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OPERATIONS MANUAL

RS-232 SYNCHRONOUS MODEM ELIMINATOR

MODEL: SME-232

22 January, 2000

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East Coast Datacom, Inc.

PT # 719009-A

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

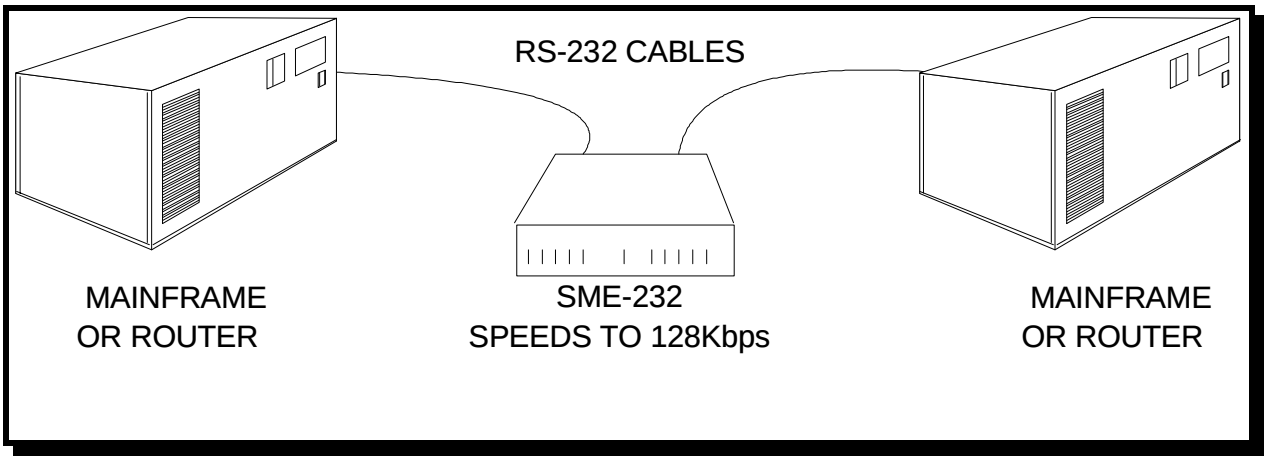
The SME-232 allows two RS-232 DTE devices to communicate within proximity of each other. The SME-232 transmits data bi-directionally at data rates up to 128Kbps between DTE devices. All clocking and signal crossover are provided within the SME-232. The unit is equiped with two female DB-25-P connectors.

The SME-232 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-232 has status LED's for each attached DTE device which allows the user to visually confirm the presence of control signals.

The SME-232 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 128Kbps transmissions.

The SME-232 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-232 provides an internal baud rate generator with user defined clock rates from 1200bps up to 128Kbps.

2.4 ELECTRICAL INTERFACE

The SME-232 is EIA RS-232-C compliant utilizing the international EIA specification. The unit is equiped 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-232 has individual settings for each user port so that *CTS* follows *RTS*.

2.5.1 REQUEST TO SEND (RTS) DELAY

The SME-232 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).

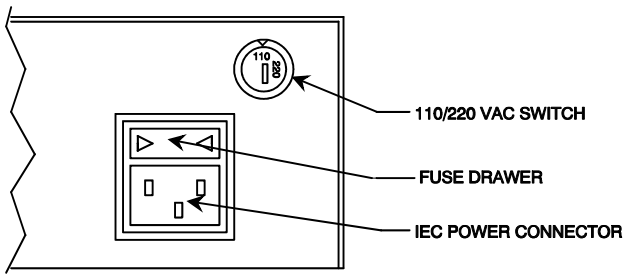
3.2 VOLTAGE SELECTION FUSES

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-232 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.

Power Connection
Figure 3-1



3.4 DEFAULT CONFIGURATION SWITCH SETTINGS

The SME-232 is configured prior to shipping with the Dip Switches set as follows:

1) Clock Rate - 1200bps
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-232 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-232 switches and the function of each switch. Please refer to this chart for all settings.

