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OPERATIONS MANUAL

RS-530 SYNCHRONOUS MODEM ELIMINATOR

MODEL: SME-530

14 June, 2000

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PT # 123020-B

SAFETY WARNING

Always observe standard safety precautions during installation, operation and maintenance of this product. To avoid the possibility of electrical shock, be sure to disconnect the power cord from the power source before you remove the IEC power fuses or perform any repairs.

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CHAPTER 1 - INTRODUCTION

1.1 FUNCTIONAL DESCRIPTION

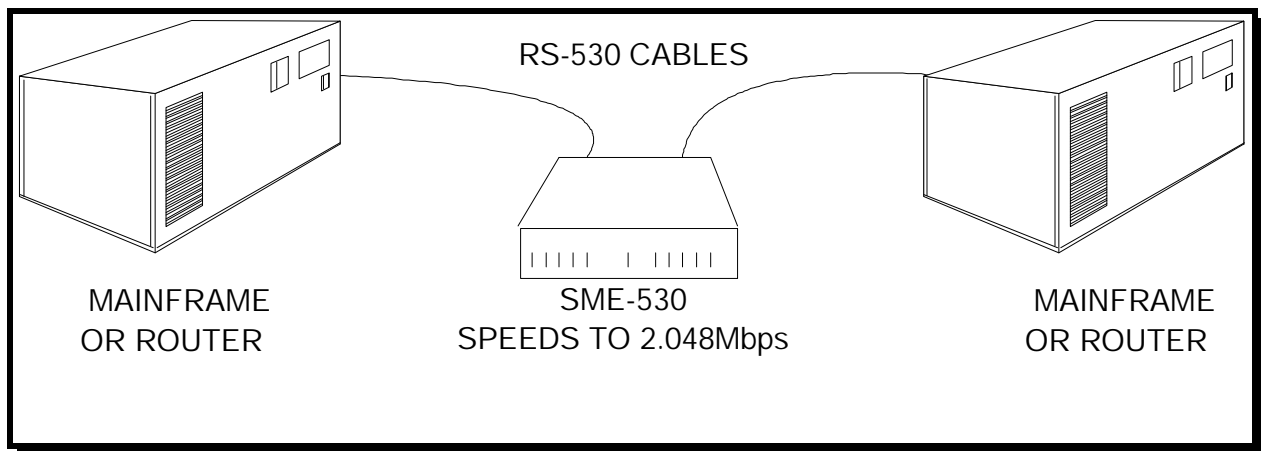
The SME-530 allows two RS-530 DTE devices to communicate within proximity of each other. The SME-530 transmits data bi-directionally at data rates up to 2.048Mbps between DTE devices. All clocking and signal crossover are provided within the SME-530. The unit is equipped with two female DB-25-P connectors.

The SME-530 is an excellent choice for interconnecting your LAN or mainframe equipment. Substantial cost savings are derived by eliminating the need for Modems or Line Drivers.

Installation is fast and simple by setting the internal switches for Clocking and RTS to CTS delay. The SME-530 has status LED's for each attached DTE device which allows the user to visually confirm the presence of control signals.

The SME-530 utilizes state of the art digital CMOS technology to provide a feature filled product at a very affordable price. Our Field Programmable Gate Array (FPGA) design has allowed us to offer this product with a wide selection of user Baud Rates. This design approach has also eliminated clock jitter for high speed 2.048Mbps transmissions.

The SME-530 is housed in a sturdy metal enclosure and operates on 110/220VAC. Typical MTBF figures are in excess of 100,000 hours of operation.



TYPICAL APPLICATION

Figure 1.1

CHAPTER 2 - BASIC OPERATION

2.1 FRONT PANEL INDICATORS

A *Green* LED marked **PWR** illuminates when AC Power has been applied. Two adjacent sets of *Green* LEDs illuminate in union with individual DTE port control signal activity.

2.2 REAR PANEL CONNECTORS AND FUSES

Located on the back or rear of the product you will find an IEC Power receptacle. The supplied power cord plugs into this receptacle. This receptacle also contains a fuse drawer. Two (2) fuses are located in this compartment. For 110 VAC +/- 10% operation the unit is equipped with slow blow 160ma Fuses, Part # 714000. For 220 VAC +/- 10% operation the unit is equipped with slow blow 80ma Fuses, Part # 714001. Additionally, DB-25 female connectors, marked *PORT A* and *PORT B*.

