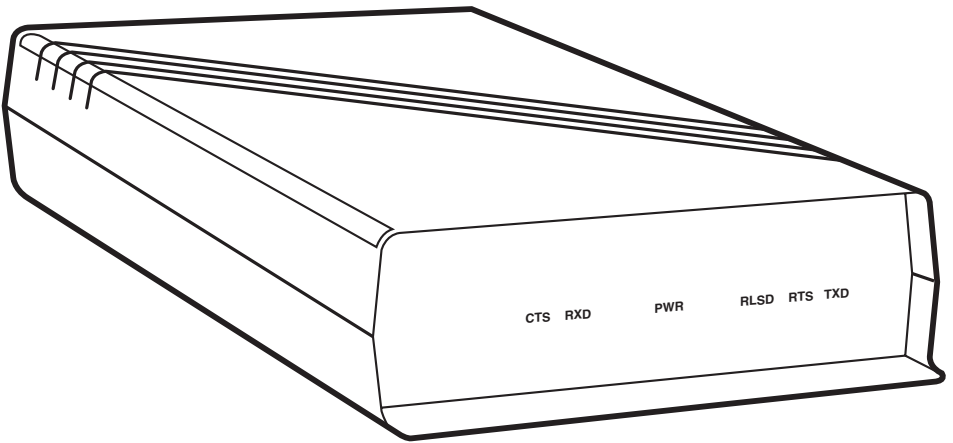




High-Speed SME V.35-M34 High-Speed SME V.35-DB25



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1. Specifications

System Requirements —	ME107C, ME108C only: RM060 or compatible rack
Interface —	ME107 models: CCITT V.35; ME108 models: CCITT V.35 pinned as EIA RS-530
Protocol —	Synchronous
Clock Source —	Internal or external from either DTE
Operation —	Full- or half-duplex
Data Rate —	Either any speed up to 2.048 Mbps that evenly divides 4.096 Mbps or any speed up to 1.544 Mbps that evenly divides 3.088 Mbps (data-rate regime and individual data rate user-selectable)
Maximum Distance —	Up to 2000 ft. (609.6 m) on each side, depending on cable quality and data rate
User Controls —	(8) Internal: (2) 6-position DIP switches for data-rate selection; (6) Jumpers: (1) Grounds Isolated/Connected, (2) CTS Delay, (2) Clock Source, (1) Data-Rate Regime
Indicators —	(6) Front-mounted LEDs: TXD, RXD, RTS, CTS, RLSD, PWR
Connectors —	ME107C, ME108C only: 3-position card-edge type for rack power; ME107 models only: (2) 34-position M-block female for data communication;

ME108 models only: (2) DB25 female for data communication;
All models: (1) 5-pin Molex® male for low-voltage AC power

Leads Supported —	See the Appendix
Temperature —	32 to 122° F (0 to 50° C)
Humidity —	0 to 95% noncondensing
Enclosure —	All standalone models: Plastic
Power —	ME107A, ME108A: From wallmount power supply PS146: Input Range: 104 to 127 VAC, 45 to 65 Hz; Nominal Input: 115 VAC, 60 Hz at 100 mA; Output: 17 VAC CT at 700 mA; ME107AE, ME108AE: From wallmount power supply PS145E: Input Range: 207 to 253 VAC, 45 to 65 Hz; Nominal Input: 230 VAC, 50 Hz at 50 mA; Output: 17 VAC CT at 700 mA; ME107C, ME108C: From rack's power-supply interface; All models: Consumption: 7.5 to 13 watts
Size —	Standalone models: 2.1"H x 8.8"W x 11.5"D (5.3 x 22.4 x 29.2 cm); Card models: 7.5"H x 1.3"W x 11"D (19.1 x 3.2 x 27.9 cm)
Weight —	Standalone models: 2 lb. (0.9 kg); Card models: 0.9 lb. (0.4 kg)

2. Introduction

With a High-Speed Synchronous Modem Eliminator (SME) V.35, you can establish communication between two synchronous DTE devices (mainframes, controllers, etc.) at greater distances than would be possible without an SME—and you don't have to buy CSU/DSUs, modems, or line drivers.

You can configure your SME by setting its internal straps (jumpers) and switches. (User-configurable options include clocking, data rate, and CTS delays.) Installing the unit is even easier: You'll run cable from the devices to connectors J1 and J2 on the SME's rear panel, then plug in the SME's power cord.

