Black Box Corporation

The Source for Connectivity®

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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.

TRADEMARKS USED IN THIS MANUAL

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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.

Contents

1. Specifications

Compliance —	FCC Class A, DOC Class/MDC classe A
Interface —	EIA RS-232 serial (all ports DCE)
Protocol —	Asynchronous
Data Formats —	Either 7 data bits with odd or even parity or 8 data bits with no parity (user-selectable); always 1 stop bit
Data Rates —	115,200, 57,600, 38,400, 19,200, 9600, 2400, 1200, and 600 bps (user-selectable)
Maximum Distances —	50 ft. (15.2 m) to each connected device
User Controls —	(2) Front-mounted slide switches: (1) for power, (1) for switching mode (text, graphics, or transparent); (2) Bottom-mounted 8-position DIP switches for arming code and communication parameters
Diagnostic —	User-selectable power-up self-test
Indicators —	(4) LEDs: (2) Operating Mode, (2) Printer Selected
Connectors —	(3) DB25 female: (2) switched, (1) common
Leads/Signals Supported —	Pins 1, 2, 3, 5, 7, and 20 (PGND, TD, RD, CTS, SGND, and DTR respectively); all but Pin 1 (PGND) are switched; Pins 6 and 8 (DSR and RLSD [DCD]) are tied high

Power —	SW284A: From wallmount power supply PS115: Input: 115 VAC, 60 Hz; Output: 9 VDC, 200 mA; SW284AE: From desktop power supply PS115E: Input: 230 VAC, 50 Hz; Output: 9 VDC, 200 mA
MTBF —	100,000 hours
Altitude Tolerance —	15,000 ft. (4572 m)
Temperature Tolerance —	Operating: 32 to 104° F (0 to 40° C); Storage: –4 to 158° F (–20 to 70° C)
Humidity Tolerance —	Up to 95% noncondensing
Size —	1"H x 3.2"W x 5.8"D (2.5 x 8.1 x 14.7 cm)
Weight —	1 lb. (0.5 kg)

2. Introduction

With the High Speed COS-2, you can send a code sequence from an asynchronous RS-232 device and switch between two other such devices. By using this electronic method to switch, you avoid the problems that can occur (especially with laser printers) when you switch manually. You can select any two-byte sequence as the "arming code" (the code that causes the COS-2 to switch).

As you can see, the COS-2 is very light and compact. For this reason, we've included a hook-and-loop fastener that you can use to attach the unit directly to any number of surfaces, including the housings of PCs and printers.

The COS-2 has three modes of operation, which you can choose between with the appropriate slide switch on the front panel. In Text mode, the user can send the chosen arming code, followed by the ASCII character corresponding to the desired port (either "B" or "C"), immediately following other data. In Graphics mode, the arming code and port character are not recognized unless they are preceded by a pause. (You can select the length of this pause.) In Transparent mode, arming codes are not recognized and switching does not occur.

3. Configuration

Before you install the High Speed COS-2, you should configure it for your application. **Section 3.1** describes setting the front-panel Mode switch to select your desired operating mode. **Section 3.2** describes setting the right-hand DIP switch so that the COS-2 operates using the communication parameters that you need; **Section 3.3** describes how to choose your arming code by setting the left-hand DIP switch. For each of these sections, refer to Figure 3-1 on the next page for the locations of the switches being discussed.

3.1 Selecting the Operating Mode

Use the slide switch labeled "Mode" on the front of the High-Speed COS-2 to select which operating mode you want the unit to start in. In the left-hand position, the Text mode is selected (neither MODE LED is lit); in the center position, the Graphics mode is selected (the left-hand MODE LED is lit); in the right-hand position, the Transparent mode is selected (the right-hand MODE LED is lit). (See **Chapter 2** and **Section 5.2** for descriptions of these modes.)

3.2 Setting Communication Parameters

Use the right-hand DIP switch on the bottom of the High-Speed COS-2 to set the COS-2's communication parameters. As shown in Table 3-1 on page 12, positions 1 through 3 control the data rate; positions 4 and 5 control the data format; and positions 7 and 8 control the graphics-mode pause. (Use position 6 during operation when you want the COS-2 to run its self-test.)

3.3 Choosing the Arming Code

Use the left-hand DIP switch on the bottom of the High-Speed COS-2 to set the COS-2's "arming code" (the character that alerts the COS-2 to an impending switch). As shown in Table 3-2 on pages 13 through 19, each possible setting of the eight DIP switch positions corresponds to a one-byte character value from 00 to FF hex (0 to 255 decimal).