2.3 CLOCKING

The SME-530 provides an internal baud rate generator with user defined clock rates from 19.2Kbps up to 2.048Kbps.

2.4 ELECTRICAL INTERFACE

The SME-530 is EIA RS-530-C compliant utilizing the international EIA specification. The unit is equipped with female DB-25-P connectors. Refer to the interface chart in the Appendix for detailed interface information.

2.5 CLEAR TO SEND (CTS) FOLLOWS REQUEST TO SEND (RTS)

The SME-530 has individual settings for each user port so that *CTS* follows *RTS*.

2.5.1 REQUEST TO SEND (RTS) DELAY

The SME-530 has individual user port settings for *RTS* delay. Options of no delay, 6ms, 12ms and 24ms are provided.

-

CHAPTER 3 - INSTALLATION

CAUTION: Disconnect Power Before Servicing
ATTENTION: Couper Le Courant Avant l' Entretien
VORSICHT: Befor Deckung Abnehmen Mach Strom Zu

3.1 VOLTAGE SELECTION

It is **very** important to check that the unit is set to the correct voltage setting for your application before applying AC power. Located on the rear of the unit you will find a rotary 110/220 VAC switch. Using a coin or small screwdriver, *gently* turn the switch to the appropriate power position as required for your installation (110 or 220 VAC).

3.2 VOLTAGE SELECTION FUSES

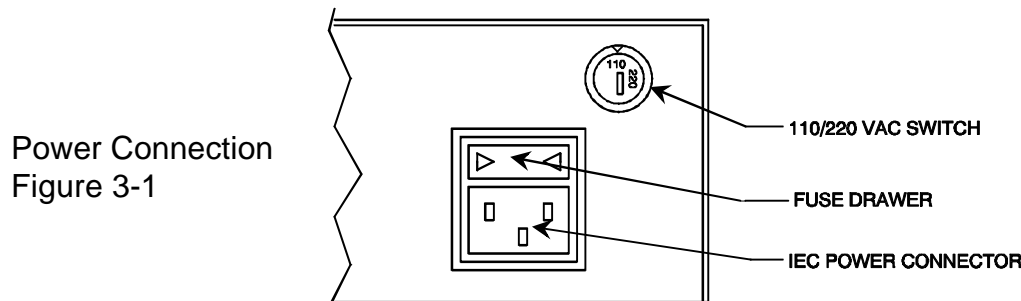
Located on the back or rear of the product you will find an IEC Power receptacle. This receptacle contains a fuse drawer. Two (2) fuses are located in this compartment. For 110 VAC +/- 10% operation the unit is equipped with slow blow 5 x 20mm 160ma Fuses, E.C.D. Part # 714000. For 220 VAC +/- 10% operation the unit is equipped with slow blow 5 x 20mm 80ma Fuses, E.C.D. Part # 714001. Spare fuses may be purchased by calling East Coast Datacom or by calling the fuse manufacturer: Little Fuse at (312) 824-3024 or Shurter, Inc. at (707) 778-6311

Little Fuse Part #'s are: 160ma = 218.160 and 80ma = 218.080

Shurter, Inc. Part #'s are: 160ma = 034.3109 and 80ma = 034.3106

3.3 POWER CONNECTION

Before connecting the SME-530 to an AC power source the top cover should be installed with the supplied #4-40 screws. AC power is supplied to the unit through a 2.3m (6.6 ft) cord terminated by a grounded 3-prong plug. Select an appropriate location accessible to and within four to five feet of an AC outlet. The AC Power source **MUST** be grounded or the units Warranty will be void.



3.4 DEFAULT CONFIGURATION SWITCH SETTINGS

The SME-530 is configured prior to shipping with the Dip Switches set as follows:

- 1) Clock Rate - 19.2kbps
- 2) Port A / Port B *RTS* - *Follows CTS*
- 3) Port A / Port B *CTS* delay - *No Delay*
- 4) Chassis to Signal GND - *Not Connected*

If your system application requires one or more of the default setting to be changed, it will be necessary to remove the top cover. Disconnect the AC Power source before servicing the unit. Removal of the top cover is accomplished by using a small Philips screwdriver and removing the four outside screws. After setting the switches, replace the top cover before applying AC power.

