - ON (N) - OFF	X
CTS HAND-SHAKE	(H) - YES (N) - NO	H
AUTO LF ON RECEIVE	(A) - YES (N) - NO	N
AUTO LF ON TRANSMIT	(A) - YES (N) - NO	N
SI/SO	(S) - YES (N) - NO	N
TIME OUT	The maximum number of seconds you want to wait for transmission.	0

Table 3.4 Parameter Values Under MSX BASIC

4. If you DON'T want to change the default value,

   TYPE: CALL COMINI [ENTER]

   If you WANT to change any of the parameters, you should:

   TYPE: CALL COMINI <new parameters> [ENTER]

   Now you can start communication.

4. COMMUNICATION WITH OTHER COMPUTERS

Through the RS-232 port, your SVI-728 can communicate with another SVI-728, Bondwell computer or other MSX computers directly. If it is connected to a modem, you can also communicate with another remote computer through the telephone line. Of course, under this circumstance, you have to dial the telephone number yourself in order to connect the line.

4.1 FILE TRANSFER

4.1.1 File Transfer under CP/M

This File Transfer Program is already stored on the CP/M system disk. It does exactly what its name suggests: TO TRANSFER (send or receive)FILE(S) between computers.

STEPS

1. Load CP/M.
2. TYPE: RS232 [ENTER]
3. To select this application mode from the menu,

   TYPE: 1
4. The screen will then display the parameters sequentially and your response to each is requested. They are:

PARAMETERS	OPTIONS	PURPOSE
CALL MODE	(M)aster or (S)lave	Specifies whether you are the master or the slave during file transfer. The master has to take control of the process.
TRANSFER MODE	(S)end or (R)eceive	Specifies the task you want the computer to perform for you.
FILENAME	Any legal filename followed by [ENTER]	Asks for the name(s) of the file(s) to be transferred. A number of related file(s) can be transferred at one time by using the wide card characters.
BLOCK SIZE	(1) 128 Bytes (2) 256 Bytes (3) 512 Bytes	Specifies the number of bytes transferred per block while transferring a file.

PARAMETERS	OPTIONS	PURPOSE
SOURCE DRIVE NAME	Any letter form A - H	A letter representing the drive that the file(s) will be sent from.
DESTINATION DRIVE NAME	Any letter form A - H	A letter representing the drive that the file(s) will be sent to.

Table 4.1 Transfer Parameter

5. Select the call mode.

   If you choose **(M)aster**, you have to enter the remaining parameters.

   If you choose **(S)lave:**

   - Insert destination disk to receive data when Master chooses "Send File" in transfer mode.

   - Insert source disk to send data when Master chooses "Receive File" in transfer mode.

   Then [ENTER] to wait for the Ready mode.

6. Once you have set all the parameters, the message **INSERT DISK** will appear.

   When you are ready, ENTER

7. Now the master computer begins to send parameters to the slave computer and checks their applicability. The message **COMMAND PHASE** will appear when entering this stage.

   READY will appear if all the parameters apply to the slave computer.

> If any of the parameters is not applicable, an **ERROR** message will be shown and the line will be disconnected automatically. Check the parameters and repeat from step 2.

8. The **COMMUNICATION PHASE** message indicates the transferring process has begun. Once the file is sent, the line is disconnected automatically.

However, when the wild cards are used, TRANSFER will switch, back and forth, between the command phase and the communication phase until all the files are completely transferred.

4.1.2 File Transfer under MSX BASIC

Under MSX BASIC, the procedure for file transfer is different from the RS-232 program in CP/M. Its steps are fewer.

One thing should be noticed: The pressing of [ENTER] on the sending side **MUST BE MADE AFTER** the [ENTER] has been pressed on the receiving side. This can avoid loss of data if the receiving computer is still not ready.

