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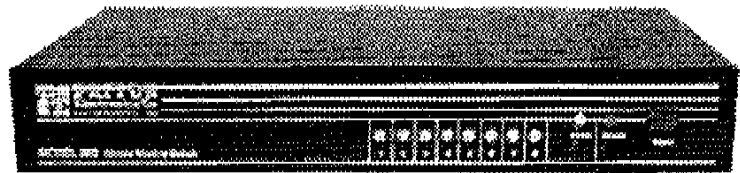
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USER MANUAL

MODEL 360 Simple Sharing Switch



PE PATTON
Electronics Co.

07M360-A
Revised 5/14/93

SALES OFFICE
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IMPORTANT INFORMATION

Before unpacking your Simple Sharing Switch from its shipping container, inspect the container for any visible damage caused during shipment. If any damage is noted, STOP. Contact Patton Electronics.

Warranty Information

Patton Electronics Company warrants all Simple Sharing Switch components to be free from defects and will, at our option, repair or replace the product should it fail within 2 years from the first date of shipment.

All warranty and non-warranty repairs must be returned freight prepaid and insured to Patton Electronics Company. All returns must have a Return Authorization number on the outside of the shipping container. This number may be obtained from Patton Electronics Company technical support call (301) 975-1007.

This warranty is limited to defects in workmanship or materials, and does not cover customer damage, abuse, or unauthorized modification. If this product fails or does not perform as warranted, your sole recourse shall be repair or replacement as described above. Under no condition shall Patton Electronics Company be liable for any damages incurred by the use of this product. This includes but is not limited to: lost profits, lost savings, and incidental or consequential damages arising from the use of or inability to use this product.

Patton Electronics Company specifically disclaims all other warranties, expressed or implied, and the installation or use of this product shall be deemed an acceptance of these terms by the user.

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Section 1.0 Introduction

Thank you for your purchase of this Patton Electronics Co. product. At Patton Electronics, our commitment to Quality, Service and Technology insure years of trouble free use from this product.

This product has been thoroughly inspected and tested. We are so confident in it that we back it with a 2 year Parts and Labor Warranty.

If any questions or problems arise during installation or use, please do not hesitate to contact Patton Electronics technical support at (301)-975-0007.

In order that we may better serve you, we ask that you send us any comments, suggestions, or criticisms you may have about the product or this manual.

Address all correspondence to:

Patton Electronics Company
Technical Support
7958 Cessna Avenue
Gaithersburg, MD 20879

Section 2.0 Unpacking the Simple Sharing Switch

Carefully unpack the Simple Sharing Switch and place it on a flat stable surface. It is recommended that you save the packing materials should you ever wish to send the unit in for service. If any shipping damage is discovered during unpacking, STOP, immediately notify Patton Electronics Company

Section 2.1 Installation Planning

A little planning now can save you hours of time later. Installation and future changes will be much easier if you study the guidelines below and incorporate them into your system.

1. Label your cables. Mark them Serial or Parallel, and what they connect to.
2. Know what you are connecting. Patton Electronics Co. is not liable or responsible for damages to your equipment due to improper installation (i.e. plugging a parallel device into a serial port). If you are unsure whether a particular device is serial or parallel contact the device manufacturer for information. The Simple Sharing Switch uses different connectors for serial and parallel. the connectors and their pinouts are shown in figure 2-1. Note that serial and parallel ports have different pinouts.

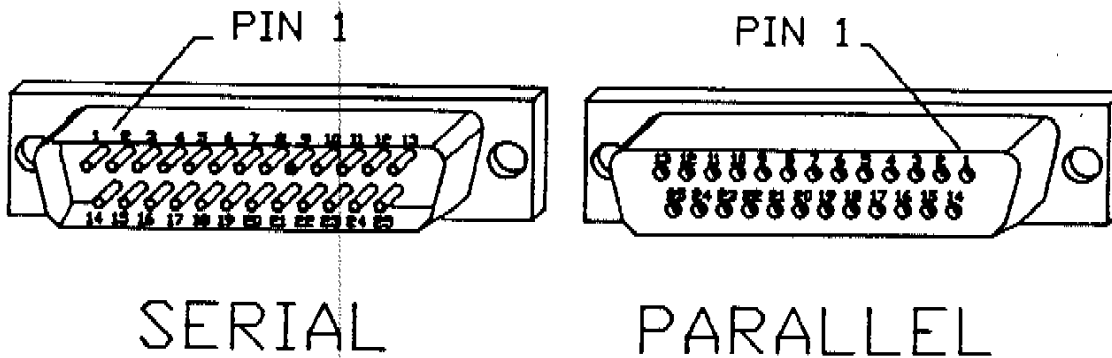


Figure 2-1

Simple Sharing Switch pin numbers and connectors are the same as those used on the IBM-PC. **WARNING:** Some compatibles and some non-IBM option cards use different connectors.

3. In determining a physical location for the Simple Sharing Switch, remember that parallel ports can only drive reliably 10 to 15 feet. Serial ports can usually drive 200 feet or more. Also if you want to use letterhead or other special paper it is best to locate the Simple Sharing Switch next to the output device. Figure 2-2 illustrates a typical installation.

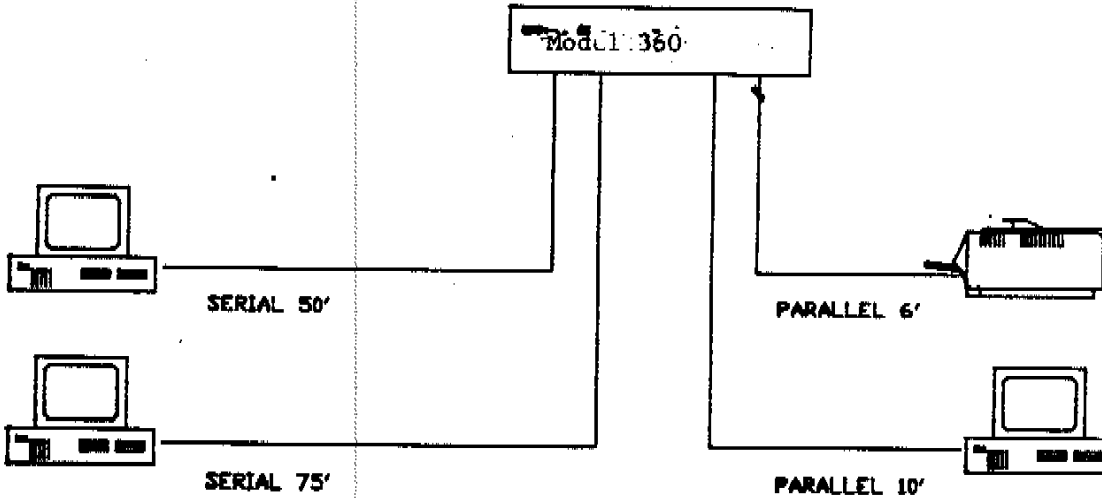


Figure 2-2

4. If you have several computers or printers of the same type, it is recommended that you group them on adjacent ports.

Section 2.2 User Configuration

Since every installation is different, it is necessary to configure the Simple Sharing Switch to your system. DIP-Switches are provided inside the unit for this purpose. Open the cover of your Simple Sharing Switch to change the settings. **VOLTAGES ARE PRESENT INSIDE THE Simple Sharing Switch. ALWAYS UNPLUG THE UNIT FROM THE WALL BEFORE REMOVING THE COVER!**

The Cover is held in place by 4 screws, located 2 on each side of the cover. Remove the screws and lift the cover straight up and off.