SME-232 STRAPPING CHART

BAUD RATE SELECTION

SME-232 STRAPPING CHART BRG= Baud Rate Generator

Switch S1	S4	S3	S2	S1		
	Internal Baud Rate Generator					
	off	off	off	off	- Clock =	1200Hz
	off	off	off	on	- Clock =	2400Hz
	off	off	on	off	- Clock =	4800Hz
	off	off	on	on	- Clock =	7200Hz
	off	on	off	off	- Clock =	9600Hz
	off	on	off	on	- Clock =	14.4KHz
	off	on	on	off	- Clock =	19.2KHz
	off	on	on	on	- Clock =	28.8KHz
	on	off	off	off	- Clock =	38.4KHz
	on	off	off	on	- Clock =	48KHz
	on	off	on	off	- Clock =	56KHz
	on	off	on	on	- Clock =	57.6KHz
	on	on	off	off	- Clock =	64KHz
	on	on	off	on	- Clock =	72KHz
	on	on	on	off	- Clock =	115.2KHz
	on	on	on	on	- Clock =	128KHz

Switch S2	S10	S9	S8	S7	S6	S5	S4	S3	S2	S1
	Not used	Port B CTS Delay		Port B CTS	Port B Clock	Not Used	Port A CTS Delay		Port A CTS	Port A Clock

S1 (Port A Clock): off - Port A clocks from BRG; on - Port A clocks from Port A external

S2 (Port A CTS): off - CTS follows RTS according to S4, S3; on - CTS is forced on

S4 / S3 (Port A CTS Delay):

S4	S3	
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

S6 (Port B Clock): off - Port B clocks from BRG; on - Port B clocks from Port A external

S7 (Port B CTS): off - CTS follows RTS according to S9, S8; on - CTS is forced on

S9 / S8 (Port B CTS Delay):

S9	S8	
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 J3	Pos 1	- Port A DSR follows Port B DTR
	Pos 2	- Port A DSR forced on
Jumper J4	Pos 1	- Port A DCD enabled follows Port B RTS
	Pos 2	- Port A DCD forced on
Jumper J5	Pos 1	- Port A Ring Indicate follows Port A DCD (see J6)
	Pos 2	- Port A Ring Indicate forced on

~~Port B Straps~~

Jumper J6	Pos 1	- Port B DSR follows Port A DTR
	Pos 2	- Port B DSR forced on
Jumper J7	Pos 1	- Port B DCD enabled follows Port A RTS
	Pos 2	- Port B DCD forced on
Jumper J8	Pos 1	- Port B Ring Indicate follows Port B DCD (see J9)
	Pos 2	- Port B Ring Indicate forced on

~~General~~

Jumper J9	Pos 1	- Signal Ground connected to Frame Ground
	Pos 2	- Signal Ground isolated from Frame Ground

4.0 - APPENDIX

4.1 RS-232 INTERFACE CHART

Pin No.	CCITT Circuit No.	Circuit Name	Signal Description	To DTE	To DCE
1	---	---	Shield	---	---
2	103	BA	Send Data		X
3	104	BB	Receive Data	X	
4	105	CA	Request To Send		X
5	106	CB	Clear To Send	X	
6	107	CC	DCE Ready	X	
7	102	AB	Signal Ground	---	---
8	109	CF	Receive Line Detector	X	
15	114	DB	Send Timing	X	
17	115	DD	Receive Timing	X	
20	108.2	CD	Terminal Ready		X
22	125	CE	Ring Indication	X	
24	113	DA	External Timing		X

5.0 - TECHNICAL SPECIFICATIONS

Application
Interconnection of two RS-232 DTE (Terminal) devices located within proximity of each other

Capacity
Two (2) RS-232 DTE's

Interface
RS-232 using EIA specification

Data Rates
1200bps to 128Kbps

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....32º to 122º F (0º to 50º 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
Part Number: 120000
Model: SME-232
Description: RS-232 Modem Eliminator, Speeds to 128kbps

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