STEPS

1. ON THE SENDING COMPUTER

   TYPE: OPEN "COMO:" FOR OUTPUT AS #1

2. ON THE RECEIVING COMPUTER

   TYPE: OPEN "COMO:" FOR INPUT AS #1 [ENTER]

3. ON THE SENDING COMPUTER

   [ENTER]

   TYPE: SAVE "COMO:"

4. ON THE RECEIVING COMPUTER

   TYPE: LOAD "COMO:" [ENTER]

5. ON THE SENDING COMPUTER

   [ENTER]

Now the data in the RAM of the sending computer will be transferred to the RAM of the receiving computer. After all files are transferred,

ON BOTH COMPUTER

TYPE: CLOSE #1 [ENTER]

The line will be disconnected.

4.2 CONVERSION MODE

4.2.1 Conversion Mode under CP/M

This application enables you to converse with another computer through the RS-232 interface.

STEPS

1. TYPE: 2 to select this mode from the menu.

2. The line is connected immediately.

   The screen, on both computers, is now divided into two parts: one is the TRANSMIT WINDOW, the other is the RECEIVE WINDOW.

   On the screen, your message will be shown on the transmit window while your friend's remarks will be shown on the receive window.

   Several commands are provided:

CTRL H	To display help messages
CTRL Q	Clear screen (Transmit side)
CTRL X	Clear line (Transmit side)
CTRL C	Return to main menu

Table 4.2 Conversation Mode Command

4. When you have finished, press [CTRL] - C.

4.2.2 Conversion Mode under MSX BASIC

This mode enables you to converse with another computer through the RS-232 interface. It is simple to run this application.

STEPS

1. Set up all the communication parameters on both of the computers.

2. ON BOTH SIDE

   TYPE: CALL COMTERM [ENTER]

   Then, what you type in will be displayed immediately on the screen of the receiving computer; similarly, the remarks from the remote computer will be displayed on your screen. Please note that your entries will not be shown on your own screen.

3. Once you have finished

   [CTRL] - [STOP] will bring you back to MSX BASIC again.

5. CONNECTING TO A SERIAL PRINTER

The RS-232 port allows you to transfer data to a RS-232 serial printer.

5.1 UNDER CP/M

5.1.1 To Print a File

If you want to print a file on the printer through the RS-232 interface,

STEPS

1. When you see the prompt

   TYPE: PIP [ENTER]

2. On the next line

   TYPE: PUN: = <filename> [ENTER]

5.1.2 To Print Out What you Type In

If you want to print out what you type in

STEPS

1. When you see the prompt

   TYPE: PIP [ENTER]

2. On the next line

   TYPE: PUN: = CON: [ENTER]

Then whatever you type in will be printed on the printer.

5.2 UNDER MSX BASIC

5.2.1 To Print a Program

Suppose you have written a program in BASIC like this:

```
10 FOR A = 0 to 1000
20 PRINT A
30 NEXT A
40 STOP
```

and now you want to print this program listing with a RS-232 serial printer through the RS-232 interface,

STEPS

1. To open the RS-232 interface

   TYPE: OPEN "COM0:" FOR OUTPUT AS #1 [ENTER]

2. Then send the program to the printer

   TYPE: SAVE "COM0:" [ENTER]

3. When you have finished,

   TYPE: CLOSE [ENTER]

5.2.2 To Print Out Data

If you want to print out the data on a serial printer, you have to open the RS-232 interface first. Then the format should be like this:

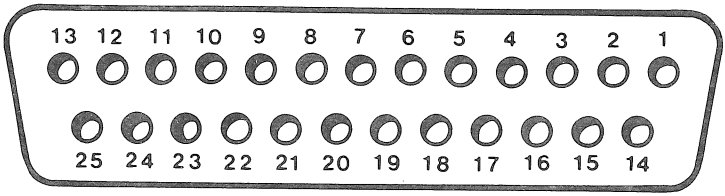
STEPS

1. TYPE: 5 OPEN "COM0:" FOR OUTPUT AS #1 [ENTER]
   10 A = 2 + 3 [ENTER]
   20 PRINT #1,A [ENTER]

2. TYPE: RUN [ENTER]

   or press [F5] to execute the program. The output of A will then be printed.

