



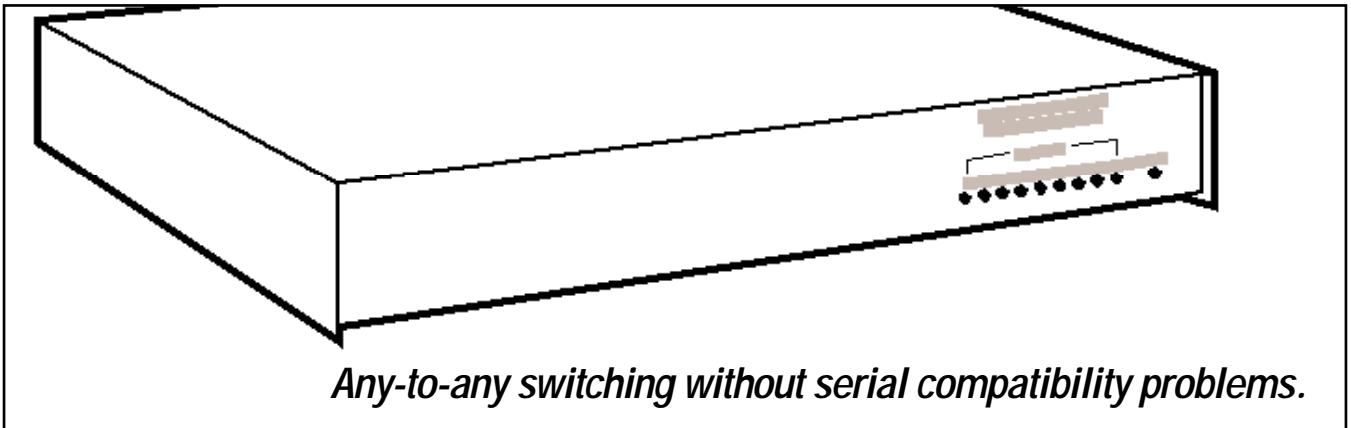
# BLACK BOX<sup>®</sup>

## NETWORK SERVICES

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## CODE-OPERATED MATRIX SWITCH



### Key Features

- ▶ **Any-port-to-any-port serial communication. No "master port" is needed.**
- ▶ **Mix, match, and control peripherals from one PC.**
- ▶ **Configure each port independently, including the DTE or DCE setting.**
- ▶ **Converts between data rates, data formats, and types of flow control.**
- ▶ **Supports up to two (base unit) or four (expanded) simultaneous connections.**
- ▶ **Can be reset or restored to default settings remotely.**

What do you do if you have one or more PCs, a few RS-232 peripherals, and data that needs to flow between them, from Point A to Point B, or Point A to Point C, or sometimes even from Point D to Point E?

The Code-Operated Matrix Switch (COMS) might be just what you need. It performs any-to-any switching between its five ports in response to ASCII-character-based commands. If you have more than five devices, you can add the 4-Port Expansion Board (SW541-C) to the base COMS unit for a total of nine ports. Or you can cascade multiple COMS units.

It doesn't matter if your devices aren't absolutely compatible. Each port on the COMS can be independently configured for data rate, data format, flow control, and break detection. You can also independently set each port as DTE or DCE, so you can use straight-through-pinned cables to connect most devices.

By sending the proper commands, any port can connect to and disconnect from any other port, or (as a third party) make or break a connection between any two other ports. There can be as many simultaneous connections through the COMS as the number of ports will permit. On the base unit's five ports, two simultaneous connections are possible; on a unit with the Expansion Board installed, as many as four such connections are possible. (The COMS has a 31-KB buffer to keep data intact, even with four devices sending at once.)

In emergencies, or when John and Jane leave without releasing their peripherals, one command can break all existing connections.

If you should ever have problems, another command resets the COMS. You can set the unit's DIP switches to clear or maintain existing connections when the unit is reset.

The control sequence of the switch is a series of ASCII characters: a user-defined

