SUPER-COMM™

Serial Communications Interface

For Apple // series computers

Owner's Manual

Super-Comm™ Manual

Third Edition

Sequential Systems, Inc.
1200 Diamond Circle
Lafayette, Colorado 80026

Office: (303) 666-4549
Fax: (303) 665-0933
Sales: 1-800-759-4549
Customer Service: 1-800-999-1717

Table of Contents

Introduction   1.

Thank you for purchasing Sequential Systems' Super-Comm™ card.

   We are so confident of the quality of our products, we provide a full two year warranty.

Sequential Systems' prompt replacement guarantee.

   This product is guaranteed free from defects in materials and workmanship and is warranted for two full years from the date of purchase. Sequential Systems, Inc. will promptly replace any product shown to be defective during this warranty period.

Sequential Systems' Super-Comm card.

   The Super-Comm is a serial interface card, fully compatible with Apple®'s Super Serial, Card™ and capable of Grappler text and graphic commands. It enables any Apple II™, II+, IIe, IIGS™ or Franklin computer to communicate with a variety of serial peripherals: printers, plotters, modems, graphic tablets and other devices which require a serial (RS-232-C) interface.
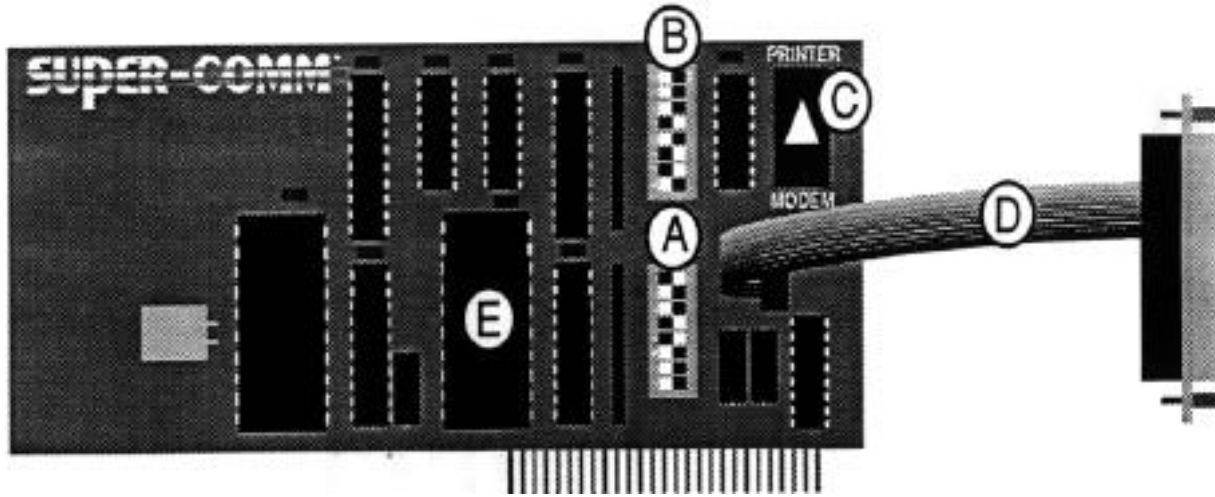
SuperComm™ Components
A. Switch Bank 1
B. Switch Bank 2
C. Jumper Block
D. Cable Stub
E. Firmware

Before the Super-Comm can be installed in the computer, the card switches and jumper block must be set If you are using an ImageWriter® or ImageWriter II, the cards will come with preset switch and jumper block settings, so you may proceed to the Section 3, "Super-Comm Installation."

Setting the Super-Comm Card Switches

The diagram to the left illustrates the components of the Super-Comm card. Notice the location of the each switchbank as well as the jumper block. The table on the next page indicates the correct switch settings for some of the most common devices used with the Super-Comm. If you are using some other kind of device not listed, read the manual that came with your device ‒it should specify correct switch settings. Or you may read " **Switch Settings and Functions" on** page 4.1, which explains the function controlled by each switch, so you can figure out how to set the switches yourself. In this manual, references to switches on Switchbank 1 are prefaced with a numeral 1, those on Switchbank 2 are prefaced with a numeral 2. (For example, 2-3 is switch 3 on the switchbank labeled SW2.) Use the tip of a pen to flip the switches.

