

Tekelec 1200/5100
Integrated Application Platforms

Installation Manual

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TEKELEC

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Patents

This product is covered by one or more of the following U.S. and foreign patents:

U.S. Patent Numbers:

5,732,213; 5,953,404; 6,115,746; 6,167,129; 6,324,183; 6,327,350; 6,456,845; 6,606,379; 6,639,981;
6,647,113; 6,662,017; 6,735,441; 6,745,041; 6,765,990; 6,795,546; 6,819,932; 6,836,477; 6,839,423; 6,885,872;
6,901,262; 6,914,973; 6,940,866; 6,944,184; 6,954,526; 6,954,794; 6,959,076; 6,965,592; 6,967,956; 6,968,048;
6,970,542; 6,987,781; 6,987,849; 6,990,089; 6,990,347; 6,993,038; 7,002,988; 7,020,707; 7,031,340; 7,035,239;
7,035,387; 7,043,000; 7,043,001; 7,043,002; 7,046,667; 7,050,456; 7,050,562; 7,054,422; 7,068,773; 7,072,678;
7,075,331; 7,079,524; 7,088,728; 7,092,505; 7,108,468; 7,110,780; 7,113,581; 7,113,781; 7,117,411; 7,123,710;
7,127,057; 7,133,420; 7,136,477; 7,139,388; 7,145,875; 7,146,181; 7,155,206; 7,155,243; 7,155,505; 7,155,512;
7,181,194; 7,190,702; 7,190,772; 7,190,959; 7,197,036; 7,206,394; 7,215,748; 7,219,264; 7,222,192; 7,227,927;
7,231,024; 7,242,695; 7,254,391; 7,260,086; 7,260,207; 7,283,969; 7,286,516; 7,286,647; 7,286,839; 7,295,579;
7,299,050; 7,301,910; 7,304,957; 7,318,091; 7,319,857; 7,327,670

Foreign Patent Numbers:

EP1062792; EP1308054; EP1247378; EP1303994; EP1252788; EP1161819; EP1177660; EP1169829;
EP1135905; EP1364520; EP1192758; EP1240772; EP1173969; CA2352246

Ordering Information

Your Tekelec Sales Representative can provide you with information about how to order additional discs.

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About this Manual

This manual provides cabinet installation information for the Tekelec 1200 (T1200) and the Tekelec 5100 (T5100) platforms.

Manual Organization and Conventions

This manual is organized into the following chapters:

- [Chapter 1, "Introduction"](#) contains general information about manual organization, scope, and audience, related documentation, how to locate customer documentation on the Customer Support site, how to get technical assistance, and RMA requirements.
- [Chapter 2, "Safety and Pre-Installation Requirements"](#) provides safety information when handling hardware components; electromagnetic compatibility, and typical site requirements.
- [Chapter 3, "Hardware Description"](#) provides zoning information as well as brief descriptions of each T1200 and T5100 hardware component.
- [Chapter 4, "Cabinet Installation"](#) provides cabinet unpacking and installation procedures as well as grounding and cabling information.
- [Chapter 5, "Glossary"](#) provides acronyms and terminology applicable to the T1200 and T5100 platforms.

Scope and Audience

This manual is intended for qualified technical installation and test personnel that must have thorough knowledge of telecommunication installation specifications, procedures, and equipment standards.

NOTE: All personnel must conform to standards throughout this document, along with local, state, and national installation laws and standards.

This manual does not cover testing or system software.

All installations are site specific, therefore a comprehensive site survey is necessary for all installations.

For hardware descriptions or basic site engineering information, refer to the *Hardware Manual* included with your system documentation. For replacement procedures of existing hardware components, refer to the *Maintenance Manual* or FRU replacement document included with your system documentation.

Admonishments and Conventions

Admonishments alert the reader and technical personnel to assure personal safety, to minimize possible service interruptions, and to warn of the potential for equipment damage. This manual has four admonishments, listed in descending order of priority.

	TOPPLE/DANGER: (This icon and text indicate the possibility of <i>personnel injury and equipment damage</i> .)
	DANGER: (This icon and text indicate the possibility of <i>personnel injury</i> .)
	WARNING: (This icon and text indicate the possibility of <i>equipment damage and personnel injury</i> .)
	CAUTION: (This icon and text indicate the possibility of <i>service interruption</i> .)

Related Publications

The *Tekelec 1200/5100 Integrated Application Platforms Installation Manual* is part of the Tekelec 1200 or Tekelec 5100 documentation set and may refer to one or more of the manuals included in the respective documentation set.

Tekelec 1200 Integrated Application Platform Documentation

- The *T1200 Platform Hardware Manual* provides an overview of each system and its subsystems, details of standard and optional hardware components in each system, and basic site engineering.
- The *T1200 Platform Maintenance Manual* contains procedural information required for maintaining the Tekelec 1200 and the card removal and replacement procedures. The *Maintenance Manual* provides preventive and corrective maintenance procedures used in maintaining the different systems.
- The *Platform Alarm Manual* describes all available platform alarms as of TPD 3.0 and provides their recovery procedures.

Tekelec 5100 Integrated Application Platform Documentation

This document has the following related publications, which can be found either on the same documentation disc, on the application documentation disc, or on the Customer Support site:

- *T5100 Platform System Overview*
- *T5100 Platform Hardware Manual*
- *T5100 Platform Field-Replaceable Unit (FRU) Procedures*
- *PM&C/T5100 Initial Installation and Configuration User's Guide*
- *PM&C/T5100 ATCA Troubleshooting Guide*

Documentation Availability, Packaging, and Updates

Tekelec provides documentation with each system and in accordance with contractual agreements. A Documentation Bulletin announces a new or updated release.

This hardware documentation is released on a DVD with or without related application documentation. The electronic file of this documentation is also available from the [Tekelec Customer Support](#) site. This site allows for 24-hour access to the most up-to-date documentation.

NOTE: Customers may print a reasonable number of documentation for their own use.

Documentation is updated when significant changes are made that affect system operation. Updates resulting from Severity 1 and 2 Problem Reports (PRs) are made to existing manuals. Other changes will be included in the documentation for the next scheduled release. Updates are made by re-issuing an electronic file to the customer support site. Occasionally, changes are communicated first with a Documentation Bulletin to provide customers with an advanced notice of the issue until officially released in the documentation. Documentation Bulletins are posted on the Customer Support site and can be viewed per product and release.

Locate Product Documentation on the Customer Support Site

Access to Tekelec's Customer Support site is restricted to current Tekelec customers only. This section describes how to log into Tekelec's Customer Support site and locate a document. Viewing the document requires Adobe Acrobat Reader, which can be downloaded at www.adobe.com.

1. Log into Tekelec's **new** Customer Support site at support.tekelec.com.

NOTE: If you have not registered for this new site, click the **Register Here** link. Have your customer number available. The response time for registration requests is 24 to 48 hours.

2. Click the **Product Support** tab.
3. Use the Search field to locate a document by its part number, release number, document name, or document type. The Search field accepts both full and partial entries.
4. Click a subject folder to browse through a list of related files.
5. To download a file to your location, right-click the file name and select **Save Target As**.

Product Packaging and Delivery



DANGER: At least two people are required to safely move and position any cabinet.

Before opening any shipping container, inspect for evidence of damage during shipment. Report any damage to the carrier for investigation and possible claims. Also report any damage to the Tekelec site supervisor.

Check the packing slips against the equipment specification list for this installation site. Report any discrepancies to Tekelec.

Inventory the shipment to make sure that all items listed on the pick list have been received in good condition. Report any discrepancies or damaged equipment by contacting the ["Tekelec Customer Care Center"](#).

Hardware Repair and Return

Any system components being returned for repair or replacement must be processed through the Tekelec Return Material Authorization (RMA) procedures. A hardware repair is defined as an item returned to Tekelec due to a failure, with the returned item being repaired and returned to the customer. It is essential that serial numbers are recorded correctly. RMAs cannot be created without a valid serial number. All repair and quality information is tracked by serial number. Table 1-1 lists the basic RMA types.

Table 1-1. Basic RMA Types

Replacement Type	Description	Turnaround
Priority Advance Replacement	Customer requests the URGENT replacement of a damaged product	Same Day Shipment
Advance Replacement	Customer request the replacement of a damaged product	Shipment Within 3 Business Days
Repair/Return	Customer will return a damaged product for repair	Shipment Within 5 Days After Receipt
Expendable	A damaged part, such as a cable, is replaced, but the Customer does not return the damaged product	Depends on Urgency - Shipment Within 3 Business Days

Table 1-2 lists the RMA return reasons.

Table 1-2. RMA Reasons for Return

Reason for Return	Description
Damaged by Environment	Product damaged by environmental phenomena such as water damage or earthquake
Damaged in Shipment	Damaged between shipment from Tekelec and receipt at the Customer's installation site.
DOA – Dead on Arrival	Product is not functional when it is first installed at the Customer's location.
Lab Return	Products returned from lab sites.
Product Capture	Defect to be captured by Quality or Engineering (not Product Recall).
Product Deficiency	Anything wrong with the part that doesn't fall into another category.
Product Recall	Products recalled by divisions for the repair of a defect or replacement of defective products.
Return – No Product Deficiency	Anything returned without the product being defective.

Repair and Return Shipping Instructions

All returned equipment, assemblies, or subassemblies must be shipped to the Tekelec Repair and Return Facility specified by the Technical Services engineer. The item being returned must be shipped in the original carton or in an equivalent container assuring proper static handling procedures and with the freight charges prepaid.

The assigned RMA number must be clearly printed on the "RMA#:" line of the shipping label on the outside of the shipping package. If the RMA number is not placed on the label, the return could be delayed.

Procedure — Request a Return of Material Authorization

- 1 Obtain and confirm the following information before contacting the Tekelec Customer Care Center:
 - Your name:
 - Company name:
 - Call-back number:
 - Email address:
 - Which product you are calling about?
 - Site location:
 - CLLI number
 - System serial number (AT):
 - Complete software release:
 - Upgrade forms
WI005153
WI005154
WI005218
WI005219
WI005220
 - Tekelec component:
 - Tekelec component part number:
 - Associated serial number:
 - Reason for return or replacement (isolated from system):

- Full name of person the replacement card is being shipped to:
- Shipping address:

NOTE: If possible, include associated alarms (UAMs) and a copy of the associated output (capture file).

- 2 Contact the "[Tekelec Customer Care Center](#)" and request a Return of Material Authorization (RMA).
 - 3 If the item is a like-for-like advance replacement, the Technical Services engineer arranges for shipment of the replacement item to the customer.
 - a Wait for the replacement component to arrive.
 - b Package the defective component in the box of materials you received with your replacement. Use proper static handling procedures.
 - c Label the outside and inside of the box with your RMA number clearly visible. Place the packing slip from the received replacements on the inside of your box.
 - d Ship the defective component to the return address listed on the packing slip.
 - 4 If the item is a repair/return, the Technical Services engineer arranges for shipment of the replacement item to the customer.
 - a Package the defective component in a suitable package for shipping. Use proper static handling procedures.
 - b Label the outside and inside of the box with your RMA number clearly visible. Include a packing slip with all the information from Step 1 along with the RMA number.
 - c Ship the defective component to:
3501 E. Plano Parkway
Plano, TX 75074
 - d Wait for the repaired component to arrive.
-

Tekelec Customer Care Center

The Tekelec Customer Care Center offers a point of contact through which customers can receive support for problems that may be encountered during the use of Tekelec products. The Tekelec Customer Care Center is staffed with highly trained engineers to provide solutions to your technical questions and issues seven days a week, twenty-four hours a day. A variety of service programs are available through the Tekelec Customer Care Center to maximize the performance of Tekelec products that meet and exceed customer needs.

Contact Information

To receive technical assistance, call the Tekelec Customer Care Center at one of the following locations 24 hours a day, 7 days a week.

NOTE: For issues requiring emergency response, contact the Tekelec Customer Care Center by phone only.

- Tekelec, USA

Phone (US and Canada) +1 888-FOR-TKLC or 888-367-8552

Phone (international) +1 919-460-2150

Fax +1-919-460-2126

Email: support@tekelec.com

- Tekelec, Europe and UK

Phone +44 1784 467 804

Fax +44 1784 477 120

Email: ecsc@tekelec.com

Customer Service Request (CSR)

The Tekelec Customer Care Center opens a Customer Service Request (CSR); and, along with the customer, determines the classification of the trouble.

Emergency Response

For critical problems, the Customer Care Center immediately initiates emergency response procedures such as immediate coverage, automatic escalation, and other features to ensure a rapid resolution to the problem.

Response

If the problem is not critical, the Customer Care Center records the serial number of the system, Common Language Location Identifier (CLLI), and initial problem symptoms and messages.

A primary Technical Support engineer is assigned to work the CSR and provide a solution to the problem. The CSR is closed when the problem has been resolved.

Problem Report (PR)

The assigned Technical Support engineer opens a problem report (PR) using problem criteria as defined in "TL-9000 Quality System Metrics (Book Two, Release 3.0" and shown in the following descriptions of the PR type.

Critical

Critical problems severely affect service, capacity/traffic, billing, and maintenance capabilities and requires immediate corrective action, regardless of time of day or day of the week, as viewed by a customer upon discussion with the supplier. For example:

- A loss of service that is comparable to the total loss of effective functional capacity of an entire switching or transport system.
- A reduction in capacity or traffic handling capacity such that expected loads cannot be handled.
- Any loss of safety or emergency capability (for example, 911 calls).

Major

Major problems cause conditions that seriously affect system operations, maintenance, and administration, etc., and require immediate attention as viewed by the customer upon discussion with the supplier. The urgency is less than in a critical situations because of a lesser immediate or impending effect on system performance, customer, and the customer's operation and review. For example:

- Reduction in any capacity/traffic measurement function
- Any loss of functional visibility and/or diagnostic capability
- Short outage equivalent to system or subsystem outages, with accumulated duration of greater than two minutes in any 24-hour period, or that continue to repeat during longer periods
- Repeated degradation of DS1 or higher rate spans or connections
- Prevention of access for routine administrative activity

Introduction

- Degradation of access for maintenance or recovery operations
- Degradation of the system's ability to provide any required critical or major trouble notification
- Any significant increase in product related customer trouble reports
- Billing error rates that exceed specifications
- Corruption of system or billing databases

Minor

Other problems that a customer does not view as critical or major are considered minor. Minor problems do not significantly impair the functioning of the system and do not significantly affect service to customers. These problems are tolerable during system use.

Engineering complaints are classified as minor unless otherwise negotiated between the customer and supplier.

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Safety Information

General

These icons and text throughout this manual are to alert the reader, to assure personnel safety, to minimize service interruptions, and to warn of potential equipment damage.

NOTE: All personnel must be aware of and conform to the safety information provided in each “Safety Information” section of this manual.

