

EIA-CITT MODEM (DCE) – TERMINAL (DTE) - INTERFACE

PIN	NAME	DTE DCE	FUNCTION	CCITT	CIRCUIT (EIA)
1	FG		FRAME GROUND	101	(AA)
2	TD	→	TRANSMITTED DATA	103	(BA)
3	RD	←	RECEIVED DATA	104	(BB)
4	RTS	→	REQUEST TO SEND	105	(CA)
5	CTS	←	CLEAR TO SEND	106	(CB)
6	DSR	←	DATA SET READY	107	(CC)
7	SG		SIGNAL GROUND	102	(AB)
8	DCD	←	DATA CARRIER DETECT	109	(CF)
9		←	POSITIVE DC TEST VOLTAGE		
10		←	NEGATIVE DC TEST VOLTAGE		
11	QM	←	EQUALIZER MODE	BELL 208A	
12	(S)DCD	←	SEC. DATA CARRIER DETECT	122	(SCF)
13	(S)CTS	←	SEC. CLEAR TO SEND	121	(SCB)
14	(S)TD	→	SEC. TRANSMITTED DATA	118	(SBA)
	NC	→	NEW SYNC	BELL 208A	
15	TC	←	TRANSMITTER CLOCK	114	(DB)
16	(S)RD	←	SEC. RECEIVED DATA	119	(SBB)
	DCT	←	DIVIDED CLOCK TRANSMITTER	BELL 208A	
17	RC	←	RECEIVER CLOCK	115	(DD)
18	DCR	←	DIVIDED CLOCK, RECEIVER	BELL 208A	
19	(S)RTS	→	SEC. REQUEST TO SEND	120	(SCA)
20	DTR	→	DATA TERMINAL READY	108.2	(CD)
21	SQ	←	SIGNAL QUALITY DETECT	110	(CG)
22	RI	←	RING INDICATOR	125	(CE)
23		→	DATA RATE SELECTOR	111	(CI)
		←	DATA RATE SELECTOR	112	
24	(TC)	→	EXT. TRANSMITTER CLOCK	113	(DA)
25		→	BUSY		

POSITIVE VOLTAGE EQUALS A BINARY “ZERO” OR SIGNAL “SPACE” OR A CONTROL SIGNAL “ON”

NEGATIVE VOLTAGE EQUALS A BINARY “ONE” OR SIGNAL “MARK” OR A CONTROL SIGNAL “OFF”

GRAY ON THIS TABLE INDICATES “NOT USED”



RelComm, Inc

11 2009 COS 4/8/16

S-COS/4, S-COS/8 SERIAL CODE OPERATED SWITCH

SWITCH-SELECTABLE WORD
STRUCTURE AND DATA RATES

TERMINAL PORTS CONTROLLED
BY LOCK AND UNLOCK CODES

RS232-C AND/OR RS422
(FACTORY SPECIFIED)

4868 Hwy. 4, Suite G, P.O. Box 640, Angels Camp, CA 95222
(209) 736-0421 www.relcomm.com Fax (209) 736-0425



WARNINGS



Be certain that the power is disconnected from the Code Activated Switch (S-COS/4, S-COS/8) when you are working within the unit. High voltages that can cause electrical shock are present on the power supply when power is applied.

This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with this Instruction Manual, may cause interference to radio communications. It has been tested and found to comply with the limits for a

Class A computing device pursuant to Subpart J of Part 15 of FCC Rules, which are designed to provide reasonable protection against such interference when 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 required to correct the interference.

LIMITED WARRANTY

RelComm, Inc., hereafter referred to as RCI warrants this Product to be in good working order for a period of One (1) Year from the date of purchase from RCI or an authorized RCI dealer. NO WARRANTIES, WHETHER EXPRESS OR IMPLIED, WILL APPLY AFTER THIS PERIOD.

Should this Product fail to be good working order at any time during this warranty period, RCI will, at its option, repair or replace this product at no additional charge except as set forth below. Repair parts and replacement Products will be furnished on an exchange basis and will be either reconditioned or new. This limited warranty does not include service to repair damage to the Product resulting from accident, disaster, misuse, abuse, or non- RCI modification of the Product.

Limited Warranty service may be obtained by delivering the Product during the warranty period to RCI and providing proof of purchase date. If this Product is delivered by mail, you agree to insure the Product or assume the risk of loss or damage in transit, to prepay shipping charges to the warranty service location and to use the original shipping container or equivalent. For further information, contact Service, P.O. Box 640, Angels Camp, California 95222, (209) 736-0421, www.relcomm.com.

SOME STATES DO NOT ALLOW LIMITATIONS ON HOW LONG AN IMPLIED WARRANTY LASTS, SO THE ABOVE LIMITATIONS MAY NOT APPLY TO YOU.