	Apple ImageWriter	Apple ImageWriter II	Apple Personal Modem	Apple Plotter	Apple Scribe
1-1	off	off	off	off	off
1-2	off	off	ON	ON	off
1-3	off	off	ON	ON	off
1-4	ON	ON	ON	ON	ON
1-5	off	off	ON	off	off
1-6	ON	ON	ON	ON	ON
1-7	ON	ON	ON	ON	ON
1-8	off	off	off	off	off
2-1	ON	ON	ON	ON	ON
2-2	off	off	off	off	off
2-3	off	off	ON	off	off
2-4	ON	ON	ON	ON	ON
2-5	ON	ON	off	off	ON
2-6	off	off	ON	off	off
2-7	off	off	off	off	off
2-8	off	off	off	off	off

NOTE: Most modems are Hayes compatible, so if you have another type of modem not listed, try using the setting for the Hayes modem that corresponds with your particular baud rate (300, 1200, etc.).
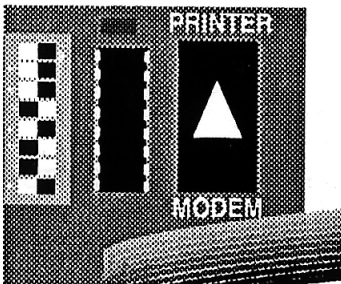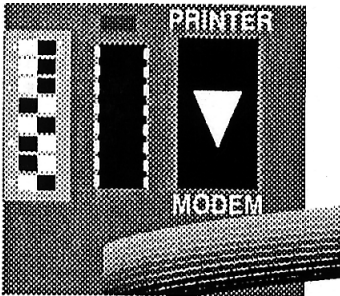
2.2

Although some switches vary slightly in appearance, they should still operate the same way. The illustration below shows how switches are configured to the **ON** and **OFF** positions. Switches I through 4 are in the **ON** position, while switches 5 through 8 are set to **OFF.**

Setting the Jumper Block

The Super-Comm works with an assortment of peripherals. If you are using a modem, the triangle on the jumper block should be pointing toward the word "Modem." Likewise, if you are using a printer, plotter or any other device, the triangle should be pointing toward the word "Printer." If the jumper block is poinling the wrong way, gently pry it off. Reinstall so it is pointing in the proper direction, making sure the pins line up exactly with holes in the sockels before you press into place. **You must change the jumper block setting each time you change from printer mode to modem mode, or vice versa.**

After setting the switches and the jumper block for your device, follow these instructions.

CAUTION! Disconnect power to the computer before proceeding!

1. Uncover your computer. At the back panel, remove the tab from the tab hole behind the appropriate slot for the device you will be using (slot 1 for printers, slot 2 for modems).

2. Although the Super-Comm card should have the multi-colored cable stub already installed, you may wish to double-check its position at this point (or in case you've removed it). The cable, when laid straight out, should extend over the card to the left (see illustration below). Then, to install the nut plate (at the end of the cable stub), you must bend the cable to the right, over its mounting block.