	<p>TOPPLE/DANGER: (This icon and text indicate the possibility of <i>personnel injury and equipment damage.</i>)</p>
	<p>DANGER: (This icon and text indicate the possibility of <i>personnel injury.</i>)</p>
	<p>WARNING: (This icon and text indicate the possibility of <i>equipment damage and personnel injury.</i>)</p>
	<p>CAUTION: (This icon and text indicate the possibility of <i>service interruption and personnel injury.</i>)</p>



WARNING: All personnel associated with the installation of these systems must adhere to all safety precautions and use required protection equipment to avoid the possibility of injury, equipment damage, service degradation, or service interruption.



CAUTION: This procedure may interrupt service. When possible, perform maintenance during low traffic and database provisioning periods, such as the maintenance window.

Safety and Pre-Installation Requirements

Cabinets



TOPPLE/DANGER: Always read and understand instructions thoroughly and completely before working on, moving, raising or lowering the cabinet, any portion of the cabinet, attachments to the cabinet, or equipment.



TOPPLE/DANGER: Never try to unpack any cabinet from the shipping container without at least two people to steady any movement of the cabinet and related components. At least two people are required to safely move and position a cabinet into place.



TOPPLE/DANGER: Never pull out the shelf of a cabinet that is not anchored properly. Systems with sliding shelves must be securely anchored to the floor and to the overhead cable racks. Extending a shelf without correctly anchoring the cabinet can cause the cabinet to topple and endanger personnel and damage equipment.



TOPPLE/DANGER: Cabinets are required to be attached to over-head ladder-racks before shelves are extended.



DANGER: Moving a cabinet requires two people. Injury or damage to internal components due to shock and vibration might occur if not handled properly.



WARNING: Before drilling holes in any flooring, verify with facilities personnel that the area is free of gas or water pipes, ventilation plenum, and electrical wiring conduits.



WARNING: Finger-tighten nuts on threaded rods inside the cabinets above the raised floor before finger tightening the nuts below the raised floor.



CAUTION: Cabinet ground. *Do not "double lug"*: The practice of using one bolt through a lug and the ground bar, and through another lug on the other side of the ground bar, held in place by one nut.

Power



DANGER: Strictly observe all grounding requirements to reduce the risk of electric shock.



DANGER: Do not use or place commercial AC-powered equipment within 7 ft. of -48V equipment. Close proximity can create a shock or current loop that is severely hazardous to personnel and equipment.



WARNING: Before testing -48VDC power source:

- Ensure that no power is being provided to the system from the -48VDC power source, such as a power board
- Open all circuit breakers in the PDP
- Recheck wiring and connections for proper polarity



WARNING: Always install an isolator pad between the cabinet and ground. Cabinets are shipped with isolator pads to completely isolate the cabinets from ground.



WARNING: Application servers. Verify that all breakers are set to the OFF (O) position. An application server chassis is redundantly powered from both A and B -48VDC buses. Ensure that both the circuit breaker supplying A power to the chassis and the circuit breaker supplying B power to the chassis are turned OFF by measuring the voltage with a VOM on the cable that connects the chassis to its breakers. Both A and B power LEDs on the front panel of the chassis should be OFF.



CAUTION: Redundant systems allow service during normal maintenance. When repairs require a total power disconnect, both input supply sources must be disconnected. This causes service interruption and takes down the systems.



CAUTION: This equipment has a connection between the earthed conductor of the DC supply circuit and the earthing conductor.

Safety and Pre-Installation Requirements



CAUTION: Install equipment in restricted access areas in accordance with articles 110-16, 110-17, and 110-18 of the National Electric Code, ANSI/NFPA 70 (USA) or your local/national equivalent.



CAUTION: Incorporate a readily accessible approved disconnect device in the field wiring.



CAUTION: Use only listed closed-loop connectors for connection to the power supply.

Electrostatic Discharge



DANGER: Always wear a wrist strap or other electrostatic protection when handling printed circuit cards and other electrostatic-sensitive devices.



WARNING: Use an antistatic wrist strap connected to the wrist strap grounding point on the cabinet when performing these procedures.



WARNING: Do not use tie wraps on or above the top traverse arms on a cabinet. *Always* trim tie wrap flush and turn the trimmed tie wrap to the rear of the cable. Contact the Site Supervisor for site-specific customer information.



WARNING: Do not use tie wraps for optical cables.

Components



WARNING: If components arrive in containers that might have been subjected to extreme temperatures or variations in humidity (such as air transport), allow 6 hours for the components to acclimatize to your site conditions before operating.

CAUTION: Do not impact the faceplate in order to mate the connectors. Any impact to the card's faceplate can damage the faceplate, the pins, or the connectors.

Safety and Electromagnetic Compatibility

GR-1089-CORE Electromagnetic Compatibility and Electrical Safety - Generic Criteria for Network Telecommunications Equipment, Telcordia Technologies. NEBS Level 3.

GR-63-CORE NEBS Requirements: Physical Protection, Telcordia Technologies Generic Requirements, NEBS Level 3.

UL 60950-1 Information Technology Equipment - Safety - Part 1: General Requirements, Agency Listing

IEC 60950-1 Information Technology Equipment - Safety - Part 1: General Requirements

Safety Directive 2006/95/EC EN 60950-1, Information Technology Equipment - Safety - Part 1: General Requirements

CSA C22.2 No. 60950-1 Information Technology Equipment - Safety - Part 1: General Requirements for Canada

EMC Directive 2004/108/EC Compliance with EU Harmonized Standards EN 55022, I.T.E. Radio disturbance characteristics Limits and Methods of Measurement. Compliance with EN 55024, I.T.E. Immunity characteristics Limits and Methods of Measurement,

Generic Site Requirements

The following specifications are standard telephony industry requirements for equipment installation.

Building Requirements

The building requirements for this system are standard telephony industry requirements for equipment installation.

The building must provide a clear, uncluttered route between the loading/receiving dock and the planned system location. In order to move the equipment to the proper location, recommended hall clearance is at least 4.5 feet (1.4 meters) wide by 8.5 feet (2.6 meters) tall.

Four foot, (1.2 meter) side aisles should be used to allow maneuvering cabinet into place and provide ample work space around the equipment.

The room selected for system installation should be large enough so the system cabinets can be at least 2.5 feet (76 cm) from the walls for front and rear access and at least 12 inches (31 cm) for side access.

Safety and Pre-Installation Requirements

Earthquake Resistance

All Tekelec system configurations are designed to assure that the system remains operational during and after an earthquake, even when the system is located on the upper floors of a zone 4 central office.

Elevation

Operating: 60 m below sea level at ambient temperature of 30° C to +4000 m above sea level at ambient temperature of 40° C.

Fire Protection

Local fire protection codes must be satisfied in the equipment room where the system is to be located.

HVAC Requirements

To maintain the required temperature range, Heating, Ventilation, and Air Conditioning (HVAC) equipment should have the capacity to compensate for the site engineering recommendations.

The required HVAC capacity to compensate for a miscellaneous cabinet varies depending on the customer previously installed equipment. To calculate needed HVAC capacity, determine the wattage of the installed equipment and use the following formula: watts x 3.413 = BTUs/hr.

Lighting

Adequate lighting should be provided in the room where the equipment is to be located. Lighting fixtures must be far enough from the equipment and cables to prevent heat damage and to allow safe access to equipment and cables.

Relative Humidity

- Operating: 5% to 85% non-condensing (maximum absolute humidity of 0.024 kg of water per kg of dry air)
- Short Term Operating: 5% to 90% non-condensing (maximum absolute humidity of 0.024 kg of water per kg of dry air)

Space Requirements

This system equipment is housed in 7 foot high (44U), 23 inch wide, floor supported, upright cabinet with top and side panels as well as door.

The number of cabinets required for an installation is described in the Initial Sales Order for that site. The number of cabinets is determined by the space required by the module population of the system.

When planning the installation, be sure to take into account spare module storage, modems, terminals, printers, cross connect panels, and all other items that might require space in a system.

Temperature Variation

Typical environmental conditions are temperature and humidity controlled. With loss of environmental control, the equipment covered in this manual complies with these conditions:

- Operating: 5° C to 40° C (41° F to 104° F)
- Exceptional Operating Limit: -5° C to 50° C (23° F to 122° F) (no more than 96 hours duration at extremes and at elevations less than 1800m)
- Storage: Tested to meet the storage and transportation requirements in Telcordia GR-63-CORE, ETSI EN 300 019-2-2, T2.3

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Application Cabinet

The application cabinet used for the T1200 or T5100 application platform is 23 inches wide, 44U (77.0 inches or 1,955.8 mm) high with top and side panels as well as front and rear doors. The rails are set for standard 19-inch(482.6 mm) rack mount equipment and is earthquake zone 4 compliant. The cabinet provides adequate air flow, as well as front and rear access for cabling and FRU replacement. The application cabinet can be configured for AC or DC applications. This manual describes DC configurations.

The application cabinet supports hardware co-mingling, which allows multiple applications that are hosted on separate server clusters to reside in a common cabinet. Each application is hosted on its own set of servers, just as if each application would be placed in separate cabinets. However, there is no management element spanning the applications at this time.

About Zones

The application cabinet space is divided into zones to better support hardware co-mingling:

- The Power Zone (7U) supports power distribution panels (PDPs)
- The Network Zone (10U) supports Ethernet switches and front-to-rear cable plenum when T5100 application shelves are included.
- Application Zone 1 (6U) supports an application hosted on up to 6 T1200 application servers.
- Application Zone 2 (6U) supports an independent application hosted on up to 6 T1200 application servers, or expansion of a Zone 1 application to a total of 12 T1200 application servers.
- Application Zone 3 (13U) supports an independent application hosted on a T5100 application server, up to 6 T1200 application servers, an expansion of a Zone 2 application to a total of 12 T1200 application servers, or an expansion of a Zone 1 application to a total of 18 T1200 application servers.

NOTE: Applications can span multiple physical zones. An application starting in physical zone 1 may also occupy physical zone 2 and, possibly zone 3, depending on the number of servers the application requires.

The three application zones allow for product simplification to the greatest extent possible. No equipment has to be moved to support a field extension of a second application into the application cabinet. Each application is independent of both the interaction of servers and the networking design.

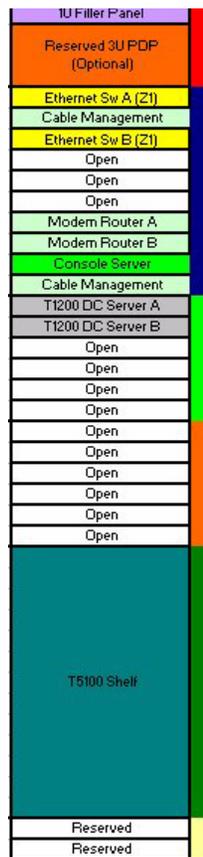
Hardware Description

Figure 3-1 shows the components that can be loaded in each zone depending on a single T1200 or T5100 configuration, or for a co-mingled cabinet. Exact configurations are based on Customer sales orders and are identified in the Dimensioning Drawings, which are provided with each shipment.

Figure 3-1. Zones and their Components

U	Legend	Zones	W D L	Components that can be loaded in each zone
1	Power (7U)	Power (7U)	1	PDP(12+1 Aux breaker)
2			2	
3			3	
4			4	1U filler Panel
5			5	PDP(12+1 Aux breaker)
6			6	
7			7	
8	Network (10U)	Network (10U)	1	Cable Management
9			2	Ethernet Sw (24 -port)
10			3	Application Sw (48-port)
11			4	Content Switches
12			5	
13			6	
14			7	
15			8	
16			9	Console Server
17			10	
18	Zone 1 (6U)	Zone 1 (6U)	1	
19			2	
20			3	T1200 Servers
21			4	
22			5	
23			6	
24	Zone 2 (6U)	Zone 2 (6U)	1	
25			2	
26			3	T1200 Servers
27			4	
28			5	T5100 Shelf
29			6	
30	Zone 3 (13U)	Zone 3 (13U)	1	
31			2	
32			3	T1200 Servers
33			4	
34			5	T5100 Shelf
35			6	
36			7	Storage Arrays
37			8	
38			9	Modem Routers
39			10	
40			11	
41			12	
42			13	
43	Raised floor cable entry(2U)	Raised floor cable entry(2U)	1	
44			2	

Figure 3-3. Co-mingled Cabinet Configuration (Example)



Zone Loading Rules

To determine which components can be loaded for a T5100, T1200, or co-mingled cabinet configuration, refer to sections *“Tekelec 1200 Platform Components* or *“Tekelec 5100 Platform Components*.

These loading rules apply for the various cabinet configurations.

1. A second 3U PDP and the respective cable kit is required:
 - a. for a raised floor.
 - b. any time 9 or more T1200 pieces are added to a T1200 cabinet co-mingled with an ATCA shelf.
 - c. anytime 14 or more T1200 pieces are specified or zone 2 is populated with servers in a T1200 cabinet.
2. A 3U PDP is populated with breakers based on the strategy defined in the 3U PDP worksheet.

3. A 1U Filler panel is required above the second 3U PDP for thermal management.
4. All equipment in the network zone and application zones 1 - 3 are loaded and numbered from top to bottom. Storage arrays are loaded starting at U34 for weight distribution purposes.
5. The first T5100 shelf is always loaded in zone 3 at bottom of cabinet, a second T5100 shelf is loaded above the first shelf.
6. A 2U space is reserved at bottom of cabinet to accommodate raised floor power cable entry.