Figure 2-4 details the location of the DIP-Switches and the baud rate selection jumpers.

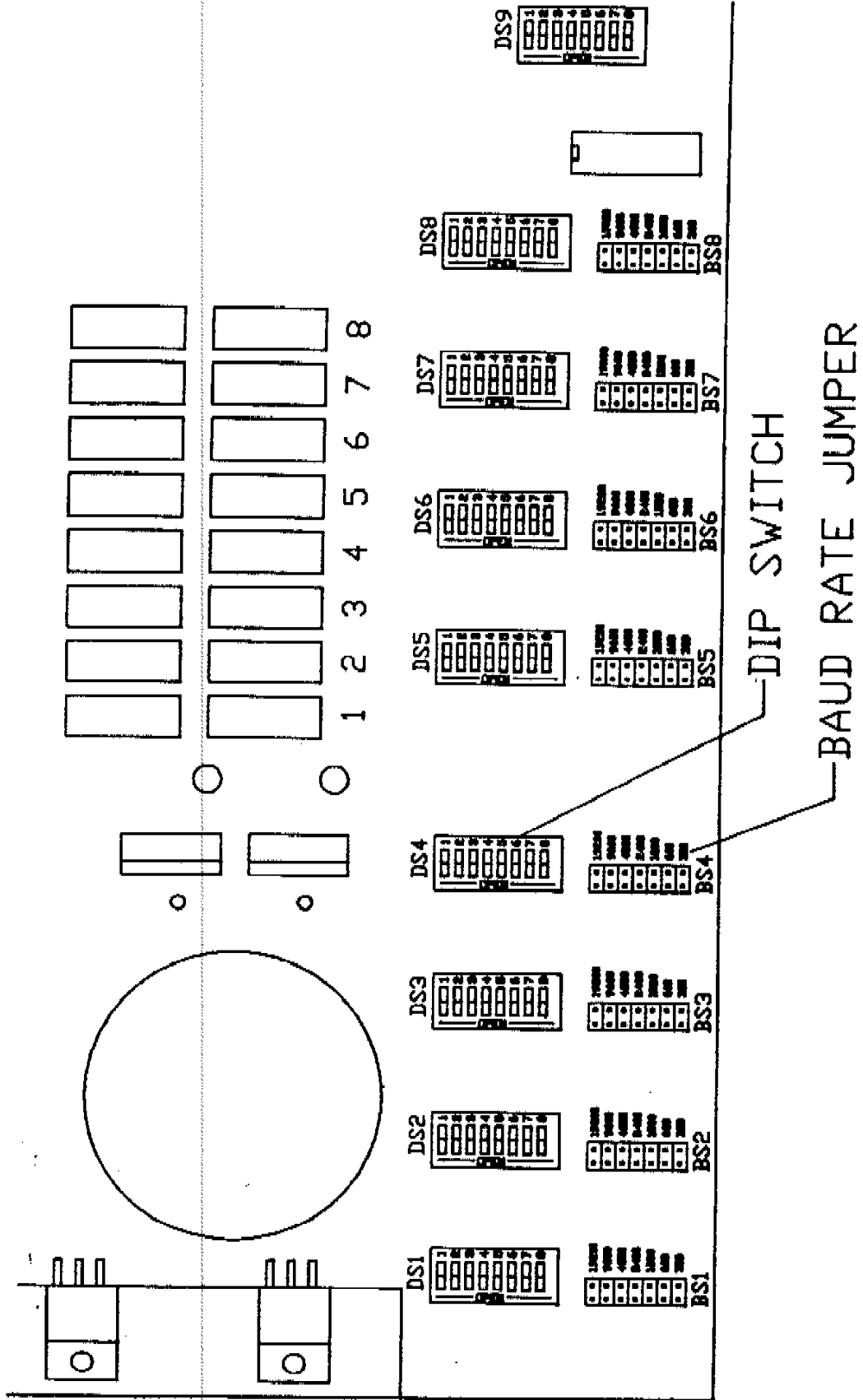
Port configuration and baud rate selection is accomplished using eight sets of eight switches and eight sets of seven jumpers located at the front of the main printed circuit board and labeled DS1 through DS8 and BS1 through BS8 respectively. Unit configuration is accomplished using a set of eight switches located to the right of the other eight sets of switches and jumpers and labeled DS9. The functions of the port configuration switches differ depending on whether the corresponding port is serial or parallel and whether the port has been designated as an output (DS#-1 Off) or an input (DS#-1 On). In the following discussions a "0" will indicate a switch set to the "Off" or "Open" position and a "1" will indicate a switch set to the "On" or "Closed" position. An "X" indicates that switch position is a "Don't care", however the switch in question should be left in the "0" or "Off" position.

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Section 2.21 Unit configuration (DS9)

These switches are used to set unit configuration. Presently, only the Unit address function is active and affects port select software commands. Other considerations aside, switches DS9-1 through DS9-8 will normally be left in the "Off" position. The following are function and setting summaries for the eight switches of DS9:

- DS9-1 = Unit address 'a'
- DS9-2 = Unit address 'b'
- DS9-3 = Unit address 'c'
- DS9-4 = Reserved (Unused)
- DS9-5 = Reserved (Unused)
- DS9-6 = Reserved (Unused)
- DS9-7 = Reserved (Unused)
- DS9-8 = Reserved (Unused)

		DS9 Switch Settings							
For Unit addr.	->	1	2	3	4	5	6	7	8
DS9-1	=	0	1	0	1	0	1	0	1
DS9-2	=	0	0	1	1	0	0	1	1
DS9-3	=	0	0	0	0	1	1	1	1
DS9-4	= X								
DS9-5	= X								
DS9-6	= X								
DS9-7	= X								
DS9-8	= X								

For further information on the effect of these switch settings refer to software port select functions.

Section 2.22 Baud Rate selection

Select the desired baud rate for a given port by placing the shorting block over the pins corresponding to the desired baud rate. Figure 2-5 illustrates the connection for 9600 baud. NOTE: Only 1 shorting block is allowed for a given port. Placing additional shorting blocks on a port will cause erratic operation on all ports. Parallel ports do not require a shorting block.

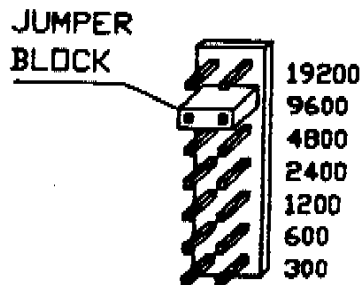


Figure 2-5

Section 2.3 Switch Functions

DIP-Switch functions for a given port must be set in order to give the port its personality. The function of the switches vary, depending upon the type of port (serial or parallel), and the type of device connected (input or output). When configuring the Simple Sharing Switch, you should refer directly to the section pertaining to the port and device type.