Right   Right

Wrong
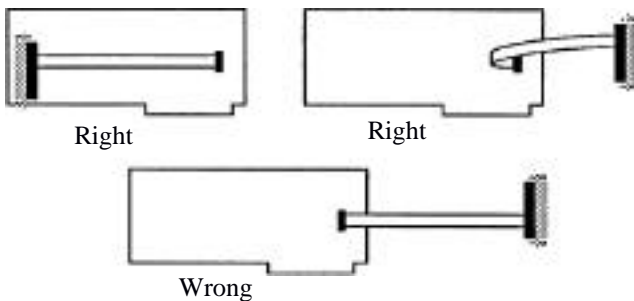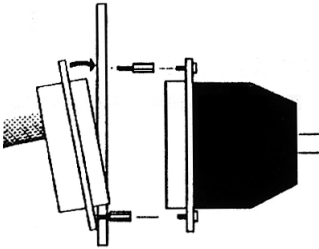
3. Loosen the bottom screw on the nut plate (but do not remove it). Remove the top screw, tilt the nut plate and slide it into the tab hole. Tilt the nut plate back to the vertical position, replace the top screw, and retighten the bottom screw.
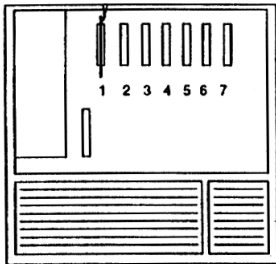
4. Although the Super-Comm card will work in any slot, slot 1 is recommended if a printer is being used, and slot 2 if a modem is being used. (For other devices, use the slot recommended in the manual that came with that device.) Install by firmly seating the card in its slot, being careful not to rock it from side to side.

5. Connect the cable from your peripheral to the previously installed nut plate in the back panel of the computer.

6. The Super-Comm is now installed. Replace the computer cover and finish setting up your printer, plotter or modem according to the instructions that came with it. Don't forget to set any switches that need to be set on your printer or modem so that the connected devices may interact.

7. For a printer, test the Super-Comm by typing **PR#n** (n=slot #) ☐Return☐ for a modem, type **IN#n** (n=slot #), ☐Return☐
Or use your favorite printing or communication program to verify correct operation.

3.2

For Programs that Ask You to Identify Your Printer Card

Some programs, (i.e. BrCiderbund Inc.'s PrintShop), ask you to specify the type of printer card you are using. If the **Super-Comm** card is not offered as one of the choices, select Apple's **Super Serial Card** for compatible operation.

Switch Settings for Printer, Plotter, etc. Mode

If you are connecting a modem, skip to the subsection entitled **"Switch Settings for Modem Mode"** on page 4.4. If you are connecting anything else, continue reading.

In order to correctly set the switches, you will need to know certain characteristics about your device, all of which should be in the manual which came with that device. As you read the following instructions, refer to your device's manual for its necessary baud rate, mode, stop bits, etc.

Switches 1-1 through 1-4: Baud Rate

Baud rate is the speed at which information is exchanged between the computer and the peripheral. The following table shows the correct switch settings for various baud rates:

Baud	1-1	1-2	1-3	1-4
300	ON	Off	Off	ON
1200	Off	ON	ON	ON
2400	Off	ON	Off	ON
9600	Off	Off	Off	ON

If you should require switch settings for baud rates not listed above, please call Sequential Systems' customer service at 1-800-999-1717.

Switch 1-5:
Mode

This switch determines whether your card will be in printer or modem mode. For printer mode, switch 1-5 should be set to OFF.

Switches 1-6:
Screen Echo

With this switch set to OFF the Super-Comm will echo printed characters to the video screen. If you do not want screen echo set switch 1-6 to ON.
Note: ON is the default setting.

Switch 1-7:

Switch 1-7 is an RS232 signal switch. In both printer mode and modem mode, switch 1-7 should be set to the ON position, unless otherwise instructed.

Switch 1-8:

Switch 1-8 has no function in either mode, so it is best to leave it in the OFF position.

Switch 2-1:
Stop Bits

Stop bits signal the end of each character (which is itself a string of bits) that the computer sends to, or receives from, the printer. Some of the slower printers expect two stop bits, but most types expect one stop bit. Set switch 2-1 to ON for one stop bit; set it to OFF for two stop bits.

Switch 2-2:
Delay After
Carriage Return

This switch determines whether the computer will pause for 1/4 second after each carriage return to give the print head time to get back to the start of the next line. Set switch 2-2 to ON if you want a delay (e.g., for slower printers); set it to OFF if you don't want a delay (for most other printers).