IF THIS PRODUCT IS NOT IN GOOD WORKING ORDER AS WARRANTED ABOVE, YOUR SOLE REMEDY SHALL BE REPAIR OR REPLACEMENT AS PROVIDED ABOVE. IN NO EVENT WILL RCI BE LIABLE TO YOU FOR ANY DAMAGES, INCLUDING ANY LOST SAVINGS OR OTHER INCIDENTAL OR CONSEQUENTIAL DAMAGES ARISING OUT OF THE USE OF OR INABILITY TO USE SUCH PRODUCT, EVEN IF RELCOMM OR AN AUTHORIZED DEALER HAS BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES, OR ANY CLAIM BY ANY OTHER PARTY.

SOME STATES DO NOT ALLOW THE EXCLUSION OR LIMITATION OF INCIDENTAL OR CONSEQUENTIAL DAMAGES FOR CONSUMER PRODUCTS, SO THE ABOVE LIMITATIONS OR EXCLUSIONS MAY NOT APPLY TO YOU.

THIS WARRANTY GIVES YOU SPECIFIC LEGAL RIGHTS, AND YOU MAY ALSO HAVE OTHER RIGHTS WHICH MAY VARY FROM STATE TO STATE.

3.7 TROUBLESHOOTING

If the COS appears to switch on its own, it is most likely receiving an arming character in the data stream. If the switching control should only come from the master port or only come from the slave or subordinate port, disable the port which is not being used for switching (SW6 Position, 1 thru 4) or try running graphics mode. See paragraph 2.2.2

If occasional bit loss occurs, try running 2 stop bits on the computer equipment (with the COS unit set to receive 1 stop bit).

If data does not pass and the COS will not switch, check the cables and the SWA, SWB switches.

3.8 BASIC TEST PROGRAM FOR THE COS

```
10 REM*****CODE ACTIVATED SWITCH TEST*****
20 OPEN "COM1: 9600,N,8,1,CS,DS" AS1      :REM** SET UP COM 1 PC PORT**
30 P=48                                   :REM**SET PORT # TO 1
                                           (DECIMAL 48)**
40 PRINT #1, CHR$(4);                     :REM**SEND ARMING CHAR**
50 PRINT #1, CHR$(P);                     :REM**SEND PORT # OUT COM 1 **
60 T=P-48                                  :REM**CONVERT DEC. TO ACTUAL
                                           PORT # **
70 PRINT #1, "THIS IS A TEST OF PORT#"T    :REM**SENDS MESSAGE OUT COM 1**
80 FOR I=I TO 250                          :REM**DELAY **
90 NEXT I                                  :REM**LOOP**
100 P=P+1                                   :REM**INCREMENT PORT # **
110 IF P=52 THEN GOTO 30 ELSE GOTO 40      :REM**LOOP BACK FOR NEXT PORT**
```

NOTE

REM statements are optional. Semi-colons are required at the end of lines 40 and 50 to inhibit CR.

Connect the PC to the master port and run this program using either Basica or GW Basic.

SECTION 1 INTRODUCTION

1.1 GENERAL

The Code Operated Switch (COS) is an asynchronous RS-232C and/or RS-422 switch. The COS can be configured RS232 on all ports, RS422 on all ports, or a combination of RS232 and RS422. These units are configured at the factory as requested at the time an order is placed, and it is recommended that the user examine the original purchasing documents to verify the configuration of the unit received.

1.2 OPERATION

Under code control, the master port can select subordinate ports. The master device (CPU/Terminal) selects any of the other ports (Printers/modems/terminals) by transmitting the proper arming and switching code. A communications link to the master port can also be made by any of the subordinate devices by transmitting its own channel address code while the switch is in the Switch Time mode. Once the communications link is established, all other ports are locked out. The ports remain locked out until either the master port or the selected subordinate port sends an arming character. Reception of the arming character causes the COS to break all switched connections between the master and subordinate port and puts the unit back in Switch Time mode. The next character received by the COS is the "channel select character." (See section 3.2)

All ports have DB25S (female) connectors. Configuration switches on all ports allow configuration to a DTE or DCE port. The device also has switches to select baud rate and word format (parity, character length, and number of stop bits).

Figure 1-1 shows a network involving various peripherals. The computer selects which device it wishes to communicate with by transmitting the proper arming and switching code (0 through 3 for COS/4, 0 through 7 for COS/8). If desired, the connection can be made from a terminal (if these devices know the proper codes).

A 16 port device is also available, contact your sales source.

The COS/4 and COS/8 will also work in applications where the arming character can appear in the data stream (such as graphics, and error checking). When in graphics mode, an idle time (switch selectable) after the data stream is required before the arming character is valid. If an arming character is in the data stream, it will pass without causing the COS to switch.