*(**Chapter 4**, **Installation**, begins on page 20)*

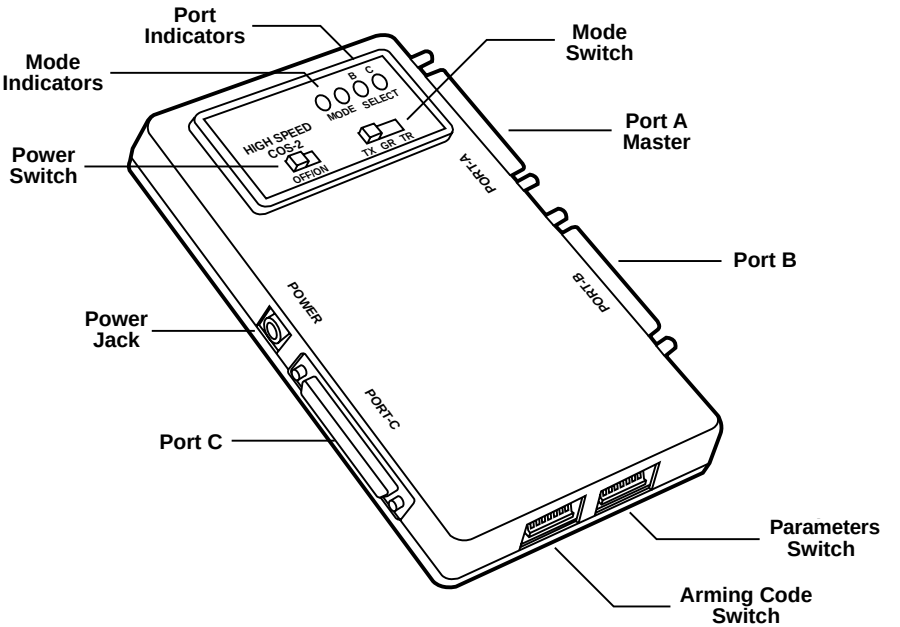

Figure 3-1. Layout of the High Speed COS-2's connectors, controls, and indicators.

Table 3-1. Possible Settings of the Communications DIP Switch*

FUNCTION	DIP SWITCH POSITIONS							
	1	2	3	4	5	6	7	8
Data Rate (bps)								
115,200	OFF	OFF	OFF					
57,600	ON	OFF	OFF					
38,400	OFF	ON	OFF					
19,200†	ON	ON	OFF					
9600	OFF	OFF	ON					
2400	ON	OFF	ON					
1200	OFF	ON	ON					
600	ON	ON	ON					
Data Format								
8 data bits, no parity†				OFF	OFF			
8 data bits, no parity				ON	OFF			
7 data bits, odd parity				OFF	ON			
7 data bits, even parity				ON	ON			
Operating Mode								
Normal†						OFF		
Self-Test						ON		
Pause for Graphics Mode								
1 millisecond†							OFF	OFF
10 milliseconds							ON	OFF
100 milliseconds							OFF	ON
500 milliseconds							ON	ON

*A switch position is ON when it is down (closer to the number that identifies it).

†Default setting.

Table 3-2. Possible Settings of the Arming-Code DIP Switch*

ARMING CODE			DIP SWITCH POSITIONS							
HEX	ASCII	NAME	1	2	3	4	5	6	7	8
00	CTRL-@	NUL	OFF	OFF	OFF	OFF	OFF	OFF	OFF	OFF
01	CTRL-A	SOH	ON	OFF	OFF	OFF	OFF	OFF	OFF	OFF
02	CTRL-B	STX	OFF	ON	OFF	OFF	OFF	OFF	OFF	OFF
03	CTRL-C	ETX	ON	ON	OFF	OFF	OFF	OFF	OFF	OFF
04†	CTRL-D	EOT	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF
05	CTRL-E	ENQ	ON	OFF	ON	OFF	OFF	OFF	OFF	OFF
06	CTRL-F	ACK	OFF	ON	ON	OFF	OFF	OFF	OFF	OFF
07	CTRL-G	BEL	ON	ON	ON	OFF	OFF	OFF	OFF	OFF
08	CTRL-H	BS	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF
09	CTRL-I	HT	ON	OFF	OFF	ON	OFF	OFF	OFF	OFF
0A	CTRL-J	LF	OFF	ON	OFF	ON	OFF	OFF	OFF	OFF
0B	CTRL-K	VT	ON	ON	OFF	ON	OFF	OFF	OFF	OFF
0C	CTRL-L	FF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF
0D	CTRL-M	CR	ON	OFF	ON	ON	OFF	OFF	OFF	OFF
0E	CTRL-N	SO	OFF	ON	ON	ON	OFF	OFF	OFF	OFF
0F	CTRL-O	SI	ON	ON	ON	ON	OFF	OFF	OFF	OFF
10	CTRL-P	DLE	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF
11	CTRL-Q	DC1	ON	OFF	OFF	OFF	ON	OFF	OFF	OFF
12	CTRL-R	DC2	OFF	ON	OFF	OFF	ON	OFF	OFF	OFF
13	CTRL-S	DC3	ON	ON	OFF	OFF	ON	OFF	OFF	OFF
14	CTRL-T	DC4	OFF	OFF	ON	OFF	ON	OFF	OFF	OFF
15	CTRL-U	NAK	ON	OFF	ON	OFF	ON	OFF	OFF	OFF
16	CTRL-V	SYN	OFF	ON	ON	OFF	ON	OFF	OFF	OFF
17	CTRL-W	ETB	ON	ON	ON	OFF	ON	OFF	OFF	OFF
18	CTRL-X	CAN	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF
19	CTRL-Y	EM	ON	OFF	OFF	ON	ON	OFF	OFF	OFF
1A	CTRL-Z	SUB	OFF	ON	OFF	ON	ON	OFF	OFF	OFF
1B	CTRL-[	ESC	ON	ON	OFF	ON	ON	OFF	OFF	OFF
1C	CTRL-\	FS	OFF	OFF	ON	ON	ON	OFF	OFF	OFF
1D	CTRL-]	GS	ON	OFF	ON	ON	ON	OFF	OFF	OFF
1E	CTRL-^	RS	OFF	ON	ON	ON	ON	OFF	OFF	OFF
1F	CTRL-_	US	ON	ON	ON	ON	ON	OFF	OFF	OFF
20	space	SP	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF

*A switch position is ON when it is down (closer to the number that identifies it).

†Default setting.