**Switches 2-3 and 2-4:
Line Width**

These switches determine the number of characters that will be printed before each carriage return. Most printers can handle 80 characters per line. The chart below lists switch settings for various line widths:

Characters

Per Line	Switch 2-3	Switch 2-4
40	ON	ON
72	ON	Off
80	Off	ON
132	Off	Off

**Switch 2-5:
Generated Line Feeds**

Set switch 2-5 to ON if you need the Super-Comm card to generate a line feed after each carriage return. Set switch 2-5 to OFF if the printer generates its own line feeds.

**Switch 2-6:
Interrupts**

Switch 2-6 is used to forward interrupts to the computer. ON enables interrupts, while **OFF** disables them. Since most software programs don't use interrupts, set this switch to **OFF** unless the application program states otherwise.

Switch 2-7:

Switch 2-7 is an R5232 signal switch. In both printer mode and modem mode, switch 2-7 should be set to the OFF position unless otherwise instructed.

Switch 2-8:

Switch 2-8 has no function in either mode and should remain in the OFF position.

Switch Settings for
Modem Mode

In order to correctly set the switches, you will need to know certain characteristics about your modem as well as the information service or other computer you will be accessing. As you read the following instructions, refer to the manual that came with your modem and the manual furnished by the information service for information regarding baud rate, mode, stop bits, data bits, parity, etc.

Switches 1-1 through 1-4:
Baud Rate

Baud rate is the speed at which information is exchanged between the computer and the peripherals. You will need to know the baud rate for your modem as well as the modem on the other end of the phone line. The most common baud rates for modems are 300, 1200 and 2400. The baud rates of both modems (yours and the remote) must be the same; otherwise, data will not be exchanged. If your modem can handle 2400 baud, but the other modem can handle only 1200 baud, you must set yours to 1200 also. The following table shows you the correct switch settings for various baud rates:

Baud	1-1	1-2	1-3	1-4
300	ON	Off	Off	ON
1200	Off	ON	ON	ON
2400	Off	ON	Off	ON
9600	Off	Off	Off	ON

If you should require switch settings for baud rates not listed above, please call Sequential Systems' customer service at 1-800-999-1717.

**Switch 1-5:
Mode**

This switch determines whether your card will be in printer or modem mode. For modem mode, switch 1-5 must be ON.

Switch 1-6:

Switch 1-6 has no function in modem mode and should remain in the ON position.

Switch 1.7:

Switch 1-7 is an RS232 signal switch, In both printer mode and modem mode, switch 1-7 should be set to the ON position unless otherwise instructed.

Switch 1-8:

Switch 1-8 has no function in modem mode and should remain in the OFF position.

**Switch 2-1:
Stop Bits**

Stop bits signal the end of each character (which is itself a string of data bits). Set switch 2-1 to ON for one stop bit (the most common setting); set it to OFF for two stop bits.

**Switch 2-2:
Data Bits**

This switch determines whether data bits will be exchanged in seven-bit strings or eight-bit strings. Set switch 2-2 to ON for eight data bits; set it to OFF for seven data bits (the most common setting).

4.5

Switches 2-3 and 2-4:
Parity

Parity is a way the information service verifies data has been transmitted correctly. The sending device sets one bit at the of end each data string to make the total number of ones in the data bit odd or even, depending on the type of parity selected. After reception, the program may then check if the character was corrupted during transmission. Switches 2-3 and 2-4 determine whether there will be zero parity, even parity or odd parity. The most common setting will be for zero parity. The chart below shows switch settings for various parity settings.

Type of Parity	Switch 2-3	Switch 2-4
Zero	ON	ON
Even	Off	Off
Odd	ON	Off

Switch *2-5:*
Generated Line Feeds

Set switch 2-5 to ON if you need the Super-Comm card to generate a line feed after each carriage return. Set switch *2-5* to OFF if the printer generates its own line feeds.

Switch 2-6:
Interrupts

Switch 2-6 is used to forward interrupts to the computer. ON enables interrupts, while OFF disables them. Since most software doesn't use interrupts, set this switch to OFF unless the application program states otherwise.