Tekelec 1200 Platform Components

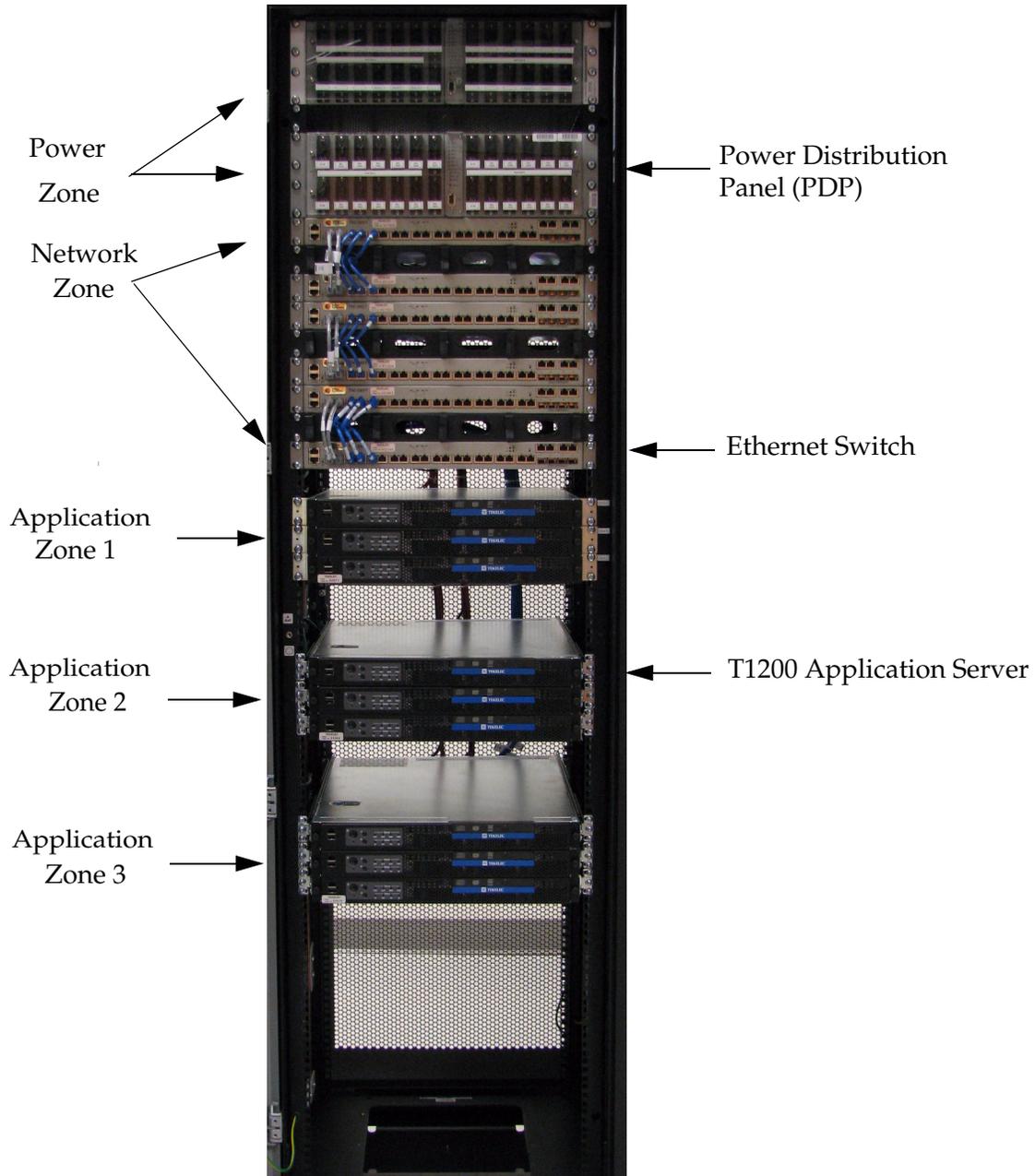
The cabinet for the Tekelec 1200 (T1200) platform contains these components:

- Power Distribution Panel (PDP)
- Modem Router
- Application Switch
- Content Switch
- Ethernet Switch
- T1200 Application Server (T1200 AS)

Hardware Description

Figure 3-4 shows a T1200 application cabinet with 2 PDPs, 6 Ethernet switches, and 9 T1200 application servers installed.

Figure 3-4. Example of T1200 Application Cabinet Configuration



Tekelec 5100 Platform Components

The cabinet for the Tekelec 5100 (T5100) platform contains these components:

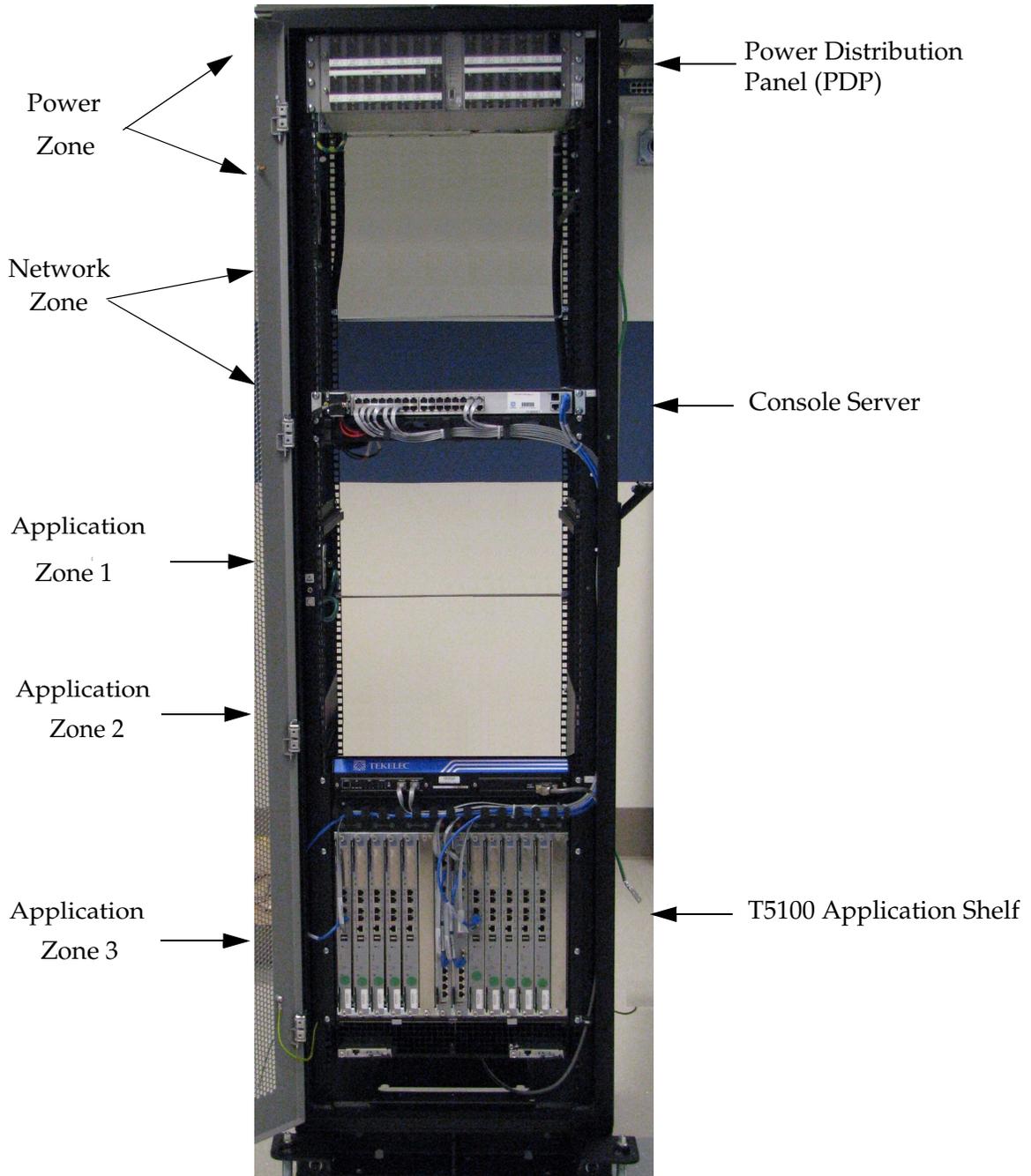
- Power Distribution Panel (PDP)

- Console Server
- T5100 Application Shelf
 - Compute blade
 - Ethernet switch blade
 - Shelf alarm display
 - Shelf alarm panel
 - Shelf manager

Hardware Description

Figure 3-5 shows the T5100 application cabinet with a PDP, console server, and T5100 application shelf installed.

Figure 3-5. Example of T5100 Application Cabinet Configuration



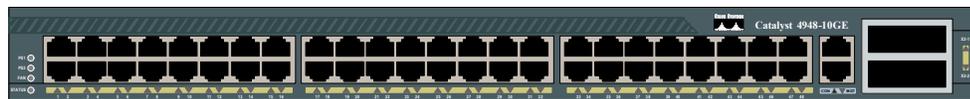
Application Switch

The Application Switch is a wire-speed, low-latency, Layer 2 to 4, 1-rack-unit (1U), fixed-configuration switch for rack-optimized server switching. It has exceptional performance and reliability for low-density, multilayer aggregation of high-performance servers and workstations.

High performance and scalability of intelligent network services is made possible with dedicated specialized resources known as ternary content addressable memory (TCAM). Ample TCAM resources (64,000 entries) enable high feature capacity, providing wire-speed routing and switching performance with concurrent provisioning of services such as quality of service (QoS) and security and helping ensure scalability for today's network requirements with ample room for future growth.

The Application Switch has 48 ports of wire-speed 10/100/1000BASE-T with four alternative wired 1 ports that can accommodate optional 1000BASE-X Small Form-Factor Pluggable (SFP) optics.

Figure 3-6. Application Switch (front view)

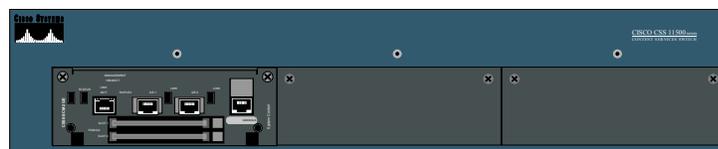


Content Switch

The Content Switch improves application and site availability and transaction integrity by using Adaptive Session Redundancy (ASR), an industry standard in stateful failover.

The Content Switch delivers flexibility for customizing combinations of ports, performance, and services. The switch scales secured application transaction performance through support of an integrated, high-capacity Secure Sockets Layer (SSL) module. Off-loading SSL onto the network improves the overall performance of the web and application server enabling better application performance.

Figure 3-7. Content Switch (front view)



Console Server

The console server provides secure console or serial port management. The PM&C application configures the console server with the “Add Frame” and “Add Shelf” operations. The “Add Shelf” operation accesses the console ports of each shelf manager and switch for initial configuration of those components. The console server is also used for FRU activities and disaster recovery operations.

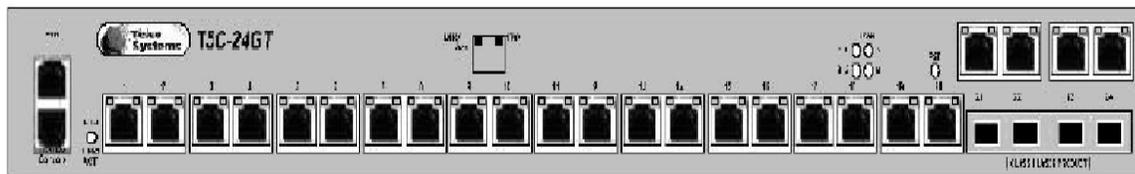
Figure 3-8. Console Server



Ethernet Switch

The Ethernet Switch is a compact high-performance switch made for demanding networks that require multi-layer service capabilities at wire speed. A high-density architecture enables the Ethernet switch to utilize a large variety of interfaces to transparently switch Layer 2, 3, and 4 network traffic over copper, at 10, 100 or 1000 Mbps speeds and over fiber at 1000 Mbps speed. Figure 3-9 shows the front view of the switch.

Figure 3-9. Ethernet Switch (front view)



Modem Router

The Modem Router offers secure, wire-speed delivery of concurrent data, voice, and video services. The modular design of the router provides maximum flexibility for evolving needs. The router incorporates data, security, and voice services in a single system for fast, scalable delivery of crucial business applications.

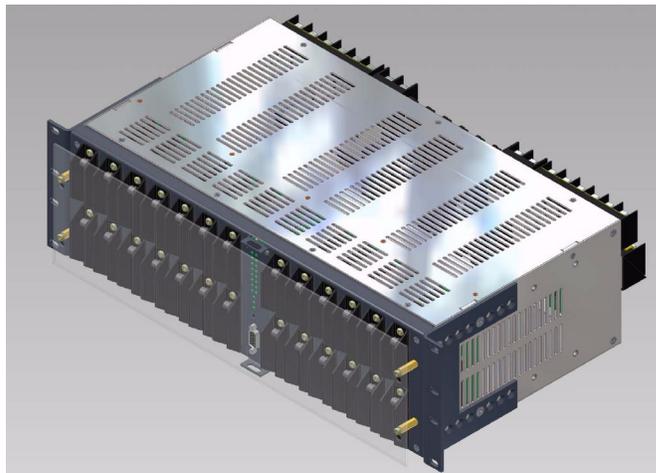
Figure 3-10. Modem Router



Power Distribution Panel (PDP)

The Power Distribution Panel (PDP) monitors primary and secondary power sources on a continuous basis. The PDP is a pluggable circuit breaker panel that distributes DC power to the equipment. The panel accommodates up to 26 IMG-style pluggable breakers, which can be installed or removed in the field. Alarm circuitry is provided to indicate and extend alarm conditions when faults occur.

Figure 3-11. Power Distribution Panel (rear)



T1200 Application Server

The T1200 application server is an off-the-shelf 1U server to host Tekelec central office applications at a significant performance improvement.

The T1200 application server has high availability. Advanced server management and alarming ensures maximum uptime. Redundant hot-swap power and cooling reduce Mean-Time-To-Repair (MTTR) and increase Mean-Time-Between-Failures (MTBF)

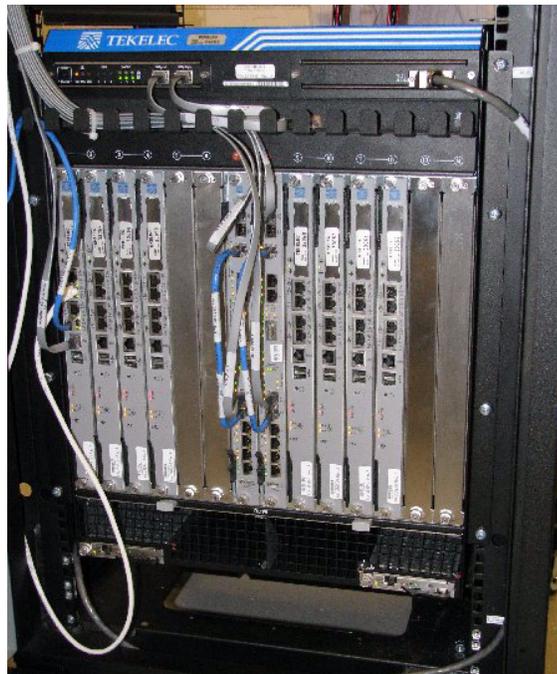
Figure 3-12. T1200 Application Server (rear view) - DC



T5100 Applications Shelf

The T5100 applications shelf is an integrated designed assembly that includes a shelf alarm display and a shelf alarm panel at the top, two shelf manager modules at the bottom, the 14-slot card cage, a mid-plane circuit board, integrated redundant fan modules, and redundant power entry modules.

Figure 3-13. T5100 Applications Shelf (front)



Compute Blades

Each individual compute blade is a single-slot card and performs independently as a full-function server running its own operating system with IP connectivity via the base and fabric Network Interface Cards (NICs). The compute blade provides two USB ports and one serial console interface on the front panel.

Compute blades in the T5100 platform are classified as follows:

- Application server blades (host telecommunications software)
- PM&C server blade

Host the PM&C application for platform configuration and management; Ethernet connection to shelf manager and Ethernet switch)

- the primary PM&C server blade
- the spare server blade, used for PM&C backups and disaster recovery

Ethernet Switch Blade

Each IEEE 802.3 high-speed Gigabit Ethernet (GigE) switch blades is deployed in pairs, operating in a 1+1 redundant active/active configuration.