ARMING CODE		DIP SWITCH POSITIONS							
HEX	ASCII	1	2	3	4	5	6	7	8
21	!	ON	OFF	OFF	OFF	OFF	ON	OFF	OFF
22	"	OFF	ON	OFF	OFF	OFF	ON	OFF	OFF
23	#	ON	ON	OFF	OFF	OFF	ON	OFF	OFF
24	$	OFF	OFF	ON	OFF	OFF	ON	OFF	OFF
25	%	ON	OFF	ON	OFF	OFF	ON	OFF	OFF
26	&	OFF	ON	ON	OFF	OFF	ON	OFF	OFF
27	'	ON	ON	ON	OFF	OFF	ON	OFF	OFF
28	(	OFF	OFF	OFF	ON	OFF	ON	OFF	OFF
29	)	ON	OFF	OFF	ON	OFF	ON	OFF	OFF
2A	*	OFF	ON	OFF	ON	OFF	ON	OFF	OFF
2B	+	ON	ON	OFF	ON	OFF	ON	OFF	OFF
2C	,	OFF	OFF	ON	ON	OFF	ON	OFF	OFF
2D	-	ON	OFF	ON	ON	OFF	ON	OFF	OFF
2E	.	OFF	ON	ON	ON	OFF	ON	OFF	OFF
2F	/	ON	ON	ON	ON	OFF	ON	OFF	OFF
30	0	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF
31	1	ON	OFF	OFF	OFF	ON	ON	OFF	OFF
32	2	OFF	ON	OFF	OFF	ON	ON	OFF	OFF
33	3	ON	ON	OFF	OFF	ON	ON	OFF	OFF
34	4	OFF	OFF	ON	OFF	ON	ON	OFF	OFF
35	5	ON	OFF	ON	OFF	ON	ON	OFF	OFF
36	6	OFF	ON	ON	OFF	ON	ON	OFF	OFF
37	7	ON	ON	ON	OFF	ON	ON	OFF	OFF
38	8	OFF	OFF	OFF	ON	ON	ON	OFF	OFF
39	9	ON	OFF	OFF	ON	ON	ON	OFF	OFF
3A	:	OFF	ON	OFF	ON	ON	ON	OFF	OFF
3B	;	ON	ON	OFF	ON	ON	ON	OFF	OFF
3C	<	OFF	OFF	ON	ON	ON	ON	OFF	OFF
3D	=	ON	OFF	ON	ON	ON	ON	OFF	OFF
3E	>	OFF	ON	ON	ON	ON	ON	OFF	OFF
3F	?	ON	ON	ON	ON	ON	ON	OFF	OFF
40	@	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF
41	A	ON	OFF	OFF	OFF	OFF	OFF	ON	OFF
42	B	OFF	ON	OFF	OFF	OFF	OFF	ON	OFF
43	C	ON	ON	OFF	OFF	OFF	OFF	ON	OFF
44	D	OFF	OFF	ON	OFF	OFF	OFF	ON	OFF
45	E	ON	OFF	ON	OFF	OFF	OFF	ON	OFF
46	F	OFF	ON	ON	OFF	OFF	OFF	ON	OFF
47	G	ON	ON	ON	OFF	OFF	OFF	ON	OFF

ARMING CODE		DIP SWITCH POSITIONS							
HEX	ASCII	1	2	3	4	5	6	7	8
48	H	OFF	OFF	OFF	ON	OFF	OFF	ON	OFF
49	I	ON	OFF	OFF	ON	OFF	OFF	ON	OFF
4A	J	OFF	ON	OFF	ON	OFF	OFF	ON	OFF
4B	K	ON	ON	OFF	ON	OFF	OFF	ON	OFF
4C	L	OFF	OFF	ON	ON	OFF	OFF	ON	OFF
4D	M	ON	OFF	ON	ON	OFF	OFF	ON	OFF
4E	N	OFF	ON	ON	ON	OFF	OFF	ON	OFF
4F	O	ON	ON	ON	ON	OFF	OFF	ON	OFF
50	P	OFF	OFF	OFF	OFF	ON	OFF	ON	OFF
51	Q	ON	OFF	OFF	OFF	ON	OFF	ON	OFF
52	R	OFF	ON	OFF	OFF	ON	OFF	ON	OFF
53	S	ON	ON	OFF	OFF	ON	OFF	ON	OFF
54	T	OFF	OFF	ON	OFF	ON	OFF	ON	OFF
55	U	ON	OFF	ON	OFF	ON	OFF	ON	OFF
56	V	OFF	ON	ON	OFF	ON	OFF	ON	OFF
57	W	ON	ON	ON	OFF	ON	OFF	ON	OFF
58	X	OFF	OFF	OFF	ON	ON	OFF	ON	OFF
59	Y	ON	OFF	OFF	ON	ON	OFF	ON	OFF
5A	Z	OFF	ON	OFF	ON	ON	OFF	ON	OFF
5B	[	ON	ON	OFF	ON	ON	OFF	ON	OFF
5C	\	OFF	OFF	ON	ON	ON	OFF	ON	OFF
5D	]	ON	OFF	ON	ON	ON	OFF	ON	OFF
5E	^	OFF	ON	ON	ON	ON	OFF	ON	OFF
5F	_	ON	ON	ON	ON	ON	OFF	ON	OFF
60	`	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF
61	a	ON	OFF	OFF	OFF	OFF	ON	ON	OFF
62	b	OFF	ON	OFF	OFF	OFF	ON	ON	OFF
63	c	ON	ON	OFF	OFF	OFF	ON	ON	OFF
64	d	OFF	OFF	ON	OFF	OFF	ON	ON	OFF
65	e	ON	OFF	ON	OFF	OFF	ON	ON	OFF
66	f	OFF	ON	ON	OFF	OFF	ON	ON	OFF
67	g	ON	ON	ON	OFF	OFF	ON	ON	OFF
68	h	OFF	OFF	OFF	ON	OFF	ON	ON	OFF
69	i	ON	OFF	OFF	ON	OFF	ON	ON	OFF
6A	j	OFF	ON	OFF	ON	OFF	ON	ON	OFF
6B	k	ON	ON	OFF	ON	OFF	ON	ON	OFF
6C	l	OFF	OFF	ON	ON	OFF	ON	ON	OFF
6D	m	ON	OFF	ON	ON	OFF	ON	ON	OFF
6E	n	OFF	ON	ON	ON	OFF	ON	ON	OFF