3.5 TERMINAL (DTE) CONNECTION

Before applying AC Power to the unit, the DCE and DTE cabling should be connected. Straight through Male to Male DB-25 shielded cables, no longer than 50 feet in any direction should be used. If your cables are not shielded or over 50 feet long, transmission errors may occur.

3.6 INTERNAL SWITCH SETTINGS

3.6.1 DIP SWITCHES

The SME-530 has two *Dip Switch*'s that are accessible by removing the Top Cover. Located safely inside the unit, you will find a *4 position Dip Switch* marked **S1** and a *10 position Dip Switch* marked **S2**. To change the settings, you may use your finger tip or a small nonconductive instrument. It is recommended **NOT** to use metal objects to push on the *Dip Switches*, as you may slip and damage a component trace.

3.6.2 SWITCH FUNCTIONS

The following two pages provide a chart for the SME-530 switches and the function of each switch. Please refer to this chart for all settings.

SME-530 STRAPPING CHART

BAUD RATE SELECTION

SME-530 STRAPPING CHART

BRG= Baud Rate Generator

Switch S1	S4	S3	S2	S1		
	Internal Baud Rate Generator					
	off	off	off	off	- Clock =	19.2 KHz
	off	off	off	on	- Clock =	28.8 KHz
	off	off	on	off	- Clock =	38.4 KHz
	off	off	on	on	- Clock =	48 KHz
	off	on	off	off	- Clock =	56 KHz
	off	on	off	on	- Clock =	57.6 KHz
	off	on	on	off	- Clock =	64 KHz
	off	on	on	on	- Clock =	72 KHz
	on	off	off	off	- Clock =	128 KHz
	on	off	off	on	- Clock =	192 KHz
	on	off	on	off	- Clock =	256 KHz
	on	off	on	on	- Clock =	384 KHz
	on	on	off	off	- Clock =	512 KHz
	on	on	off	on	- Clock =	1.536 MHz
	on	on	on	off	- Clock =	1.544 MHz
	on	on	on	on	- Clock =	2.048 MHz

Switch	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1	
S2	Not used	Port B CTS Delay	Port B CTS	Port B Clock	Not Used	Port A CTS Delay			Port A CTS	Port A Clock	
										off	- Port A clocks from BRG
										on	- Port A clocks from Port A external
									V		
									off		- CTS follows RTS according to S4, S3
									on		- CTS is forced on
						V	V				
						off	off				- no delay from RTS
						off	on				- 6 mS delay from RTS
						on	off				- 12 mS delay from RTS
						on	on				- 24 mS delay from RTS
				V							
				off							- Port B clocks from BRG
				on							- Port B clocks from Port A external
			V								
			off								- CTS follows RTS according to S9, S8
			on								- CTS is forced on
	V	V									
	off	off									- no delay from RTS
	off	on									- 6 mS delay from RTS
	on	off									- 12 mS delay from RTS
	on	on									- 24 mS delay from RTS

Port A straps

- Jumper J1**
 Pos 1 - Port A DSR follows Port B DTR
 Pos 2 - Port A DSR forced on

- Jumper J2**
 Pos 1 - Port A DCD enabled follows Port B RTS
 Pos 2 - Port A DCD forced on