There are two physically separate switches within each physical switch blade:

- Base switch, which is assigned platform management responsibilities
- Fabric switch, which is assigned data responsibilities

This configuration ensures not just a logical separation, but the complete, physical separation between platform management packets (base switch) and data packets (fabric switch).

The two switches have a connection between them on each of the switching domains. The switch provides for external Gigabit Ethernet connectivity, in addition to the on-shelf Gigabit Ethernet connection to each blade, over the midplane.

Hardware Description

Shelf Alarm Display

The shelf alarm display indicates Telco faults (MIN, MAJ, CRIT), or FAN TRAY failures along with faults in Shelf Management. The shelf alarm display is hot-swappable.

Figure 3-14. Shelf Alarm Display - Front



Shelf Alarm Panel

The shelf alarm connects to the PDP and provides power to the shelf alarm display. The shelf alarm panel is hot-swappable and is mounted in the upper, right front corner of the T5100 applications shelf, see Figure 3-13.

Figure 3-15 shows the front of the shelf alarm panel with the serial port used by the connector.

Figure 3-15. Shelf Alarm Panel - Front



Shelf Manager

Each T5100 application shelf has two shelf managers for redundancy. The shelf manager controls and monitors compute blades and other hardware components within the shelf. The shelf manager interfaces with the power distribution and shelf alarm display. Shelf managers are deployed in redundant pairs. There are no customer-external interfaces to the shelf manager.

Figure 3-16. Shelf Manager



4

Cabinet Installation

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Overview

This chapter describes how to unpack the application cabinet from the crate, prepare a concrete or raised floor for installation, anchor the frame to floor and overhead rack, examine the grounding requirements and the cabling.

Unpacking the Cabinet

This section describes the steps to unpack the cabinet. Each cabinet is shipped in a wooden crate on a shock pallet. See Figure 4-1.

Figure 4-1. Packed Cabinet Crate



Required Tools

- 9/16" Open End Wrench
- 9/16" Socket with Drive Ratchet
- 15/16" Socket with 1/2" Drive Ratchet
- 15/16" Open End Wrench
- 10 mm Allen Wrench
- 19 mm Socket with Drive Ratchet

Procedure — Receiving Shipping Container for the Cabinet



DANGER: At least two people are required to safely move and position the cabinets. Read and understand this procedure completely before continuing.

1. Before opening any shipping container, inspect it for evidence of damage during shipment. Report any damage to the carrier for investigation and possible claims. Also report any damage to the site supervisor.

2. Check the packing slips against the equipment specification list for this installation site. Report any discrepancies.

3. Open crate door with integrated ramp by opening draw latches. See [Figure 4-2](#) and [Figure 4-3](#).

Figure 4-2. Draw Latch on Crate

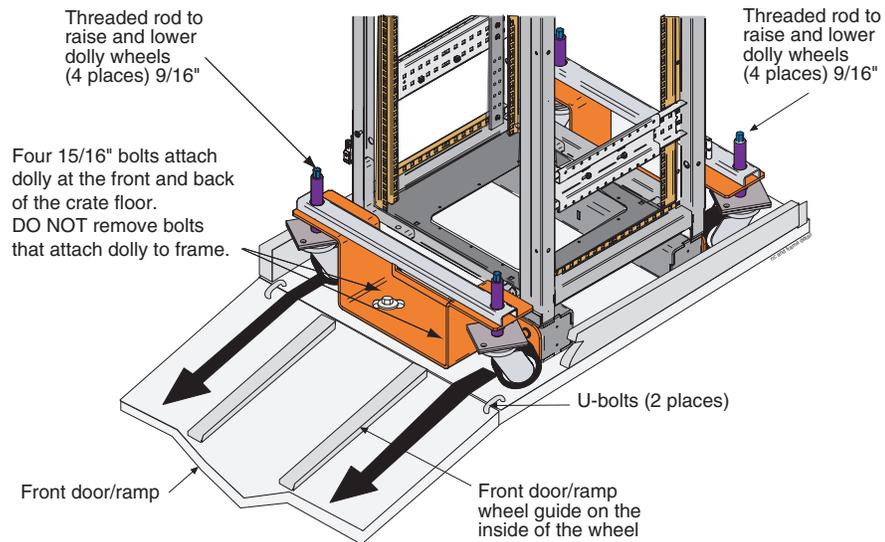


Figure 4-3. Integrated Crate Ramp



-
4. Use the front panel of the shipping container as a ramp to remove the cabinet from the shipping compartment. (See Figure 4-3). Place the ramp against the front of the container making sure the angle side is up and slants away from the cabinet in the container. Place the ramp against the front edge of the shipping container. Insert the U-bolts in the holes to secure the ramp support and container together (refer to [Figure 4-4](#)).
-
5. Open the rear door of the shipping container.
-
6. Use the 15/16" socket wrench with a 15/16" wrench ratchet to unbolt the cabinet from the crate. Refer to Figure 4-4.

Figure 4-4. Shipping, Detach Dolly Frame



7. Remove the drag chain if it had not been removed prior to shipment.

8. At least two people are required any time a cabinet is moved. Use the 9/16" open end wrench to turn the threaded rod clockwise to lower the wheels of the dollies and to raise the cabinet and dolly enough to clear the front edge of the shipping container, approximately 1 inch. Refer to Figure 4-4. The threaded bolts must be turned at the same time by two people, one in the front and one in the rear to avoid making the cabinet tilt.

9. Only raise the cabinet high enough to clear the angle created by the front ramp.



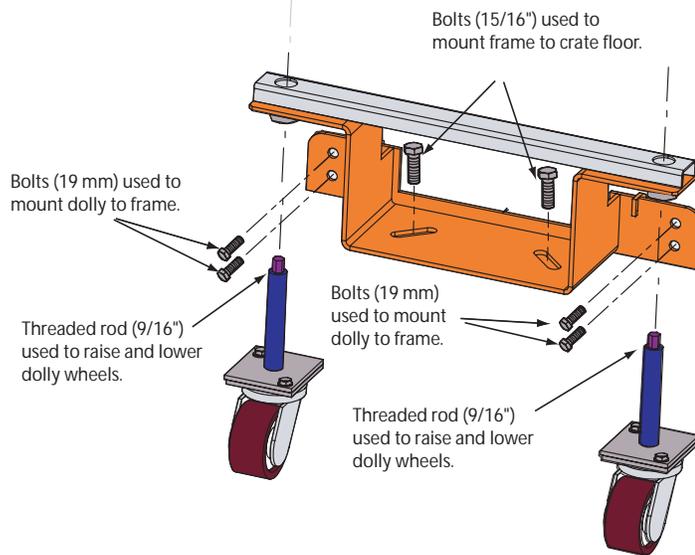
TOPPLE/DANGER: Never try to unpack any frame from the shipping container without at least two people to steady any movement of the frame and related components. At least two people are required to safely move and position a frame into place.

When the cabinet and dollies have been raised enough to clear the angle created by the front ramp, slowly and carefully roll the cabinet out of the shipping container. Be sure to have two people perform this procedure.

10. Move the cabinet to the desired location. At the correct site location, turn the threaded rods counter clockwise to lower the cabinet by raising the wheels of the dolly. Again two technicians must turn the threaded rods at **the same time** to avoid tilting.

11. Remove the 19 mm bolts, front and rear, that attach the dollies to the cabinet. Refer to Figure 4-5.

Figure 4-5. Dolly Mounting Bolts



-
12. Inventory the shipment to make sure that all items listed on the pick list have been received in good condition. Report any discrepancies or damaged equipment.
-
13. Do not allow the empty shipping containers to become a safety problem or a fire hazard. Contact the site supervisor for specific instructions for disposal of leftover packaging materials according to local recycling procedures. Follow this procedure when opening all similar shipping containers.
-

Optional Hoist with Crane

Another option to unpack the cabinet is to remove the cabinet from the pallet and lower it to the floor using hoisting eyebolts and a crane. Use this method if there is not enough room to open the crate and use the door ramp.

Procedure — Hoisting Cabinet with Crane

WARNING: To avoid physical injury, be sure that properly rated hoisting equipment is used. When hoisting the cabinet, pull straight up slowly on the eyebolts using properly rated hardware attached evenly to the eyebolts to prevent the cabinet from swinging. Always secure the cabinet during lifting to minimize swing.

1. Remove crate lid.

2. Screw the eyebolts completely into the top of the cabinet.

3. Securely attach the eyebolts to a hoist. The hoist should be positioned so that the four eyebolts evenly support the weight of the cabinet.

4. Use the 15/16" socket wrench with 15/16" drive ratchet to unbolt the cabinet from the crate.

5. Using a crane, carefully lift the cabinet off the pallet and lower the cabinet into its final position over the anchor holes drilled in the floor. Minor manual adjustments may be necessary to ensure correct alignment of the cabinet to anchor sites.

Installing the Cabinet

You must bolt the seismic cabinet to a floor using the anchors provided. The following steps are required to install the cabinet.

- Mark floor layout.
- Prepare raised floor for anchors
- Drill cable holes
- Anchor cabinet on raised floor
- Install earthquake bracing
- Anchor cabinet on concrete floor
- Install kick plates (see [Figure 4-6](#)) with 10 mm allen wrench

Figure 4-6. Kick Plates



Precautions

Observe all safety precautions for avoiding personal injury and equipment damage that are outlined in your local building standards. The procedures in this document contain specific caution and warning information that must be observed while you are performing each procedure.



WARNING: Cabinet installation instructions are provided in this user manual for the convenience of users only. Only qualified and experienced installers should be used. Incorrect methods or installation performed by unqualified personnel may lead to serious personal injury or damage to equipment or property. Installation of the seismic cabinet is the sole responsibility of the customer as well as any liability and injuries caused by this process.



WARNING: An unsecured cabinet is prone to tipping. The cabinet must never be put to use without first being bolted to the floor. Failure to do so can result in product damage and serious personal injury or death.



WARNING: To avoid the risk of injury: Wear safety goggles and hearing protection. Be sure to read and understand the user manual that comes with the drill. Pay particular attention to all safety instructions. Eye protection must always be worn with power tools to avoid injury from flying debris. In addition, hearing protection should be worn to avoid damage to hearing from exposure to high levels of noise during tool operation.



WARNING: All procedures and methods used in the installation of the cabinet must comply with all applicable federal, state, county, and local laws, regulations, ordinances and codes. This includes compliance to all applicable Occupational Safety and Health Administration (OSHA) and Environmental Protection Agency (EPA) regulations when dealing with hazardous materials and work place hazards. Compliance of these requirements is the responsibility of the installer and the site management.



CAUTION: Water seepage: When drilling holes in a basement or below-ground structures, ensure that you do not penetrate through the concrete and into the vapor barrier. If this does occur, groundwater may come up through the anchor hole. It is the customer's responsibility to verify building construction features before the drilling operation begins.

Marking Floor Layout for Cabinet Installation

Cabinet layout is site specific. The recommended minimum aisle spacing is 3 ft. (91.5 cm) front and rear.



WARNING: When planning the location of the equipment, avoid positioning the equipment over permanent gas, water, electrical utility lines or conduits.



CAUTION: Restricted available workspace: In a raised-floor application, ensure that Cabinets are positioned with enough clearance to allow you to remove tiles.

Recommended Tools

- Safety glasses
- Chalk-line, with chalk
- Fiberglass tape measure
- Felt tip pen
- Isolation sheet (template in Raised Floor Kit) to mount one cabinet

How to Mark the Floor Layout

Use the following procedure to mark the floor layout.

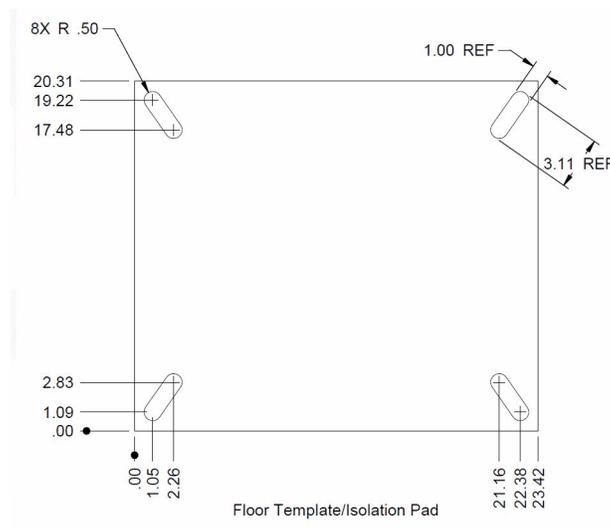
Procedure — Mark Floor Layout

1. Verify with a customer representative that the required area dimensions and equipment location correspond with the marked floor plan.

2. Use the floor plan provided with the engineering site file specifications to mark the front base line and the borders of the cabinet with the chalk line.

3. Align the front of the cabinet template (isolator pad) along the front chalk line. Using a felt tip pen, mark anchor locations in the middle of each oval anchor slot, see [Figure 4-7](#).

Figure 4-7. Mark Floor Layout



Raised Floor Installation

Use the procedures in this section to prepare floors for anchoring cabinets on raised flooring. For this type of installation, you must create cable and anchor holes in the raised floor tiles.

Recommended Tools

Tekelec tools should be labeled "Property of TEKELEC" with either a press-on Field Tool Identification label or Field Tool Identification wrap.

- Safety glasses
- Rotary impact drill
- 18 mm masonry drill-bit
- 1-inch drill-bit (hole saw)
- Extension cord
- Vacuum cleaner (an approved, industrial type, that prevents escaping dust particles that may contaminate electronic equipment)
- Masking tape
- Fiberglass tape measure
- Isolation sheet
- Subfloor marking tool
- Ear protectors
- Felt tipped marking pen

- File
- Raised Floor Kit

The procedure for preparing raised flooring is **highly site specific**. For more information, refer to the site specific specification as per the Method Of Procedure (MOP) for the particular installation.



WARNING: Before drilling holes in any flooring, verify with facilities personnel that the area will support a loaded cabinet and is free of gas or water pipes, ventilation ducts, electrical wiring conduits, or any other items that may be damaged. If the hole is drilled at an angle the anchor and cabinet will not come together properly. After marking anchor locations, remove the tiles and take them to an approved location for drilling. *Do not* drill tiles in the equipment area.

Procedure — Prepare Raised Floor for Anchors

1. On the raised floor mark the corners of the tiles so that the same tile will be returned to the same place when the job is complete. Mark the spot to be drilled, and remove the tiles from the equipment area.

2. Drill a 1-inch (2.54 cm) diameter hole in the tiles corresponding to the marked anchor locations. Use a vacuum cleaner to collect the shavings while drilling.

3. Use a file to remove any sharp edges or protrusions from metal parts if applicable and vacuum.

4. Return to the equipment area and replace the tiles, making sure the holes match, where the cabinet will be installed.

5. Insert the subfloor marking tool into the anchor holes, **making sure that the tool is perpendicular with the hole. If the hole is drilled at an angle, the anchor and cabinet will not come together properly.** With a hammer, tap the head of the star bit with enough force to mark the concrete floor. Repeat this step for each hole of the cabinet.