An input port is one that connects to a computer, terminal, modem, or other device from which you will be sending data to the Simple Sharing Switch. An output port is one which is connected to a printer, plotter or other device which is to receive data from the Simple Sharing Switch.

Section 2.31 Serial output port switch functions

The switch functions for a SERIAL OUTPUT port are as follows.

SW1 This switch must be OFF for output mode.
SW2 DOCUMENT TERMINATION HANDLING
SW3 DOCUMENT TERMINATION HANDLING
SW4 OUTPUT DEVICE TYPE
SW5 OUTPUT DEVICE TYPE
SW6 HANDSHAKE METHOD
SW7 COMMUNICATION FORMAT
SW8 COMMUNICATION FORMAT

SWITCHES 2 AND 3: DOCUMENT TERMINATION HANDLING

If you wish the Simple Sharing Switch to automatically eject the page when the document has completed printing, turn ON Switch 2. If the document already ends with a FORMFEED command, then no additional action is taken. If you notice extra blank pages at the end of your documents, try turning Switch 2 off.

Switch 3 is used only with HP compatible laser printers. When Switch 3 is turned ON Simple Share will automatically issue a RESET Command (ESC,E) to the printer. The ESC,E command resets the printer to simple text mode, and remove any special printing options left on by the last person to use the printer.

Turn on both Switches 2 and 3 if you wish Simple Share to automatically pause at the end of each document. No FORMFEED and no ESC,E are issued in this mode. At the end of each document, Simple Share will pause and flash the light for this port. No further documents will be printed until the device connected to this port is manually taken Off-line, and then On-line twice.

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SWITCHES 4 AND 5: DEVICE TYPE

Switches 4 and 5 are used to tell Simple Share Switch what type of device is connected to this port. The settings for these switches are as follows:

SWITCH 4	SWITCH 5	
OFF	OFF	Printer is connected
ON	OFF	Plotter is connected
OFF	ON	MODEM is connected
ON	ON	Reserved DO NOT SELECT

NOTE: IF a MODEM or PLOTTER is selected, you are not allowed to default any input port to this port. See input port switch settings for details.

NOTE: No provision is made for a computer type device, as they should all be configured as INPUT ports.

SWITCH 6 HANDSHAKE METHOD

Since different devices are able to communicate at different rates, a method of controlling the incoming and outgoing data streams is needed. This is called HANDSHAKING.

There are two methods that can be used for handshaking. DTR is a hardware connected wire between the Simple Share Switch and the other device (see section 3.1 for more information). Most devices, EXCEPT MODEMS, should utilize this method. To select this method turn OFF switch 6.

MODEMS by their very nature (connected via phone lines) do not allow you to connect a wire to the other end. In this case two special characters are used to handshake. This method is called XON/XOFF handshaking. If this port is connected to a modem, SWITCH 6 must be ON.

SWITCHES 7 AND 8 COMMUNICATION FORMAT

Switches 7-8 are set to match the device to which this port will be connected. It doesn't matter what format you choose, as long as both ends (Simple Share and device) are set the same. The communications formats allowed by the Simple Share are selected as follows:

SWITCH 7	SWITCH 8	
OFF	OFF	8 BIT NO PARITY (Most devices use this)
ON	OFF	7 BIT ODD PARITY
OFF	ON	7 BIT EVEN PARITY
ON	ON	7 BIT MARKING PARITY

NOTE: all formats use a single stop bit.

Section 2.32 Serial Input port Switch Functions

The switch functions for a SERIAL INPUT port are as follows.

SW1 This switch must be ON for input mode.
 SW2 DEFAULT OUTPUT PORT
 SW3 DEFAULT OUTPUT PORT
 SW4 DEFAULT OUTPUT PORT
 SW5 TIMEOUT SELECTION
 SW6 HANDSHAKE METHOD
 SW7 COMMUNICATION FORMAT
 SW8 COMMUNICATION FORMAT

SWITCHES 2 AND 3 AND 4:

Switches 2, 3 and 4 are used in combination to select which port this port will use for its default output. The port you select must be a printer. The settings for these switches are shown below.

DEFAULT PORT	SW2	SW3	SW4
OUTPUT TO PORT #1	OFF	OFF	OFF
OUTPUT TO PORT #2	ON	OFF	OFF
OUTPUT TO PORT #3	OFF	ON	OFF
OUTPUT TO PORT #4	ON	ON	OFF
OUTPUT TO PORT #5	OFF	OFF	ON
OUTPUT TO PORT #6	ON	OFF	ON
OUTPUT TO PORT #7	OFF	ON	ON
OUTPUT TO PORT #8	ON	ON	ON

SWITCH 5 TIMEOUT:

Switch 5 is used to tell The Simple Share Switch how long to wait between characters before deciding that it has reached the end of a document. Most computers may have this switch in either position. However, if your computer takes longer than the selected timeout the document will be split into two or more pieces. To select a 15 second timeout turn Switch 5 OFF. To select a 30 second timeout turn Switch 5 ON. If 30 seconds is insufficient you may use software commands, (see section 5.0), to extend or disable the timeout function.

SWITCH 6 HANDSHAKE METHOD

There are two methods that can be used for handshaking. DTR is a hardware connected wire between the Simple Share Switch and the other device (see section 3.1 for more information). This method is recommended for all devices except MODEMS. To select this method turn OFF Switch 6.

MODEMS do not allow you to connect a wire between devices. In this case two special characters are used to handshake. This method is called XON/XOFF handshaking. If this port is connected to a MODEM, SWITCH 6 must be ON.

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SWITCHES 7 AND 8 COMMUNICATION FORMAT

Switches 7-8 determine what communication format you are using..It doesn't matter what format you choose, as long as both ends (Simple Share and device) are set the same. The communications formats allowed by The Simple Share Switch are selected as follows.

SWITCH 7	SWITCH 8	
OFF	OFF	8 BIT NO PARITY (Most devices use this)
ON	OFF	7 BIT ODD PARITY
OFF	ON	7 BIT EVEN PARITY
ON	ON	7 BIT MARKING PARITY

NOTE: all formats use a single stop bit.

Section 2.33 Parallel output port switch settings

A parallel port set to the output mode is automatically a uni-directional output since no other characteristic is possible. It may serve as the default destination for any port set to the input mode.

Parallel ports perform handshaking on a character by character basis. Two variations of this handshake may be used. In one, only the ready/busy signal is used and in the other, the ready/busy signal plus the character "ACK" strobe is required. The mode of handshake is switch selectable as is the "Busy" polarity of the ready/busy signal and polarity of the data strobe.

Switch settings for a parallel OUTPUT port are shown below:

SW1 This switch must be OFF for output mode.
SW2 DOCUMENT TERMINATION HANDLING
SW3 DOCUMENT TERMINATION HANDLING
SW4 UNUSED (should be left OFF)
SW5 UNUSED (should be left OFF)
SW6 HANDSHAKE METHOD
SW7 BUSY SIGNAL POLARITY
SW8 STROBE SIGNAL POLARITY

SWITCHES 2 AND 3: DOCUMENT TERMINATION HANDLING

If you wish The Simple Sharing Switch to automatically eject the page when the document has completed printing, turn ON Switch 2.