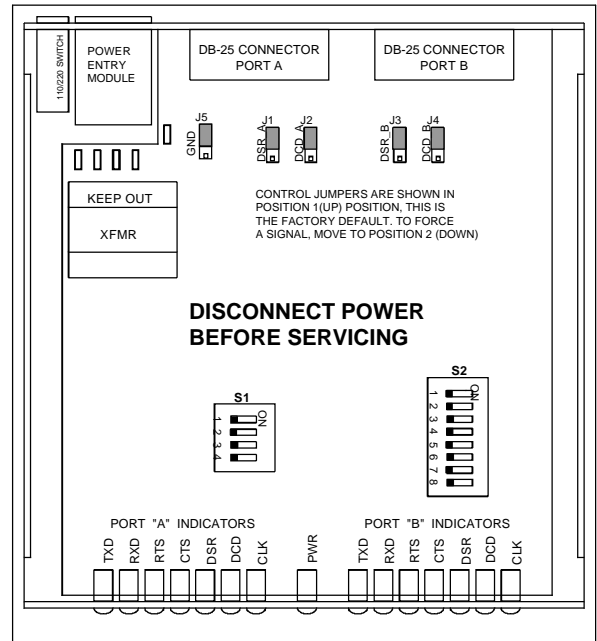
Port B Straps

- Jumper J3**
 Pos 1 - Port B DSR follows Port A DTR
 Pos 2 - Port B DSR forced on

- Jumper J4**
 Pos 1 - Port B DCD enabled follows Port A RTS
 Pos 2 - Port B DCD forced on

General

- Jumper J5**
 Pos 1 - Signal Ground isolated from Frame Ground
 Pos 2 - Signal Ground connected to Frame Ground



4.0 - APPENDIX

4.1 RS-530 INTERFACE CHART

Pin No	Signal Description	SOURCE
1	Shield	Common
2	Transmit Data (A)	DTE
3	Receive Data (A)	DCE
4	Request to Send (A)	DTE
5	Clear to Send (A)	DCE
6	DCE Ready (A)	DCE
7	Signal Ground	Common
8	Received Line Signal Detector (A)	DCE
9	Receiver Signal Element Timing (B)	Return
10	Received Line Signal Detector (B)	Return
11	External Transmit Signal Element Timing (B)	Return
12	Transmit Signal Element Timing (B)	Return
13	Clear To Send (B)	Return
14	Transmitted Data (B)	Return
15	Transmit Signal Element Timing (A)	DCE
16	Received Data (B)	Return
17	Receiver Signal Element Timing (A)	DCE
18	Local Loopback	DTE
19	Request To Send (B)	Return
20	DTE Ready (A)	DTE
21	Remote Loopback	DTE
22	DCE Ready (B)	Return
23	DTE Ready (B)	Return
24	External Transmit Signal Element Timing (A)	DTE
25	Test Mode	DCE

NOTES:

5.0 - TECHNICAL SPECIFICATIONS

Application

Interconnection of two RS-530 DTE (Terminal) devices located within proximity of each other

Capacity

Two (2) RS-530 DTE's

Interface

RS-530 using EIA specification

Data Rates

19.2Kps to 2.048Mbps

Channel Interface

Two Female DB-25 Connectors

Surge Protection

Main power supply

Power Source

100-120 to 200-220VAC @10%, 50/60Hz, 0.16/0.08A, external 110/220 volt select switch, IEC Power Inlet, (2) 5mm Fuses

Environmental

Operating Temperature....32° to 122° F (0° to 50° C)

Relative Humidity.....5 to 95%

Non-Condensing

Altitude.....0 to 10,000 feet

Dimensions

Height 1.75 inches (4.44 cm)

Width 7.90 inches (20.07 cm)

Length 9.00 inches (22.86 cm)

Weight

2 pounds (0.914Kg)

Warranty

Three Years, Return To Factory

ORDERING INFORMATION

Model: SME-530

Description: Synchronous RS-530 Modem Eliminator

INCLUDED WITH EACH UNIT:

- 1) Operations Manual
- 2) U.S.A. Grounded Power Cord, Part # 713015
- 3) Optional Power Cords
 - A) United Kingdom, Part # 713016
 - B) Continental Europe, Part # 713017
 - C) Other: Specify Country on Purchase Order

OPTIONAL ACCESSORIES

- 1) Spare Data Center Fuses
 - A) 160ma Fuse, Qty (2) Part # 714000
 - B) 80ma Fuse, Qty (2) Part # 714001

For further detailed technical information on this product, contact East Coast Datacom Technical Assistance toll free at (800) 240-7948

OTHER EAST COAST DATACOM PRODUCTS

MODEM AND PORT SHARING DEVICES

INTERFACE CONVERTERS

SIGNAL SPLITTERS

LINE DRIVERS