The SME has six front-panel LED indicators:

- TXD (Transmit Data) lights when the device connected to J1 is sending data.
- RXD (Receive Data) lights when the device connected to J1 is receiving data.
- RTS (Request to Send) lights when the device connected to J1 raises the RTS signal and the SME in turn raises the RLSD signal on J2.
- CTS (Clear to Send) lights when the device connected to J1 is clear to send. (That is, when the SME raises CTS on J1 after the device on J1 raises RTS.)
- RLSD (Received Line Signal Detect) lights when the device connected to J2 raises RTS and the SME in turn raises RLSD on J1.
- PWR (Power) lights when the unit is getting power (that is, when the power supply is working and is plugged into a working outlet).

The SME has three rear-panel connectors. One is the power-supply connector P1. The other two connectors are the data-communication ports J1 and J2. On the High-Speed SME V.35-M34 (ME107) models, J1 and J2 are 34-pin M-block female connectors, which is the original standard for the CCITT V.35 interface. On the High-Speed SME V.35-DB25 (ME108) models, J1 and J2 are DB25 female connectors, which is an emerging standard for V.35 pinned according to the EIA RS-530 interface.

The SMEs come with appropriate power supplies. The ME107A and ME108A models come with UL® and CSA listed power supply PS146, which operates from 115 VAC/60 Hz power. The ME107AE and ME108AE models come with UL®, CSA, and VDE listed power supply PS145E, which operates from 230 VAC/50 Hz power. Both power supplies provide the SME with 17 VAC center-tapped at 0.7 amps. Their output connectors are indexed to help prevent incorrect insertion.

The maximum length of cable you can run between the SME and either of the devices you want to attach to it depends on:

- the cabling standards of the interface that your SME uses.
- the data rate you select (higher data rates often require shorter cable runs).
- noise sources between the SME and the device (cable run too close to noise sources will not be able to successfully carry data).

Other concerns not mentioned here might also affect the maximum distance attainable in your application. For additional information, refer to the published standards for your SME's interface, CCITT V.35.

Figure 2-1, below, shows a typical SME application.

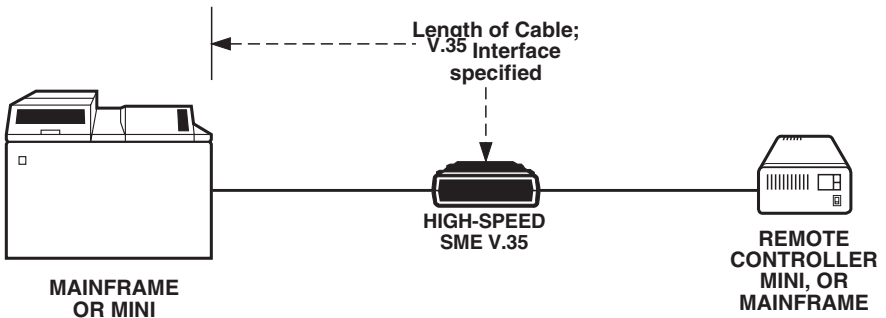


Figure 2-1. Typical SME Application.

3. Configuration

This chapter contains charts and diagrams that will help you configure your High-Speed SME V.35:

- Table 3-1 on the next page lists the possible settings of the individual straps (jumpers) inside the SME. You'll set these straps to configure some of the SME's features.

NOTE

Clock timing is supplied on the SME's ports in the form of a "send timing" signal (SCT, derived from that port's clock source) and a "receive timing" signal (SCR, derived from the other port's clock source). Straps W4 and W5, which determine how the SME gets its clock for each port, are among those described in Table 3-1.

In the descriptions of these straps, the A position is called "internal," the B position is call "recovered," and the C position is called "external." When a port's timing is internal, the clock is the SME's internal clock signal. When a port's timing is external, the SME gets the clock from that port's "terminal timing" (SCTE) signal. When a port's timing is recovered, the SME gets the clock from the opposite port's "terminal timing" (SCTE) signal.

For most applications both ports' straps would be set to A (internal clock). A small number of applications (those in which one device supplies the timing across the line) would require one strap set to B and the other set to C. Extremely few if any applications would require both straps set to C, or one strap set to C and the other to A. The SME will not work at all if both straps are set to B, or if one strap is set to B and the other to A.