6. Remove the floor tiles for access to the concrete floor.

7. Clean out each hole after the drilling is complete.

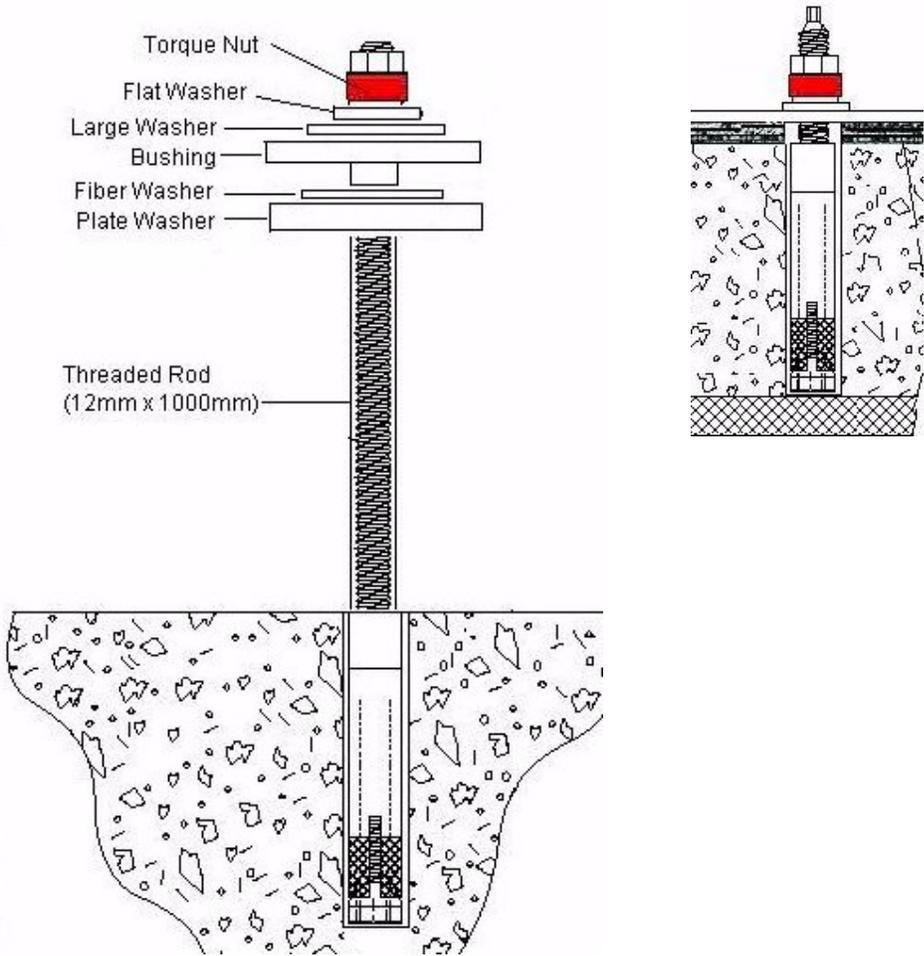
Procedure — Drill Cable Holes

Mark holes and remove tiles from the equipment area, using a carbide-toothed hole saw of the appropriate diameter. Drill any cable holes required in the raised floor tiles. Replace tiles in the original tiles location.

Cabinet Anchoring

This section describes how to anchor a cabinet on a raised floor. Use [Figure 4-8](#) to identify the parts of the raised floor anchor as you follow the procedure.

Figure 4-8. Raised Floor Anchor



Procedure — Anchor Cabinet on a Raised Floor

1. If necessary, remove the tiles.

2. Insert the anchor assembly, including the threaded rod, into the hole flush against the floor.

3. Finger-tighten the torque nut. This step will set the cone nut into the anchor.

4. Preload the anchor by tightening the torque nut 1 1/2 turns. (Do not exceed 50ft lbs)

5. Remove the torque nut and remove the anchor rod via the 1/4" protrusion at the top of the rod.

6. Insert 1,000 mm threaded rod into hole and make sure that rod has threaded onto the set anchor.

7. If earthquake bracing is required, perform procedure "*Raised Floor Earthquake Bracing*" on page 4-16 before continuing with this procedure.

NOTE: Bracing is required in earthquake zones 3 and 4 when installing a cabinet onto a raised floor with a spacing of 1.5 feet or more between the raised floor and the subfloor.

8. Lay the isolator pad on the floor with the holes in the isolator pad aligned over the anchor assemblies.

9. Roll the cabinet (still on the dolly) into position over the isolator pad.

CAUTION: Two people are needed to position the cabinet onto threaded rods.



10. Lower cabinet over rod and level as needed.

11. Place anchor stack-up parts on rod (see [Figure 4-8](#)).
 - a. Plate washer
 - b. Fiber washer
 - c. Bushing

- d. Large washer
- e. Flat washer

12. Re-thread torque nut onto rod.

13. Tighten torque nut until it separated, approximately 60 ft. lbs.

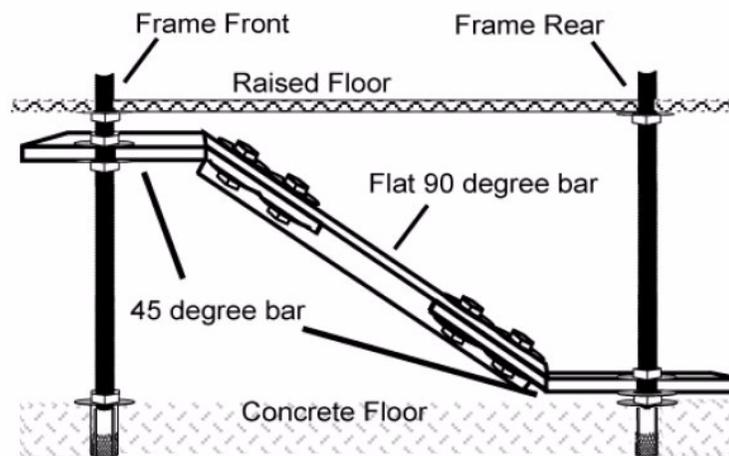
Raised Floor Earthquake Bracing

This section describes how to install earthquake bracing to a raised floor installation. Bracing is required in earthquake zones 3 and 4 when installing a cabinet onto a raised floor with a spacing of 1.5 feet or more between the raised floor and the subfloor.

Procedure — Install Earthquake Bracing

1. Assemble the Earthquake Brace by securing the 45 degree bar steel pieces to the flat 90 degree bar. Use the Earthquake Brace Kit.

Figure 4-9. Earthquake Bracing



2. On the threaded rod located at the front of the cabinet:

- a. Install a 5/8 nut onto the rod.

The nut will need to be threaded approximately 5 inches from the top of the raised floor.

- b. Place a helical washer onto the rod.

Cabinet Installation

c. Place a flat washer onto the rod.

3. On the threaded rod located at the back of the cabinet, place a flat washer on the threaded rod so that the washer is sitting on the nut holding the anchor in place.

4. Place a flat washer on the back threaded rod.

5. Slide the Earthquake brace onto the threaded rod from the front threaded rod to the back threaded rod. Refer to [Figure 4-9](#).

NOTE: Do not over adjust as this may cause the tile or cabinet to tilt.

6. On the threaded rod located at the rear of the cabinet:

a. Place a flat washer onto the rod.

b. Place a helical washer onto the rod.

c. Install a 5/8 nut onto the rod and secure tightly, but do not overtighten.

7. On the threaded rod located at the front of the cabinet:

a. Place a flat washer onto the rod.

b. Place a helical washer onto the rod.

a. Install a 5/8 nut onto the rod.

8. Adjust the front rod nuts and washers so that the flat portion of the Earthquake bracing bar attached at the threaded rod is level.

9. Repeat all the above steps for all additional sets of front and back threaded rods.

10. Once all Earthquake Bracing is installed, continue with the installation of the cabinet to the raised floor.

Concrete Floor Installation

Use this procedure to anchor the cabinet directly to a concrete floor. Always get permission from facility personnel before drilling any holes for cabinet installation.

Recommended Tools

- Safety glasses
- Rotary impact drill
- 18 mm masonry drill-bit
- Extension cord
- Vacuum cleaner (an approved, industrial type, that prevents escaping dust particles that may contaminate electronic equipment)
- Masking tape
- Fiberglass tape measure
- Isolation sheet (in Raised Floor Kit)
- Ear protectors
- Felt tipped marking pen
- Raised Floor Kit



CAUTION: All personnel associated with the installation of this system must adhere to all safety precautions and use required protection equipment to avoid the possibility of injury to personnel, service degradation, and/or service interruption.



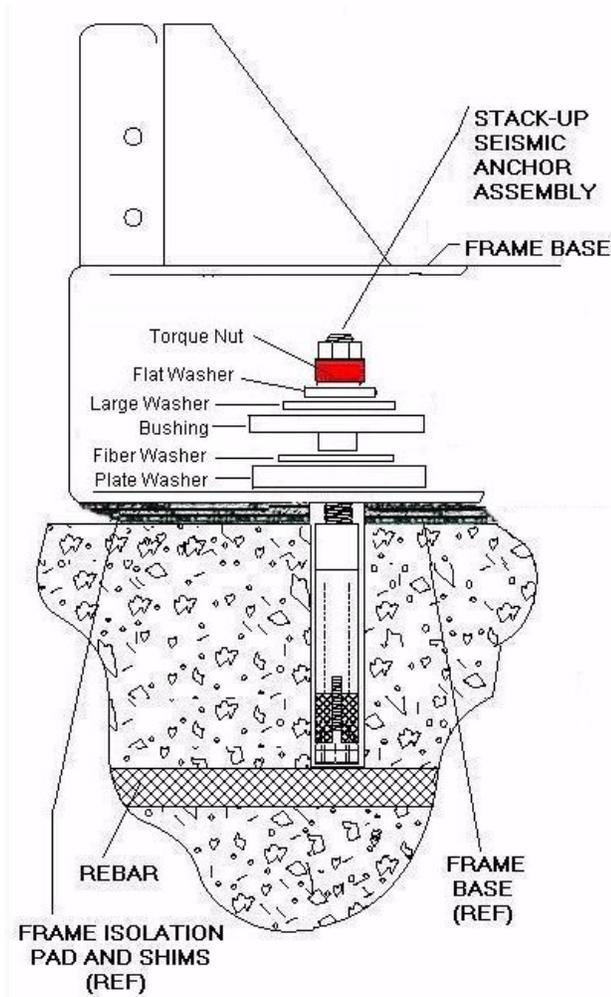
CAUTION: This is a redundant system to allow service during normal maintenance. When repairs require a total power disconnect, both input supply sources must be disconnected. Disconnection will cause service interruption and take down the system.



WARNING: Before drilling holes in any flooring, verify with facilities personnel that the area is free of gas or water pipes, ventilation and electrical wiring conduits.

Use [Figure 4-10](#) to identify the parts of the raised floor anchor as you follow the procedure.

Figure 4-10. Stack-up Seismic Anchor



Procedure — Anchor Cabinet on Concrete Floor

1. At each anchor location marked on the concrete floor, drill a hole that is 11/16 inches (18 mm) in diameter to a depth of 3 1/8 inches (7.9 cm) or 4 inches (10.2 cm) depending on the depth requirements at the site. Use the HEPA vacuum cleaner to collect the dust while drilling holes.

NOTE 1: The anchor and cabinet will not come together properly if the hole is drilled at an angle other than 90°.

NOTE 2: If any obstruction is encountered while drilling the hole, fill the unusable hole with liquid concrete. After allowing sufficient time for the liquid concrete to set, drill the hole at another spot within the marked area.

Clean out each hole after drilling is completed.

2. Insert the anchor assembly into the hole until the plate washer is flush against the floor.

3. Finger-tighten the torque nut. This step will set the cone nut into the anchor.

4. Preload the anchor by tightening the torque nut 1 1/2 turns. (Do not exceed 50ft lbs)

5. Remove the torque nut, leave anchor rod in concrete.

6. Lay the isolator pad on the floor with the holes in the isolator pad aligned over the anchor assemblies.

7. Roll the cabinet (still on the dolly) into position over the isolator pad.

CAUTION: Two people are needed to position the cabinet onto threaded rods.



8. Lower cabinet over rod and level as needed.

9. Place anchor stack-up parts on rod (see [Figure 4-10](#)).
 - a. Plate washer
 - b. Fiber washer
 - c. Bushing
 - d. Large washer
 - e. Flat washer

10. Re-thread torque nut onto rod.

11. Tighten torque nut until it separated, approximately 60 ft. lbs.

Cabinet Installation

Cabinet Door Removal

Installations with limited space to open the rear cabinet door may choose to remove the rear door prior to installation.

Procedure — Removing Cabinet Door

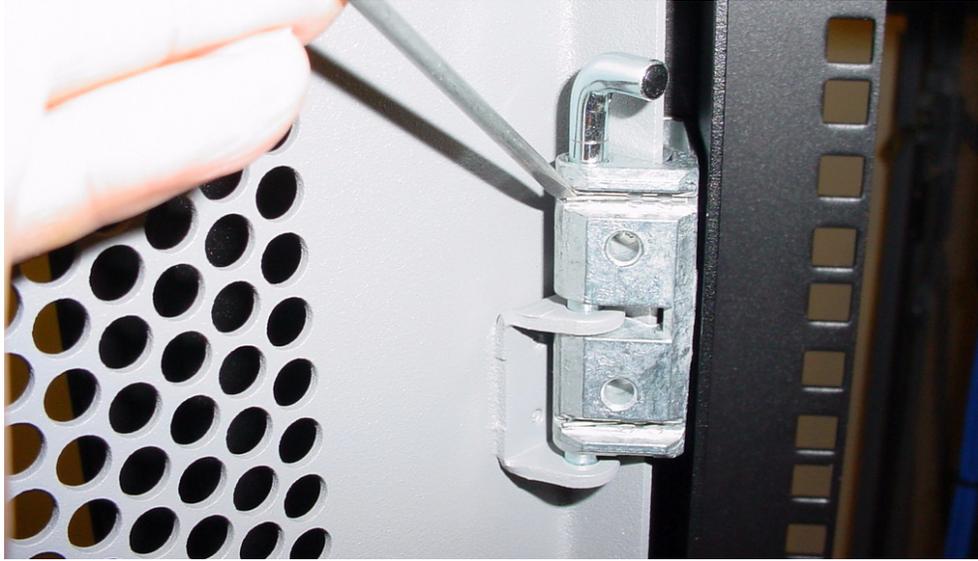
1. Open the cabinet door and locate the door hinges. The normal position of the hinge pin is shown in [Figure 4-11](#).

Figure 4-11. Cabinet Door Hinge Pin



-
2. Using a thin blade screwdriver, locate and pry the hinge spring wire open as shown in [Figure 4-12](#).

Figure 4-12. Prying open hinge spring wire



-
3. Lift pin up while spring wire is pulled away. Use a “scratch-free” hammer to force the pin up and free of the hinge. See [Figure 4-13](#).