Switch 2-7:

Switch 2-7 is an RS232 signal switch. In both printer mode and modem mode, switch 2-7 should be set to the OFF position unless otherwise instructed.

Switch 2-8:

Switch 1-8 has no function in modem mode and should remain in the OFF position.

Special features can be programmed from the keyboard or under program control (i.e.. when running a software program). These codes will naturally override some of the switch settings on the card.

Firmware Commands for Printer Mode

To activate any of the commands in printer mode, you must first type **PR#1** Return Next, simultaneously hold down the Control key and the I key and then type the command sequence. Since spacing is important regarding the commands, the § symbol denotes entering a space via the space bar between some two letter commands, (the rest have no space between them). The command sequences are listed below and on the following pages.

Control-I S	Text screen dump
Cohtrol-I 8 S	80-column text screen dump
Control-I G	Graphics dump (page 1)
Control-I G D	Graphics dump (page 1)
Control-I G R	Graphics dump (page 1)
Control-I G 2	Graphics dump (page 2)
Control-I G S	Graphics dump (page 1 & 2, side by side)

Command	Description
Control I G I	Inverse graphics dump (page 1)
Control I G L	Low-res graphics dump
Control I R	Reset serial card
Control I Z	Disable command interpreter
Control I T	Disable command interpreter
Control I C	Generate <CR> (carriage return) on column overflow
Control I M § E	Enable mask line feed after <CR>
Control I M § D	Disable mask line feed after <CR>
Control I A	Enable line feed after <CR>
Control I K	Disable line feed after <CR>
Control I L § E	Enable line feed after <CR>
Control I L § D	Disable line feed after <CR>
Control I X § E	Enable detect XON / XOFF characters
Control I X § D	Disable detect XON / XOFF characters

Delays (after carriage return, line feed, form feed)

Command	Description
Control I 0 C	No delay
Control I 1 C	32 ms
Control I 2 C	250 ms (1/4 seconds)
Control I 3 C	2000 ms (2 seconds)

5.2

Data Format

| Control | I | 0 | D | 8 data bits / 1 stop bit |

Control I 0 D   8 data bits / 1 stop bit
Control I 1 D   7 data bits / I stop bit
Control I 2 D   6 data bits / 1 stop bit
Control I 3 D   5 data bits / 1 stop bit
Control I 4 D   8 data bits / 2 stop bits
Control I 5 D   7 data bits / 2 stop bits
Control I 6 D   6 data bits / 2 stop bits
Control I 7 D   5 data bits / 2 stop bits

Baud Rate

Control I 0 B   Undefined
Control I 6 B   300
Control I 8 B   1200
Control I 10 B   2400
Control I 14 B   9600

For additional baud rates, call Sequential
Systems at 1-800.999-1717.

Parity

Control I n P   None (n=0, 2, 4, 6)
Control I 1 P   Odd
Control I 3 P   Even
Control I 5 P   Mark
Control I 7 P   Space

Firmware Commands
For Modem Mode

To activate any of the commands in modem mode, you must first type either **PR#1 Return** or **IN#1 Return** . Next, simultaneously hold down the Control key and the A key. Then type the **command sequence. Since spacing is important regarding the commands, the § symbol denotes entering a space via the space bar between some two letter commands,** (the rest have no space between them). The command sequences are listed below.

Sequence	Description
Control A Z	Disable command interpreter
Control A T	Enter terminal mode
Control A Q	Quit terminal mode
Control A R	Reset serial card
Control A n S	Direct Super-Comm output to peripheral card (n=slot #)
Control A M § E	Enable mask line feed after <CR>
Control A M § D	Disable mask line feed after <CR>
Control A A	Enable line feed after <CR>
Control A K	Disable line feed after <CR>
Control A L § E	Enable line feed after <CR>
Control A L § D	Disable line feed after <CR>
Control A X § E	Enable detect XON / XOFF characters
Control A X § D	Disable detect XON / XOFF characters

