TABLE OF CONTENTS

OPERATIONS MANUAL

V.35 SYNCHRONOUS MODEM ELIMINATOR

SME-V35

21 April 2002

FOR TECHNICAL SUPPORT CALL:

East Coast Datacom, Inc.
245 Gus Hipp Blvd., STE 3
Rockledge, FL 32955 USA
TEL: (800) 240-7948 or (321) 637-9922
FAX: (321) 637-9980
Email: info@ecdata.com
Web Site: www.ecdata.com

Manufactured By:
East Coast Datacom, Inc.

PT # 719000-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.

PROPRIETARY NOTICE

WARRANTY NOTICE

WARRANTIES: East Coast Datacom, Inc. (hereafter referred to as E.C.D.) warrants that its equipment is free from any defects in materials and workmanship. The warranty period shall be three (3) years from the date of shipment. E.C.D.'s sole obligation under its warranty is limited to the repair or replacement of defective equipment, provided it is returned to E.C.D., transportation prepaid, within a reasonable period. This warranty will not extend to equipment subjected to accident, misuse, alterations or repair not made by E.C.D. or authorized by E.C.D. in writing.

PUBLICATION NOTICE

This manual has been compiled and checked for accuracy. The information in this manual does not constitute a warranty of performance. E.C.D. reserves the right to revise this publication and make changes from time to time in the content thereof. E.C.D. assumes no liability for losses incurred as a result of out-of-date or incorrect information contained in this manual.

CHAPTER 1 - INTRODUCTION

1.1 FUNCTIONAL DESCRIPTION

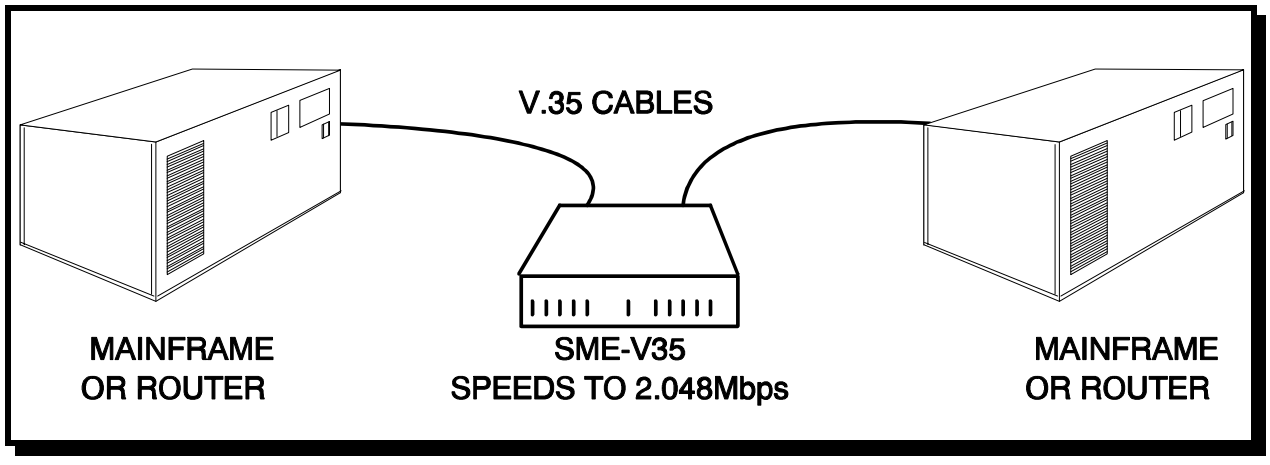
The SME-V35 allows two V.35 DTE devices to communicate within proximity of each other. The SME-V35 transmits data BI-directionally at data rates up to 2.048Mbps between DTE devices. All clocking and signal crossover are provided within the SME-V35. The unit is equipped with two MR-34 (V.35) female connectors.

The SME-V35 is an excellent choice for interconnecting your LAN or mainframe equipment. Substantial cost savings are derived by eliminating the need for 56/64Kbps CSU's and T1 CSU's.

