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).

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 1+ (312) 824-3024 or Shurter, Inc. at 1+ (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

POWER CONNECTION

Before connecting the RA-64k's to an AC power source the top cover should be installed with the supplied #4-40 screws. AC power is supplied to the RA-64k's 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 RA-64k's Warranty will be void.

Power Connection
Figure 3-1

110/220 VAC Switch

Fuse Drawer

IEC Power Connector
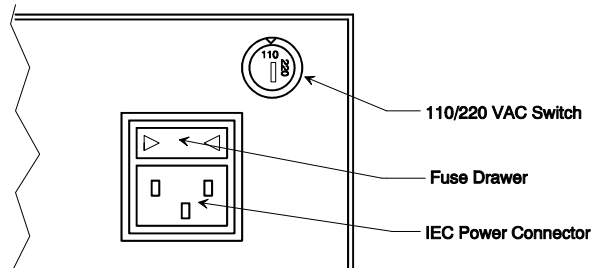
FRONT PANEL INDICATORS

Located on the front panel of the RA-64k are LED indicators for each ASYNC and SYNC data port. The control signal indicators act as a break out box in that installation and trouble shooting are a straight forward process.

EAST COAST DATACOM, INC., 245 Gus Hipp Blvd., STE 3, Rockledge FL 32955

DESCRIPTION:
The RA-64K Rate Adapter allows low speed async/sync RS-232 DTE equipment operating at 9.6k, 19.2k, 38.4k and 57.6k to transmit over a high speed 64K clear channel sync communications link. The RA-64k devices are used in pairs, one at each end of the communications link or in multiples as when used in a multi-point or broadcast communications link. The RA-64k will support bi-directional or simplex data transmissions.

The RA-64k supports async character length of 8, 9, 10 and 11 bits, including the start and stop bit. The async interface is RS-232 and supports data rates of 9.6k, 19.2k, 38.4k and 57.6k. The synchronous data interface rate must be set at 64k or 128k if using 115.2k async.
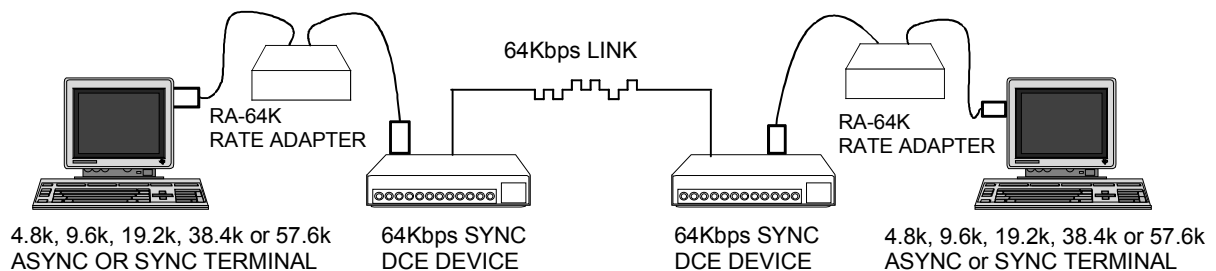
The RA-64k will support V.35 by ordering the unit under part number 147000. The RA-64k/V35 data interface will support both the old V.35 (+/-0 .5 volts) or newer V.35 (ITU recommendation V.11) ground to +3.8 volts. A DB-25 male to V.35 male 6 foot adapter cable is required for V.35 termination. The cable should be ordered under part number 712005.
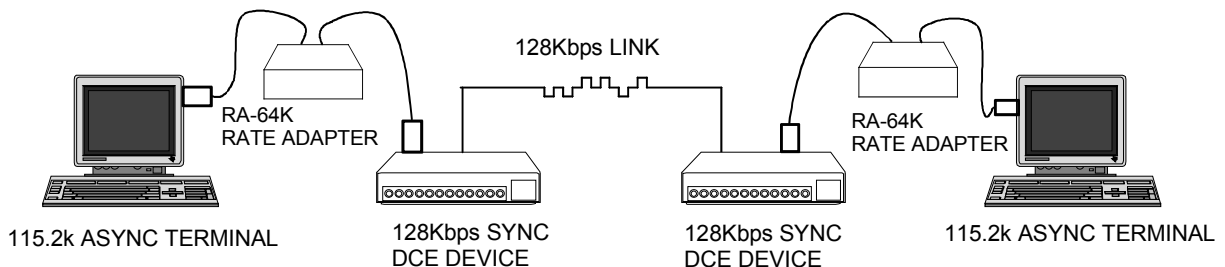
CABLING:
The users data cables should be straight through, shielded and no longer than 20 feet. Standard RS-232 cabling may be used on the RS-232 interface. It is recommended that the synch V.35 cabling be shielded, twisted pair cabling. The twisted pairs should consist of Data +/- and Clock +/- and all cabling must have the grounds properly terminated.