If you wish The Simple Sharing Switch to issue a HP compatible RESET command, (ESC,E), at the end of each document, turn ON Switch 3. Turn on both Switches 2 and 3 if you wish Simple Share to automatically pause at the end of each document.

Switches 2 and 3 on a parallel input port operate identically to those on a serial input port. Refer to Section 2.31 for a more complete description of these switches.

SWITCH 6 HANDSHAKE METHOD

Parallel interfaces have two signals that are used for handshaking. They are called BUSY and ACKNOWLEDGE (ACK). Some printers require the use of both of them in order to operate correctly, while others require only BUSY. The Simple Sharing Switch supports both methods. If you are unsure which to use try using the BUSY and ACK setting (Switch 6 ON).

If Switch 6 is OFF, only BUSY is sensed. If Switch 6 is ON both BUSY and ACK are sensed.

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SWITCH 7 BUSY POLARITY

While most printers use a negative BUSY signal, there are a few that use a positive BUSY signal (sometimes called READY). The Simple Sharing Switch supports both types.

If switch 7 is OFF a negative BUSY is used.
If switch 7 is ON a positive BUSY is used.

If you are unsure which to use, try ON first. Incorrect polarity of this signal will result in incorrect printing or no printing. If this results, change this switch, RESET Simple Share, and try again.

SWITCH 8 STROBE POLARITY

While most printers use a negative going STROBE signal, there are a few that need a positive going STROBE signal. The Simple Sharing Switch supports both types.

If switch 8 if OFF a negative STROBE is used.
If switch 8 if ON a positive STROBE is used.

If you are unsure which to use, try OFF first. Incorrect polarity of this signal will result in incorrect printer operation. If this results, change this switch, RESET Simple Share, and try again.

Section 2.34 Parallel Input Port Switch Settings

A parallel port set to the input mode is uni-directional by nature. Unlike the serial input, it cannot select a bi-directional port as a data destination. It can, however be selected explicitly via software command from a serial input permitting a serial input to receive data from the parallel input.

There is no provision for handshake mode select as for a parallel port set to the output mode since the input automatically sets busy upon the receipt of each character then provides ACK and removes busy when the character is accepted.

As is the case with the serial input the parallel input can accept, and act on software commands. Attempting to select a bi-directional data destination will be considered invalid and the select sequence will be passed through to the last selected uni-directional destination.

A default uni-directional output may be selected by switch settings otherwise, no data input to the port will be transferred until an explicit select to a uni-directional output is detected. the following are function and switch setting summaries for a parallel port set to the input mode:

SW1 this switch must be ON for input.
 SW2 DEFAULT OUTPUT PORT
 SW3 DEFAULT OUTPUT PORT
 SW4 DEFAULT OUTPUT PORT
 SW5 TIMEOUT SELECTION
 SW6 UNUSED (should be left OFF)
 SW7 BUSY POLARITY
 SW8 STROBE POLARITY

SWITCHES 2 AND 3 AND 4: DEFAULT OUTPUT PORT

Switches 2, 3 and 4 are used in combination to select which port this port will use for its default output. The port you select must be a printer. The settings for these switches are shown below.

DEFAULT PORT	SW2	SW3	SW4
OUTPUT TO PORT #1	OFF	OFF	OFF
OUTPUT TO PORT #2	ON	OFF	OFF
OUTPUT TO PORT #3	OFF	ON	OFF
OUTPUT TO PORT #4	ON	ON	OFF
OUTPUT TO PORT #5	OFF	OFF	ON
OUTPUT TO PORT #6	ON	OFF	ON
OUTPUT TO PORT #7	OFF	ON	ON
OUTPUT TO PORT #8	ON	ON	ON

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SWITCH 5 TIMEOUT:

The operation of Switch 5 on a parallel port is identical to Switch 5 on a serial port. You may refer to Section 2.32 for a more detailed description of this switch. To select a 15 second timeout turn Switch 5 OFF. To select a 30 second timeout turn Switch 5 ON.

SWITCH 7 BUSY POLARITY

While most printers use a negative BUSY signal, there are a few that use a positive BUSY signal (sometimes called READY). The Simple Share Switch supports both types.

If switch 7 is OFF a negative BUSY is used.
If switch 7 is ON a positive BUSY is used.

If you are unsure which to use, try ON first. Incorrect polarity of this signal will result in incorrect printing or no printing. If this results, change this switch, RESET Simple Share, and try again.

SWITCH 8 STROBE POLARITY

While most printers use a negative STROBE signal, there are a few that need a positive STROBE signal. Simple Share supports both types.

If switch 8 is OFF a negative STROBE is used.
If switch 8 is ON a positive STROBE is used.

If you are unsure which to use, try OFF first. Incorrect polarity of this signal will result in incorrect printer operation. If this results, change this switch, RESET Simple Share, and try again.

Section 2.4 Option card installation

If you purchased your Simple Sharing Switch with option cards, they should already be installed for you, and you may skip this section.

To install an option card follow the procedure below. If the option card arrived with it's own set of installation instruction, follow those instructions and not the procedure below.

1. UNPLUG THE UNIT FROM THE WALL!!!

2. Open the Simple Sharing Switch by removing the 4 screws located 2 on each side of the unit. Lift the cover straight up and off.

If there are no option cards already in the unit directions below refer to ports 5 and 6. If an option card is already present, the directions below apply to ports 7 and 8.

3. Remove the 2 screws located near the rear of the unit that hold the cover plate for the ports. Set aside the screws as you will need them in step 4.

4. Place the option card onto the 4 mounting posts directly behind the port access holes. Fasten it in place with the 2 screws removed in step 3, and the 2 screws provided with the option card kit.

5. Carefully connect the option card to the main board using the cable provided. NOTE: It is very easy to misalign this cable and damage will result from misalignment, so please double check this connection. See figure 2.11

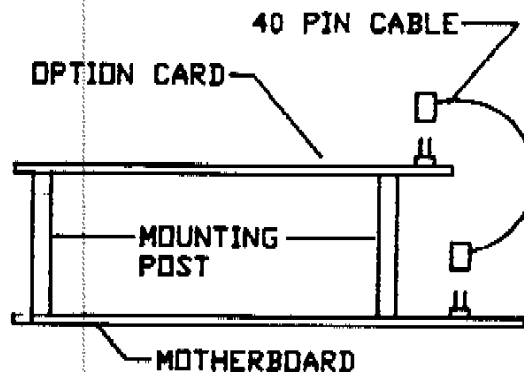


Figure 2-11 Correct Connector Alignment

6. Configure the switches and baud rate jumpers for the new ports. (sections 2.31 to 2.33).

7. Replace the Simple Sharing Switch cover and attach it with the 4 screws removed in Step 2.

Section 3.0 Serial Port Description

All RS232 serial ports on the Simple Sharing Switch are configured as Data Terminal Equipment (DTE). This is the same configuration used in IBM* personal computers. The pinout for a Simple Sharing Switch serial port is shown below.