Installation is fast and simple by setting the internal switches for Clocking, Carrier Operation and RTS to CTS delay. The SME-V35 has status LED's for each attached DTE device which allows the user to visually confirm the presence of control signals.

The SME-V35 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 reduced the amount of clock jitter for high speed 2.048Mbps transmissions.

The SME-V35 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 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, you will find the Master and Sub channel female DB-25 connectors.

2.3 CLOCKING

The SME-V35 may be internally or externally clocked at data rates from 19.2Kbps up to 2.048Mbps.

2.4 ELECTRICAL INTERFACE

The SME-V35 is V.11 compliant utilizing the ITU V.35 specification. The unit is equipped with female MR-34, V.35 connectors. Refer to the interface chart in the Appendix for detailed interface information.

2.5 CTS CONTROL AND DELAY

The CTS control signal is controlled in several different ways via Dip Switch. Each port may have CTS follow RTS or forced on. Each port has selectable delay settings of No Delay, 6 mS, 12 mS and 24 mS.

2.5.1 PORT STRAPS

The SME-V35 has individual straps for DSR, DCD, RI (Ring Indicate) and Chassis to Signal Ground. Each control signal works as follows: **1)** DSR follows DTR or DSR is forced on **2)** DCD enabled follows RTS or DCD is forced on **3)** Ring Indicate follows DCD or Ring Indicate is forced on **4)** Chassis to Signal Ground connected or no connect.

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).

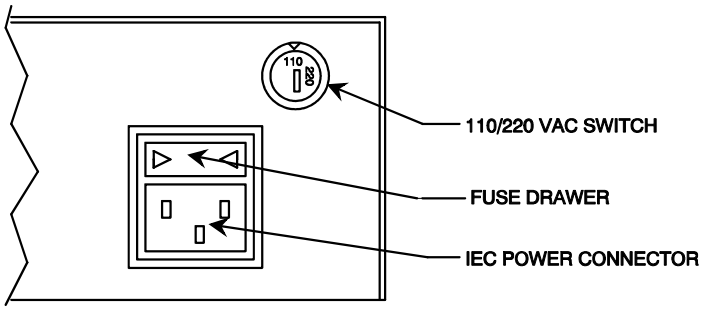
3.2 VOLTAGE SELECTION FUSES

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-V35 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-V35 is configured prior to shipping with the Dip Switches set as follows:

1) Clock Rate - *19.2Kbps*
2) Port A / Port B Clock source - *Internal*
3) Port A / Port B CTS - *Follows RTS*
4) Port A / Port B CTS delay - *No Delay*
5) Control Signals - *Not Forced*
6) 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 V.35 shielded cables, no longer than 2000 feet in any direction should be used. If your cables are not shielded or over 2000 feet long, transmission errors are very likely.

3.6 INTERNAL SWITCH SETTINGS

3.6.1 DIP SWITCHES

The SME-V35 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 S2 and a 10 position Dip Switch marked S3. 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-V35 switches and the function of each switch. Please refer to this chart for all settings.

SME-V35 STRAPPING CHART

SWITCH S2

S4	S3	S2	S1	
INTERNAL **B**AUD **R**ATE **G**ENERATOR (**BRG**)				
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	OFF	ON	- Clock = 1.544 MHz
ON	ON	ON	ON	- Clock = 2.048 MHz

SWITCH S3

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	
	|	|	|	|		|	|	|	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

