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CT-310A

FIVE-SLOT VXIBUS CHASSIS

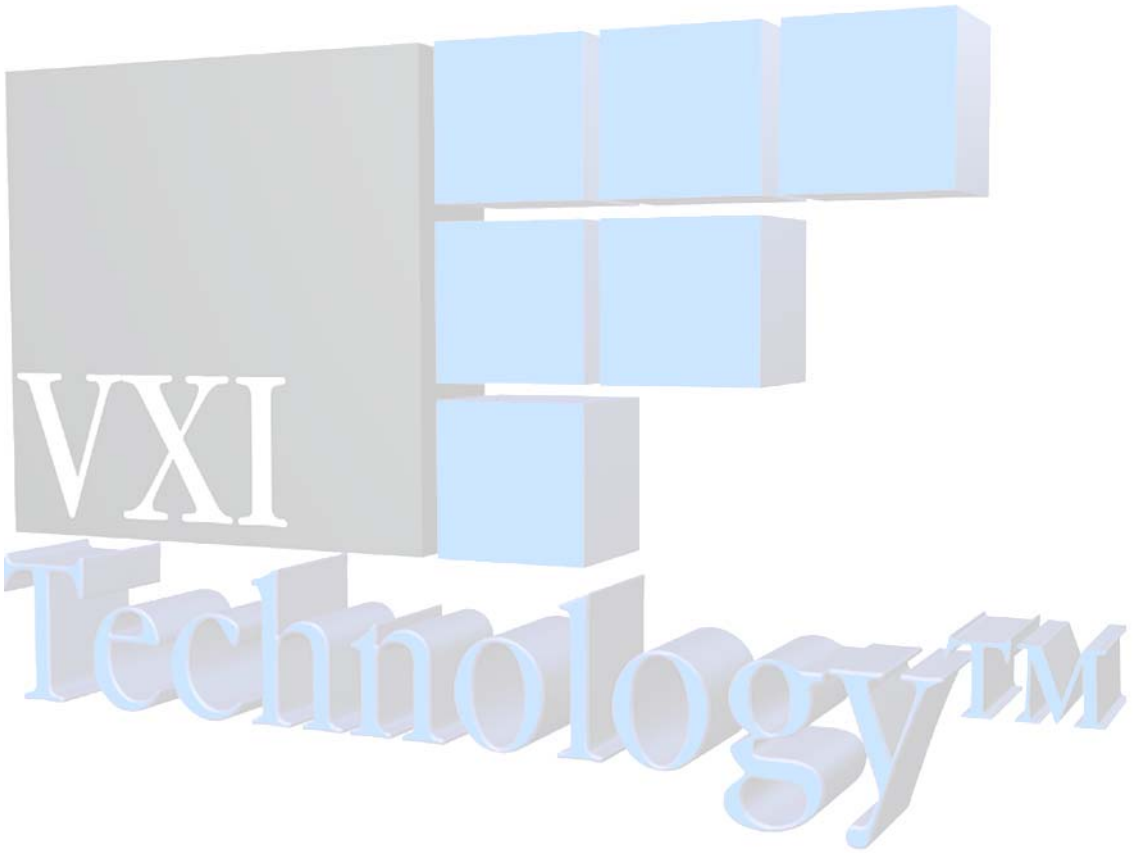
USER'S MANUAL

P/N: 82-0062-000
Released November 17, 2007

VXI Technology, Inc.

2031 Main Street
Irvine, CA 92614-6509
(949) 955-1894

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CERTIFICATION

VXI Technology, Inc. (VTI) certifies that this product met its published specifications at the time of shipment from the factory. VTI further certifies that its calibration measurements are traceable to the United States National Institute of Standards and Technology (formerly National Bureau of Standards), to the extent allowed by that organization's calibration facility, and to the calibration facilities of other International Standards Organization members.

WARRANTY

The product referred to herein is warranted against defects in material and workmanship for a period of three years from the receipt date of the product at customer's facility. The same warranty applies to the power supply for a period of one year. The sole and exclusive remedy for breach of any warranty concerning these goods shall be repair or replacement of defective parts, or a refund of the purchase price, to be determined at the option of VTI.

For warranty service or repair, this product must be returned to a VXI Technology authorized service center. The product shall be shipped prepaid to VTI and VTI shall prepay all returns of the product to the buyer. However, the buyer shall pay all shipping charges, duties, and taxes for products returned to VTI from another country.

VTI warrants that its software and firmware designated by VTI for use with a product will execute its programming when properly installed on that product. VTI does not, however, warrant that the operation of the product, or software, or firmware will be uninterrupted or error free.