SWITCH SETTINGS:
Configuration of the RA-64k requires that all units must be set to the same baud rate, character length.

64Kbps LINK

RA-64K RATE ADAPTER

RA-64K RATE ADAPTER

4.8k, 9.6k, 19.2k, 38.4k or 57.6k ASYNC OR SYNC TERMINAL

64Kbps SYNC DCE DEVICE

64Kbps SYNC DCE DEVICE

4.8k, 9.6k, 19.2k, 38.4k or 57.6k ASYNC or SYNC TERMINAL

64K APPLICATION DIAGRAM

128Kbps LINK

RA-64K RATE ADAPTER

RA-64K RATE ADAPTER

115.2k ASYNC TERMINAL

128Kbps SYNC DCE DEVICE

128Kbps SYNC DCE DEVICE

115.2k ASYNC TERMINAL

128K APPLICATION DIAGRAM

IMPORTANT CONFIGURATION NOTICE

TESTING PC'S IN HYPERTERMINAL:
Due to the difference in PC serial communications ports made by different manufacturers UARTS and depending on the software revision level of HyperTerminal, the user may experience difficulty in establishing communications. When testing the RA-64k units with standard PC's using HyperTerminal the following procedure should be followed:
A) Test the 64k sync clear channel link using synchronous test equipment.
B) Set the RA-64k units to your desired data rate and character length
C) Plug the units into the DCE and DTE data cables
D) Change the Hyperterminal settings to match the RA-64k Async settings at both ends of the communication link. We suggest TTY as the terminal emulation mode. Save the settings and exit HyperTerminal on both PC's. Restart HyperTerminal and normal communications should be established. If the PC's monitor displays corrupted characters, either the RA-64k units or the PC's may have the wrong data rate or character length settings.
E) Each time you change the RA-64k units data rate or character length you must also change HyperTerminals settings to match the RA-64k. *You must also exit and reenter HyperTerminal each time the settings are changed.*

Trouble Shooting communication problems:
To help pinpoint the communication problem, the user should confirm the following:
A) Data Cables: If you are using you own data cables, confirm the pinouts to the Cable Pinout Chart in this documentation.
B) Sync DCE 64k communications link is working error free end to end.
C) Async DTE communications are set to match the RA-64k units settings on both ends of the link.
D) If possible, direct connect the two Async DTE devices together using a crossover cable between the devices to confirm that the Async devices are indeed working.
E) Single sided operation using one PC, one RA-64k and one DCE device: Set the PC and RA-64k data rate and character length to the same rates and character length, such as 19.2k and 8,N,1(10 bit data). Set the Sync DCE at 64k and put the DCE(modem) into Local Loop back. Plug in the data cables. Now exit and restart HyperTerminal. Single sided communications should now work. If the user can establish single sided communications on each side of the Sync communications link, in all probability there is a sync communications problem between the two 64k sync devices.

CABLE PINOUT SPECIFICATION
PART NUMBER 147000, Model: RA-64k/V35
Connects to V.35 side on PCB
V.35 to DB-25 Data Cable Pin Assignments

25-PIN CONNECTOR	34-PIN CONNECTOR	CIRCUIT NAME
Pin Number	Pin Number	
7	B	Signal Ground
4	C	Request-to-Send (RTS)
5	D	Clear-to-Send (CTS)
6	E	Data Set Ready (DSR)
8	F	Received Line Signal Detect (LSD)
20	H	Data Terminal Ready (DTR)
21	J	Ring Indicator (RI)
18	L	Local Loopback (LL)
19	N	Remote Digital Loopback (RL)
24+, 11-	P+, S-	Transmit Data (TXD)
23+, 22-	R+, T-	Received Data (RXD)
15+, 2-	U+, W-	Transmitter Signal Element Timing - DTE Source
16+, 3-	V+, X-	Receiver Signal Element Timing - DCE Source
14+, 1-	Y+, AA-	Transmitter Signal Element Timing - DCE Source
25	NN	Test Mode (TM)
13	A	Earth Ground