- Table 3-2 on page 7 lists the possible settings of the data-rate switches S1 and S2 inside each standard SME. Move the positions of these DIP switches to the setting that matches the data rate used in your system.
- Figure 3-1 on page 7 shows the layout of the SME's printed-circuit board.

Table 3-1. Strap Settings for High-Speed SME V.35

STRAP	FUNCTION
W1	You can use this strap to tie the Frame Ground (V.35 Pin A, RS-530 Pin 1) and Signal Grounds (V.35 Pin B, RS-530 Pins 7 and 23) together. The unit comes from the factory without the grounds tied together. (See the Appendix for interface/connector pinouts.)
W2	Determines the clear-to-send (CTS) delay on port J2: Position A = 50 ms (the factory-default setting) Position B = 10 ms Position C = 0 ms
W3	Determines the clear-to-send (CTS) delay on port J1: Position A = 50 ms (the factory-default setting) Position B = 10 ms Position C = 0 ms
W4	Determines the clock source for port J1 (that is, the source of the signals on J1's SCT [Serial Clock Transmit] pins and J2's SCR [Serial Clock Receive] pins—see the Appendix for pinouts): In the EXT position, timing is external (from J1's SCTE [Serial Clock Transmit External] pins). In the RCVD position, timing is recovered (from J2's SCTE [Serial Clock Transmit External] pins). In the INT position, timing is internal (from the SME's internal clock). The unit is shipped from the factory in the "INT," internal, position. See the note on the previous page.
W5	Determines the clock source for port J2 (that is, the source of the signals on J2's SCT [Serial Clock Transmit] pins and J1's SCR [Serial Clock Receive] pins—see the Appendix for pinouts): In the EXT position, timing is external (from J2's SCTE [Serial Clock Transmit External] pins). In the RCVD position, timing is recovered (from J1's SCTE [Serial Clock Transmit External] pins). In the INT position, timing is internal (from the SME's internal clock). The unit is shipped from the factory in the "INT," internal, position. See the note on the previous page.
W6	Determines clock range (that is, which set of data rates the SME can be set for with switches S1 and S2; see Table 3-2 on the next page).

Table 3-2. Selected Settings of the High-Speed SME V-35's Data-Rate Switches*

DATA RATE (bps)	SWITCH S1 POSITIONS						SWITCH S2 POSITIONS						STRAP W6
	1	2	3	4	5	6	1	2	3	4	5	6	
1,544,000	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	A-B
772,000	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	A-B
2,048,000	OFF	OFF	OFF	OFF	OFF	OFF	ON	OFF	OFF	OFF	OFF	OFF	B-C
1,024,000	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	OFF	OFF	OFF	OFF	B-C
512,000	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	OFF	OFF	OFF	B-C
256,000	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	OFF	OFF	B-C
128,000	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	OFF	B-C
64,000	OFF	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	B-C
32,000	ON	OFF	OFF	OFF	OFF	OFF	ON	ON	ON	ON	ON	ON	B-C

* Do *not* set all positions of S1 and S2 to OFF. If you would like to operate at a data rate other than those shown here, call Black Box. If your SME can support your desired data rate, technical support personnel can help you determine how to set these switches. If standard SMEs can't support your data rate, Black Box might be able to give you a quote on a custom unit.