LIMITATION OF WARRANTY

The warranty shall not apply to defects resulting from improper or inadequate maintenance by the buyer, buyer-supplied products or interfacing, unauthorized modification or misuse, operation outside the environmental specifications for the product, or improper site preparation or maintenance.

VXI Technology, Inc. shall not be liable for injury to property other than the goods themselves. Other than the limited warranty stated above, VXI Technology, Inc. makes no other warranties, express, or implied, with respect to the quality of product beyond the description of the goods on the face of the contract. VTI specifically disclaims the implied warranties of merchantability and fitness for a particular purpose.

RESTRICTED RIGHTS LEGEND

Use, duplication, or disclosure by the Government is subject to restrictions as set forth in subdivision (b)(3)(ii) of the Rights in Technical Data and Computer Software clause in DFARS 252.227-7013.

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DECLARATION OF CONFORMITY

Declaration of Conformity According to ISO/IEC Guide 22 and EN 45014

MANUFACTURER'S NAME	VXI Technology, Inc.
MANUFACTURER'S ADDRESS	2031 Main Street Irvine, California 92614-6509-6509
PRODUCT NAME	Five-Slot VXIbus Chassis
MODEL NUMBER(S)	CT-310A
PRODUCT OPTIONS	All
PRODUCT CONFIGURATIONS	All

VXI Technology, Inc. declares that the aforementioned product conforms to the requirements of the Low Voltage Directive 73/23/EEC *and the* EMC Directive 89/366/EEC *(inclusive* 93/68/EEC*) and carries the "CE" mark accordingly. The product has been designed and manufactured according to the following specifications:*

SAFETY	EN61010 (2001)
EMC	EN61326 (1997 w/A1:98) Class A CISPR 22 (1997) Class A VCCI (April 2000) Class A ICES-003 Class A (ANSI C63.4 1992) AS/NZS 3548 (w/A1 & A2:97) Class A FCC Part 15 Subpart B Class A EN 61010-1:2001

I hereby declare that the aforementioned product has been designed to be in compliance with the relevant sections of the specifications listed above as well as complying with all essential requirements of the Low Voltage Directive.

November 2007

CE

Steve Mauga, QA Manager

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GENERAL SAFETY INSTRUCTIONS

Review the following safety precautions to avoid bodily injury and/or damage to the product. These precautions must be observed during all phases of operation or service of this product. Failure to comply with these precautions, or with specific warnings elsewhere in this manual, violates safety standards of design, manufacture, and intended use of the product.

Service should only be performed by qualified personnel.

TERMS AND SYMBOLS

These terms may appear in this manual:



Indicates that a specific **WARNING** or **CAUTION** follows.

WARNING Indicates that a procedure or condition may cause bodily injury or death.

CAUTION Indicates that a procedure or condition could possibly cause damage to equipment or loss of data.

These symbols may appear on the product:

WARNING Indicates that a procedure or condition may cause bodily injury or death.



ATTENTION - Important safety instructions



Frame or chassis ground



Alternating Current (ac)



Indicates that the product was manufactured after August 13, 2005. This mark is placed in accordance with *EN 50419, Marking of electrical and electronic equipment in accordance with Article 11(2) of Directive 2002/96/EC (WEEE)*. End-of-life product can be returned to VTI by obtaining an RMA number. Fees for take-back and recycling will apply if not prohibited by national law.

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WARNINGS

Follow these precautions to avoid injury or damage to the product:

Use Proper Power Cord

To avoid hazard, only use the power cord specified for this product.

Use Proper Power Source

To avoid electrical overload, electric shock, or fire hazard, do not use a power source that applies other than the specified voltage.

Avoid Electric Shock

To avoid electric shock or fire hazard, do not operate this product with the covers removed. Do not connect or disconnect any cable, probes, test leads, etc. while they are connected to a voltage source. Remove all power and unplug unit before performing any service. ***Service should only be performed by qualified personnel.***

Ground the Product

This product is grounded through the grounding conductor of the power cord. To avoid electric shock, the grounding conductor must be connected to earth ground.

Operating Conditions

To avoid injury, electric shock or fire hazard:

- Do not operate in wet or damp conditions.
- Do not operate in an explosive atmosphere.
- Operate or store only in specified temperature range.
- Provide proper clearance for product ventilation to prevent overheating.
- DO NOT operate if there is any damage to this product is suspected. ***Product should be inspected or serviced only by qualified personnel.***



Improper Use

The operator of this instrument is advised that if equipment is used in a manner not specified in this manual, the protection provided by this equipment be may be impaired.