ARMING CODE		DIP SWITCH POSITIONS							
HEX	ASCII	1	2	3	4	5	6	7	8
6F	o	ON	ON	ON	ON	OFF	ON	ON	OFF
70	p	OFF	OFF	OFF	OFF	ON	ON	ON	OFF
71	q	ON	OFF	OFF	OFF	ON	ON	ON	OFF
72	r	OFF	ON	OFF	OFF	ON	ON	ON	OFF
73	s	ON	ON	OFF	OFF	ON	ON	ON	OFF
74	t	OFF	OFF	ON	OFF	ON	ON	ON	OFF
75	u	ON	OFF	ON	OFF	ON	ON	ON	OFF
76	v	OFF	ON	ON	OFF	ON	ON	ON	OFF
77	w	ON	ON	ON	OFF	ON	ON	ON	OFF
78	x	OFF	OFF	OFF	ON	ON	ON	ON	OFF
79	y	ON	OFF	OFF	ON	ON	ON	ON	OFF
7A	z	OFF	ON	OFF	ON	ON	ON	ON	OFF
7B	{	ON	ON	OFF	ON	ON	ON	ON	OFF
7C	l	OFF	OFF	ON	ON	ON	ON	ON	OFF
7D	}	ON	OFF	ON	ON	ON	ON	ON	OFF
7E	~	OFF	ON	ON	ON	ON	ON	ON	OFF
7F	DEL	ON	ON	ON	ON	ON	ON	ON	OFF
80		OFF	OFF	OFF	OFF	OFF	OFF	OFF	ON
81		ON	OFF	OFF	OFF	OFF	OFF	OFF	ON
82		OFF	ON	OFF	OFF	OFF	OFF	OFF	ON
83		ON	ON	OFF	OFF	OFF	OFF	OFF	ON
84		OFF	OFF	ON	OFF	OFF	OFF	OFF	ON
85		ON	OFF	ON	OFF	OFF	OFF	OFF	ON
86		OFF	ON	ON	OFF	OFF	OFF	OFF	ON
87		ON	ON	ON	OFF	OFF	OFF	OFF	ON
88		OFF	OFF	OFF	ON	OFF	OFF	OFF	ON
89		ON	OFF	OFF	ON	OFF	OFF	OFF	ON
8A		OFF	ON	OFF	ON	OFF	OFF	OFF	ON
8B		ON	ON	OFF	ON	OFF	OFF	OFF	ON
8C		OFF	OFF	ON	ON	OFF	OFF	OFF	ON
8D		ON	OFF	ON	ON	OFF	OFF	OFF	ON
8E		OFF	ON	ON	ON	OFF	OFF	OFF	ON
8F		ON	ON	ON	ON	OFF	OFF	OFF	ON
90		OFF	OFF	OFF	OFF	ON	OFF	OFF	ON
91		ON	OFF	OFF	OFF	ON	OFF	OFF	ON
92		OFF	ON	OFF	OFF	ON	OFF	OFF	ON
93		ON	ON	OFF	OFF	ON	OFF	OFF	ON
94		OFF	OFF	ON	OFF	ON	OFF	OFF	ON
95		ON	OFF	ON	OFF	ON	OFF	OFF	ON

ARMING CODE		DIP SWITCH POSITIONS							
HEX	ASCII	1	2	3	4	5	6	7	8
96		OFF	ON	ON	OFF	ON	OFF	OFF	ON
97		ON	ON	ON	OFF	ON	OFF	OFF	ON
98		OFF	OFF	OFF	ON	ON	OFF	OFF	ON
99		ON	OFF	OFF	ON	ON	OFF	OFF	ON
9A		OFF	ON	OFF	ON	ON	OFF	OFF	ON
9B		ON	ON	OFF	ON	ON	OFF	OFF	ON
9C		OFF	OFF	ON	ON	ON	OFF	OFF	ON
9D		ON	OFF	ON	ON	ON	OFF	OFF	ON
9E		OFF	ON	ON	ON	ON	OFF	OFF	ON
9F		ON	ON	ON	ON	ON	OFF	OFF	ON
A0		OFF	OFF	OFF	OFF	OFF	ON	OFF	ON
A1		ON	OFF	OFF	OFF	OFF	ON	OFF	ON
A2		OFF	ON	OFF	OFF	OFF	ON	OFF	ON
A3		ON	ON	OFF	OFF	OFF	ON	OFF	ON
A4		OFF	OFF	ON	OFF	OFF	ON	OFF	ON
A5		ON	OFF	ON	OFF	OFF	ON	OFF	ON
A6		OFF	ON	ON	OFF	OFF	ON	OFF	ON
A7		ON	ON	ON	OFF	OFF	ON	OFF	ON
A8		OFF	OFF	OFF	ON	OFF	ON	OFF	ON
A9		ON	OFF	OFF	ON	OFF	ON	OFF	ON
AA		OFF	ON	OFF	ON	OFF	ON	OFF	ON
AB		ON	ON	OFF	ON	OFF	ON	OFF	ON
AC		OFF	OFF	ON	ON	OFF	ON	OFF	ON
AD		ON	OFF	ON	ON	OFF	ON	OFF	ON
AE		OFF	ON	ON	ON	OFF	ON	OFF	ON
AF		ON	ON	ON	ON	OFF	ON	OFF	ON
B0		OFF	OFF	OFF	OFF	ON	ON	OFF	ON
B1		ON	OFF	OFF	OFF	ON	ON	OFF	ON
B2		OFF	ON	OFF	OFF	ON	ON	OFF	ON
B3		ON	ON	OFF	OFF	ON	ON	OFF	ON
B4		OFF	OFF	ON	OFF	ON	ON	OFF	ON
B5		ON	OFF	ON	OFF	ON	ON	OFF	ON
B6		OFF	ON	ON	OFF	ON	ON	OFF	ON
B7		ON	ON	ON	OFF	ON	ON	OFF	ON
B8		OFF	OFF	OFF	ON	ON	ON	OFF	ON
B9		ON	OFF	OFF	ON	ON	ON	OFF	ON
BA		OFF	ON	OFF	ON	ON	ON	OFF	ON
BB		ON	ON	OFF	ON	ON	ON	OFF	ON
BC		OFF	OFF	ON	ON	ON	ON	OFF	ON