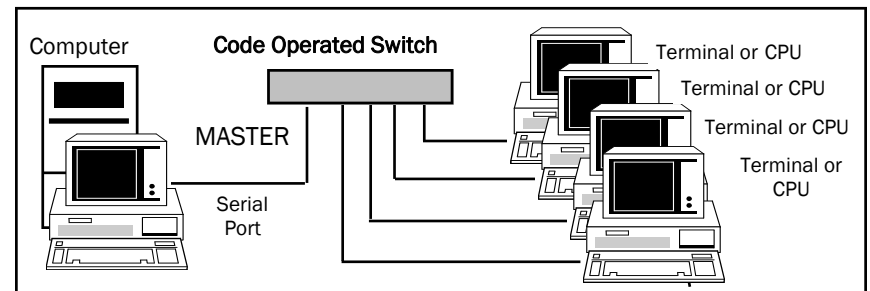


Figure 1-1 Typical Application

1.2 SPECIFICATIONS

Power: 115/230VAC (Switch Selectable), 60Hz, 11 watts
Size: 12.25" x 11.75" x 2.5"
Weight: 5.5 Pounds
Enclosure: Aluminum rack mount, plastic standalone
Interface: RS232/V.24, Full duplex, Asynchronous and/or
RS422/V.11, Full Duplex, Asynchronous

RS232 Circuits Supported

Pin No.	Name	Description
1	FG	Chassis Ground, wired straight through
2	TD	DTE/DCE switched for each channel
3	RD	DTE/DCE switched selectable for each channel
4	RTS	Switch selected to be pulled up or tied to pin 5
5	CTS	Switch selected to be pulled up or tied to pin 4
6	DSR	DTE/DCE switched for each channel
7	SG	Signal return, wired straight through
8	DCD	Received line signal detector, switch selected to be pulled up or not to be pulled up
20	DTR	DTE/DCE switch selectable for each channel

Pins 2 and 3 (DATA IN and DATA OUT) are switched by the COS

Pin 4 and 8 can be selected for control in or control out

RS422 CIRCUITS SUPPORTED

Pin No.	Description	Pin No.	Description
12	Control in low	18	Data in high
13	Control in high	19	Data in low
14	Control out high	24	Data out high
15	Control out low	25	Data out low

Connectors:

CAS/4 - 5 Female (DB25s), Master port and 4 subordinate ports
CAS/8 - 9 Female (DB25s), Master port and 8 subordinate ports
5 to 8 bit, Asynchronous

3.6 MODES OF OPERATION

The COS can operate in one of three modes. The front panel toggle switch labeled "MODE" is used to select Text, Transparent, or Graphic modes.

3.6.1 TEXT MODE (Up Switch Position)

In this mode, the COS will enter switch-time whenever it receives an arming character. It will select the subordinate channel that is specified by the channel select character. The remaining text will pass through the unit until another arming character is encountered. The arming character and the channel select character will not pass through the unit in this mode. It is the user's responsibility to choose an arming character that will never appear as part of the text.

3.6.2 TRANSPARENT (Middle Switch Position)

In this mode of operation all data, including the arming and channel selection character, will pass through the unit to and from the master and the subordinate ports that were selected before entering this mode. This mode totally disables code control; and, all characters printable and non-printable are passed.

3.6.3 GRAPHICS MODE (Down Switch Position)

The third mode is called graphics mode because it is capable of passing graphics data while still maintaining code control. In this mode, an arming character will only be recognized as an arming character if it is preceded by a pause in data transmission of a minimum length of time.

This required pause length can be user selected (by SW9, positions 1-4). Any arming character not preceded by this pause will be passed as data. See Section 2.2.5.

This pause is measured in one of three ways as follows:

1. From the time the last character was sent from the master port to the subordinate (SW7 Position 7 Closed, SW7 Position 8 Open).
2. From the time the last character was sent from the subordinate port to the master port (SW7 Position 7 Open, SW 7 Position 8 Closed).
3. From the time the last character was sent in either direction (SW7 Position 7 closed, SW7 Position 8 Closed. For SW7, Position 1-6, refer to Section 2.2.3)

SECTION 3 OPERATION

3.1 ARMING CHARACTER

This character is selected and entered by the user in DIP switch SW8 (See chart 2.2.4). When the COS receives the arming character within the data stream, it will enter an armed state known as “switch time”. When in this armed state, the “ST” LED on the front panel will be illuminated. The next character (the “channel select character”) will determine which port will be selected.

3.2 CHANNEL SELECT CHARACTER

The channel select character can only be recognized as such by its position in the data stream. The channel select character is the first character received after the arming character.

The least significant four bits of the channel select character contains the binary number of the subordinate port that is being selected (ASCII 0-7; CTRL @, A, B, C, D, E, F, G; etc.). See chart 2.2.4

3.3 AUTO TIME OUT

If auto timeout is selected, the COS will timeout after an idle time of either 2.5, 5 or 10 minutes (switch selectable by SW6) and return to ST mode. Data in either direction will continually reset the timer.