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LES INSTRUCTIONS GÉNÉRALES DE SÛRETÉ

Passez en revue les mesures de sécurité pour éviter des dommages corporels et/ou des dommages au produit. De ces précautions pendant toutes les phases opération ou on doit observer service de ce produit. Le manque de se conformer à ces précautions ou aux avertissements spécifiques ailleurs en ce manuel, viole des normes de sûreté de conception, de fabrication et d′utilisation du produit.

Le service devrait seulement être assuré par le personnel qualifié.

LIMITES ET SYMBOLES

Ces limites peuvent apparaître dans ce manuel:



Indique qu′un avertissement spécifique suit.

ATTENTION (WARNING) Indique qu'un procédé ou une condition peut causer des dommages corporels ou la mort.

ATTENTION Indique qu′un procédé ou une condition pourrait probablement endommager l′équipement ou la perte de données.

Ces symboles peuvent apparaître sur le produit:

ATTENTION (WARNING) Indique qu′un procédé ou une condition peut causer des dommages corporels ou la mort.



ATTENTION - Instructions de sécurité importantes.



La terre de vue ou de châssis.



Courant alternatif (C.A.)



Indique que le produit était construit après août 13, 2005. Cette marque est placée selon *En 50419. Inscription d'équipement électrique et électronique selon Article 11(2) de 2002/96/EC directif (WEEE)*. le produit de l'Extrémité-de-vie peut être retourné à VTI en obtenant un nombre de RMA. Les honoraires pour prennent-en arrière et réutilisation s'appliquera si non interdit par loi nationale.

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ATTENTION (*WARNINGS*)

Suivez ces précautions pour éviter des dommages ou d'endommager le produit:

Employez le Cordon de Secteur Approprié

Pour éviter les risques, utiliser seulement le cordon de secteur indiqué pour ce produit.

Employez la Source d' Énergie Appropriée

Pour éviter la surcharge électrique, décharge électrique, ou le risqué d′incendie, ne pas employer une source d′énergie autre que la tension indiquée.

Évitez la Décharge Électrique

Pour éviter la décharge électrique ou le risqué d'incendie n'actionnez pas ce produit si les couvercles sont enlevés. Ne relies ou ne débranchez aucun câble, sondes, fils test, etc. tendis qu′ils sont reliés à une source de tension. Coupez toute la puissance et débranchez l′unité avant d'assurer n′importe quel service. ***Le service devrait seulement être assuré par le personnel qualifié.***

Ettez ce Produit à la Terre de la Terre

Ce produit est relié à la terre par le cordon de secteur. Pour éviter une décharge électrique, le cordon de secteur doit être relié à une sortie de C.A. correctement configurée.

Conditions de Fonctionnement

Pour éviter des dommages, décharge électrique ou risque d'incendie:

- Ne pas utiliser dans des conditions mouillées ou humides.
- Ne pas utiliser dans une atmosphère.
- Utiliser ou stocker seulement dans la température ambiante indiquée.
- Assurez-vous d'un dégagement approprié pour la ventilation de produit affin d'empêcher la surchauffe.
- NE PAS UTILISEZ en cas de dommages suspectés. ***Le produit devrait être inspecte ou entretenu seulement par le personnel qualifié.***



Utilisation Inexacte

L'opérateur de cet instrument est conseille que si l'équipement est employé en quelque sorte pas spécifié en ce manuel, la protection fournie par l'équipement peut être altère.

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SUPPORT RESOURCES

Support resources for this product are available on the Internet and at VXI Technology customer support centers.

VXI Technology
World Headquarters

VXI Technology, Inc.
2031 Main Street
Irvine, CA 92614-6509

Phone: (949) 955-1894
Fax: (949) 955-3041

VXI Technology
Cleveland Instrument Division

VXI Technology, Inc.
7525 Granger Road, Unit 7
Valley View, OH 44125

Phone: (216) 447-8950
Fax: (216) 447-8951

VXI Technology
Lake Stevens Instrument Division

VXI Technology, Inc.
1924 - 203 Bickford
Snohomish, WA 98290

Phone: (425) 212-2285
Fax: (425) 212-2289

Technical Support

Phone: (949) 955-1894
Fax: (949) 955-3041
E-mail: support@vxitech.com



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SECTION 1

INTRODUCTION

OVERVIEW

The CT-310A portable C-size VXIbus mainframe provides cost-effective test situations in a small footprint. When using VMIP™ instruments such as DMMs, waveform generators, digitizers, etc., complete test scenarios can easily be configured.