5.4

`Control` `A` `E` §`E`	Enable screen echo
`Control` `A` `E` §`D`	Disable screen echo
`Control` `A` `L` §`E`	Enable line feed after <CR>
`Control` `A` `L` §`D`	Disable line feed after <CR>
`Control` `A` `B`	Transmit break or sign-off signal to remote device

Data Format

`Control` `A` `0` `D` 8 data bits / 1 stop bit
`Control` `A` `1` `D` 7 data bits / 1 stop bit
`Control` `A` `2` `D` 6 data bits / 1 stop bit
`Control` `A` `3` `D` 5 data bits / 1 stop bit
`Control` `A` `4` `D` 8 data bits / 2 slop bits
`Control` `A` `5` `D` 7 data bits / 2 slop bits
`Control` `A` `6` `D` 6 data bits / 2 stop bits
`Control` `A` `7` `D` 5 data bits / 2 stop bits

Baud Rate

`Control` `A` `0` `B` Undefined
`Control` `A` `6` `B` 300
`Control` `A` `8` `B` 1200
`Control` `A` `10` `B` 2400
`Control` `A` `14` `B` 9600

For additional baud rates, contact Sequential Systems at **1-800-999-1717**.

Parity

`Control` `A` `0` `n` None (n=0,2,4,6)
`Control` `A` `1` `P` Odd
`Control` `A` `3` `P` Even
`Control` `A` `5` `P` Mark
`Control` `A` `7` `P` Space

5.5

Troubleshooting for Printer Mode

Symptom	Possible Solution(s
Nothing prints (computer seems to be working)	•Check cable connections
	• Make sure the jumper block is pointing to the correct device selection (to "Printer" in this case)
	•Check all switch settings; check that switchbank one is not set as switchbank two, etc.
	•Verify Super-Comm is seated in correct slot
	• Make sure rainbow colored cable stub is firmly plugged into Super-Comm and is in the correct orientation; refer to Section 3, page 3.1, for proper installation
Nothing prints (computer does not seem to be working)	•If Super-Comm is in slot 3, move it to slot 1

Symptom	Possible Solution(s)
Garbage prints	•Check data format, including data bits, stop bits, parity or baud rate
	• Verify the data format on peripheral device (e.g., ImageWriter II supports four different baud rates)
Prints over same line; paper does not advance	•Change the line feed switch (2-5) to ON
Extra line feeds; double spacing	•Change the line feed switch (2-5) to OFF
Missing characters	•Change to a slower baud rate
	•If your printer supports them, enable the XON / XOFF recognition via Super-Comm firmware commands
Print runs off page	•Change to a narrower page width with switches 2-3 and 2-4 (see Section 5, "Firmware Commands" on page 3.1)

Troubleshooting for Modem Mode

Symptom	Possible Solution(s)
Nothing prints (computer seems to be working)	• Check cable connections
	•Make sure the jumper block is pointing to the correct device selection (to "Modem" in this case)
	•Check all switch settings; check that switchbank one is not set as switchbank two. etc.
	• Verify Super-Comm is seated in correct slot
	• Make sure rainbow colored cable stub is firmly plugged into Super-Comm and is in the correct orientation; refer to Section 3, page 3.1, for proper installation
Nothing prints (computer does not seem to be working)	• If Super-Comm is in slot 3, move it to slot 2

6.3

Symptom	Possible Solution(s)
Missing characters throughout data	• If your software supports them, enable XON / XOFF recognition via firmware commands
	•If your service supports them, enable interrupts with switch 2-6
Missing characters, primarily at the beginning of a line	•Your data service or BBS should offer the option of "How many Nulls after a \<CR\>"; the Super-Comm may need 3 to 4 nulls after a \<CR\>
Screen displays ddoouubbllee characters	•Disable screen echo via firmware commands
Screen displays no reaction from keyboard	•Enable screen echo via firmware commands

If none of these solutions work, or if you have any other questions, contact Sequential Systems' customer service at **666-4549** (in metro Denver) or at **1-800-999-1717**.

6.4