Addendum for 2.048-Mbps (“Hi Speed”) Short-Range Driver Manual: 19" Card Versions for RackNest 2/14

1. Description of the RackNest 2/14

The RackNest 2/14 is a special 19" rack component designed to host a number of our short-haul modems and line drivers. As shown in Figures 1 (on page 3) and 2 (on page 4), it consists of a rack chassis (with one or two power supplies) into which you can plug as many as 14 modem or driver cards.

The RackNest’s rear panel consists of fourteen five-screw terminal blocks (“TB1”) and fourteen connectors (“J1”). Each terminal block (“TB1”) provides four screws for connecting the RackNest-to-RackNest G.703 transmit and receive lines—the transmit line or pair can be connected to (one of) the terminals marked XMT, and the receive line or pair can be connected to (one of) the terminals marked RCV—plus a fifth screw for ground connection (optional for balanced-interface cards).

Each interface connector (“J1”) is a DB25 female. The pinning of this connector depends on the type of Card installed in the corresponding slot, because the Cards will present and expect different signals on different pins. For the V.35 model of the (balanced-interface) 2.048-Mbps Short-Range Driver Card (ME270C-35), the pinning is a special V.35-on-DB25 variant; for the RS-530 and X.21 models of these cards (ME270C-530 or ME275C-X21), the pinning is RS-530. Refer to Table 3-1 on pages 17 through 19 of the standalone ME270A-R2 manual for the pinouts of this connector, and for the pinning of the adapters or adapter cables that will be necessary to attach a V.35 or X.21 DTE to this connector.

2. Description of the RackNest 2/14's Power Supply

The 115-VAC RackNest 2/14 (our product code RM110A) uses the PS1000A power supply, which accepts 115-VAC input power. The 230-VAC RackNest 2/14 uses power supply PS1000AE, which accepts 230-VAC input power. Each of these power supplies consists of a power-line transformer, a fuse, and an operating switch. The 115-VAC RackNest can also be ordered with dual power supplies (our product code RM110A-2PS); either of these power supplies can be hot-swapped if it fails.

All power-regulating circuitry for the RackNest 2/14 is located on the card modems themselves. Each card has two fuses which protect the entire system against power failure due to a short circuit in one card. Primary power needed is 115 or 230 VAC ±10%, 47 to 63 Hz, at 24 VA maximum.

AC power should be supplied to the RackNest 2/14 through a standard power cable run between the AC mains socket on the rear of the RackNest's power-supply module—an IEC 320 male power inlet which contains an integral fuse—and a standard, grounded, easily accessible AC outlet. (If your RackNest is an RM110A, you can use the power cord supplied with it; if your RackNest is an RM110AE, use a power cord appropriate for your site's mains outlets.)

The RackNest begins operating and supplying power to the installed Cards as soon as it is plugged into a mains outlet, and will continue operating until it is unplugged.

WARNING!

This unit should always be grounded through the protective earth lead of the power cable. Before AC power is connected to this unit, the mains plug should only be inserted into a socket outlet provided with protective earth contact. The protective action must not be negated by use of an extension cord without a grounding conductor.

Whenever it is likely that the unit's fuse (located in a bayonet-type fuse holder on the unit's rear panel) has been blown or damaged, make the unit inoperative and secure it against unintended operation until the fuse can be replaced. Make sure that only fuses of the required rating, as marked on the rear panel, are used for replacement. Do not use repaired fuses or short-circuit the fuse holder. Always disconnect the mains cable before removing or replacing the fuse.

Interrupting the grounding conductor, inside or outside the unit, or disconnecting the protective earth contact, can make this unit dangerous!

3. The RackNest 2/14 Illustrated

You will be installing the 2.048-Mbps Short-Range Driver Card in the RackNest 2/14 as shown in Figure 1 below. The front and rear panels of the RackNest are shown in Figure 2 on the next page; the numbered connectors, controls, and indicators are described in Table 1 on page 5.