FIGURE 1-1: CT-310A FIVE-SLOT CHASSIS

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GENERAL DESCRIPTION

The CT-310A mainframe is a portable, C-size, five-slot, VXIbus compatible chassis that conforms fully to VXIbus Specification Revision 1.4. The chassis employ multi-layer backplanes to ensure optimal VXIbus and VMEbus performance and provides all power supplies required by the VXIbus specification.

The CT-310A mainframe supports conventional rack mounting by installing optional rack mounting kits (see Section 2). The five-slot design minimizes the use of precious rack space and is an economical alternative to a larger chassis when fewer slots are required.

All CT-310A mainframe provides five VXI slots in the card cage, four of which are available for use by VXIbus compatible instruments. The fifth slot in the card cage (slot 0) is typically dedicated to a VXIbus controller module.

The mainframes are designed to operate at line frequencies from 50 Hz to 60 Hz at nominal line voltages of 115 VAC or 220 VAC. The rear panel provides a connector for 5V STANDBY. Power supplied to this connector is passed directly to the backplane line +5VSTDBY pins. This allows properly configured systems to take advantage of an alternate power supply source, i.e., battery backup of memory or for energizing high stability reference oscillators.

BACKPLANE

The backplane is a monolithic, multi-layer design with automatic, solid state daisy-chain jumpering for the interrupt acknowledge and VMEbus grant lines. This eliminates the need for manual jumpering and provides improved reliability over mechanical, jumper-less backplane designs. Instrument modules can now be added or removed without concern for the backplane configuration.

PERFORMANCE

All CT-310A mainframes use a pressurized airflow system. As air enters the mainframe from the rear, it is pressurized below the cards and evenly distributed across all slots and along the total length of each card slot, avoiding hot spots common in other designs. Air exhausts through the top of the CT-310A mainframe. This cooling approach helps increase MTBF (Mean Time Before Failure) figures and module performance.

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REMOVABLE POWER SUPPLY

The CT-310A mainframe uses a common removable power supply module, which also includes the cooling fans for the chassis. This provides a single field replaceable module that gives the CT-310A mainframe very low MTTR (Mean Time To Repair) figures and simplifies spare subassembly requirements.

The high-quality power supply components provide short-circuit, over-voltage and reverse-voltage protection as well as thermal-shutdown should the unit over-heat. All power supply lines are monitored and displayed on the front panel to provide user feedback of correct operation (over voltage, under voltage and normal voltage indication, see Figure 1-3).

FLEXIBILITY

The CT-310A is designed to provide flexibility of use in bench-top, portable and rack-mount applications. For rack-mount applications, rack-mount kits allow the CT-310A to mount flush with or without 20" slides, or be recessed four inches into the rack with or without 24" slides. A latched door kit may be used if the chassis is recess mounted to cover the instrument wiring and/or to mount user connectors, etc. See Section 2 for rack mount installation details.

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CT-310A MAINFRAME FEATURES

FRONT PANEL FEATURES	
POWER SWITCH	
Feature 1	When elevated, the mainframe is in standby mode, where power is supplied to the mainframe, but not to the VXI modules When depressed, power is supplied to both mainframe and VXI modules
VOLTAGE INDICATORS	
Feature 2	Indicates whether specific backplane voltages are within specifications. See Figure 1-3 for details.
FAN INDICATOR	
Feature 3	Indicates whether the fan voltages are within specifications. See Figure 1-3 for details.

REAR PANEL FEATURES	
FAN SPEED SWITCH	
Feature 4	Enables the user to vary the speed of the fan between HIGH and LOW. See page 24 for details.
J200 CONNECTOR	
Feature 5	AC power receptacle.
GROUND STUD	
Feature 6	Used to electrical ground the mainframe.
J201 CONNECTOR	
Feature 7	See Figure 1-4 and Table 1-1 for connector pin assignments.