Pin 1	- - -	Chassis Ground	
Pin 2	- - -	Transmit Data (TXD)	output
Pin 3	- - -	Receive Data (RXD)	input
Pin 4	- - -	Request To Send (RTS)	output (see below)
Pin 5	- - -	Clear To Send (CTS)	input (see below)
Pin 6	- - -	Data Set Ready (DSR)	input (see below)
Pin 7	- - -	Signal Ground	
Pin 8	- - -	Carrier Detect (CD)	input (see below)
Pin 20	- - -	Data Terminal Ready (DTR)	output

Pin 4 is pulled to a high level for devices which require this signal to operate.

Pins 5, 6, and 8 are used by the Simple Sharing Switch as handshake inputs. Any or all of these signals may be driven low to suspend printout from the Simple Sharing Switch. Unused pins may be left disconnected. Different printers and computers vary as to which pin they use. Simple Sharing addresses this by allowing any or all of them to be used.

Pin 20 is a normally high level signal which is driven low by the Simple Sharing Switch when the port is unable to accept data (i.e. buffer is full). This pin should be connected to the appropriate handshake input pin (5, 6, 8, or other) at the sending device.

NOTE: The Simple Sharing Switch has a 3 pin grounded line cord. Under no circumstances attempt to circumvent the ground lead (cheater cords, ungrounded extension cords, etc). All equipment connected to the Simple Sharing Switch must also be correctly grounded. Failure to do this may damage the Simple Sharing Switch or your equipment, and CAN PRODUCE HAZARDOUS VOLTAGES AT THE CONNECTORS.

Section 3.1 Serial Cabling

Interfacing a new device such as a computer or printer can be difficult, even for experienced personnel. Patton Electronics Company has available a stock of standard length cables for popular computers. If you wish to provide your own cables, please refer to the cable configurations shown below.

Simple Share to IBM* (PC,XT), HP 150

<u>DB25-F</u>	-----	<u>DB25-F</u>
TXD (2)	-----	RXD (3)
RXD (3)	-----	TXD (2)
GND (7)	-----	GND (7)
DTR (20)	----+---	DSR (6)
CTS (5)	--+ +---	CTS (5)
DSR (6)	---+---	DTR (20)
RTS (4)	-----	CD (8)
CD (8)	-----	RTS (4)

Simple Sharing to IBM* AT computers

<u>DB25-F</u>	-----	<u>DB9-F</u>
TXD (2)	-----	RXD (2)
RXD (3)	-----	TXD (3)
GND (7)	-----	GND (5)
DTR (20)	----+---	DSR (6)
CTS (5)	---+ +---	CTS (8)
DSR (6)	---+---	DTR (4)
RTS (4)	-----	CD (1)
CD (8)	-----	RTS (7)

Simple Share to HP, most NEC Printers EPSON, Apple Laser Writer Data Trans

<u>DB25-F</u>	-----	<u>DB25-M</u>
TXD (2)	-----	RXD (3)
RXD (3)	-----	TXD (2)
GND (7)	-----	GND (7)
DSR (6)	-----	DTR (20)
RTS (4)	-----	CD (8)
	-----	DSR (6)
	-----	CTS (5)
	-----	RTS (4)

Because almost every manufacturer "creates" it's own version of RS232 instead of following the EIA Standard for RS232, the exact wiring for your devices may vary. If the cables shown above don't work you may try the following known variations.

1. Some NEC Printers have their equivalent of DTR on pin 19.
2. Some TI and Centronics Printers handshake on pin 11.
3. Some computers have their handshake line on pin 5, others on 6, and still others on 8. Some require all three pins to be high in order to operate.
4. Many plotters handshake on Pin 4 instead of Pin 20.

Section 4.0 Parallel Port Interface

The parallel port of a Simple Sharing Switch has the pinout shown below. The functions of the pins change depending upon port configuration (input or output). As output, the port is designed to operate just like the parallel port on an IBM PC*. As input, the port is designed to receive data from an IBM PC* parallel port.

PARALLEL PORT PINOUT

Pin 1 Strobe	Pin 7 Data Bit 5	Pin 13 Select
Pin 2 Data Bit 0	Pin 8 Data Bit 6	Pin 14 AutofeedXT (bar)
Pin 3 Data Bit 1	Pin 9 Data Bit 7	Pin 15 Error (bar)
Pin 4 Data Bit 2	Pin 10 Acknowledge	Pin 16 Init (bar) AKA Prime
Pin 5 Data Bit 3	Pin 11 Busy	Pin 17 Select In (bar)
Pin 6 Data Bit 4	Pin 12 Paper Empty	Pins 18-25 Ground

To connect the Simple Sharing Switch to an IBM PC*, a cable with all 25 pins wired straight across is used. To connect the Simple Sharing Switch to a parallel printer use the cable which is connecting the IBM computer to your printer. This cable is also available from most computer stores as an IBM Parallel Printer Cable. NOTE: Data Products Printers and some other printers require a special cable to connect to the IBM computer. These cables may also be ordered from Patton Electronics.

Some printers require either the STROBE and/or ACKNOWLEDGE lines to be inverted signal levels. See PARALLEL SWITCH SETTINGS for how to accommodate them.

Section 5.0 Advanced Software Commands

The Simple Sharing Switch supports several software command functions which increase the power and performance of the unit for those who wish to learn to use them. Some functions require the use of software commands. Others invoke features which enhance the performance of the Simple Sharing Switch. They may be sent either by special setup programs or by embedded in the documents you send. Some commands remain in effect until changed. Others remain in effect for one document only. All commands use "keyboard" or "printing" characters, thus allowing them to be used by word processors which do not allow the inclusion of "non-printing" or "control" characters.

All valid commands received by an input will be removed from the data stream and will not appear in the output. This may cause unpredictable results with the word-processing program you are using. The best way to prevent this is to place commands on a line which would normally be blank. When the Simple Sharing Switch removes and acts on the command the line when printed will still be blank.

If the input is transferring data to a plotter, modem or another computer, only the END command will be accepted and acted upon. No port designated as an output will accept or act upon any command sequence. It will simply be transferred to the connected port as part of the data stream.

All command sequences consist of a "Lead in" string followed by one or more letters and, depending on the command, one or more numbers. Letters may be either upper or lower case. No spaces or other delimiters are included in a command. In the discussions below, only characters shown within quotes ("") are included in command strings. Including the other characters shown will result in invalid command sequences.

A> Lead in string

The lead in string consists of three characters and precedes each command. This string is shown as characters (in quotes), as hexadecimal numbers, then decimal numbers as follows:

Characters:	">>_"
Hexadecimal:	3E 3E 5F
Decimal:	62 62 95

B> Commands

The following commands are shown by command name, invocation sequence then a discussion of effects and ramifications. Command invocation sequences are shown as a lead-in string plus letter(s) and variable numeric parameters replaced with lower case letters. Command letters are shown in upper case however, lower case letters are accepted.

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1> END DOCUMENT command: >>_ + "E"

This command terminates any data transfer in progress. Where a data transfer has no timeout as is the case where a bi-directional (plotter or MODEM) connection has been established or a printer transfer with timeout set to "0" (see timeout command), this command is required to terminate the transfer or end the document. If data was being transferred bi-directionally, data transfer will cease and the bi-directional connection will be broken. This is the only command which will be acted upon during the time a bi-directional data transfer connection is established.