ARMING CODE		DIP SWITCH POSITIONS							
HEX	ASCII	1	2	3	4	5	6	7	8
BD		ON	OFF	ON	ON	ON	ON	OFF	ON
BE		OFF	ON	ON	ON	ON	ON	OFF	ON
BF		ON	ON	ON	ON	ON	ON	OFF	ON
C0		OFF	OFF	OFF	OFF	OFF	OFF	ON	ON
C1		ON	OFF	OFF	OFF	OFF	OFF	ON	ON
C2		OFF	ON	OFF	OFF	OFF	OFF	ON	ON
C3		ON	ON	OFF	OFF	OFF	OFF	ON	ON
C4		OFF	OFF	ON	OFF	OFF	OFF	ON	ON
C5		ON	OFF	ON	OFF	OFF	OFF	ON	ON
C6		OFF	ON	ON	OFF	OFF	OFF	ON	ON
C7		ON	ON	ON	OFF	OFF	OFF	ON	ON
C8		OFF	OFF	OFF	ON	OFF	OFF	ON	ON
C9		ON	OFF	OFF	ON	OFF	OFF	ON	ON
CA		OFF	ON	OFF	ON	OFF	OFF	ON	ON
CB		ON	ON	OFF	ON	OFF	OFF	ON	ON
CC		OFF	OFF	ON	ON	OFF	OFF	ON	ON
CD		ON	OFF	ON	ON	OFF	OFF	ON	ON
CE		OFF	ON	ON	ON	OFF	OFF	ON	ON
CF		ON	ON	ON	ON	OFF	OFF	ON	ON
D0		OFF	OFF	OFF	OFF	ON	OFF	ON	ON
D1		ON	OFF	OFF	OFF	ON	OFF	ON	ON
D2		OFF	ON	OFF	OFF	ON	OFF	ON	ON
D3		ON	ON	OFF	OFF	ON	OFF	ON	ON
D4		OFF	OFF	ON	OFF	ON	OFF	ON	ON
D5		ON	OFF	ON	OFF	ON	OFF	ON	ON
D6		OFF	ON	ON	OFF	ON	OFF	ON	ON
D7		ON	ON	ON	OFF	ON	OFF	ON	ON
D8		OFF	OFF	OFF	ON	ON	OFF	ON	ON
D9		ON	OFF	OFF	ON	ON	OFF	ON	ON
DA		OFF	ON	OFF	ON	ON	OFF	ON	ON
DB		ON	ON	OFF	ON	ON	OFF	ON	ON
DC		OFF	OFF	ON	ON	ON	OFF	ON	ON
DD		ON	OFF	ON	ON	ON	OFF	ON	ON
DE		OFF	ON	ON	ON	ON	OFF	ON	ON
DF		ON	ON	ON	ON	ON	OFF	ON	ON
E0		OFF	OFF	OFF	OFF	OFF	ON	ON	ON
E1		ON	OFF	OFF	OFF	OFF	ON	ON	ON
E2		OFF	ON	OFF	OFF	OFF	ON	ON	ON
E3		ON	ON	OFF	OFF	OFF	ON	ON	ON

