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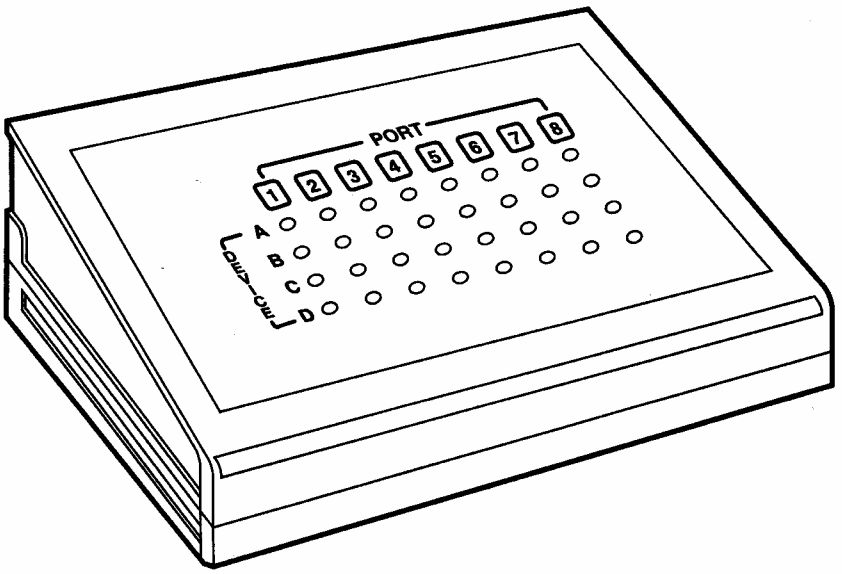
JANUARY 1998

SW441A-R2 **SW443A-R2**
SW441AE-R2 **SW443AE-R2**
SW442A-R2 **SW444A-R2**
SW442AE-R2 **SW444AE-R2**

Matrix Switch



CUSTOMER SUPPORT INFORMATION

Call our Technical Support Specialists to discuss your application.
For 24-hour technical support: Call **(412) 746-5500** or Fax: **(412) 746-0746**
To order: Call **(412) 746-5500** 7:00 A.M. to 8:00 P.M. EST
Mail order: **Black Box Corporation**, 1000 Park Drive, Lawrence, PA 15055

FEDERAL COMMUNICATIONS COMMISSION
AND
CANADIAN DEPARTMENT OF COMMUNICATIONS
RADIO FREQUENCY INTERFERENCE STATEMENTS

This equipment generates, uses, and can radiate 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 communication. It has been tested and found to comply with the limits for a Class A 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 when the equipment is operated in a commercial environment. Operation of this equipment in a residential area is likely to cause interference, in which case the user at his own expense will be required to take whatever measures may be necessary to correct the interference.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

This digital apparatus does not exceed the Class A limits for radio noise emission from digital apparatus set out in the Radio Interference Regulation of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de classe A prescrites dans le Règlement sur le brouillage radioélectrique publié par le ministère des Communications du Canada.

NORMAS OFICIALES MEXICANAS (NOM)
ELECTRICAL SAFETY STATEMENT

INSTRUCCIONES DE SEGURIDAD

1. Todas las instrucciones de seguridad y operación deberán ser leídas antes de que el aparato eléctrico sea operado.

2. Las instrucciones de seguridad y operación deberán ser guardadas para referencia futura.

3. Todas las advertencias en el aparato eléctrico y en sus instrucciones de operación deben ser respetadas.

4. Todas las instrucciones de operación y uso deben ser seguidas.

5. El aparato eléctrico no deberá ser usado cerca del agua—por ejemplo, cerca de la tina de baño, lavabo, sótano mojado o cerca de una alberca, etc..

6. El aparato eléctrico debe ser usado únicamente con carritos o pedestales que sean recomendados por el fabricante.

7. El aparato eléctrico debe ser montado a la pared o al techo sólo como sea recomendado por el fabricante.

8. Servicio—El usuario no debe intentar dar servicio al equipo eléctrico más allá a lo descrito en las instrucciones de operación. Todo otro servicio deberá ser referido a personal de servicio calificado.