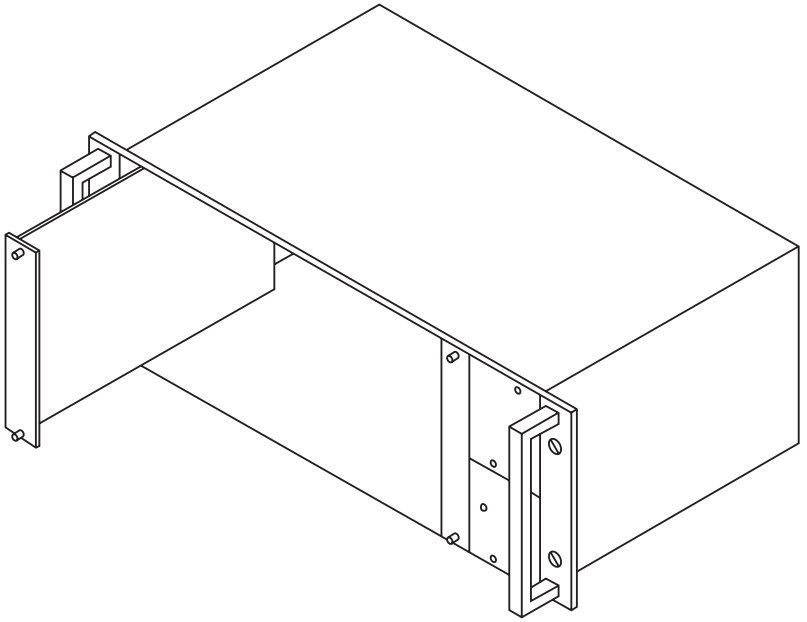

Figure 1. The RackNest 2/14: Card installation.

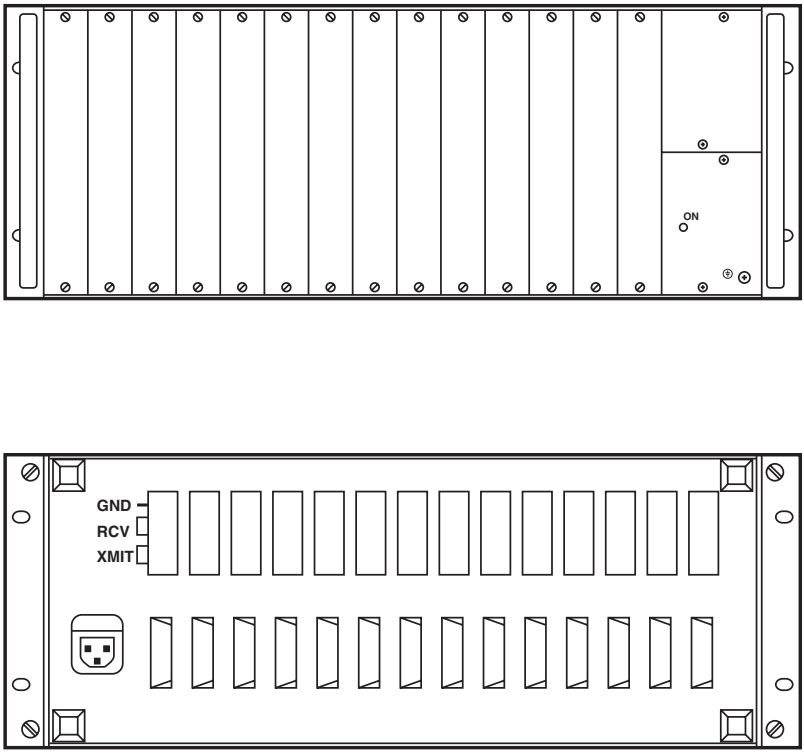

Figure 2. The RackNest 2/14 illustrated.

Table 1. Descriptions of RackNest 2/14 components.

Control, Indicator, or Connector	Function
Card Slots	Slots for installation of compatible cards (slot no. 1 located at the left-hand side). Unused slots are closed with blank panels.
Power-Supply Module	Provides power to modules installed in the enclosure.
ON Indicator	Lights when power supply is operating.
Chassis-Ground Terminal	Connector for attaching other grounds, devices, etc., to the RackNest's chassis ground (optional).
Power Connector	Power connector with integral fuse.
Main Channel Connectors (J1)	DB25 connectors for the module DTE connection.
4-Wire Terminal Blocks (TB1)	For connection of 2- or 4-wire lines. Each modem card has a separate terminal-block connector.

4. Descriptions of the Modem Cards

The ME270C-35 and ME270C-530 are card versions of the 2.048-Mbps ("Hi Speed") Short-Range Driver, for the ITU-TSS V.35 and EIA/TIA RS-530 interfaces respectively. They can be easily installed in the RackNest 2/14. Their front-panel indicators and controls are arranged vertically rather than horizontally, but work exactly the same way as the indicators and controls with the same names on the front panels of the standalone ME270A(E)-R2 and ME272A(E)-R2 units; refer to **Section 4.2** of the manual for the standalone units. The controls on the card's circuit boards also function the same way as those on the circuit boards of the standalone units; refer to Table 3-3, Figure 3-3, and Figure 3-4 on pages 21 through 23 of the manual for the standalone units. The main difference between these cards and the standalone versions is that where the standalone units have their own interface-specific connectors on their rear panels, the cards plug into the RackNest 2/14 and use its generic connectors.