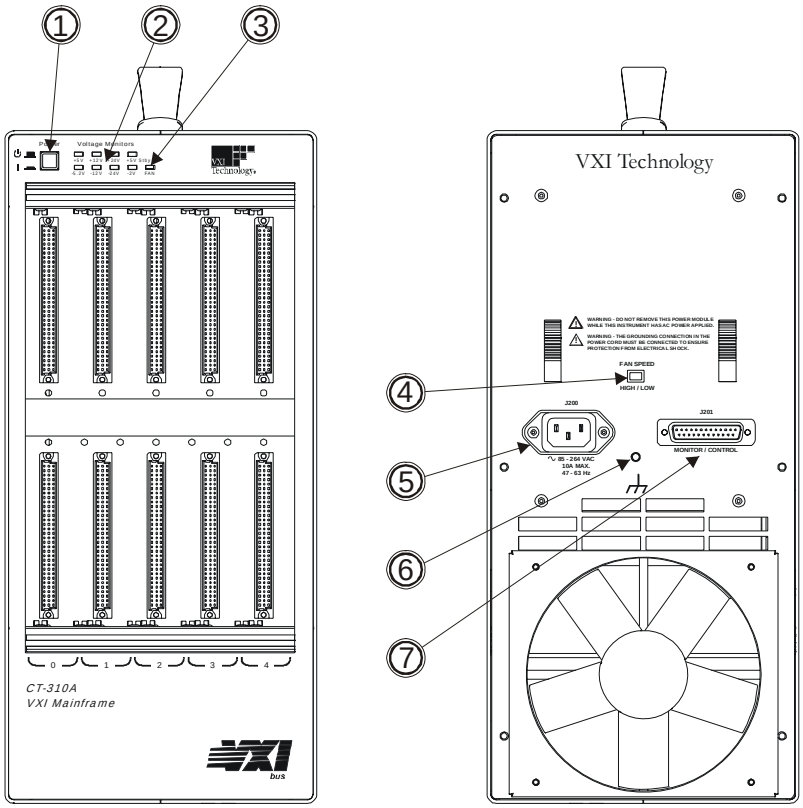
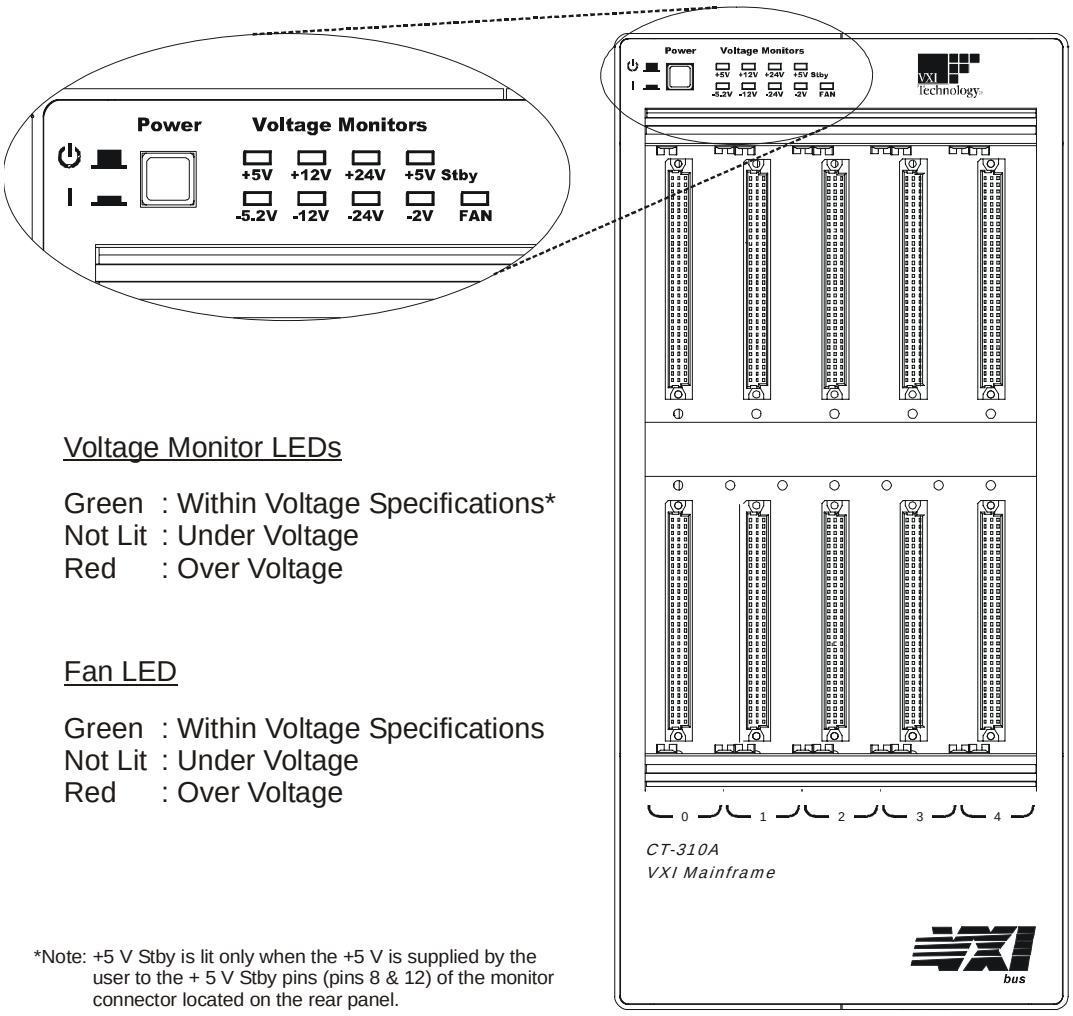