9. El aparato eléctrico debe ser situado de tal manera que su posición no interfiera su uso. La colocación del aparato eléctrico sobre una cama, sofá, alfombra o superficie similar puede bloquea la ventilación, no se debe colocar en libreros o gabinetes que impidan el flujo de aire por los orificios de ventilación.

10. El equipo eléctrico deber ser situado fuera del alcance de fuentes de calor como radiadores, registros de calor, estufas u otros aparatos (incluyendo amplificadores) que producen calor.

11. El aparato eléctrico deberá ser connectado a una fuente de poder sólo del tipo descrito en el instructivo de operación, o como se indique en el aparato.

12. Precaución debe ser tomada de tal manera que la tierra fisica y la polarización del equipo no sea eliminada.

13. Los cables de la fuente de poder deben ser guiados de tal manera que no sean pisados ni pellizcados por objetos colocados sobre o contra ellos, poniendo particular atención a los contactos y receptáculos donde salen del aparato.

14. El equipo eléctrico debe ser limpiado únicamente de acuerdo a las recomendaciones del fabricante.

15. En caso de existir, una antena externa deberá ser localizada lejos de las lineas de energia.

16. El cable de corriente deberá ser desconectado del cuando el equipo no sea usado por un largo periodo de tiempo.

17. Cuidado debe ser tomado de tal manera que objectos liquidos no sean derramados sobre la cubierta u orificios de ventilación.

18. Servicio por personal calificado deberá ser provisto cuando:

    A: El cable de poder o el contacto ha sido dañado; u

    B: Objectos han caído o líquido ha sido derramado dentro del aparato; o

    C: El aparato ha sido expuesto a la lluvia; o

    D: El aparato parece no operar normalmente o muestra un cambio en su desempeño; o

    E: El aparato ha sido tirado o su cubierta ha sido dañada.

TRADEMARKS

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1. Specifications

Leads Supported—Serial: 2-6, 8, 15, 17, 19, 20, 22, 24, Pin 7 common; Parallel: All 25 pins

Speed—Up to 5 Mbps

Interface—Serial: RS-232; Parallel: IBM PC compatible, IEEE Std 1284 compliant, supporting Compatible and Nibble modes

Connectors—SW441A-R2, SW441AE-R2: (4) DB25 female input, (4) DB25 male output, SW442A-R2, SW442AE-R2: (4) male input, (4) female output, SW443A-R2, SW443AE-R2: (8) DB25 male input, (4) DB25 female output, SW444A-R2, SW444AE-R2: (8) DB25 female input, (4) DB25 male output

Power—A-R2 models: Input: 115 VAC, 60 Hz, 16 watts, Output: 9 VDC, 1A; AE-R2 models: Input: 230 VAC, 50 Hz, 85 watts, Output: 9 VDC

Size—SW441A-R2/AE-R2, SW442A-R2/AE-R2: 3.5"H x 9"W x 7.5"D (8.9 x 23 x 19.1 cm); SW443A-R2/AE-R2, SW444A-R2/AE-R2: 3.5"H x 13"W x 7.5"D (8.9 x 33 x 19.1 cm)

Weight—SW441A-R2/AE-R2, SW442A-R2/AE-R2: 3.9 lb. (1.8 kg); SW443A-R2/AE-R2, SW444A-R2/AE-R2: 4.8 lb. (2.2 kg)

2. Introduction

The Matrix Switch enables up to eight microcomputers to share four peripheral devices. The switch is compatible with all leading brands of microcomputers and all leading brands of serial and parallel peripherals. A sense-touch control panel provides instant line configuration. The Switch supports multiple leads.