If data was being transferred to a printer output, the document will be terminated. The normal timeout end of document is bypassed.

This command clears a no timeout command and prints the received data. It also restores the ports timeout to its previous settings. Failure to issue this command after selecting no timeout may cause unpredictable results.

2> SET NUMBERS OF COPIES command: ">>_" + "CCnn"

Where "n" represents any number, 0 through 9. Leading "0" is acceptable but not required. However, at least one number must be entered to form a valid command.

This command applies only to documents transferred to a uni-directional output and is in effect only for the NEXT document to be transferred after which the copies count reverts to its default value of '1'. If a document is being transferred or timeout has not yet occurred when this command is encountered, it will be terminated and the new copy count applied to the next document to be generated.

The document to be printed more than once will be held in the Simple Sharing Switch's memory until it is terminated via timeout or END command at which time it will be placed in the output queue for the selected destination port and will be output "nn" times. This results in collated output unlike the 'copies' command to a laser printer which results in each page printed 'nn' times thus resulting in un-collated output.

There is a maximum size for a document held for copies. This will depend on the amount of memory installed in your unit and the way in which it has been configured. The more memory and the fewer the number of ports capable of generating input, the greater the maximum size of a document held for copies. In any case, the smallest maximum size will be 24k bytes. If a document being input exceeds the maximum size allowable, the copy count will automatically be set to '1' and it will be placed in the output queue of the selected destination port.

A special case of the COPIES command is where the count is set to "0". In this case, only one copy will be printed, but the document will be held in memory until terminated before output commences.

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3> TIMEOUT SET command: ">>" + "Tnnn"

Where "nnn" represents a decimal number in the range of 0 through 255. Leading "0" or "00" is acceptable but not required. However, at least one number must be entered in order to form a valid command. Values greater than 255 will result in an invalid command.

This command is used to set the transmission break timeout value in seconds which is used to determine document separation when transferring data to a uni-directional (printer) output. 15 or 30 second time-outs are switch selectable for each input port. For other values, the software command must be used. Values from 1 second to 255 seconds may be set using this command. This will change the default value selected by switch setting. The new value will remain unless changed by another TIMEOUT SET command or the unit is reset.

The exception is a timeout value of "0". This does not change the default setting. Instead, this will result in the NEXT document having NO transmission break timeout. It will also invoke the COPIES command with a count of "0". Any document transfer in progress will be terminated. The next document sent will have no timeout and MUST be terminated via an END command.

This function is useful for printing documents with intermittent input such as audit trails where a timeout would break the audit trail into a number of separate documents. At the same time, since the copy count is not "1", other users retain access to the printer until the audit trail is terminated at which time it will print quickly as one uninterrupted document. If it is desired to lock out other users from the printer and view each line as it is output, the TIMEOUT SET "0" command must be followed immediately by a COPIES command with a value of "1".

4> SELECT PORT command: ">>" + "Sxy"

Where x and y are numbers 1 through 8 and x represents the unit address (set by DS9), and y represents the port number of the desired data destination. Both numbers must be entered in order to form a valid command.

The effect of this command depends on whether the input on which it is received is parallel or serial and whether the selected destination port is uni-directional (printer) or bi-directional (all others). In the following, the effects are discussed on a case by case basis.

a) SELECT command received on parallel input:

Only uni-directional (printer) outputs may be selected from a parallel input. Attempting to select another type of destination or an un-installed destination is considered invalid and the select sequence will be passed to the last valid destination setting of the input. If the data destination for the input is already set to the same destination as selected, the command is considered valid and will be removed from the data stream but no further action will be taken.

If the data destination for the input differs from the selected destination, any data transfer in progress is terminated and the new destination replaces the old destination. The new destination will remain in effect until it is changed by another select command or the unit is reset.

b) SELECT command received on serial input, printer output selected.

If the data destination for the input is already set to the same destination as selected, the command is considered valid and will be removed from the data stream but no further action will be taken.

If the data destination for the input differs from the selected destination, any data transfer in progress is terminated and the new destination replaces the old destination. The new destination will remain in effect until it is changed by another select command or the unit is reset.

c) SELECT command received on serial input, destination specially configured or not installed.

The command is considered valid and is removed from the data stream. No connection is possible and the following message will be returned to the sender:

"Port xy not available"

Note: if you are sending the select command from DOS, your computer will not display this message. In order to see this message, your computer must be running a terminal emulation program.

d) SELECT command received on serial input, destination is bi-directional but is already connected or busy.

The command is valid and is removed from the data stream. However, the connection is not possible at this time and the following message will be returned to the sender:

"Port xy busy"

Note: if you are sending the select command from DOS, your computer will not display this message. In order to see this message, your computer must be running a terminal emulation program.

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- e> **SELECT** command received on serial input, destination is bi-directional (Plotter, Modem, Other input port), and not busy.

The command is valid and is removed from the data stream. Timeout will be disabled, copies will be set to "1", all commands except the END command will be disabled and the connection will be made. The following message will be returned to the sender:

"Port xy connected"

Note: if you are sending the select command from DOS, your computer will not display this message. In order to see this message, your computer must be running a terminal emulation program.

This command does not change the default destination setting as does a select to a uni-directional output unless a "self-select" has been made. In this case, the default destination will be changed and the result will be an echo back of all data sent until and END command is encountered after which all data except commands will be dumped until another SELECT command is sent.

It is also possible to select a parallel input. This is a "pseudo" bi-directional connection in that it is not possible to send data to a parallel input. It is possible to receive data from a parallel input in this fashion but the transfer must be initiated from the serial input.

- 5> **PAUSE** command: ">>" + "P"

This command is effective only when transferring data to a printer output. When encountered in the data stream, it causes the output to pause. Output will only resume when the printer has gone "Off-line" then back "On-line" twice. This has the same effect as the "Pause at end of document" switch setting except that it may be included in the data stream at any point. The pause is indicated on the front panel of the Simple Sharing Switch by winking the port status lamp of the output port that has been paused.

This function is useful if it is desired to stop the printer for a paper change (ie. letter head). ALL output to this printer is suspended until the pause sequence is completed. This means that if other documents are being received for this printer they are being buffered in memory until either the pause sequence is completed or the buffer completely fills up.

NOTE: If your printer does not set its ready/busy line to the "busy" state when it is set off-line and back to "ready" when set on-line this command will cause the printer to "pause" permanently. In this case, other arrangements need to be made in order to clear the pause condition if you are to be able to use this command.

If your printer is set up to use Xon/Xof flow control, the pause command will function properly if your printer sends "Xon" each time it is set

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"On-line" from the "Off-line" condition. However, if your printer periodically sends "Xon" while in the idle condition, the pause command will not operate correctly.

A FINAL WORD ON SOFTWARE COMMANDS:

While learning or experimenting with the software commands be sure that no one else is printing as improperly used commands can cause erratic operation of the printers. You may always undo any commands that are entered by pressing RESET on the Simple Sharing Switch front panel.

Section 6.0 Front Panel Switches and Indicators

A> CONTROLS

The Simple Sharing Switch has only 2 operator controls; and on/off switch and a reset button.