The ME275C-530 is just like the ME270C-530, with one exception: ME275C-530 pairs are designed to communicate with each other across an unbalanced G.703 interface. That is, they use only one transmit, one receive, and one ground lead, as opposed to using a pair of transmit leads and a pair of receive leads (with an optional ground). The ME275C-X21 is a X.21 version of this car, and an unbalanced-interface card version of the ME271AE-R2.

Each Card consumes 5 watts of power from the RackNest 2/14, is 6.2"H x 1"W x 9"D (15.7 x 2.5 x 22.9 cm), and weighs 0.8 lb. (0.4 kg).

5. Installation

After you install the RackNest 2/14 in your 19" rack (refer to the RackNest's manual), take these steps to install a 2.048-Mbps Short-Range Driver Card in the Nest:

1. Configure the card by setting its board-level controls; refer to **Sections 3.5.1** and **3.5.2** of the manual for the standalone units, as well as Table 3-3, Figure 3-3, and Figure 3-4 on pages 21 through 23 of that manual.

2. Insert the card into an empty slot on the RackNest (see Figure 1 on page 3). Do not use excessive force. If the card does not go in easily, remove the card, realign it with the RackNest's enclosure guides, and push it into place.

NOTE

When the RackNest 2/14 is ON, personnel are not exposed to any voltage over 30V on any card or accessible area of the RackNest. Still, take all reasonable precautions to avoid electric shock.

3. Tighten the nut on the top of the card.

4. Push the bottom of the card as far into the RackNest as it will comfortably go, to ensure that its card-edge connector makes full contact with the RackNest's.

5. Run an appropriate cable from your DTE to the corresponding DB25 connector ("J1") on the back of the RackNest:

- ME270C-530 and ME275C-530 (RS-530) units: You can use standard RS-530 (DB25 male-to-male) cable. Refer to the "RS-530 (ME272)" column in Table 3-1 on pages 17 through 19 of the standalone units' manual for the pinout.

- ME270C-35 or ME275C-35 (V.35) units: Either this cable needs to be specially pinned and have a DB25 male connector at the RackNest end and an M/34 male connector at the DTE end—compare the "DB25 Frame" column with the "34-Pin Standalone" column under "V.35 (ME270)" in Table 3-1 on pages 17 through 19 of the standalone units' manual—or you need to use a correctly pinned, short DB25-male-to-M/34-female cable or similar adapter to patch between the V.35 (M/34 male-to-male) cable and the RackNest's DB25 connector. Call Black Box for a quote on this type of cable.

- ME275C-X21 (X.21) units: Either this cable needs to be pinned for RS-530 to X.21 (see Table 4-4 on page 30) and have a DB25 male connector at the RackNest end and a DA15 ("DB15") male connector at the DTE end—compare the "DB25 Frame" column with the "DB15 Standalone" column under "X.21 (ME271)" in Table 3-1 on pages 17 through 19 of the standalone units' manual—or you need to use a correctly pinned, short DB25-male-to-DA15-female cable or similar adapter to patch between the X.21 (DA15 male-to-male) cable and the RackNest's DB25 connector. Call Black Box for a quote on this type of cable.

6. If you haven't already done so, install the remote RackNest 2/24 and repeat steps 1 through 5 at the remote site.

7. Run twisted-pair cable between the local and remote cards:

- If your cards are ME270C models: Attach one pair of wires to the corresponding XMT terminals ("TB1") on the back of the local RackNest and the corresponding RCV terminals on the remote RackNest; attach the other pair of wires to the RCV terminals on the local Nest and the XMT terminals on the remote RackNest. (It doesn't matter which wire in each pair goes to which terminal in each pair; the cards autosense parity.) If you're using a ground wire, attach it to the GND terminal on one Nest (not both of them!).

- If your cards are ME275C models: Attach one of the data wires to either of the corresponding XMT terminals ("TB1") on the back of the local RackNest and either of the corresponding RCV terminals on the remote RackNest; attach the other data wire to either of the RCV terminals on the local RackNest and either of the XMT terminals on the remote RackNest. Attach the ground wire to the GND terminals on both RackNests.

5. Operation and Troubleshooting

You should be able to operate and troubleshoot the installed cards in the same way you would their standalone counterparts. See Chapters 4 and 5 of the manual for the standalone units.

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