FIGURE 1-2: MAINFRAME FEATURE LOCATIONS

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VOLTAGE INDICATOR LEDS

The power supply lines are monitored and displayed on the front panel, providing information pertaining to the chassis operational status.



Voltage Monitor LEDs

Green : Within Voltage Specifications*
Not Lit : Under Voltage
Red : Over Voltage

Fan LED

Green : Within Voltage Specifications
Not Lit : Under Voltage
Red : Over Voltage

*Note: +5 V Stby is lit only when the +5 V is supplied by the user to the + 5 V Stby pins (pins 8 & 12) of the monitor connector located on the rear panel.

NOTE	At power up, the voltage monitor LED may blink for the first several seconds if the fan speed is set to "HIGH".

FIGURE 1-3: VOLTAGE INDICATOR LED FUNCTION

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TABLE 1-1: J201 CONNECTOR PIN ASSIGNMENTS

Pin Number	Description
1	+5 V Monitor†
2	-12 V Monitor†
3	-24 V Monitor†
4	-2 V Monitor†
5	Remote Power Switch
6	+5 V Output‡
7	+12 V Output‡
8	+5 V Standby Input
9	Ground
10	Backplane Reset I/O
11	N/C
12	N/C
13	Fan OK Output
14	+12 V Monitor†
15	+24 V Monitor†
16	-5.2 V Monitor†
17	Ground
18	Remote Power Switch Return
19	Ground
20	Ground
21	+5 V Standby
22	Ground
23	AC Fail I/O
24	Ground
25	N/C

NOTE

† Monitor lines function as outputs only.

‡ Pin 6 and Pin 7 (+5 V Output and +12 V Output, respectively) can provide 0.5 A from the power supply.
Both jackscrews connect to ground.

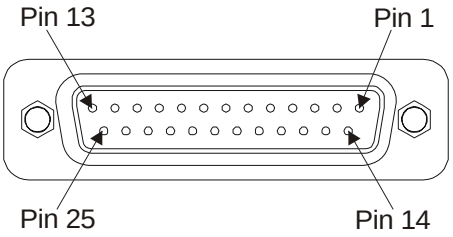


FIGURE 1-4: J201 CONNECTOR PIN DETAIL

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CT-310A Specifications

General Specifications	
Size	
	6.96" (176.78 mm) W x 15.00" (381.00 mm) H x 21.3" D (541.02 mm) Five C-size VXIbus card slots (see Figure 1-6 for details)
Weight	
	22 lb / 10 kg
VXIbus Version	
	1.4
MTBF	
	100,000 hr
MTTR	
	5 min

Environmental Specifications	
Operating Location	
	This chassis should be operated indoors in a controlled environment, protected from exposure to the elements (i.e. direct sunlight, precipitation, wind, etc.). Pollution degree 2. Installation Category II.
Temperature	
Operating	0 °C to +55 °C
Storage	-40 °C to +70 °C
Humidity	
	5 – 95% (non-condensing)
Shock	
End use handling	Half sine waveform, < 3 ms duration, Δ v = 160 cm/s minimum
Transportation	Trapezoidal waveform, Δ v = 605 cm/s, 30 g minimum
Vibration	
Operating & functional	5 to 500 Hz, 0.0001 g^2/Hz spectral density
Survival (swept sine)	5 to 500 Hz resonance search, 5 minute dwell on resonances at 0.5 g
Survival (random)	0.015 g^2/Hz spectral density
Altitude	
	Up to 3000 m

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POWER SPECIFICATIONS

USEABLE POWER

500 W up to 40°C
Linearly derated to 300 W at 55°C

DC SUPPLY VOLTAGE

Voltage	Peak Current (I_{MP})	Dynamic Current (I_{MD})
+5 V	40 A	5 A
-5.2 V	10 A	5 A
-2 V	8 A	2 A
+12 V	8 A	2 A
-12 V	4 A	2 A
+24 V	4 A	2 A
-24 V	4 A	2 A