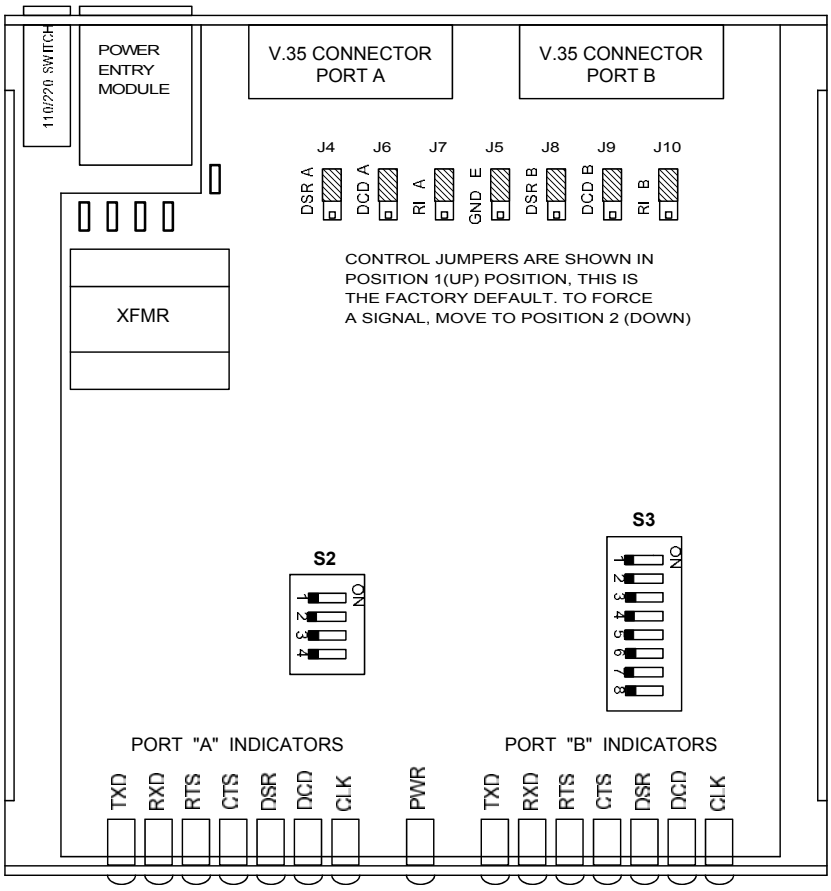
Jumper J4	Pos 1	- Port A DSR follows Port B DTR
	Pos 2	- Port A DSR forced on
Jumper J6	Pos 1	- Port A DCD enabled follows Port B RTS
	Pos 2	- Port A DCD forced on
Jumper J7	Pos 1	- Port A Ring Indicate follows Port A DCD (see J6)
	Pos 2	- Port A Ring Indicate forced on

Port B Straps

Jumper J8	Pos 1	- Port B DSR follows Port A DTR
	Pos 2	- Port B DSR forced on
Jumper J9	Pos 1	- Port B DCD enabled follows Port A RTS
	Pos 2	- Port B DCD forced on
Jumper J10	Pos 1	- Port B Ring Indicate follows Port B DCD (see J9)
	Pos 2	- Port B Ring Indicate forced on

General

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



4.0 - APPENDIX

4.1 V.35 INTERFACE CHART

V.35 INTERFACE CHART

Pin No	CCITT Circuit No.	Circuit Name	Signal Description	From DCE	To DCE
A	101	AA	Protective Ground	---	---
B	102	AB	Signal Ground	---	---
P	103	BA(A)	Transmit Data (A)		X
S	103	BA(B)	Transmit Data (B)		X
R	104	BB(A)	Receive Data (A)	X	
T	104	BB(B)	Receive Data (B)	X	
C	105	CA	Request to Send		X
D	106	CB	Clear to Send	X	
E	107	CC	Data Set Ready	X	
H	108	CD	Data Teminal Ready		X
F	109	CF	Received Line Signal Detect	X	
U	113	DA(A)	External Transmit Timing (A)		X
W	113	DA(B)	External Transmit Timing (B)		X
Y	114	DB(A)	Transmitter Signal Element Timing (A)	X	
AA	114	DB(B)	Transmitter Signal Element Timing (B)	X	
V	115	DD(A)	Receiver Signal Element Timing (A)	X	
X	115	DD(B)	Receiver Signal Element Timing (B)	X	

5.0 - TECHNICAL SPECIFICATIONS

Application
Interconnection of two V.35 DTE (Terminal) devices located within proximity of each other

Capacity
Two (2) V.35 DTE's

Interface
V.35 using V.11 electrical specification

Data Rates
Up to 2.048Mbps
High Speed Option Available for rates 64kbps through 6.144Mbps

Channel Interface
Two Female V.35 (MR-34) 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
Model: SME-V35
Description: Synchronous V.35 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 REGENERATORS
LINE DRIVERS