Figure 4-13. Removing pin with rubber hammer



Grounding Information

Safety Precautions



CAUTION: All personnel associated with the installation of this system must adhere to all safety precautions and protection equipment required to avoid the possibility of injury to personnel, service degradation, and/or service interruption.



WARNING: This is a redundant system to allow service during normal maintenance. When repairs require a total power disconnect, both input supply sources must be disconnected. This will cause service interruption and take down the system.

WARNING: Consult with a qualified electrician to ensure proper power and grounding requirements are met.



CAUTION: Use a torque wrench to tighten all grounding lugs to 10 ft.-lbs.

Grounding Requirements

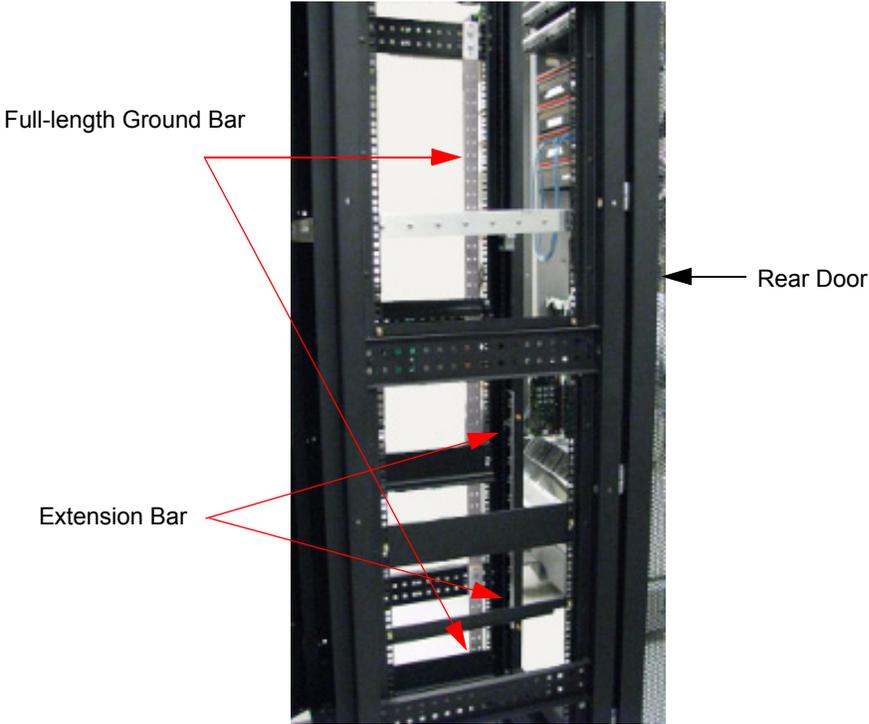
Tekelec systems operate in an isolated bonding network in a in a central office environment and require a single connection to the central office.

- Main ground bus

The system's ground cable must provide the sole grounding connection between the entire system and the central office ground.

The cabinet has a full-length main ground bus bar (per drawing) and an extension bar. The main bus bar allows for bottom-fed and top-fed cabling. The extension ground bar is secured to the cabinet with lugs, screws, and bolts on the right rear door flange. The main bus bar is attached to the right side of the cabinet on the right side of the door.

Figure 4-14. Main Ground Bus Location



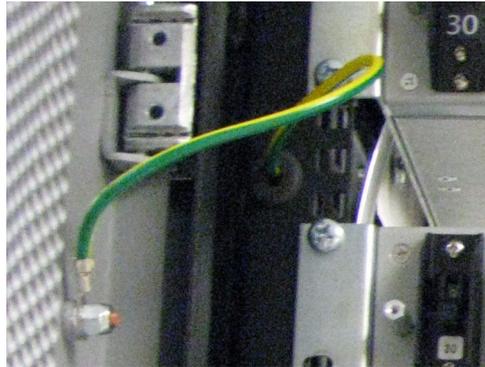
The doors installed are grounded to the main bus through a two-hole lug ground wire and through a screw-down latch. The rear door is grounded at the bottom of the door, the front door is grounded at the top of the door.

Figure 4-15. Door Ground - Bottom



Cabinet Installation

Figure 4-16. Door Ground - Top



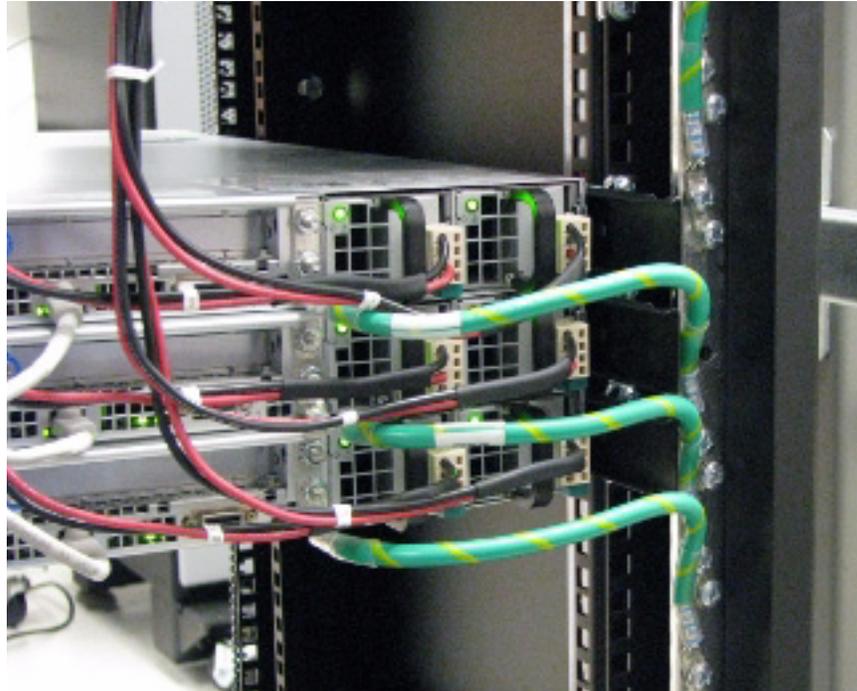
The PDP is grounded directly to the main ground bus.

Figure 4-17. Grounded PDP



The T1200 application servers are grounded to the extension bar.

Figure 4-18. Grounded T1200 Application Server



WARNING: Always install an isolator pad between the cabinet and ground floor. Tekelec cabinets are shipped with isolator pads to isolate the cabinets from the floor. If a non-Tekelec cabinet is used, an isolator pad must be provided.

- Cabinet/chassis ground

The cabinet/chassis ground path provides a low impedance connection for all metal parts of the entire system, including the cabinet, doors, shelves, and end panels. Each cabinet/chassis connection within the system lineup terminates to the cabinet bus bar. The bus bar connects to the Central Office main ground bus by way of Htaps, #6 American Wire Gauge (AWG) to 1/0 cable.

NOTE: The cabinet/chassis ground path does not carry current.

Frame Ground Cabling Procedures

This section covers these procedures:

- Ground Frame
- Connect Ground Cable to T1200

Recommended Tools and Materials

Tekelec tools should be labeled “Property of TEKELEC” with either a press-on Field Tool

Identification label or Field Tool Identification wrap.

- Safety glasses
- Power knife
- Cable cutters
- Cable stripper
- Flush cutters
- Crimping tool with embossing dies (test before using)
- Socket wrench set, 1/4-inch or 3/8-inch drive or open-end wrenches
- Torque wrench
- Non oxidizing grease
- Lacing cord and nylon cable ties
- Heat-shrink gun (hot air blower)
- Fiber paper

Procedure — Ground Frame

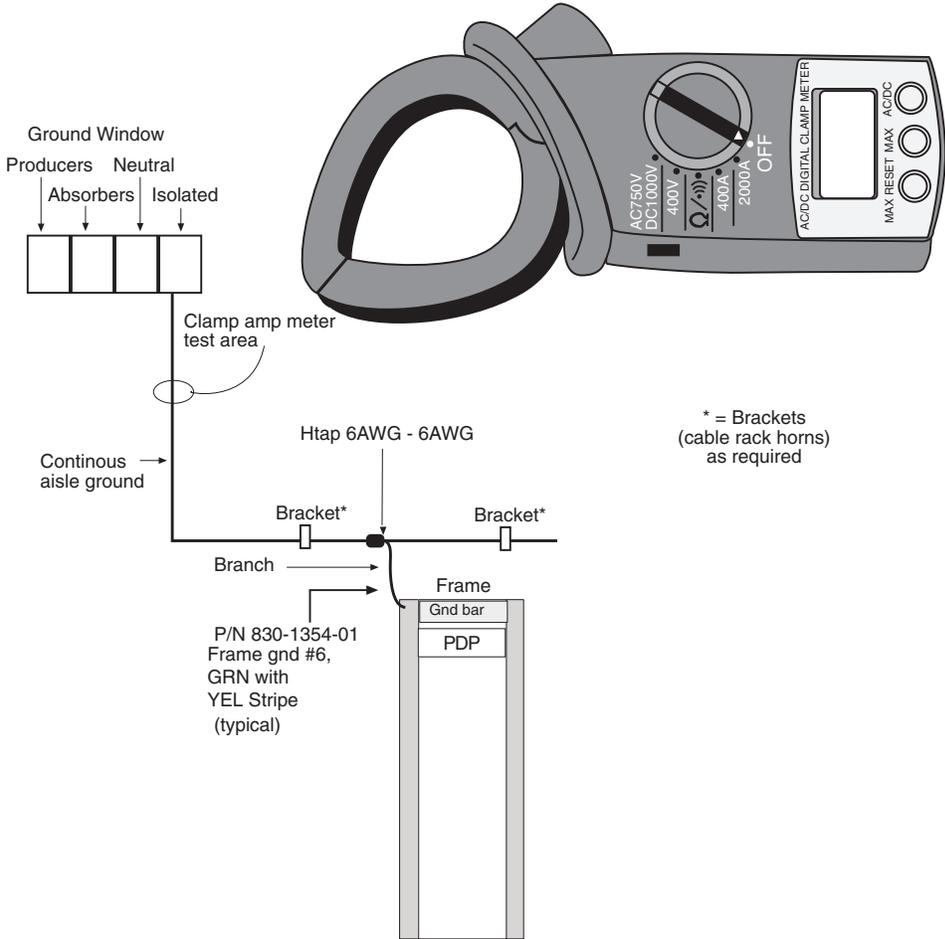
1. Install the continuous ground conductor to the Ground Window. Run the conductor the length of the equipment lineup (see Figure 4-19).

The separate #6 American Wire Gauge (AWG) cable ground that runs to each frame will allow removal of a frame from the lineup without interrupting the grounding of other frames in the lineup.

2. Install the branch ground conductor to the frame ground cable (P/N 830-1354-01, Cable Assy_6AWG_Frame Ground_GRN with YEL Stripe) pre-attached to the Frame Bus Bar. Use H-tap to connect this cable to the branch ground conductor.

The continuous aisle ground conductor will be H-tapped to the branch (see Figure 4-19). Torque screws to 45 inch-pounds.

Figure 4-19. System Frame Grounding



- 3. Secure the cable to the cable brackets with lacing cord.

Cables must be labeled, 145P tags should have "TO" and "FROM" location information.

Example: FROM MGB (Main Ground Bar) TO system ground bar XX Frame.

Procedure — Connect Ground Cable to T1200



CAUTION: This equipment has a connection between the earthed conductor of the DC supply circuit and the earthing conductor.

1. Use the lacing cord to secure a “DO NOT DISCONNECT LEAD” tag at each end of the cable, just beyond the lug.

NOTE: Frame Ground: A cable #6 AWG from a frame is H-tapped into another #6 cable or 1/0 cable and also terminates on the “I” (Isolated) section of the ground window.

Power Requirements in a DC Environment

A Direct Current environment must supply 14 60-Amp feeds from the customer’s power source. Each cabinet is divided into A and B power buses, each with seven feeds. In the event of loss of power on one of the buses, the other bus must be able to supply current for the entire cabinet.

NOTE 1: If breakers are tripped, they must be switched completely OFF and then ON to reset.

NOTE 2: The size of the cable is determined by the overall length of the cable run. Refer to the Site File Book.

Procedure — Power Terminations

1. All power terminations on the 3U PDP will be #6 awg.

Use H-taps for each -48vdc and RTN run to reduce the wire size to the proper gauge required. Refer to Table 4-1, which shows the list of required wiring sizes based on the length of the cable run.

Table 4-1 shows the list of required wiring sizes based on the length of the cable run. All cable equipment power ratings are 125A @ -48VDC.

Table 4-1. Power Cable Conductor Sizes

Breaker Size in Amperes	Cable Length	Conductor Size AWG
40A	up to 40 ft. (12.2 meters)	#6
	up to 70 ft. (21.3 meters)	#4
	up to 110 ft. (33.5 meters)	#2
	up to 170 ft. (51.8 meters)	1/0
	up to 200 ft. (61 meters)	2/0
	up to 220 ft. (67.1 meters)	4/0

Table 4-1. Power Cable Conductor Sizes (Continued)

Breaker Size in Amperes	Cable Length	Conductor Size AWG
60A	up to 40 ft. (12.2 meters)	#2
	up to 70 ft. (21.3 meters)	1/0
	up to 110 ft. (33.5 meters)	2/0
	up to 170 ft. (51.8 meters)	4/0
	up to 200 ft. (61 meters)	350MCM
	up to 220 ft. (67.1 meters)	350MCM

NOTE: Where the cable leaves the cable rack, the cable must be protected with fiber paper throughout the system.

-
2. Apply the cable tags, provided with the system, to both ends of the supply and return cables.
-
3. Ensure that power is off at the central office power distribution board for the circuits being wired. Use a multimeter.
-
4. Remove the clear plastic cover from the back of the 3U PDP.
-
5. Run, form, and dress the cable from the power distribution board to the 3U PDP.
-
6. For the A side and B side, strip the cable ends, slide a one-inch length of clear heat-shrink tubing over and past the portion of stripped cable.
-
7. Apply non oxidizing grease to the stripped end of the cable, and install the lug. The stripped cable must fill lug completely to the end of the barrel of the lug and be visible in the end window of the lug.
-
8. Double crimp the lugs onto the cable end using the embossing crimper.
-
9. Slide the one-inch length of clear tubing from Step 7 over the crimped lug. Apply heat and heat-shrink the one-inch length of clear tubing around the crimped lug.
-

10. Fasten the lugs of the cables to the respective A-side and B-side power and return on the 3U PDP. Torque to 36 inch-pounds.
-

11. Verify correct connection with a multimeter by running continuity check.
-

PDP Alarm Card

Monitoring of the power input is provided by the alarm card. Three DIP switches on the card allows this monitoring to be turned on or turned off. If the monitoring is not turned off for unconnected inputs, the alarm card detects a loss of input power to these inputs and the corresponding LED for the breakers will be red and an alarm is indicated.