Eight models are available:

- 4 x 4 Matrix Switch, Serial, 115 VAC, part number SW441A-R2
- 4 x 4 Matrix Switch, Serial, 230 VAC, part number SW441AE-R2
- 4 x 4 Matrix Switch, Parallel, 115 VAC, part number SW442A-R2
- 4 x 4 Matrix Switch, Parallel, 230 VAC, part number SW442AE-R2
- 4 x 8 Matrix Switch, Serial, 115 VAC, part number SW444A-R2
- 4 x 8 Matrix Switch, Serial, 230 VAC, part number SW444AE-R2
- 4 x 8 Matrix Switch, Parallel, 115 VAC, part number SW443A-R2
- 4 x 8 Matrix Switch, Parallel, 230 VAC, part number SW443AE-R2

An LED display indicates connections. The Matrix Switch will not allow an attempt to access an occupied port. Ports must be specifically disconnected before another connection is made.

3. Installation

Before you begin, make sure that the Matrix Switch is unplugged.

The ports on the serial Matrix Switch units are bidirectional, so that computers and peripherals may be placed on either ports labeled A-D or 1-8. This means that either 4 users can share 8 peripherals or 4 peripherals can be shared among 8 users. Although ports A-D are listed below as peripheral ports, they may be used to connect to computers instead. The same is true with the ports labeled 1-8. See the appendix for serial-port pinouts.

The parallel version of the Switch can have bidirectional IEEE Std 1284-1994 compliant data transfer, supporting Compatibility and Nibble modes.

Make sure that the computers are communicating properly with the peripherals directly. Centronics standard type cables are usually used when connecting computers to parallel printers. The cable required is terminated on one end with a Centronics connector and on the other end with a DB25 connector.

3.1 Parallel Installation

Proceed as follows to install the Matrix Switch in a parallel application:

1. Connect the printers with Centronics type cables (part number EQN202) to the peripheral ports A through D.

2. Connect the computers to the ports labeled 1 through 8 (or 1 through 4 where applicable) with DB25 type straight-through cables (male and female connectors, part number EQN201). Note that these cables must have all 25 wires active and connected to both ends of the cable directly. If the cable is shielded, make sure that pin 1 is not connected to the shield.

3. Apply power to the peripherals and computers connected to the Matrix Switch. You may now power on and use your Matrix Switch unit normally.

3.2 Serial Installation

Use the following diagram as an aid when connecting PCs and peripherals to the Matrix Switch.

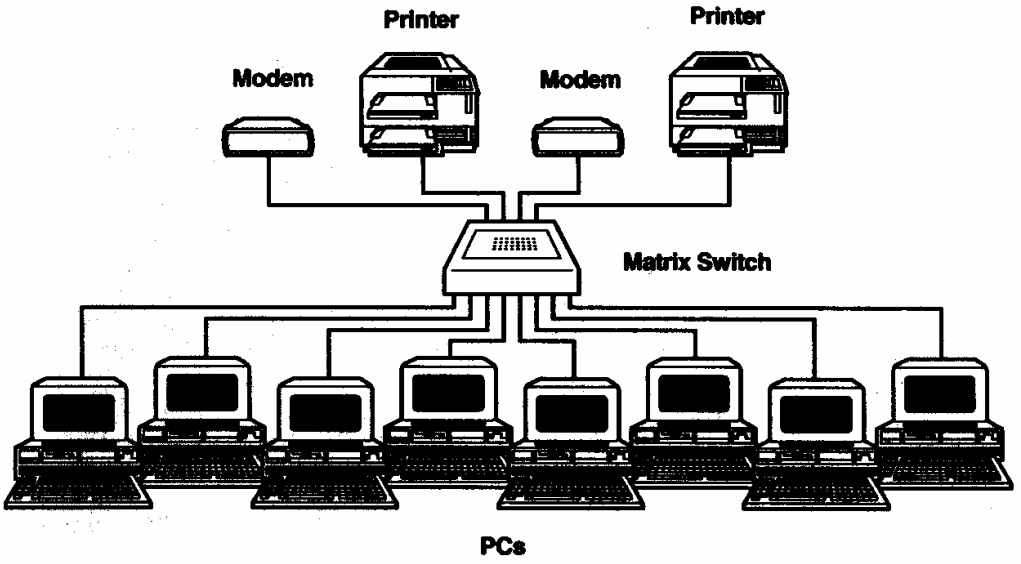

Figure 3-1. 8 PCs Sharing 2 Modems and 2 Printers (Serial or Parallel Application).