OUTPUT VOLTAGE

Voltage	Allowed Variation	Ripple/Noise DC Load	Induced Ripple Noise
+5 V	+0.25 V / -0.125 V	50 mV	50 mV
-5.2 V	-0.26 V / +0.125 V	50 mV	50 mV
-2 V	-0.10 V / +0.72 V	50 mV	50 mV
+12 V	+0.60 V / +0.36 V	50 mV	50 mV
-12 V	-0.60 V / +0.36 V	50 mV	50 mV
+24 V	+1.20 V / -0.72 V	150 mV	150 mV
-24 V	-1.20 V / +0.74 V	150 mV	150 mV

POWER INPUT

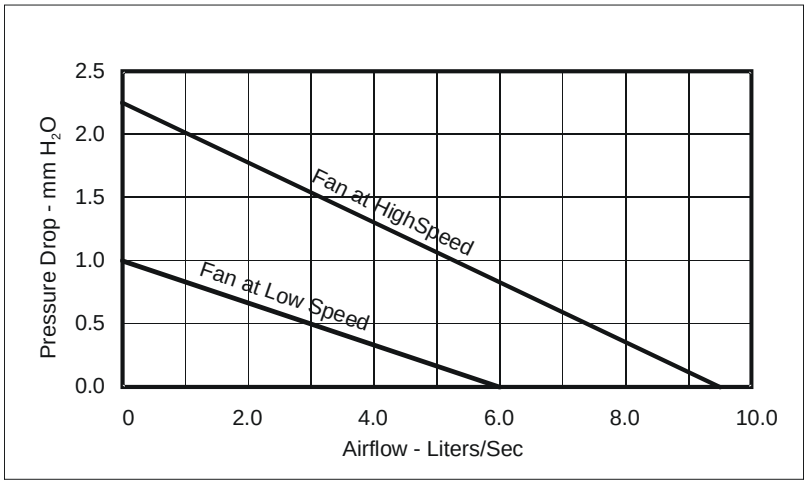
Input Voltage / Freq.
Nominal ac 100 V ac – 240 V ac, 50 Hz/60 Hz
Inrush current < 40 A (cold start)
Input power 10 A maximum
Input leakage < 1.24 MA @ 264 V ac, 53 Hz
Input harmonics Meets EN61000-3-2
Fuse Internal (not user accessible)

POWER SUPPLIES

UL, CSA, TUV approved, CE marked
Shout circuit, over-voltage, reverse voltage and thermal shutdown protection

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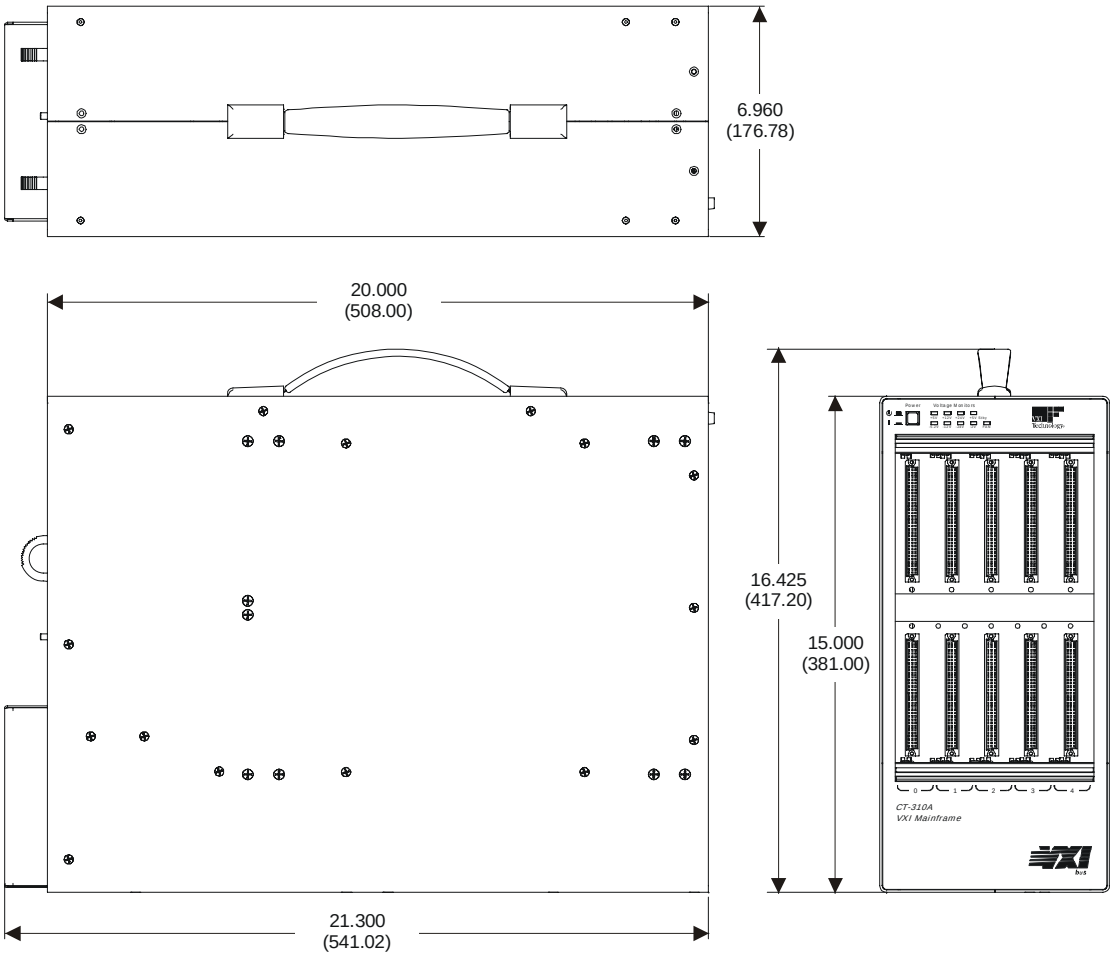
COOLING SPECIFICATIONS	
COOLING REQUIREMENTS	
	60 W/slot for a 5 °C Rise 80 W/slot for a 10 °C Rise
COOLING MODES	
	High or low speed cooling modes can be selected by moving the Fan Speed switch at the rear of the chassis. The power supply and modules are cooled by separate fans.
AIR FLOW PATH	
	Air is drawn into the chassis from the rear and is pressurized below the cards. The air is then distributed across all slots along the total length of each slot and is exhausted through the top of the mainframe. When the mainframe is rack mounted, allow approximately 2 inches (50 mm) of clearance at the top and rear for proper airflow.
ACOUSTIC NOISE	
	High Speed Fan Mode < 40 dBA Low Speed Fan Mode < 30 dBA