3.4 RESET BUTTON

The reset button will force the unit into switch time mode or to port 0, depending on the setting of strap W4.

NOTE

If AUTO TIMEOUT is selected the unit will revert to switch-time after the appropriate timeout.

3.5 LOCK-OUT

The front panel “LO” light will illuminate when the unit is placed in lock-out. When the COS is in lock-out the subordinate ports can not access the master port. The master port can place the unit in lock-out and take it out of lock-out. The COS can be put into lock-out during the switch-time mode by spending an ASCII character 38 or higher from the master port. To get out of lock-out, send the arming character.

NOTE

When coming out of LOCK-OUT both the LO and ST LED will be lit until a port is selected.

1.2 SPECIFICATIONS (CONTINUED)

Controls:	External - Vertical Switch (mode switch), push button reset Internal - Baud rate (75,300-19.2K Bps) and format switch selectable DTE/DCE configuration switch for each port Auto Timeout (2.5 min., 5.0 min., 10 min. or infinite) switch selectable Arming Character, switch selectable
Indicators:	LOCKOUT and SWITCH TIME LED indicators. Segment display for CHANNEL SELECTED
Addressing:	Two Digit code as follows: First digit is switch selectable, initiates switch time - factory setting is EOT(CTRL D), (Hex 04), (Decimal 04). Second digit assigns channel, Hex 30-37 selects port 0-7. Any channel can switch the channel when unit is in Switched Time (unless disabled by SW6 positions 1-4). The arming and switching code is stripped by the Code Operated Switch. The arming character can pass as data in Graphics mode.
Data Rate:	300, 1200, 2400, 4800, 9600, 19.2K, 38.4K, 76.8K Bps
Humidity :	15% to 95% noncondensing
Temperature:	Operating - +32°F to 122°F (0°C to 50°C) Storage - - 40°F to 158°F (-20°C to 70°C)

SECTION 2 INSTALLATION

2.1 GENERAL

Installation of the COS is a matter of connecting the MASTER and SUBORINATE ports to the proper communications equipment using the RS-232 and/or RS422 connectors.

All ports have DB25S (female) connectors normally configured as DCE. Internal DIP switches allow the user to individually reconfigure each port for DTE operation if necessary.

When viewing the COS from the rear, the left most connector is the Master connector. The channel connectors are numbered from left to right 0, 1, 2, 3, with 4, 5, 6 and 7 for COS/8.

The COS directs data flow between the master port and whichever subordinate port that has been specified in the command sequence.

Determine if any internal switches must be reconfigured to match your particular application. The unit's internal DIP Switches are factory preset to the following parameters:

Baud Rate:	9600 BPS
Word Format:	8 data bits, 1 stop bit, and parity disabled
Auto Format:	Disabled
Arming Timeout:	04 Hex (EOT), CTRL D
All Serial Ports:	DCE with DSR, DTR Control

2.2 SWITCH SETTINGS

WARNING



IF ANY INTERNAL DIP SWITCH SETTINGS MUST BE CHANGED, BE CERTAIN THAT THE POWER IS DISCONNECTED FROM THE UNIT BEFORE REMOVING THE COVER.

Refer to Figure 2-1 for the location of the switches. In the following switch descriptions, closed is abbreviated as C and open is abbreviated as O.

2.2.1 RS-232 PORT SWITCHES — SW1 through SW5

Every port has 2 eight-position DIP switches to select which pins are inputs or outputs (switch A, B). These switches are set to provide the proper combination of inputs and outputs.

A DTE (Data Terminal Equipment) device outputs data on pin 2 and receives data in on pin 3. Its control output pins are (4) RTS and (20) DTR. Its control input pins are (5) CTS, (6) DSR and (8) DCD. Terminals, personal computers, DEC computers are all DTE devices.

2.2.5 GRAPHICS MODE TIMING SWITCH — SW9

See the graphics mode description, Section 3.6.3 for additional information.

NOTE: CLOSE ONLY ONE POSITION AT A TIME

Position

Closed

1	=	5 WORD GAP IN TRANSMISSION
2	=	25 WORD GAP IN TRANSMISSION
3	=	50 WORD GAP IN TRANSMISSION
4	=	100 WORD GAP IN TRANSMISSION

2.2.6 BAUD RATE SWITCH — SW10

The baud rate is set by closing the switch position for the rate desired.

NOTE: CLOSE ONLY ONE POSITION AT A TIME

Position Closed	Baud Rate (bps)
1	300
2	1200
3	2400
4	4800
5	9600
6	19.2K
7	38.4K
8	76.8K

2.3 STRAPS W1 THROUGH W7-b

Strap W1, if strapped, will disable the COS to pass breaks.

Straps W2 and W3 should always be off.

Strap W4 selects either power on reset to switch time mode or to port 0.