ARMING CODE		DIP SWITCH POSITIONS							
HEX	**ASCII**	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**
E4		OFF	OFF	ON	OFF	OFF	ON	ON	ON
E5		ON	OFF	ON	OFF	OFF	ON	ON	ON
E6		OFF	ON	ON	OFF	OFF	ON	ON	ON
E7		ON	ON	ON	OFF	OFF	ON	ON	ON
E8		OFF	OFF	OFF	ON	OFF	ON	ON	ON
E9		ON	OFF	OFF	ON	OFF	ON	ON	ON
EA		OFF	ON	OFF	ON	OFF	ON	ON	ON
EB		ON	ON	OFF	ON	OFF	ON	ON	ON
EC		OFF	OFF	ON	ON	OFF	ON	ON	ON
ED		ON	OFF	ON	ON	OFF	ON	ON	ON
EE		OFF	ON	ON	ON	OFF	ON	ON	ON
EF		ON	ON	ON	ON	OFF	ON	ON	ON
F0		OFF	OFF	OFF	OFF	ON	ON	ON	ON
F1		ON	OFF	OFF	OFF	ON	ON	ON	ON
F2		OFF	ON	OFF	OFF	ON	ON	ON	ON
F3		ON	ON	OFF	OFF	ON	ON	ON	ON
F4		OFF	OFF	ON	OFF	ON	ON	ON	ON
F5		ON	OFF	ON	OFF	ON	ON	ON	ON
F6		OFF	ON	ON	OFF	ON	ON	ON	ON
F7		ON	ON	ON	OFF	ON	ON	ON	ON
F8		OFF	OFF	OFF	ON	ON	ON	ON	ON
F9		ON	OFF	OFF	ON	ON	ON	ON	ON
FA		OFF	ON	OFF	ON	ON	ON	ON	ON
FB		ON	ON	OFF	ON	ON	ON	ON	ON
FC		OFF	OFF	ON	ON	ON	ON	ON	ON
FD		ON	OFF	ON	ON	ON	ON	ON	ON
FE		OFF	ON	ON	ON	ON	ON	ON	ON
FF		ON	ON	ON	ON	ON	ON	ON	ON

4. Installation

4.1 Placement and Mounting

Place the High Speed COS-2 in a cool, dry place close to an electrical outlet. It should be within 50 ft. (15.2 m) of the devices you want to connect to it.

Your package also includes a special "hook-and-loop fastener" fabric strip that allows you to mount the COS-2 in a convenient place, such as on a PC (see Figure 4-1 below). To mount the COS-2, remove the white backing of this strip, then attach the side with the "hooked" material to the COS-2 and the side with the felt material to any smooth, flat surface. When the two materials touch, they will stick together, holding the switch in place. The materials can later be pulled apart.

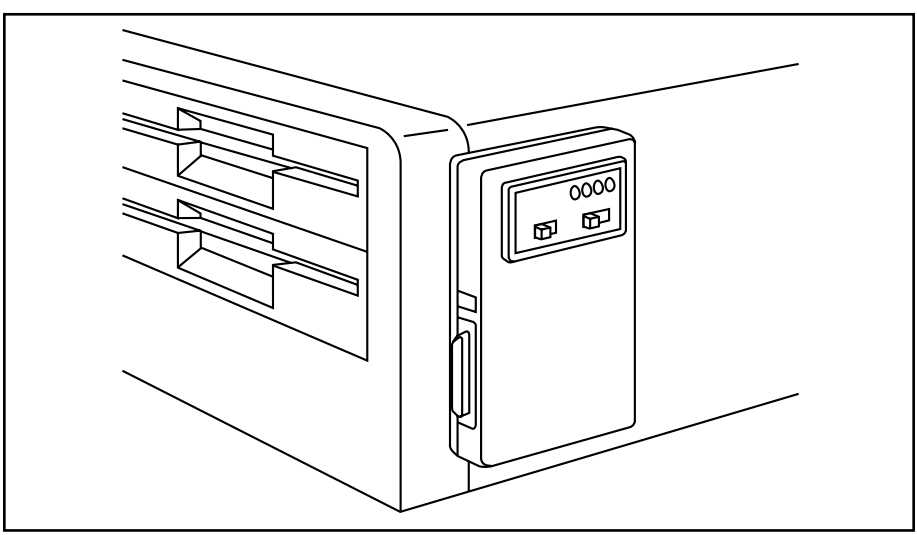

Figure 4-1. Mounting the High Speed COS-2 on a PC.

4.2 Cabling

This section describes the cables and procedures you'll use to connect equipment to the High Speed COS-2. Refer to Figure 4-2 on the next page for an illustration of a typical application.

4.2.1 Computer(s)↔COS-2

For each computer you want to connect to the High Speed COS-2, you'll need a cable containing at least 5 wires with a DB25 male connector on the COS-2 end. If a computer is an IBM® AT® or PS/2® or compatible, the cable should have a DB9 female connector on the computer end. If a computer is an IBM PC/XT™ or compatible, the cable should have a DB25 female connector on the computer end. The cable(s) should be wired as shown in Tables 4-1 and 4-2 on the next page. (Our product codes for cables pinned this way are EVMBMC for the DB9 type and ECM12C for the DB25 type.)

Connect the female end of each of these cables to the serial port (COM1, COM2, etc.) on the selected computer. If the selected computer is the "source" or "master" (the one that's doing the switching), connect the male end of the cable to the COS-2's port "A." If the computer is a "destination" or "slave" (one that's being switched), connect the male end of the cable to the COS-2's port "B" or "C."

4.2.2 COS-2 to Serial Printer(s)

For each serial printer you want to connect to the High Speed COS-2, you'll need a cable containing at least 5 wires with DB25 male connectors on each end. The cable(s) should be wired as shown in Table 4-2 on the next page. (Our product code for a cable pinned this way is ECM12C.)

Connect one end of each of these cables to the input port on the selected printer. Connect the other end to the COS-2's port "B" or "C."

Table 4-1. Pinning, AT Computer to COS-2*

Computer DB9			COS DB25	
RD	2	----------	3	TD
TD	3	----------	2	RD
DTR†	4	----------	20	DTR†
SGND	5	----------	7	SGND
CTS†	8	----------	5	CTS†

Table 4-2. Pinning, PC/XT Computer or Serial Printer to COS-2‡

Computer DB25			COS-2 DB25	
PGND	1	----------	1	PGND
TD	2	----------	2	RD
RD	3	----------	3	TD
RTS	4	----------	4	RTS
CTS†	5	----------	5	CTS†
DSR	6	----------	6	DSR
SGND	7	----------	7	SGND
RLSD [DCD]	8	----------	8	RLSD [DCD]
DTR†	20	----------	20	DTR†

*Our EVNBMC cable is pinned this way. It also carries the other pins supported by the AT serial interface, but the High Speed COS-2 doesn't support any of the other pins except Pin 1, PGND, which is not required, and the pins for DSR and RLSD (DCD), which the COS-2 ties high.