The on/off switch located on the rear panel, is used to connect or disconnect from the AC line power. Also on the rear panel is a fuse holder containing a 250v 1/4A 3AG fuse.

The power switch is used to connect/disconnect the Simple Sharing Switch to/from line power. When power is first applied to the Simple Sharing Switch, the unit is reset and begins by executing a set of self-diagnostics. Upon successful completion of these diagnostics, each port is checked and if present, initialized, available storage is determined and other miscellaneous initialization procedures performed. The unit then becomes ready for operation.

The Reset switch on the front panel causes the unit to reset and remain reset as long as it is held depressed. When released, the unit comes out of reset and begins the initialization process. The effect is identical to that achieved by turning the power off and then back on again. This button clears errors and resets the configuration to the defaults set in the configuration switches.

NOTE

Pressing the Reset switch clears all data in the Simple Sharing Switch. You should make sure no useful data remains in the unit before pressing this switch.

B> INDICATIONS

The LED lamps on the front panel indicate the status of the unit. The red power LED and the green ready LED are general indicators of unit status while the eight green numbered LEDs indicate the status of the port bearing that same number.

Power LED (Red):

This lamp is lit whenever power is applied to the unit. It is under processor control and is flashed to indicate that an error condition exists.

Ready LED (Green):

This lamp is out at power up or whenever the unit is reset. When the unit becomes ready for operation, this lamp lights. Normal operation is indicated by a steady on condition. If the unit comes out of initialization with this lamp flashing, this indicates that an unexpected quantity of memory has been encountered during initialization. The unit is still fully functional but with reduced data storage capacity and bad sections of memory permanently de-allocated.

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Port LED's (Green):

These lamps indicate activity on individual ports. If the lamp is off, the corresponding port is idle. When the lamp turns on, the corresponding port is processing data. Should flow control be applied to an output or by an input thus halting the flow of data, the corresponding port lamp will begin winking once per second. This condition will also occur if a printer output detects a "pause" request and output data flow is halted. When data flow is resumed the lamp will once more light steadily. When data flow through a port is terminated, the port will return to the idle state and the lamp will go out.

Should an input buffer overflow occur, the corresponding port lamp will begin flashing rapidly as will the red Power lamp. The input port will be shut down and the document in progress terminated with an error message. This condition would occur if the data source device has failed to cease transmission of data in response to a flow control request from the Simple Sharing Switch. This condition can only be cleared by resetting the unit. However, other unaffected ports will continue to function normally.

Reset and initialization indications:

Upon power-on or reset, the red Power lamp and the eight green port lamps should come on. The ready lamp should be off. This condition will remain for about ten seconds while the Simple Sharing Switch is performing self-diagnostics. Then, as each port is checked and initialized, the corresponding port lamp will go off. (When an un-installed option port is encountered, the corresponding lamp will turn off immediately since no further checking or initialization is possible). Once all ports have been checked and initialized, the Ready lamp will come on and all the lamps corresponding to installed and initialized ports will flash once. The Simple Sharing Switch is now ready and in the idle state.

SELF TEST ERROR INDICATIONS

Errors encountered during self test and initialization are indicated by flashing the red Power lamp and turning on one of the green port status lamps. The ready lamp will be out and the unit non-functional. The type of error encountered is indicated by the number of the port lamp which is on as follows:

- Lamp 1 - Program ROM CRC error
- Lamp 2 - Memory aliasing test error
- Lamp 3 - Operational memory test error
- Lamp 4 - Program execution error (May also occur during normal operation as well should such an error occur).
- Lamp 5 - Illegal configuration. No installed port has been configured as an input. Therefore, nothing is capable of initiating data input to the Simple Sharing Switch.

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OPERATIONAL PORT LED INDICATIONS

OFF Port is inactive (no data).

ON Port is receiving or transmitting data.

WINKING (mostly on) Port is active but cannot transmit data due to handshake hold off.

FAST FLASH Port overflow has occurred due to improper handshake and the port is now disabled. Pressing RESET will clear this condition, but make sure no one else is currently sending to the Simple Sharing Switch.

The POWER LED indicates that the unit is plugged in and turned on. If this LED is OFF and any other LED's are ON call Patton Electronics Technical Support.

Section 7.0 SPECIFICATIONS

The physical and operational specifications for the Simple Sharing Switch are:

Dimensions:

Height 2.5 inches
Width 16.5 inches
Depth 11.0 inches
Weight 7 pounds

Power: 110 VAC 60Hz .5 AMP or 220 VAC 50Hz .25 AMP

Operating Temperature: 0 - 40 degrees celsius (32 to 104 F.)

Operating Humidity: 0 - 90% Non condensing relative Humidity

Parameter:	SERIAL Interface:	Parallel Interface
Format:	Asynchronous	Centronics/IBM*
Comm format:	8 Bit No Parity	8 Bit
	7 Bit Odd, Even, Marking	-----
Baud Rate:	300,600,1200,2400,	-----
	4800,9600 or 19200	-----
Handshake:	DTR or XON/XOFF	-----
Strobe:	-----	Upright or Inverted
Ready:	-----	Upright or Inverted
Connector:	DB 25M (Male)	DB 25F (Female)

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Section 8.0 Glossary of terms

ASCII: An acronym for American Standard Code for Information Interchange, ASCII is a code where each letter, number, or punctuation character is represented by a unique combination of bits (a Byte). The code is used to communicate between different devices, enabling them to understand each other, like two people speaking the same language as opposed to a person speaking Spanish talking with a person who only speaks English.

Baud Rate: The speed with which information (in Bits per Second) is sent between devices. The higher the baud rate, the faster the transmission. The actual speed you select only affects how fast your sending, but both devices must be talking at the same baud rate.

Bit: a single binary digit representing the smallest piece of information a computer can deal with (either on or off).

Byte: A collection of bits (usually 8) which are assembled into a unique combination for a given character. (See ASCII).

CD: (Carrier Detect) An RS232 signal that indicates a modem is connected to another modem. Some computers and printers require this signal to be true in order to transmit data.

CTS: (Clear To Send) An RS232 input signal indicating that a device is able to receive data.

DATA: Any collection of BITS, Bytes, Characters etc.

DSR: (Data Set Ready) An RS232 input signal indicating that a device is able to receive data.

DTR: (Data Terminal Ready) An RS232 signal indicating that a device is able and ready to transmit data.

FORMFEED: An ASCII Character which causes printers to advance to the top of the next page.

PARITY: An extra bit added to a character to provide for error checking. If parity is selected (enabled), both devices must be using the same Parity settings. ie. both ODD or both NONE or EVEN.

RS232: A hardware standard used by manufacturers to enable them to communicate with each other. Unfortunately many manufacturers take liberties with the standard causing a great deal of consternation for the person trying to connect things together.

XOFF: An ASCII character causing a device to suspend transmission until the receiving device sends an XON character.

XON: An ASCII character which tells a suspended (see XOFF) device to continue with a transmission.

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PATTON ELECTRONICS REPAIR INFORMATION FORM

Please fill out this form and enclose it with the unit to be repaired.