When W4 straps A and B are in and strap C is out, switch time mode is selected. This is the factory default setting.

When W4 straps A and B are out and strap C is in, port 0 is selected.

When W7-a is strapped, the unit **will not** go into switch time when Carrier Detect is dropped on the Master Port.

When W7-b is strapped, the unit **will** go into switch time when Carrier Detect is dropped on the Master Port.

2.4 INSTALLATION OF THE S-COS-4/8 RACK MOUNTABLE UNIT

This unit is designed to fit in a NEMA Standard 19 inch rack. It uses 3.5 inches (2 RETMA) of vertical rack space.

Install this unit using all four mounting holes. The cover helps stiffen the entire unit. Therefore, before installation, insure all cover screws are tight.

After installation, dress cables in such a manner that they do not apply excessive stress on the cable connectors.

2.2.4 ARMING CODE SETTINGS — SW8(continued)

C= Closed (not true) O= Open (true)

ARMING CHARACTERS			ARMING CHARACTER SWITCH POSITIONS							
<-	5F	95	O	O	O	O	O	C	O	C
-	60	96	C	C	C	C	C	O	O	C
a	61	97	O	C	C	C	C	O	O	C
b	62	98	C	O	C	C	C	O	O	C
c	63	99	O	O	C	C	C	O	O	C
d	64	100	C	C	O	C	C	O	O	C
e	65	101	O	C	O	C	C	O	O	C
f	66	102	C	O	O	C	C	O	O	C
g	67	103	O	O	O	C	C	O	O	C
h	68	104	C	C	C	O	C	O	O	C
i	69	105	O	C	C	O	C	O	O	C
j	6A	106	C	O	C	O	C	O	O	C
k	6B	107	O	O	C	O	C	O	O	C
l	6C	108	C	C	O	O	C	O	O	C
m	6D	109	O	C	O	O	C	O	O	C
n	6E	110	C	O	O	O	C	O	O	C
o	6F	111	O	O	O	O	C	O	O	C
p	70	112	C	C	C	C	O	O	O	C
q	71	113	O	C	C	C	O	O	O	C
r	72	114	C	O	C	C	O	O	O	C
s	73	115	O	O	C	C	O	O	O	C
t	74	116	C	C	O	C	O	O	O	C
u	75	117	O	C	O	C	O	O	O	C
v	76	118	C	O	O	C	O	O	O	C
w	77	119	O	O	O	C	O	O	O	C
x	78	120	C	C	C	O	O	O	O	C
y	79	121	O	C	C	O	O	O	O	C
z	7A	122	C	O	C	O	O	O	O	C
	7B	123	O	O	C	O	O	O	O	C
-	7C	127	C	C	O	O	O	O	O	C
	7D	125	O	C	O	O	O	O	O	C
	7E	126	C	O	O	O	O	O	O	C
DEL	7F	127	O	O	O	O	O	O	O	C

2.2.1 RS-232 PORT SWITCHES (Continued)

A DCE (Data Communication Equipment) device is the opposite of DTE. It outputs data on pin 3 and receives data in on pin 2. Its control output pins are 5 (CTS), 6 (DSR) and 8 (DCD). Modems, HP computers and DG computers are all DCE devices.

When connecting two devices together with a straight pinned cable, the devices must be opposites (one DTE, one DCE). Thus the COS's port must be configured to be the opposite of the connecting device.

SW1 is for the Master port. Switches 2 through 5 are for ports 0-3. Ports 4-7 are controlled by the switches located directly behind them. In the following description, SWA is the left 8-position DIP switch and SWB is the right eight-position DIP switch as you look at the COS with the front panel facing you.

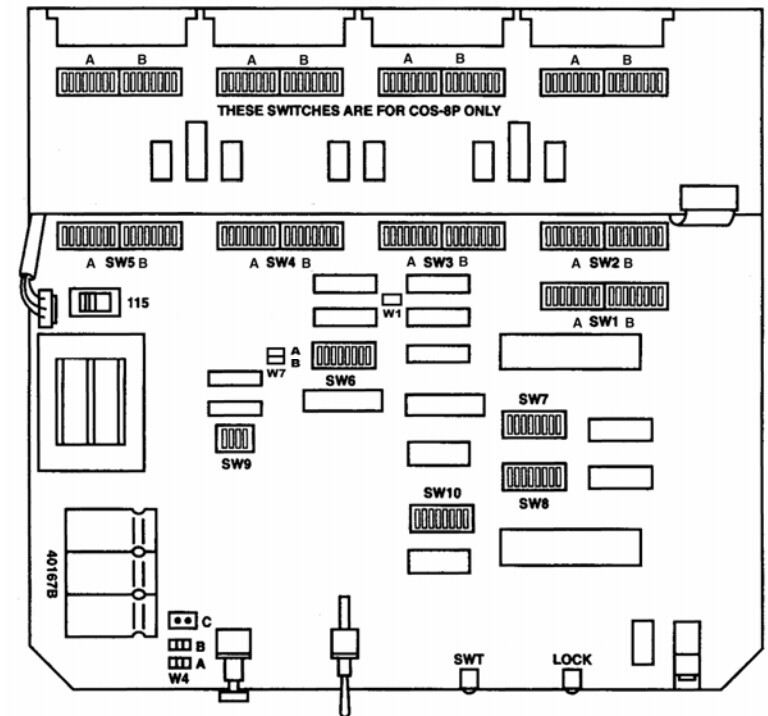


Figure 2-1. Component Layout

SWA positions 5 through 8 select either DCE or DTE for the port's data leads.