The DIP switches monitor Bus A (S2) and Bus B (S3) individual power inputs. Monitoring of specific alarm cable inputs is provided by switch S4.

Replacing the PDP Alarm Card

This procedure describes removing and replacing the PDP Alarm Card.



WARNING: All alarm contacts will signal an alarm state when all power sources are removed or when the alarm card is removed.

Procedure — Replacing the Alarm Card

1. Observe the safety and ESD precautions in Chapter 2, *Safety and Pre-Installation Requirements*.
-

2. Remove the top and bottom screws from the alarm card face plate.

Figure 4-20. Unscrewing Alarm Card



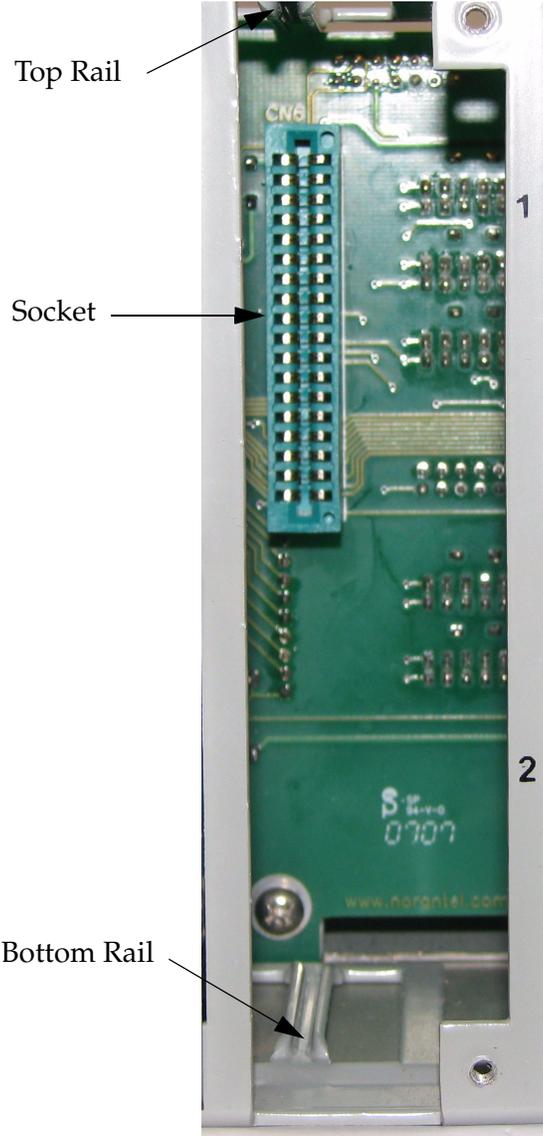
3. Hold the card at the top and bottom edge and pull it out straight. The removal of the alarm card will cause another alarm.

Figure 4-21. Removing the Alarm Card



-
4. Go to Procedure — Configuring the PDP Alarm Card to set the monitoring of the PDP Alarm Card.
-
5. Locate the top and bottom rail as well as the socket in the open alarm card slot.

Figure 4-22. Locating Rails and Socket in Slot



-
- 6. Slide the board of the new alarm card into the top and bottom rails of the open slot.
-

7. Push the card back carefully to match up the card connector with its socket in the slot.

Figure 4-23. Insert Alarm Card Carefully



-
8. Replace the screws on the face plate.
-
9. Verify that all LEDs on the alarm card are green.
-

Configure the PDP Alarm Card

This procedure describes how to set the monitoring of the input terminal using a DIP switch on the alarm panel.

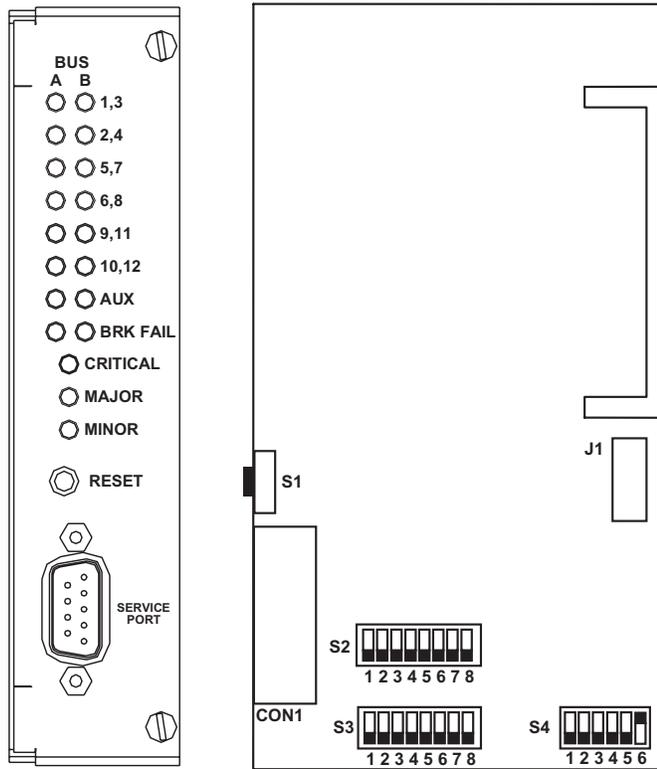
Procedure — Configuring the PDP Alarm Card

1. Observe the safety and ESD precautions in Chapter 2, *Safety and Pre-Installation Requirements*.

2. Remove the alarm card using Procedure — Replacing the Alarm Card.

3. Locate DIP switches S2, S3, and S4. See [Figure 4-24](#).

Figure 4-24. Alarm Card Front and Side View



4. Use Table 4-2 to set DIP switch S2 positions 1 through 8 to monitor power supply inputs for BUS A and DIP switch S3 positions 1 through 8 to monitor power supply inputs for BUS B.

NOTE: Factory settings are S4:6 is OFF, all other positions for S2, S3, and S4 are ON.

Table 4-2. Individual Power Supply Input Monitoring (DIP Switches S2 and S3)

DIP Switch Position 1 - 8	Group	Breaker and LED Position	Setting	Description
1	A	1 and 3	ON	Input Monitored, LED Enabled.
			OFF	Input Not Monitored, LED Disabled (OFF).
2		2 and 4	ON	Input Monitored, LED Enabled.
			OFF	Input Not Monitored, LED Disabled (OFF).
3	B	5 and 7	ON	Input Monitored, LED Enabled.
			OFF	Input Not Monitored, LED Disabled (OFF).
4		6 and 8	ON	Input Monitored, LED Enabled.
			OFF	Input Not Monitored, LED Disabled (OFF).
5	C	9 and 11	ON	Input Monitored, LED Enabled.
			OFF	Input Not Monitored, LED Disabled (OFF).
6		10 and 12	ON	Input Monitored, LED Enabled.
			OFF	Input Not Monitored, LED Disabled (OFF).
7	---	AUX	ON	Input Monitored, LED Enabled.
			OFF	Input Not Monitored, LED Disabled (OFF).
8	---	---	ON	Overrides DIP switch positions 1-6 settings. See S4:1-S4:4 settings.
			OFF	Enable DIP switch settings 1-6.

NOTE 1: LED for the associated supply input and breaker when enabled shall illuminate either:

- GREEN when -48VDC is connected
- RED when -48VDC is not connected

NOTE 2: When position 8 is set ON, DIP switch settings 1-6 are ignored with 7 active. For example, if alarm inputs are enabled for PAN and PBN, but disabled for PCN, then the BUS input supply monitoring LEDs are enabled for Group A (inputs 1- 4) and Group B (inputs 5-8), but disabled for Group C (inputs 9-12).

5. Use Tables 4-3 to set DIP switch S4 positions 1 through 4 to specify monitoring of alarm cable inputs on a group (A, B, and/or C) basis.

NOTE: Factory settings are S4:6 is OFF, all other positions for S2, S3, and S4 are ON.

Table 4-3. Alarm Input Monitoring (DIP Switch S4)

DIP Switch Position 1 - 6	Alarm Input	Setting	Description
1	PAN	ON	Alarm Input Enabled and Monitored.
		OFF	Alarm Input Disabled and Not Monitored.
2	PBN	ON	Alarm Input Enabled and Monitored.
		OFF	Alarm Input Disabled and Not Monitored.
3	PCN	ON	Alarm Input Enabled and Monitored.
		OFF	Alarm Input Disabled and Not Monitored.
4	---	ON	Use S4:1-S4:3 settings for alarm input monitoring.
		OFF	All alarm cables inputs provide monitoring.
5	---	ON	Not Used.
		OFF	Not Used, set to ON.
6	---	ON	Not Used, set to OFF.
		OFF	Not Used.

Cabinet Installation

6. Re install the alarm card using Procedure — Replacing the Alarm Card.
7. Reconnect all power sources to the PDP.

Cabling Information

The application cabinet is shipped pre-configured based on a customer's sales order. Power, ground, and network connections from the Customer site are required.

[Figure 4-25](#) shows an example of a T1200 application cabinet with doors and pre-configured before shipping.

Figure 4-25. Example of T1200 Cabinet as Shipped



[Figure 4-26](#) shows the same T1200 cabinet with a view of the pre-installed components.

Figure 4-26. T1200 cabinet with Pre-installed Components



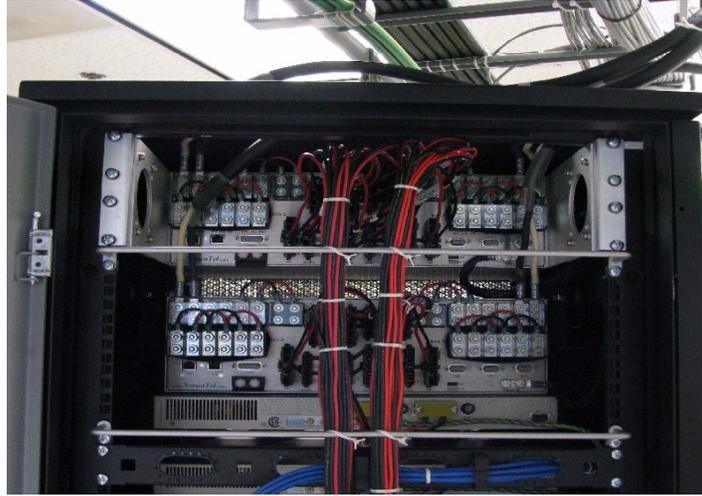
Cabinet Installation

[Figure 4-27](#) shows the same T1200 application cabinet with a view of the pre-cabled components.

Figure 4-27. Example of T1200 cabinet with Pre-cabled Components



Components are connected to one another. Power and network cables are connected to the power distribution panel.

Figure 4-28. Power Distribution Panel (PDP) Cabling

See the site survey and interconnect diagram for information on power and network cable termination.

Breakers in the PDP are installed based on component configuration of the cabinet. For information on how to install or replace a breaker, refer to the Maintenance Manual (T1200) or FRU replacement document.

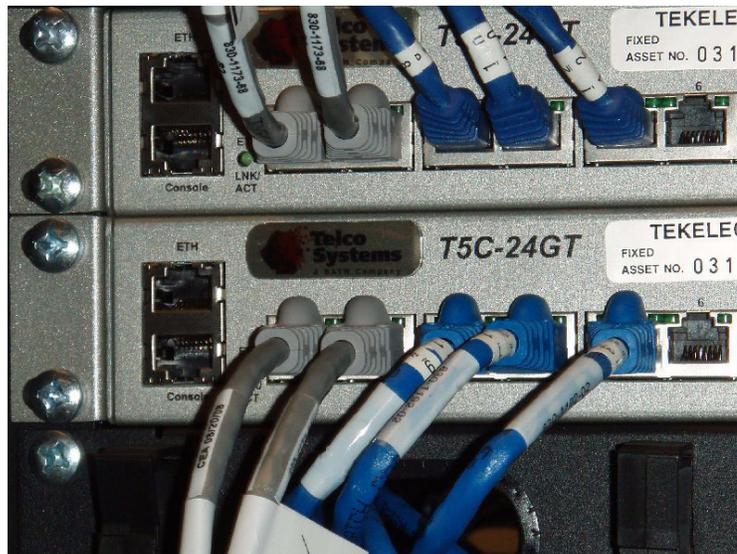
Figure 4-29. Ethernet Switch Cabling - Front

Figure 4-30. Ethernet Switch Cabling - Rear

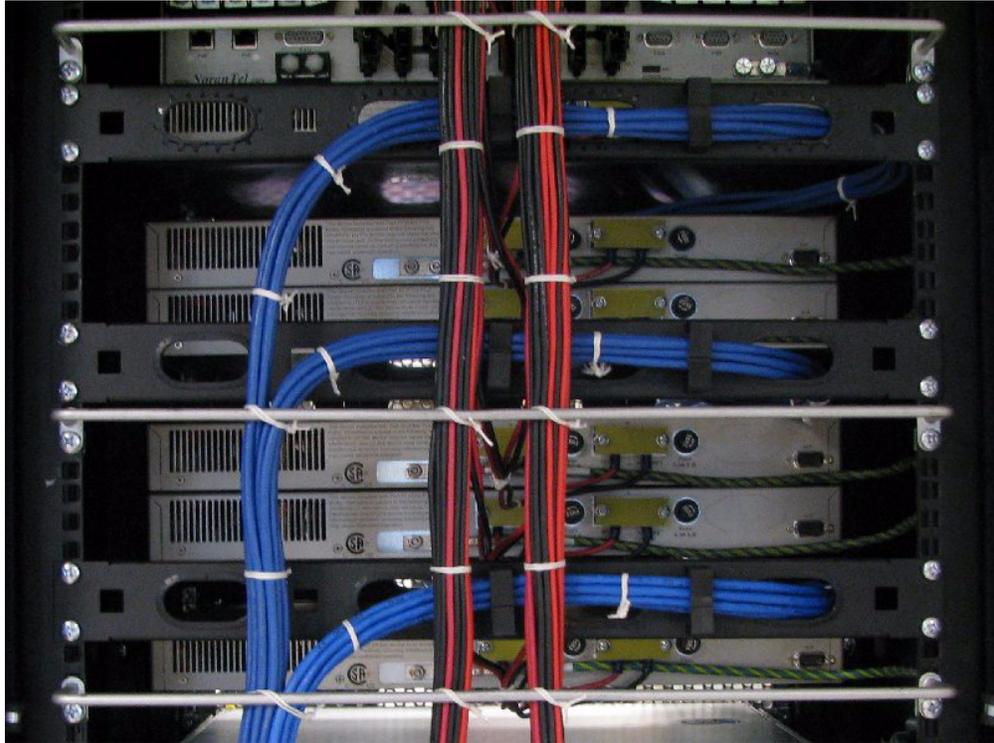


Figure 4-31. T1200 Application Server Cabling

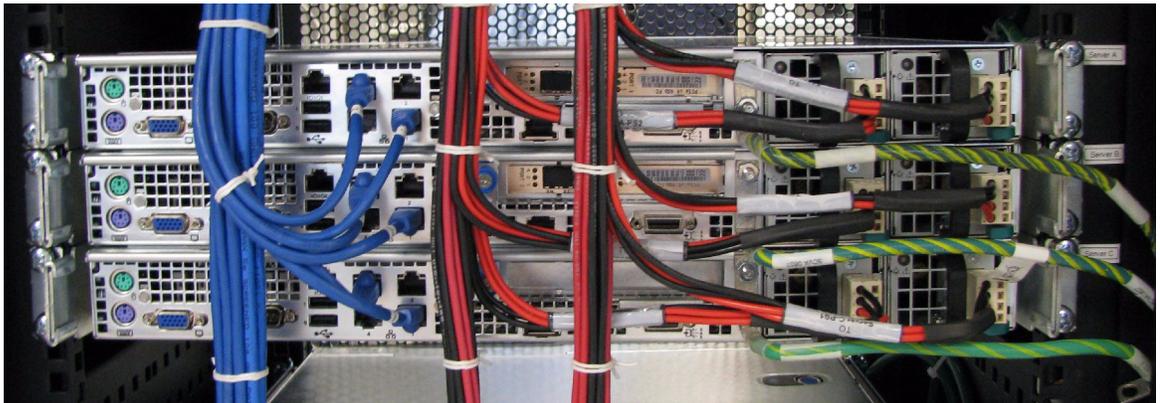
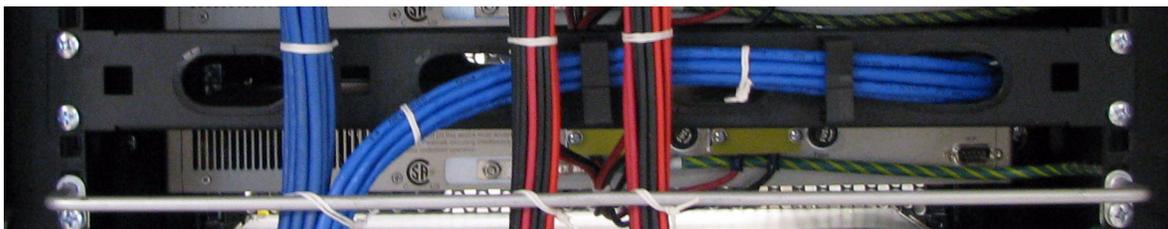


