2. The INNPM22 is a functional replacement for the INNPM12 only. The INNPM22 cannot be used in a redundant pair with an INNPM12.

3. The INNIS21 is a direct replacement for the INNIS11. However, the INNPM22 can only be used in combination with an INNIS21 (cannot be used with an INNIS11 or INNIS01).

Control Network

Cnet is a unidirectional, high speed serial data network that operates at a 10-megahertz or two-megahertz communication rate. It supports a central network with up to 250 system node connections. Multiple satellite Cnets can link to the central network. Each satellite network supports up to 250 system node connections. Interfacing a maximum number of satellite networks gives a system capacity of over 62,000 nodes.

On the central network, a node can be a bridge to a satellite network, a human system interface, an HCU, or a computer connected through a Cnet communication interface. On a satellite network, a node can be a bridge to a central network, a human system interface, a HCU cabinet, or a computer. A human system interface is a workstation that runs Conductor or 800xA for Harmony software. A Harmony control unit is comprised of a controller and its I/O devices. A computer can run Composer™ tools, Performer applications, and third-party semAPI applications.

Harmony Control Unit

The Harmony control unit is the fundamental control node of the Symphony system. It connects to Cnet through the Cnet-to-HCU interface. The HCU cabinet contains the Harmony controllers and input/output devices. The actual process control and management takes place at this level. HCU connection to Cnet enables Harmony controllers to:

- Communicate field input values and states for process monitoring and control.
- Receive control instructions from plant personnel through human system interfaces to adjust process field outputs.
- Provide feedback to plant personnel of actual output changes through human system interfaces.

Table 2-1. Warm Failover Performance Data *(continued)*

Points Imported and Exported	Time (msec)	
	Local	Remote
225 analog and 275 digital	450	1,500
300 analog and 450 digital	600	2,000
400 analog and 600 digital	700	2,250
600 analog and 900 digital	1,000	3,000

All test configurations are balanced in that both nodes import and export the same numbers and types of exception reports. ***Local*** time values represent the time required by the backup INNPM22 module in a redundant interface node to recognize a primary module failure, assume the primary role, and send the indicated number of exception reports to the nonredundant interface node. ***Remote*** time values represent the time required by the nonredundant module to transmit all exception reports to the redundant module following a primary module failure.

Mounting Hardware

Harmony rack modules and termination units mount in standard ABB Automation enclosures (CAB-01, CAB-04, CAB-12). The number of modules that can be mounted in a single cabinet varies.

An IEMMU11, IEMMU12, IEMMU21, or IEMMU22 MMU and a NFTP01 Field Termination Panel (FTP) are used for module and termination unit mounting respectively (Fig. 2-6). The mounting unit and termination panel both attach to the side rails in standard 483-millimeter (19-inch) enclosures. Front mount and rear mount MMU versions are available to provide flexibility in enclosure mounting.

A MMU is required to mount and provide power to rack modules. The unit is for mounting controllers, I/O modules, and communication interface modules. The MMU backplane connects and routes:

- Controlway.
- I/O expander bus.
- Logic power to control, I/O, and interface modules.

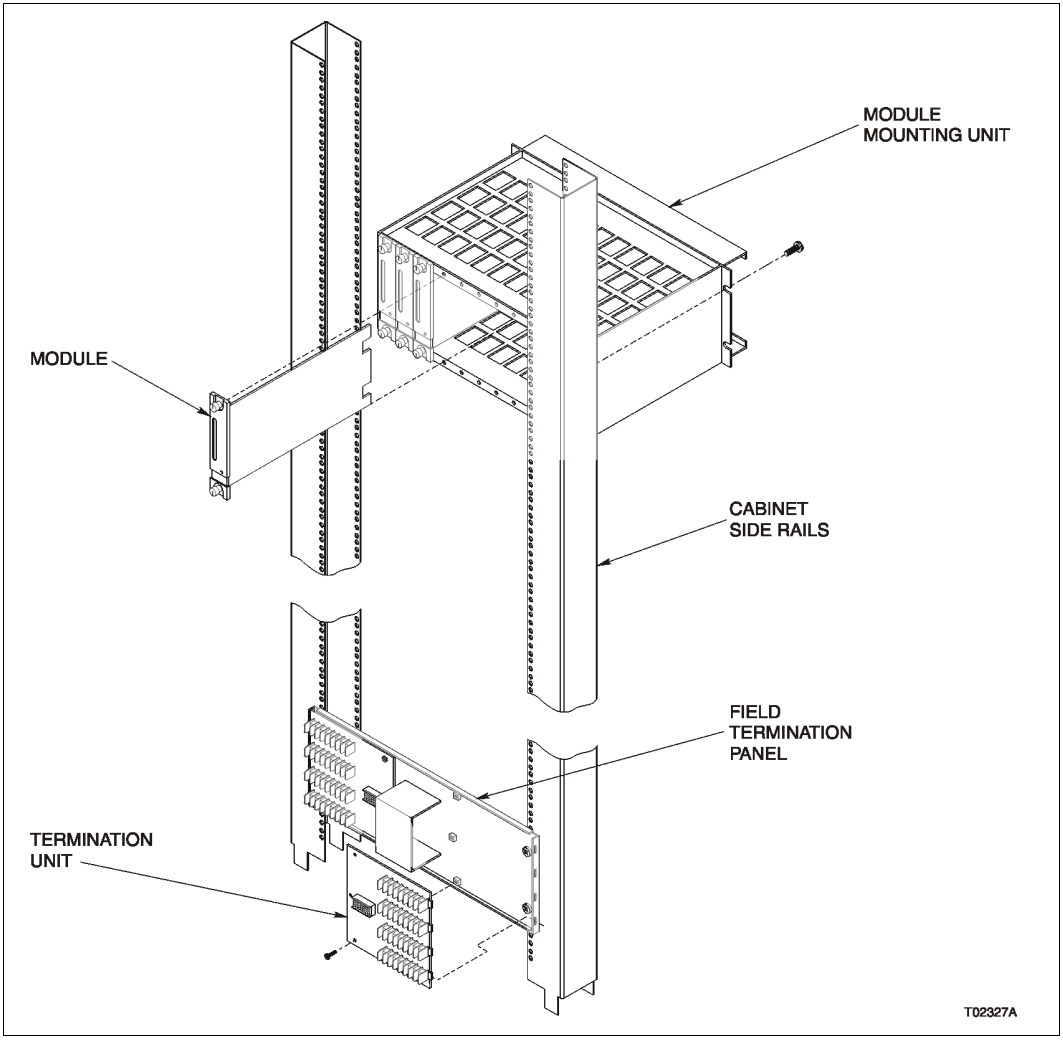

Figure 2-6. Mounting Hardware

The Controlway and I/O expander bus are internal cabinet, communication buses. Communication between rack controllers and communication interface modules is over Controlway.