SWA	Switch Positions			
	5	6	7	8
DTE	C	O	O	C
DCE	O	C	C	O

SWA and SWB positions 1 through 4 are used to select which pins are to be used for handshaking. The COS can pass one hardware control lead in both directions (Master to Slave, Slave to Master).

2.2.1 RS-232 PORT SWITCHES (Continued)

In DCE mode, DSR/DTR handshaking is selected as the control out/control in pins as follows:

SWA positions 1, 2, 3 and position 4 open
 SWB positions 1 and 4 open, positions 2 and 3 closed

In DTE mode, DSR/DTR handshaking is selected as the control out/control in pins as follows:

SWA positions 1, 2, 3 and 4 open
 SWB positions 1 and 4 closed, positions 2 and 3 open

RTS/DCD can be chosen as the control leads instead of DTR/DSR. When SWB positions 1, 2, 3 and 4 are open, SWA positions 1 through 4 selects which pins are to be used.

In DCE mode, to select RTS as the control input, set SWA position 1 closed. To select DCD as the control output, set SWA position 4 closed.

In DTE mode, to select RTS as the control output and DCD as the control input, set SWA position 1 and 4 open, positions 2 and 3 closed.

Switch B positions 5 through 8 are used to pull RTS, CTS or DCD high or tie RTS to CTS.

To tie RTS to CTS, close SWB positions 6 and 7. To pull them high, close SWB position 8. To tie DCD high, close SWB position 5.

Quick Set Up for SWA and SWB

When connecting a PC printer, or dumb terminal (VT100, Wyse, DCE, Computer, etc.), use the following switch settings and a straight pinned cable:

```

Switch Positions  1 2 3 4 5 6 7 8
SWA              0 0 0 0 0 C C 0
SWB              C 0 0 C C C C C
                (The port looks like DCE)
    
```

When connecting a modem or a host computer port (HP,DG), use the following settings and a straight pinned cable:

```

Switch Positions  1 2 3 4 5 6 7 8
SWA              0 0 0 0 C 0 0 C
SWB              0 C C 0 C C C C
                (The port looks like DTE)
    
```

RS422 OPERATES INDEPENDANT OF PORT SWITCH SETTINGS.

2.2.4 ARMING CODE SETTINGS — SWB (continued)

C= Closed (not true) O= Open (true)

ARMING CHARACTERS				ARMING CHARACTER SWITCH POSITIONS								
ASCII	CTRL	HEX	DECIMAL	LSB	1	2	3	4	5	6	7	MSB
												8
?		3F	63	O	O	O	O	O	O	O	C	C
@		40	64	C	C	C	C	C	C	C	O	C
A		41	65	O	C	C	C	C	C	C	O	C
B		42	66	C	O	C	C	C	C	C	O	C
C		43	67	O	O	C	C	C	C	C	O	C
D		44	68	C	C	O	C	C	C	C	O	C
E		45	69	O	C	O	C	C	C	C	O	C
F		46	70	C	O	O	C	C	C	C	O	C
G		47	71	O	O	O	C	C	C	C	O	C
H		48	72	C	C	C	O	C	C	C	O	C
I		49	73	O	C	C	O	C	C	C	O	C
J		4A	74	C	O	C	O	C	C	C	O	C
K		4B	75	O	O	C	O	C	C	C	O	C
L		4C	76	C	C	O	O	C	C	C	O	C
M		4D	77	O	C	O	O	C	C	C	O	C
N		4E	78	C	O	O	O	C	C	C	O	C
O		4F	79	O	O	O	O	C	C	C	O	C
P		50	80	C	C	C	C	O	C	C	O	C
Q		51	81	O	C	C	C	O	C	C	O	C
R		52	82	C	O	C	C	O	C	C	O	C
S		53	83	O	O	C	C	O	C	C	O	C
T		54	84	C	C	O	C	O	C	C	O	C
U		55	85	O	C	O	C	O	C	C	O	C
V		56	86	C	O	O	C	O	C	C	O	C
W		57	87	O	O	O	C	O	C	C	O	C
X		58	88	C	C	C	O	O	C	C	O	C
Y		59	89	O	C	C	O	O	C	C	O	C
Z		5A	90	C	O	C	O	O	C	C	O	C
[		5B	91	O	O	C	O	O	C	C	O	C
		5C	92	C	C	O	O	O	C	C	O	C
]		5D	93	O	C	O	O	O	C	C	O	C
		5E	94	C	O	O	O	O	C	C	O	C