- Use cable part number ECN25C M/F for the serial input from the PC and the serial output to the modem.
- Use cable part number BC00901 M/F for the serial output to the printer.
- Use cable part number EQN201 M/F for the parallel input from the PC.
- Use cable part number EQN202 M/F for the parallel output to the printer.

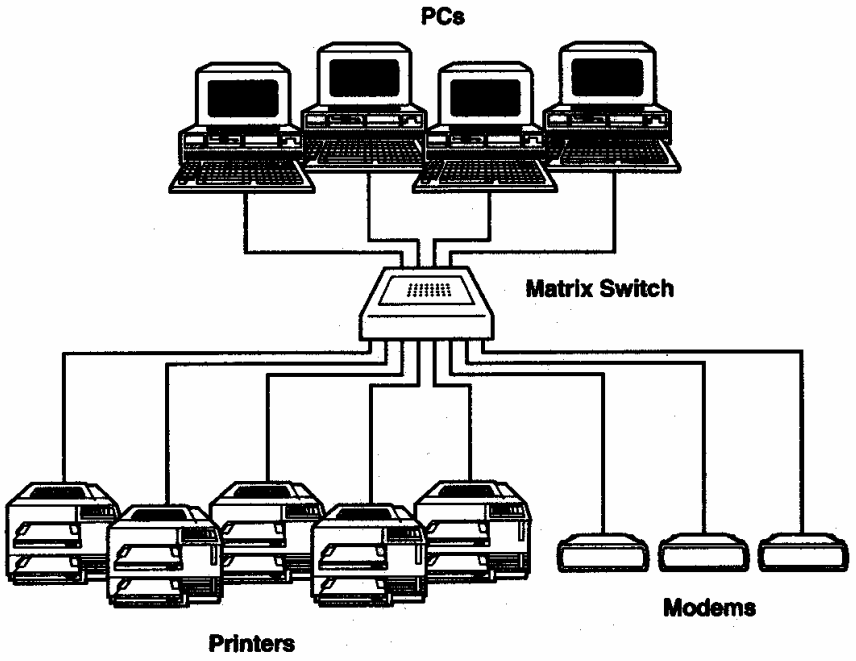

Figure 3-2. 4 PCs Sharing 5 Printers and 3 Modems (Serial Application Only).

In applications that involve serial printers and modems, connect straight-through cables between the modems and the Matrix Switch and crossover cables between the printers and the Matrix Switch. Use straight-through cables between the Matrix Switch and the PC.

4. Operation

There is no power switch on the Matrix Switch. The unit is powered on as long as the wallmount transformer is plugged into an active AC source. When the unit is plugged in, a tone will sound for one second to signify a successful reset. After this, the Matrix Switch will establish any connections that were present when power was last lost. The indicator LEDs on the front panel will light as appropriate.

The keypad is located on the top of the unit, with keys labeled 1-8 (or 1-4) above a column of four LEDs. Each LED indicates a connection between that input port (1-8 or 1-4) and a particular output port (A-D). When you press a key, the appropriate LED indicator will advance through the sequence A, B, C, D, and off (off indicating no connection to any outputs). When you press a key, the LED will skip any output port that is already connected to another input port. A connection to an output port must be disconnected from its input before connecting with another input. When all four output ports are connected to input ports, no other connection can be made without first disconnecting an input from an output.

When you press a key, the Matrix Switch emits a short beep.

Under normal circumstances, the Matrix Switch unit should not need to be reset. If you do need to reset the Switch, unplug the unit for two full seconds, then plug it back in.

NOTE

The Matrix Switch will reestablish any connections that were present when power was lost.

Appendix: Serial Pinouts

Table A-1. Serial Pinouts.

Input 1-8		Output A-D
In	2	Out
Out	3	In
In	4	Out
Out	5	In
Out	6	In
Out	7	In
Out	8	In
Out	15	In
Out	17	In
In	19	Out
In	20	Out
Out	22	In
Out	24	In