Company Name _____	Date _____
Address _____	Phone _____
City _____ State _____	Zip _____

Person to contact _____ Extension _____

RMA Number _____ (REQUIRED)

Description of the problem. Be Specific. _____

How often does the problem occur? _____

What other equipment is connected to the unit? _____

Any additional information which may be helpful _____

Return shipping address if different from above. _____

Billing Address if out of warranty. _____

Repair Purchase Order number (if out of warranty). _____

ENCLOSE a copy of the P.O. for faster processing of the repair work.

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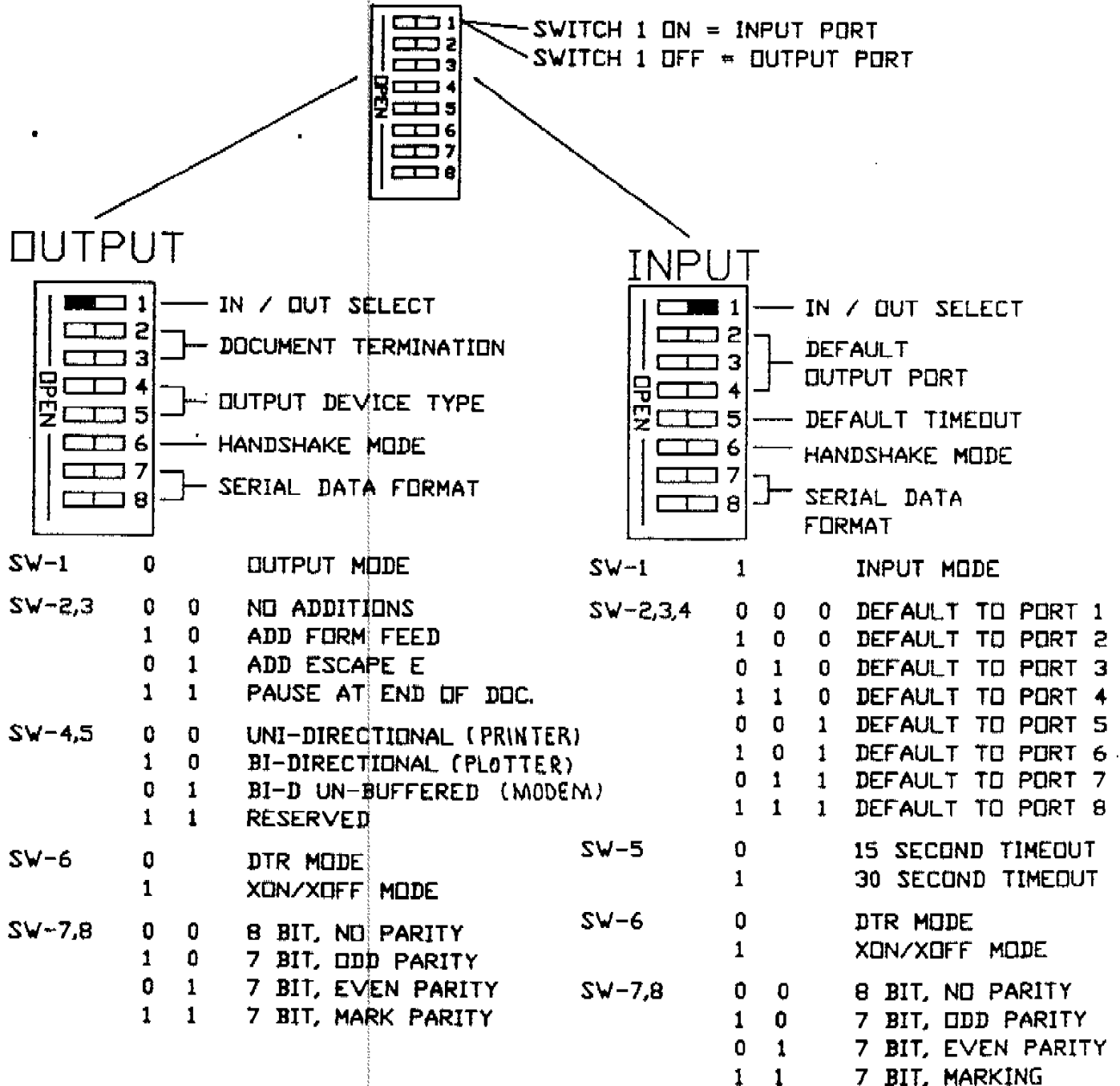
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**ASCII CHARACTER EQUIVALENTS
IN HEXADECIMAL AND DECIMAL NUMBERS**
(Control Characters are indicated by preceding "^")

CHAR.	HEX	DEC.	CHAR.	HEX	DEC.	CHAR.	HEX	DEC.
NUL (^@)	00	0	*	2A	42	T	54	84
SOH (^A)	01	1	+	2B	43	U	55	85
STX (^B)	02	2	,	2C	44	V	56	86
ETX (^C)	03	3	-	2D	45	W	57	87
EOT (^D)	04	4	.	2E	46	X	58	88
ENQ (^E)	05	5	/	2F	47	Y	59	89
ACK (^F)	06	6	0	30	48	Z	5A	90
BEL (^G)	07	7	1	31	49	[	5B	91
BS (^H)	08	8	2	32	50	\	5C	92
HT (^I)	09	9	3	33	51	]	5D	93
LF (^J)	0A	10	4	34	52	^	5E	94
VT (^K)	0B	11	5	35	53	~	5F	95
FF (^L)	0C	12	6	36	54	a	60	96
CR (^M)	0D	13	7	37	55	b	61	97
SO (^N)	0E	14	8	38	56	c	62	98
SI (^O)	0F	15	9	39	57	d	63	99
DLE (^P)	10	16	:	3A	58	e	64	100
DC1 (^Q)	11	17	;	3B	59	f	65	101
DC2 (^R)	12	18	<	3C	60	g	66	102
DC3 (^S)	13	19	=	3D	61	h	67	103
DC4 (^T)	14	20	>	3E	62	i	68	104
NAK (^U)	15	21	?	3F	63	j	69	105
SYN (^V)	16	22	@	40	64	k	6A	106
ETB (^W)	17	23	A	41	65	l	6B	107
CAN (^X)	18	24	B	42	66	m	6C	108
EM (^Y)	19	25	C	43	67	n	6D	109
SUB (^Z)	1A	26	D	44	68	o	6E	110
ESC (^[)	1B	27	E	45	69	p	6F	111
FS (^\\)	1C	28	F	46	70	q	70	112
GS (^])	1D	29	G	47	71	r	71	113
RS (^^^)	1E	30	H	48	72	s	72	114
US (^_)	1F	31	I	49	73	t	73	115
SPACE	20	32	J	4A	74	u	74	116
!	21	33	K	4B	75	v	75	117
"	22	34	L	4C	76	w	76	118
#	23	35	M	4D	77	x	77	119
\$	24	36	N	4E	78	y	78	120
%	25	37	O	4F	79	z	79	121
&	26	38	P	50	80	{	7A	122
'	27	39	Q	51	81	|	7B	123
(	28	40	R	52	82	~	7C	124
)	29	41	S	53	83	}	7D	125
						-	7E	126
						DEL	7F	127

SWITCH SETTING SUMMARY

DIP SWITCH SETTINGS FOR A SERIAL PORT



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