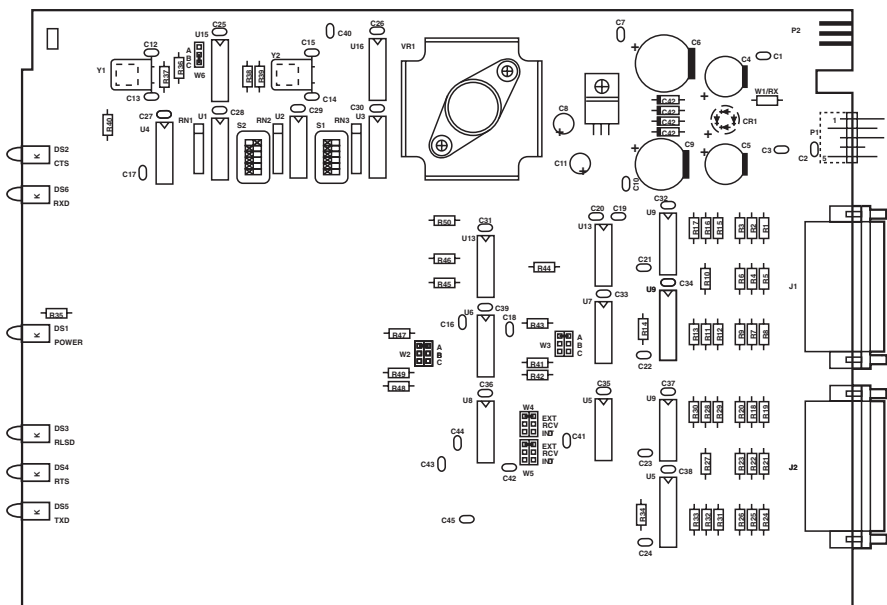


Figure 3-1. Layout of the High-Speed SME V-35's circuit board.

4. Installation

To install your High-Speed SME V.35 after you're finished configuring it:

Card models (ME107C, ME108C) only—standalone users skip to step 2:

1. Slide the card into an available slot on a compatible rack (for example, our 8-Card Rack with product code RM060). Make sure that the gold contacts on its upper rear corner are firmly wedged into the rack's power-supply groove.

All models:

2. Run a cable from one of the SME's rear-panel connectors, labeled J1 or J2, to one of the devices you want to connect. Run a second cable from the other device to the SME's other connector. (Make sure the cables don't exceed the recommended cable length specified for your system's interface.) Make sure all connections are tight.

This completes the installation for card models—users of these models should skip step 3.

Standalone models (ME107A, ME107AE, ME108A, ME108AE) only:

3. Plug the power supply's output cord into the P1 connector on the SME's rear panel. Plug its input cord into a power outlet.

Your SME is now ready for continuous operation.

5. Troubleshooting

5.1 Calling Black Box

If you determine that your High-Speed SME V.35 is malfunctioning, *do not attempt to alter or repair the unit*. It contains no user-serviceable parts. Contact Black Box: The problem may be solvable over the phone.

Before you do, make a record of the history of the problem. We 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.

5.2 Shipping and Packaging

If you need to transport or ship your SME:

- Package it carefully. We recommend that you use the original container.
- If you are shipping the SME for repair, include its power supply. If you are returning the SME, make sure you include everything you received with the unit. Before you ship, contact Black Box to get a Return Materials Authorization (RMA) number.

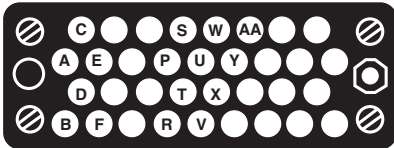
Appendix: Connector Pinouts

Any signal or pin designation that does not appear in the following chart is not supported by the SME.

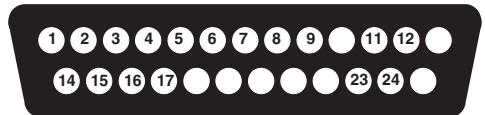
Table A-1. Pinout for connectors J1 and J2

M34 PIN	DB25 PIN	SIGNAL	DESCRIPTION	SIGNAL TYPE	DIRECTION
A	1	FG	Frame Ground	Ground	—
P	2	SD (A)	Send Data (A)	Data	To DCE
R	3	RD (A)	Receive Data (A)	Data	From DCE
C	4	RTS	Request to Send	Control	To DCE
D	5	CTS	Clear to Send	Control	From DCE
E	6	DSR	Data Set Ready	Control	From DCE
B	7, 23	SG	Signal Ground	Ground	—
F	8	RLSD	Received Line Signal Detector	Control	From DCE
X	9	SCR (B)	Serial Clock Receive (B)	Timing	From DCE
W	11	SCTE (B)	Serial Clock Transmit External (B)	Timing	To DCE
AA	12	SCT (B)	Serial Clock Transmit (B)	Timing	From DCE
S	14	SD (B)	Send Data (B)	Data	To DCE
Y	15	SCT (A)	Serial Clock Transmit (A)	Timing	From DCE
T	16	RD (B)	Receive Data (B)	Data	From DCE
V	17	SCR (A)	Serial Clock Receive (A)	Timing	From DCE
U	24	SCTE (A)	Serial Clock Transmit External (A)	Timing	To DCE

V.35 Interface (Male 34-pin M-block Connector)



RS-530 Interface (Male DB25 Connector)





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