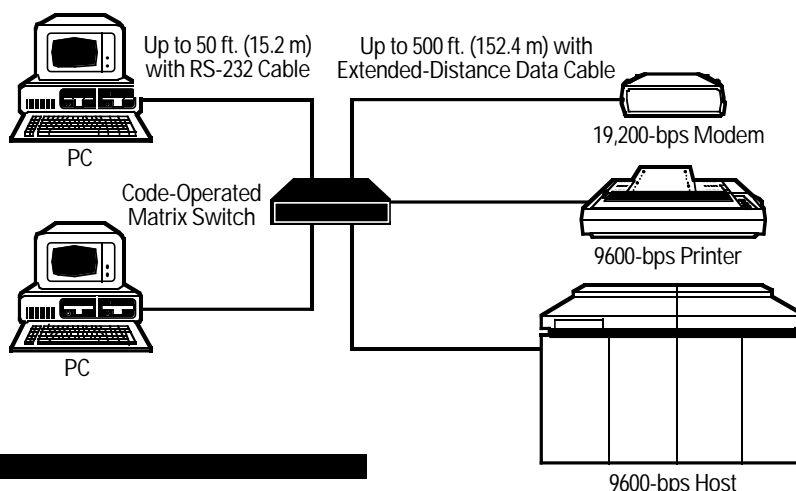
"attention string" from 1 to 8 characters long that prepares the unit to receive a command, followed by a "command sequence" from 1 to 3 characters long that tells the COMS what to do.

Graphics data can include almost any combination of characters, including those of the COMS's control sequences. For this reason, you can configure any of the COMS's ports to make "transparent links" that ignore control sequences. These links can be broken from other ports or by sending a break.

In addition to disconnecting active links, COMS commands enable you to save link states to NVRAM, see help and status screens, set port names, and perform remote resets and reloads.

NOTE: If the standard COMS settings don't meet the needs of your application, we might be able to custom-program it for you. For details, call Black Box Tech Support.

# Extend distances in your local RS-232 network.



## Specifications

**Compliance:** FCC Part 15 Class A, DOC Class/MDC classe A

**Code Set:** ASCII

**Data Format:** 7 or 8 data bits with even, odd, or no parity (user-selectable); 1 stop bit (fixed)

**Data Rates:** 19,200, 9600, 4800, 2400, 1200, 600, 300, or 110 bps

**Distance (Maximum):** 50 ft. (15.2 m) to any attached device using standard cables, or 500 ft. (152.4 m) using Extended-Distance Data Cables

**Flow Control:** Hardware (DTR/ CTS) or software (X-ON/ X-OFF), user-selectable

**Interface:** EIA RS-232/ITU-TSS V.24; each port can be set independently as DTE or DCE

**Internal Memory:** 32-KB RAM including 31-KB buffer; NVRAM for link-state storage

**Leads Supported:** 1 through 8, 20, and 22

**MTBF:** 20,000 hours (16,000 hours with Expansion Board)

**Operation:** Full-duplex

**Protocol:** Asynchronous

**User Controls:** ASCII characters; (7) internal DIP switches: (2) for system options, (5 or 9\*) for port options; (5 or 9\*) internal jumpers for DTE/DCE

**Diagnostics:** Various self-tests

**Connectors:** (5) or (9\*) rear-mounted DB25 female

**Indicators:** (10) front-mounted LEDs: (1) Power and (9) Status

**Temperature Tolerance:** Operating: 32 to 113°F (0 to 45°C); Storage: -4 to +158°F (-20 to +70°C)

**Humidity Tolerance:** Up to 95% noncondensing

**Enclosure:** Steel

**Power:** Nondetachable desktop power supply: SW590A-R2: 115 VAC, 60 Hz; SW590AE-R2: 230 VAC, 50 Hz

**Size:** 2.3"H x 12"W x 11.1"D (5.8 x 30.5 x 28.2 cm)

**Weight:** Base unit with power supply: 9.6 lb. (4.4 kg); Expansion Board: 0.6 lb. (0.3 kg)

\* (1) for each basic or expanded port

## Package includes:

- Code-Operated Matrix Switch, with 31 KB of buffer memory and 5 ports
- Desktop power supply
- 5.25" diskette containing LinkUp software
- Users' manual

## You might also need:

- A snap-in 4-Port Expansion Board (SW541-C) for adding four additional devices to your switched network. You can install this circuit board in only minutes with just a screwdriver.
- An asynchronous RS-232 modem or line driver for long-distance control of your devices
- RS-232 cable
- AC and data-line surge protectors
- Communications software

## Ordering Information

ITEM	CODE
Code-Operated Matrix Switch	
115-VAC.....	SW540A-R3
230-VAC .....	SW540AE-R3
<i>You may also need...</i>	
4-Port Expansion Board.....	SW541-C
Extended-Distance Data Cable (NEC® CL2), 12 Conductors (6 Pairs)–Pins 1–8, 15, 17, 20, 22 (NOTE: Specify gender and length) .....	EDN12C

## Typical applications

- During the day, one PC can receive orders through your modem while another directs an RS-232 industrial controller to fill the orders. At closing, the first PC can send reports to the printer while the second uses the modem to relay info to HQ.
- Depending on the requirements of the job, each of your four PCs can print to any of your five serial printers.