†The COS-2 takes DTR as input from any attached device and passes it through to the device on the other side as CTS output.

‡Our ECM12C cable is pinnned this way. It also carries Pin 1, PGND (which the High Speed COS-2 supports but doesn't require), Pins 6 and 8, DSR and RLSD (DCD) respectively (which the COS-2 ties high), and Pins 4 and 22, RTS and RI respectively (which the COS-2 doesn't support at all).

4.2.3 Modem(s)↔COS-2

We do not recommend attaching modems to the High Speed COS-2, because the COS-2 doesn't support Pins 4 (RTS) and 22 (RI), and ties Pins 6 (DSR) and 8 (RLSD [DCD]) high. When other involved devices (especially PCs running terminal-emulation software) see no signal or only a constant high signal level on these pins (especially Pins 8 and 22), most applications involving modems will not function correctly.

However, if the device(s) on the other side of the COS-2 don't need to see any of these non-supported or tied-high pins, you can attach one or more modems to the COS-2, using cables containing at least 5 wires with DB25 male connectors on each end. The cable(s) should be specially "cross-pinned" as shown in Table 4-3 below. (Our product code for a cable pinned this way is EYN254C.)

Connect one end of each of these cables to the input port on the selected modem. If the selected modem is the "source" or "master" (the one that's doing the switching), connect the other end of the cable to the COS-2's port "A." If the modem is a "destination" or "slave" (one that's being switched between), connect the other end of the cable to the COS-2's port "B" or "C."

Some other DCEs—including some multiplexors, line drivers, and short-haul modems—can function with only Pins 2, 3, 5, 7, and 20. You can attach them to the COS-2 as described in the previous two paragraphs.

Table 4-3. Pinning, Modem to COS-2*.

Modem DB25			COS-2 DB25	
RD	2	----------	3	TD
TD	3	----------	2	RD
CTS†	5	----------	20	DTR†
SGND	7	----------	7	SGND
DTR†	20	----------	5	CTS†

*Our EYN254C cable is pinned this way. It also carries Pin 1, PGND, which the High Speed COS-2 supports but doesn't require, as well as Pins 6 and 8 (DSR and RLSD [DCD] respectively, tied into the CTS↔DTR lines), which the COS-2 keeps tied high.

†The COS-2 takes DTR as input from any attached device and passes it through to the device on the other side as CTS output.

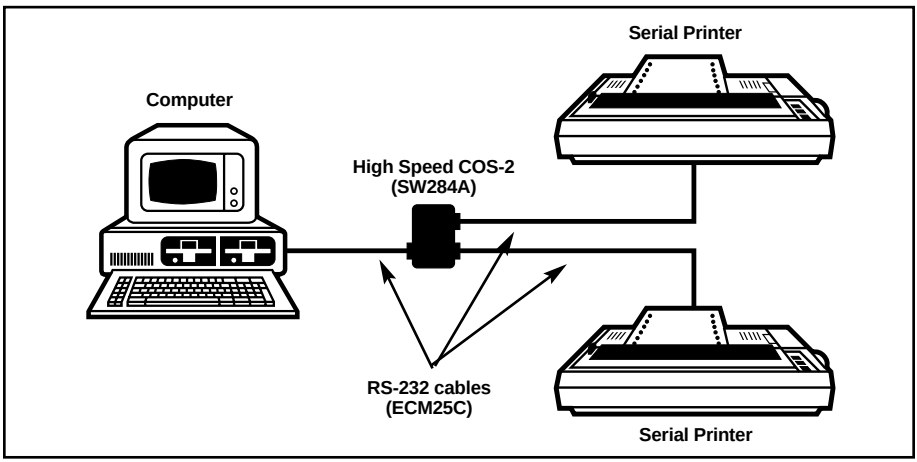

Figure 4-1. A computer switching between two serial printers with the High Speed COS-2.

4.3 Power Connection

NOTE

The input voltage and frequency requirements of the included power-supply adapter (identified on the transformer's label) probably match the voltage and frequency output by your local electric utility, but check just to make sure.

Lastly, plug the output cord of the High Speed COS-2's power-supply adapter into the power socket (barrel jack) on the COS-2, then plug the adapter into a working outlet.

5. Operation

5.1 Power-Up

Turn on power to the High Speed COS-2 using the OFF/ON slide switch on its front panel (see Figure 3-1 on page 11). If position 6 of the COS-2's right-hand DIP switch is set to OFF (down), the COS-2 will be ready to operate normally. If position 6 is set to ON (up), the COS-2 will begin performing its self-test (see **Section 5.3**).

5.2 Switching

At any time, you can switch between your two "slave" or "destination" devices by sending the currently active arming code (see **Section 3.3**) followed by the character correpsonding to the letter of the desired port (either "B" or "C").

The High Speed COS-2 has three switching modes: Text, Graphics, and Transparent. While the COS-2's front-panel "Mode" switch is in the Text (left-hand) position, the COS-2 operates in Text mode: The arming code and port character are recognized without a preceding pause. In Text mode, both of the COS-2's MODE LEDs are dark.