Figure 4-32. Cable Management



Glossary

This section lists and describes the acronyms and terms that appear in this documentation. Entries are listed here in alphabetical order.

A

AC

Alternating current

ACL

Application Processor Code Loader

Adaptive Session Redundancy

See ASR.

Address Resolution Protocol.

See ARP.

AIM

Advanced Integration Modules

AIS

Application Interface Specification. The Service Availability Forum (SAF) specification that defines the interface between the applications and the high-available middleware.

alarm

A type of event related to a degraded or failed state of a FRU. Each alarm is represented by two events, an alarm asserted event and an alarm clear event.

API

Application Programming Interface.

application

In documents for the Tekelec 5100 platform, the telecommunications software that is hosted on the T5100 platform is referred to as an *application*.

application cabinet

The T1200 platform level solution containing the T1200 application server, T5100 application shelf (if applicable), power, networking, and remote access.

Application Interface Specification

See AIS.

application platform

See Tekelec 1200 or 5100 Integrated Application Platform.

application server

See Tekelec 1200 application server.

Application Shelf

See T5100 applications shelf.

application switch

The application switch is a wire-speed, low-latency, Layer 2 to 4, 1-rack-unit (1U), fixed-configuration switch for rack-optimized server switching.

application zone

One of the three physical areas in the cabinet, in which T1200 or T5100 application servers are located. Each zone can contain servers hosting only a single application.

AppWorks

Tekelec's management framework for managing next generation distributed networks. AppWorks comprises of a distributed architecture with OAMP-NE, System OAM and Message Processors (signaling elements). It encompasses a GUI, Database, OAM framework, COMCOL modules.

architecture

Architecture, as it is used in the context of this documentation, is a term used to conceptually describe the function, interaction, and connectivity of hardware, software, and/or system components within a network.

ARP

Address Resolution Protocol. ARP monitoring uses the Address Resolution Protocol to determine whether a remote interface is reachable.

Glossary

AS

Application server. See Tekelec 1200 application server.

ASR

Adaptive Session Redundancy. ASR provides session-level redundancy for applications where active flows must continue without interruption, even if the active content switch fails over to the backup content switch. ASR is a new standard, which is used for mission-critical applications to provide stateful failovers.

ATA

Advanced Technology Attachment

AUX

Auxiliary

AWG

American Wire Gauge

B

BIOS

Basic Input-Output System. Firmware on the CPU blade that is executed prior to executing an OS.

blade

Blades are single slot cards that function, essentially, as independent servers within an T5100 applications shelf. Depending on the task(s) they perform, blades can be categorized as shelf managers, switch blades, storage blades, or compute blades (also referred to as server blades).

BTU

British Thermal Unit

C

COMCOL

Middleware component for AppWorks, which provides data and control framework for a signaling application.

CLI

Command Line Interface

CLLI

Common Language Location Identifier

compute blades

Compute blades are single slot cards in a T5100 applications shelf. Compute blades can be further classified as application server blades or PM&C server blades. Compute blades for application use are referred to as application server blades. Compute blades used for the PM&C application are referred to as the PM&C server blade. There are two PM&C server blades on each T5100 platform: the primary PM&C server blade and the spare PM&C server blade. The spare PM&C server blade is used for backups and disaster recovery.

console server

PM&C uses the console server to access the console ports of each shelf manager and switch (base and fabric per switch) to perform initial configuration of those components. The PM&C application configures the console server during the **Add Frame** operation. The PM&C application uses the console server during the **Add Shelf** operation to configure the shelf manager and the switches.

content switch

The content switch improves application and site availability and transaction integrity by using Adaptive Session Redundancy (ASR), an industry standard in stateful failover.

CPCI

Compact PCI

CPU

Central Processing Unit

Critical Alarm

An indication of a problem that affects service, traffic, billing, and maintenance capabilities and requires immediate maintenance attention, regardless of time of day.

CRC

Cyclic Redundancy Check

CSR

Customer Service Request

Glossary

D

DC

direct current

DHCP

Dynamic Host Configuration Protocol

DNS

Domain Name Services

DSP

digital signal processor

DVD

Digital Versatile Disk

E

ESD

Electro-Static Discharge

F

failover

Failover is the capability to automatically switch to a redundant or backup server, system, or network when the previously active server, system, or network fails or terminates abnormally. In certain instances, however, automatic failover may not be desirable, and human intervention may be required to initiate the failover manually.

FC

Fibre channel.

FE

Fast Ethernet

Field Replaceable Unit

See FRU.

firmware

Firmware is software embedded in a hardware device. Oftentimes, firmware is provided on flash ROMs or as a binary image file that can be uploaded onto existing hardware.

FRU

Field Replaceable Unit. A component or part that can be quickly and easily removed and replaced by the user or by a technician without having to send the entire product or system to a repair facility.

G**GBIC**

gigabit interface converter

GigE

Gigabit Ethernet

GUI

Graphical User Interface.

H**HA**

High availability. High Availability refers to a system or component that operates on a continuous basis by utilizing redundant connectivity, thereby circumventing unplanned outages.

hardware co-mingling

A solution that allows multiple applications that are hosted on separate server clusters to reside in a common cabinet. Each application is hosted on its own set of servers, just as it would be today when each application is placed in separate cabinets. There is no management element spanning the applications.

Hardware Platform Interface

See HPI.

high availability

See HA.

hot-swappable

The ability to remove and replace components of a machine (such as a computer) without turning the machine off. Also known as hot-plugging.

HPI

Hardware Platform Interface. A protocol that provides an abstracted interface to manage computer hardware. The specification for HPI was developed by SAF to separate the hardware from management middleware, making each independent of one another.

HTTP

Hypertext Transfer Protocol

HVAC

Heating, Ventilation, and Air Conditioning

I

I/O

input/output

intelligent FRU

An intelligent FRU has an IPMC (Intelligent Platform Management Controller) and is manageable. An intelligent FRU (for example, a shelf manager) may have knowledge of other non-intelligent FRUs (for example, fan tray and alarm board).

Intelligent Platform Management Interface

See IPMI.

IP

Intelligent Peripheral

IPM

Intelligent Platform Management.

IPMB

Intelligent Platform Management Bus.

IPMC

Intelligent Platform Management Controller. Microcontroller located on a blade card to process IPMI commands.

IPMI

Intelligent Platform Management Interface. A specification called out by ATCA for providing a low-level interface between blades.

L**L2**

Layer-2. Layer-2 is the *data link* layer in the Open Systems Interconnection (OSI) model, a seven layer model used to describe and develop networking protocols.

LAN

local area network

LCD

Liquid Crystal Display

LED

Light-emitting diode.

M**MAC**

Media Access Control Address. The unique serial number burned into the Ethernet adapter that identifies that network card from all others.

Major Alarm

An indication of a problem that seriously affects system operation or maintenance and administration, and requires immediate attention. The urgency is less than in critical situations because of a lesser immediate or impending affect on system performance or company operations and revenue.

Management Information Base

See MIB.

Media Access Control Address

See MAC.

Message Processor

See MP.

MIB

Management Information Base. A database of network management information that is used and maintained by the SNMP protocol.

middleware

A communications layer that allows applications to interact across hardware and network environments.

Minor Alarm

An indication of a problem that does not have a serious effect on service, and may or may not require maintenance attention.

MP

Message Processor. The Message Processor provides the application messaging protocol interfaces and processing. However, these servers also have OAM&P components. All Message Processors replicate from their System OAM's database and generate faults to a Fault Management System.

MTBF

Mean-Time-Between-Failures

MTTR

Mean-Time-To-Repair

N

N+1 Application

An application level redundancy scheme, in which a single server can serve as the backup to any server in the cluster, in the event that any one server should fail. This is an alternative to an active/standby redundancy model.

Network Interface Card

See NIC.

network zone

Network Zone supports Ethernet switches and front-to-rear cable plenum when T5100 application shelves are included.

NEBS

Network Equipment Building Systems

NIC

Network Interface Card. Computer hardware that enables computers to communicate with one another over a computer network. Also called a network card or a network adapter.

NM

Network Module

NME

Network Module Enhanced

NOAM&P

Network OAM&P

O**OAM**

Operation, administration, and maintenance

OAMP-NE

Operation, administration, maintenance, and provisioning of network elements

OAM&P

Operations, Administration, Maintenance, and Provisioning. These functions are generally managed by individual applications and not managed by a platform management application, such as PM&C.

Operations - Monitoring the environment, detecting and determining faults, and alerting administrators.

Administration - Typically involves collecting performance statistics, accounting data for the purpose of billing, capacity planning, using usage data, and maintaining system reliability.

Maintenance - Provides such functions as upgrades, fixes, new feature enablement, backup and restore tasks, and monitoring media health (for example, diagnostics).

Provisioning - Setting up user accounts, devices, and services.

OpenHPI

An open source implementation of the Service Availability Forum (SAF) Hardware Platform Interface (HPI).

OS

Operating system.

Glossary

OSPF

Open Shortest Path First

P

PCI

Peripheral Component Interface

PDP

Power Distribution Panel. Monitors primary and secondary power sources on a continuous basis.

PICMG®

PCI Industrial Computer Manufacturers Group.

PMC

PCI Mezzanine Card

platform

A platform refers to a framework on which applications may be run.

platform software

Refers to the operating system, firmware, and management software components of the Tekelec 1200/5100 platforms. Does not refer to the application software that runs on the platform.

Power Distribution Panel

See PDP.

power zone

The physical area in the application cabinet that holds the power distribution panel.

PR

Problem report

Q

QoS

Quality of Service

R**Rebar**

The steel reinforcing bar used in concrete construction.

RMM

Remote Management Module

RMON

Remote Network Monitoring

RoHS

Restriction of Hazardous Substance

RU

Rack Unit. (Analogous to "U".) One rack unit (1RU) is 44.45 mm (1.75 in) high.

S**SAF™**

Service Availability Forum

SAS

Serial Attached SCSI

SAN

Storage area network

SCM

System Configuration Manager

SFP

SAS front panel

small form-factor pluggable

Simple Network Management Protocol

See SNMP.

SMS

Systems Management Specification

SNMP

Simple Network Management Protocol. SNMP monitors network-attached devices and generates notifications (traps) for conditions that warrant administrative attention.

SSH

Secure Shell

SSL

Secure Sockets Layer

switch

A device that connects multiple network segments along the data link layer (layer-2 and possibly layer-3).

T

T1200 cabinet

A 44U PICMG-3.0-compliant cabinet deployed for the T1200 platform.

T5100 cabinet

A 44U PICMG-3.0-compliant cabinet deployed for the T5100 platform.

T5100 applications shelf

The ATCA shelf deployed for the T5100 platform. The T5100 applications shelf is PICMG- 3.0-compliant. The T5100 applications shelf is a COTS (commercial off-the-shelf) item that is loaded with a combination of third-party-designed blades, third-party software, and Tekelec software.

TCA

Telecommunications Computing Architecture

TCP

Transmission Control Protocol. A connection-oriented protocol used by applications on networked hosts to connect to one another and to exchange streams of data in a reliable and in-order manner.

Tekelec 1200 application server

The Tekelec 1200 application server is an off-the-shelf server to host Tekelec central office applications.

Tekelec 1200 Integrated Application Platform

A line-up of one or more application cabinets at a single site providing a deployable customer solution. The T1200 platform has a modular hardware architecture and allows hardware co-mingling to consolidate product configurations of multiple product families to one common cabinet. Tekelec platform software provides alarm management and configuration of each hardware component.

Tekelec 5100 Integrated Application Platform

A line-up of one or more application frames at a single site providing a deployable customer solution. Tekelec platform software provides management and configuration of each hardware component. For the initial release of the T5100 platform, one frame and one shelf are supported.

TFTP

Trivial File Transfer Protocol.

Tekelec Platform Distribution

See TPD.

TPD

Tekelec Platform Distribution. TPD is a standard Linux-based operating system packaged and distributed by Tekelec. TPD provides value-added features for managing installations and upgrades, diagnostics, integration of 3rd party software (open and closed source), build tools, and server management tools.

U**U**

Rack Unit. In its strictest sense, a rack unit (U) is a unit of measure that describes the height of a component mounted in a standard 19-inch rack. One rack unit (1U) is 44.45 mm (1.75 in) high. In this example, a “standard 44U cabinet” refers to the amount of vertical space occupied by this 19-inch-wide cabinet, which is 77.0 (1.75 inches x 44) inches high.

Uniform Resource Identifier

See URL.

Glossary

URL

Uniform Resource Identifier. An internet protocol element consisting of a short string of characters that conform to a certain syntax. The string comprises a name or address that can be used to refer to a resource.

USB

Universal Serial Bus.

V

VDC

Voltage Direct Current

VOM

Volt Ohm Meter

W

WAN

Wide area network

Z

zone

Physical area in the cabinet.