APPENDIX A
RS-232-C PORT



RS-232-C SOCKET PINOUT (BACK VIEW)

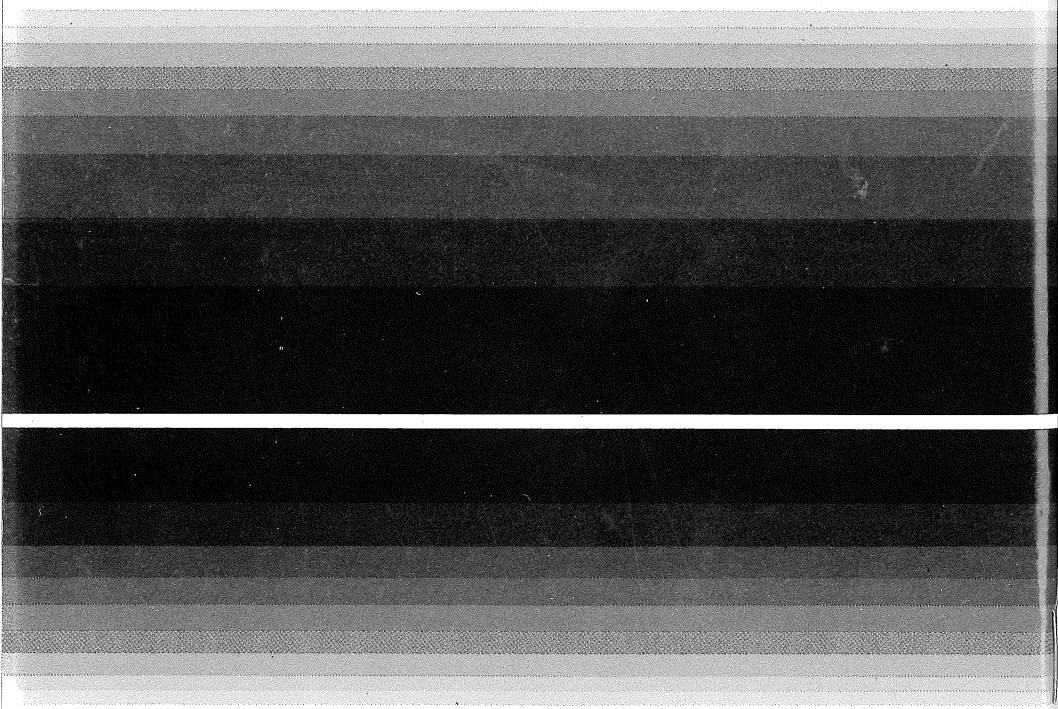
PIN	DESCRIPTION
1	Frame Ground
2	Transmitted Data
3	Received Data
4	Request To Send
5	Clear To Send
6	Data Set Ready
7	Signal Ground
8	Carrier Detect
9	N.C.
10	N.C.
11	N.C.
12	N.C.
13	N.C.
14	N.C.
15	N.C.
16	N.C.
17	N.C.
18	N.C.
19	N.C.
20	Data Terminal Ready
21	N.C.
22	Ring Indicator
23	N.C.
24	N.C.
25	N.C.

APPENDIX B
TROUBLE SHOOTING CHART

SYMPTON	POSSIBLE CAUSE	REMEDY
COMPUTER DOES NOT FUNCTION AT ALL	Cartridge not inserted	Turn the power of your computer off; remove the cartridge. Insert it again until firmly seated.
	Defected Cartridge	Consult your local dealer.
COMPUTER DOES NOT ACCEPT	Cartridge not properly inserted	Turn the power of your computer off; remove the cartridge. Insert it again until firmly seated.
	Improper use of commands	Consult this user's guide to see whether commands & format used are correct.
	Improper cable	There are two kinds of cable: DTE to DTE and DTE to DCE. Check which one is suitable for your usage. Consult your local dealer.

APPENDIX C
SPECIFICATIONS

PORT	:	RS-232-C standard
POWER REQUIREMENT	:	Supplied by MSX computer
POWER CONSUMPTION	:	400 mA
DIMENSION	:	170 X 123 X 32 (LxWxD mm)



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