	A	B	C	D	E	F	G	H	I	J
1						**East Coast Datacom, Inc.**		**RA-64KV35_AC STRAP CHART**		
2						www.ecdata.com		30-Apr-07		
3						email: info@ecdata.com				
4	**Switch 1**	**Pin 1**	**Pin 2**	**Pin3**	**Pin4**					
5		On	Off	Off	Off	V35 RTS is forced off				
6		Off	On	Off	Off	V35 RTS follows RS232 RTS				
7		Off	Off	On	Off	V35 RTS is forced on				
8		Off	Off	Off	On	Future Setting				
9										
10	**Switch 2**	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**					
11		On	Off	Off	Off	V35 DTR is forced off				
12		Off	On	Off	Off	V35 DTR follows RS232 DTR				
13		Off	Off	On	Off	V35 DTR is forced on				
14		Off	Off	Off	On	Future Setting				
15										
16	**Switch 3**	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**	**Pin 5**	**Pin 6**			
17		On	Off	Off	Off	Off	Off	Async CTS is forced off		
18		Off	On	Off	Off	Off	Off	Async CTS follows Async RTS		
19		Off	Off	On	Off	Off	Off	Async CTS is forced on		
20		Off	Off	Off	On	Off	Off	Async CTS follows V35 CTS		
21		Off	Off	Off	Off	On	Off	Async Local RTS to Remote CTS	In-Band with the Data	
22		Off	Off	Off	Off	Off	On	Future Setting		
23										
24	**Switch 4**	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**	**Pin 5**	**Pin 6**			
25		On	Off	Off	Off	Off	Off	Async CD is forced off		
26		Off	On	Off	Off	Off	Off	Async CD follows Async RTS		
27		Off	Off	On	Off	Off	Off	Async CD is forced on		
28		Off	Off	Off	On	Off	Off	Async CD follows V35 CD		
29		Off	Off	Off	Off	On	Off	Async Local RTS to Remote CD	In-Band with the Data	
30		Off	Off	Off	Off	Off	On	Future Setting		
31										
32	**Switch 5**	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**	**Pin 5**	**Pin 6**			
33		On	Off	Off	Off	Off	Off	Async DSR is forced off		
34		Off	On	Off	Off	Off	Off	Async DSR follows Async RTS		
35		Off	Off	On	Off	Off	Off	Async DSR is forced on		
36		Off	Off	Off	On	Off	Off	Async DSR follows V35 DSR		
37		Off	Off	Off	Off	On	Off	Async Local RTS to Remote DSR	In-Band with the Data	
38		Off	Off	Off	Off	Off	On	Future Setting		
39										
40	**Switch 6**	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**	**Pin 5**	**Pin 6**	**Pin 7**	**Pin 8**	
41		On								ESR On
42		Off								ESR Off
43			Off	On						8 Bit
44			On	On						9 Bit
45			Off	Off						10 Bit
46			On	Off						11 Bit
47					Off	Off	On			4.8k
48					Off	Off	Off			9.6k
49					Off	On	Off			19.2k
50					On	Off	Off			38.4k
51					On	On	Off			57.6k
52					On	Off	On			115.2k
53								On		ON = ASYNC
54								Off		OFF = SYNC
55									On (Future use)	High Speed On
56								**OFF ONLY**		High Speed Off
57										
58	**Switch 7**	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**	**Pin 5**	**Pin 6**			
59		Off	Off	Off	Off	On	Off	4.8k		
60		Off	Off	Off	On	Off	Off	9.6k		
61		Off	Off	On	Off	Off	Off	19.2k		
62		Off	On	Off	Off	Off	Off	38.4k		
63		Off	On	Off	Off	Off	Off	57.6k		
64		On	Off	Off	Off	Off	Off	115.2k		
65										
66	**Switch 8**	**Pin 1**	**Pin 2**	**Pin 3**	**Pin 4**			**NOTES**		
67		Off	On	Off	Off	4.8k		ESR = Extended signalling rate.		
68		Off	On	Off	Off	9.6k		The tolerance of the synchronous bit rate can		
69		Off	On	Off	Off	19.2k		be:		
70		Off	On	Off	Off	38.4k		XESR = OFF (basic signalling rate) TXC -2.5%...+1.0%		
71		On	Off	Off	Off	57.6k		XESR = ON (extended signalling rate) TXC -2.5%...2.3%		
72		On	Off	Off	Off	115.2k		**Set High Speed Option Always to OFF**		
73								Yellow highlight indicated factory default		
74										
75								Number of bits = bits plus the stop and start (10 bit = 8, N, 1)		