2.2.4 ARMING CODE SETTINGS — SW8 (continued)

C= Closed (not true) O= Open (true)

ARMING CHARACTERS				ARMING CHARACTER SWITCH POSITIONS							
ASCII	CTRL	HEX	DECIMAL	LSB 1	2	3	4	5	6	7	MSB 8
US	_	1F	31	O	O	O	O	O	C	C	C
SPACE		20	32	C	C	C	C	C	O	C	C
!		21	33	O	C	C	C	C	O	C	C
"		22	34	C	O	C	C	C	O	C	C
#		23	35	O	O	C	C	C	O	C	C
\$		24	36	C	C	O	C	C	O	C	C
%		25	37	O	C	O	C	C	O	C	C
&		26	38	C	O	O	C	C	O	C	C
'		27	39	O	O	O	C	C	O	C	C
(		28	40	C	C	C	O	C	O	C	C
)		29	41	O	C	C	O	C	O	C	C
.		2A	42	C	O	C	O	C	O	C	C
+		2B	43	O	O	C	O	C	O	C	C
‘		2C	44	C	C	O	O	C	O	C	C
-		2D	45	O	C	O	O	C	O	C	C
·		2E	46	C	O	O	O	C	O	C	C
/		2F	47	O	O	O	O	C	O	C	C
∅		30	48	C	C	C	C	O	O	C	C
1		31	49	O	C	C	C	O	O	C	C
2		32	50	C	O	C	C	O	O	C	C
3		33	51	O	O	C	C	O	O	C	C
4		34	52	C	C	O	C	O	O	C	C
5		35	53	O	C	O	C	O	O	C	C
6		36	54	C	O	O	C	O	O	C	C
7		37	55	O	O	O	C	O	O	C	C
8		38	56	C	C	C	O	O	O	C	C
9		39	57	O	C	C	O	O	O	C	C
:		3A	58	C	O	C	O	O	O	C	C
;		3B	59	O	O	C	O	O	O	C	C
<		3C	60	C	C	O	O	O	O	C	C
=		3D	61	O	C	O	O	O	O	C	C
>		3E	62	C	O	O	O	O	O	C	C

2.2.1 RS-232 PORT SWITCHES (Continued)

SWITCH SETTINGS FOR RS-232C PORT

Typical Switch Configuration for DCE

Typical Switch Configuration for DTE

Switch A Close 6 and 7
Switch B Close 1 and 4

Switch A Close 5 and 8
Switch B Close 2 and 3

Note that switches 6, 7 and 8 on Switch B may be selected to assert RTS or CTS high or to tie the RTS directly to CTS.