If you are using Text mode and you find that unwanted switching is occurring, move the High Speed COS-2's front-panel "Mode" switch to the Graphics (center) position. In Graphics mode, a pause must occur before the arming code is recognized, so incidental occurrences of the arming code and the port character among data do not cause the COS-2 to switch as readily. While the COS-2 is in Graphics mode, its left-hand MODE LED is lit.

If unwanted switching continues to occur, try lengthening the graphics-mode pause. (This is the period of time that must elapse *after* the COS-2 stops receiving data in Graphics mode *before* it will recognize the arming code if it receives it.) Lengthen the pause by setting positions 7 and 8 of the COS-2's right-hand DIP switch differently (see Table 3-1 on page 12).

If you need to temporarily disable switching for some reason (for example, if you know there will be delays longer than 500 milliseconds during the transmission of a graphics file), you can move the COS-2's Mode switch to the Transparent (right-hand) position. While the COS-2 is in Transparent mode, the arming code is ignored and the right-hand MODE LED is lit.

5.3 The Self-Test

To have the High Speed COS-2 perform a quick self-test, turn it off and set position 6 of its right-hand DIP switch to ON (up). Connect port "B" to a terminal or other RS-232 device whose data rate and data format match those selected on the COS-2. Turn the COS-2 back on: SELECT LEDs "B" and "C" will flash back and forth ten times. (In the unlikely event that they do not flash back and forth, you might have a problem with your unit. If the LEDs consistently fail to flash when you turn the unit ON, contact your supplier for technical support.) The COS-2 will begin continuously outputting a "barber pole" pattern of ASCII characters to the RS-232 device connected to port "B." To return to normal operation, turn the COS-2 off again, disconnect the RS-232 device from port "B" and reconnect the original equipment, set position 6 of the COS-2's right-hand DIP switch to OFF (down), and turn the COS-2 back on again.

6. Troubleshooting

6.1 First Steps

If the High Speed COS-2 does not seem to be passing data or switching correctly, the first thing to try is to have the COS-2 perform its self-test as described in **Section 5.3**. If the LEDs fail to light, contact your supplier. If the COS-2 passes its self-test, check the settings of its DIP switches and make sure these are correct. If they are, check the cables connected to the COS-2 and make sure all of them are securely connected to the proper equipment at both ends. If the cabling is OK, turn the printer(s) off and back on and try again. If problems persist, reboot the computer(s) (saving any documents in progress first), reload the software you were using and the affected document(s), and try again. If you still have problems, contact your supplier.

6.2 Calling Your Supplier

If you determine that your High Speed COS-2 is malfunctioning, *do not attempt to alter or repair it.* Contact your supplier. The problem might be solvable over the phone.

Before you do, make a record of the history of the problem. Your supplier will be able to provide more efficient and accurate assistance if you have a complete description, including:

- The nature and duration of the problem.
- When the problem occurs.
- The components involved in the problem.
- Any particular application that, when used, appears to create the problem or make it worse.

6.3 Shipping and Packaging

If you need to transport or ship your High Speed COS-2:

- Package it carefully. We recommend that you use the original container.
- Before you ship a unit for repair or return, contact your supplier to get a Return Materials Authorization (RMA) number, and make sure you include everything you received with the unit when you ship it.

NOTES

NOTES

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The Source for Connectivity®

MAY 1996
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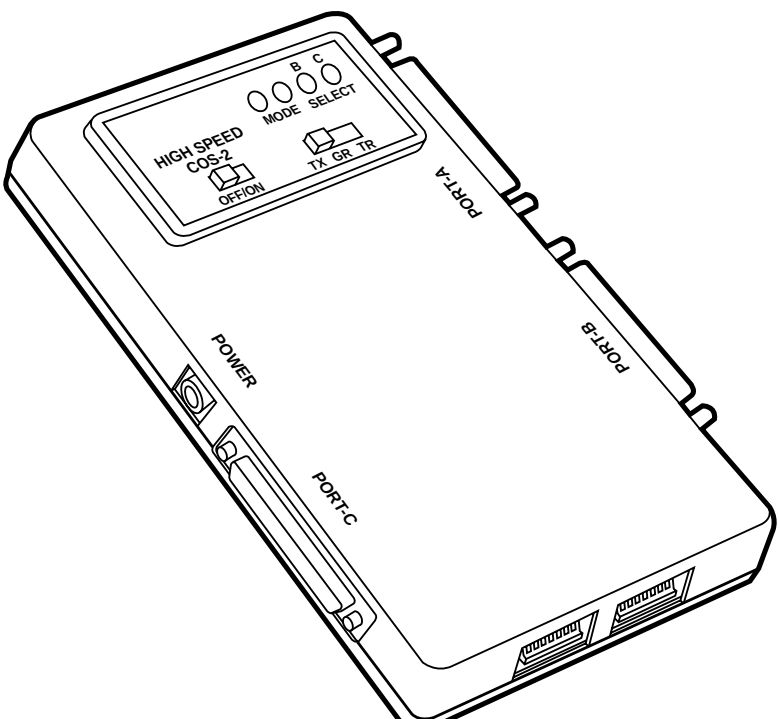
SW284AE

High Speed COS-2



CUSTOMER SUPPORT INFORMATION

Call our Technical Support Specialists to discuss your application.
For 24-hour technical support: Call **(412) 746-5500** or fax **1-800-321-0746**
To order: Call **(412) 746-5500**, 8:00 A.M. to 8:00 P.M. EST
Mail order: **Black Box Corporation**, P.O. Box 12800, Pittsburgh, PA 15241