Switch B-5 may be used to assert CD high

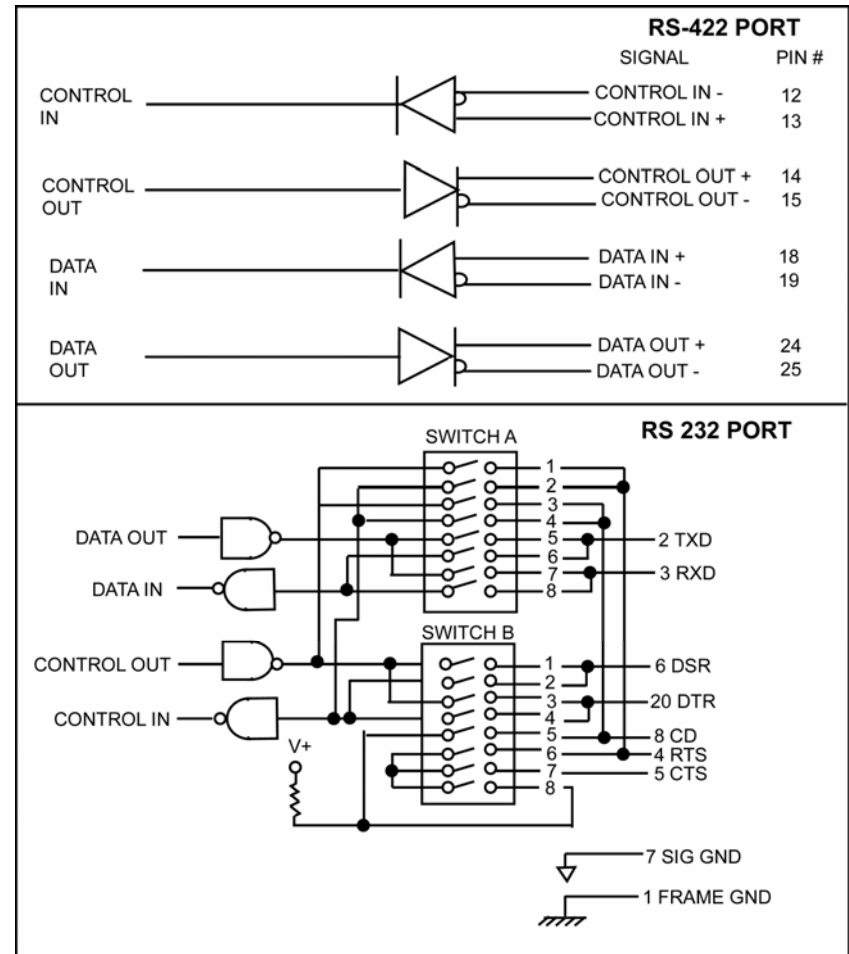


Figure 2-2. Port Configuration

2.2.4 ARMING CODE SETTINGS – SW8

ASCII code 1 thru 6 are the port address codes. EOT is the factory default arming character.
C= Closed (not true) O= Open (true)

2.2.2 OPTIONS SWITCH – SW6

Position			
1	OPEN	= Disables the subordinate port's ability to put unit into switch-time	
2	OPEN	= Disables the master's ability to put unit into switch-time	
3	OPEN	= Disables the master's ability to switch from switch-time to channel	
4	OPEN	= Disables the subordinate port's ability to switch from switch-time to channel	
CLOSE ONLY ONE	5	CLOSED	= 2.5 minute auto time-out
	6	CLOSED	= 5.0 minute auto time-out
	7	CLOSED	= 10.0 minute auto time-out
	8	CLOSED	= No data flow, time-out is infinite

RS-422 OPERATES INDEPENDENT OF PORT SWITCH SETTINGS.

2.2.3 DATA FORMAT SWITCH – SW7

Switch Position			
1	OPEN	= Even Parity	
1	Closed	= Odd Parity	
Position 2 & Position 3		= Word Length	
Closed	Closed	= 5 BITS	
Open	Closed	= 6 BITS	
Closed	Open	= 7 BITS	
Open	Open	= 8 BITS	
4	Open	= 2 Stop Bits	
4	Closed	= 1 Stop Bit	
5	Open	= Parity Disable	
5	Closed	= Parity Enable	
6	Always Open		
7, 8	See graphics mode description, Section 3.6.3		

ARMING CHARACTERS				ARMING CHARACTER SWITCH POSITIONS								
ASCII	CTRL	HEX	DECIMAL	LSB							MSB	
				1	2	3	4	5	6	7		8
NUL	@	00	0	C	C	C	C	C	C	C	C	C
SOH	A	01	1	O	C	C	C	C	C	C	C	C
STX	B	02	2	C	O	C	C	C	C	C	C	C
ETX	C	03	3	O	O	C	C	C	C	C	C	C
EOT	D	04	4	C	C	O	C	C	C	C	C	C
ENQ	E	05	5	O	C	O	C	C	C	C	C	C
ACK	F	06	6	C	O	O	C	C	C	C	C	C
BEL	G	07	7	O	O	O	C	C	C	C	C	C
BS	H	08	8	C	C	C	O	C	C	C	C	C
HT	I	09	9	O	C	C	O	C	C	C	C	C
LF	J	0A	10	C	O	C	O	C	C	C	C	C
VT	K	0B	11	O	O	C	O	C	C	C	C	C
FF	L	0C	12	C	C	O	O	C	C	C	C	C
CR	M	0D	13	O	C	O	O	C	C	C	C	C
SO	N	0E	14	C	O	O	O	C	C	C	C	C
SI	O	0F	15	O	O	O	O	C	C	C	C	C
DLE	P	10	16	C	C	C	C	O	C	C	C	C
DC1	Q	11	17	O	C	C	C	O	C	C	C	C
DC2	R	12	18	C	O	C	C	O	C	C	C	C
DC3	S	13	19	O	O	C	C	O	C	C	C	C
DC4	T	14	20	C	C	O	C	O	C	C	C	C
NAK	U	15	21	O	C	O	C	O	C	C	C	C
SYN	V	16	22	C	O	O	C	O	C	C	C	C
ETB	W	17	23	O	O	O	C	O	C	C	C	C
CAN	X	18	24	C	C	C	O	O	C	C	C	C
EM	Y	19	25	O	C	C	O	O	C	C	C	C
SUB	Z	1A	26	C	O	C	O	O	C	C	C	C
ESC	[	1B	27	O	O	C	O	O	C	C	C	C
FS	\	1C	28	C	C	O	O	O	C	C	C	C
GS	]	1D	29	O	C	O	O	O	C	C	C	C
RS	^	1E	30	C	O	O	O	O	C	C	C	C