*** Covers all slots, unrestricted**

FIGURE 1-5: COOLING CAPACITY FOR CT-310A

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Note: Dimensions in parenthesis are in millimeter

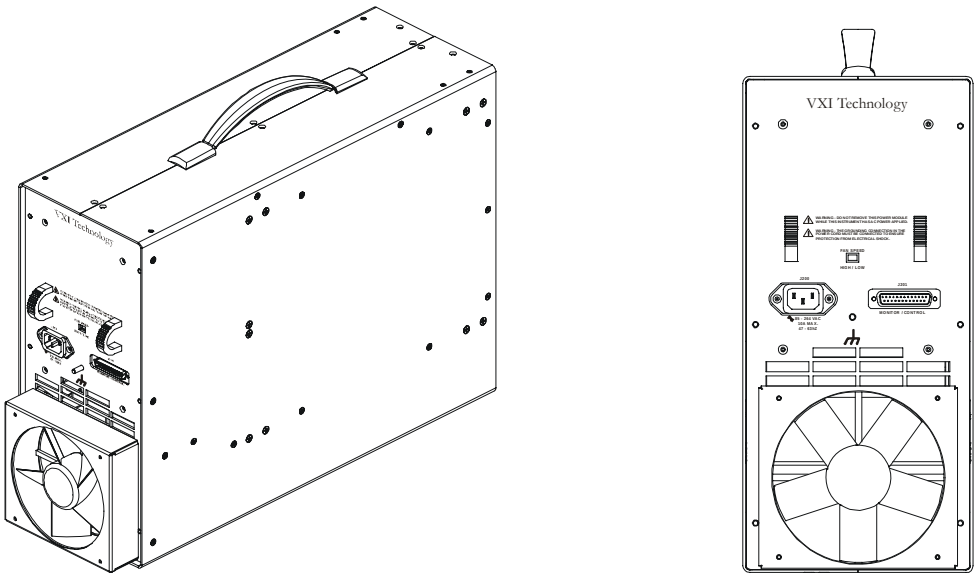


FIGURE 1-6: CT-310A DIMENSIONAL DIAGRAM

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SECTION 2

INSTALLATION

INTRODUCTION

When a CT-310A mainframe is unpacked from its shipping carton, the contents should include the following items:

(1) CT-310A Five-Slot Chassis
(1) CT-310A User's Manual (this manual)
(1) Power Cord

All components should be immediately inspected for damage upon receipt of the unit.

The first segment of this section is dedicated to setting certain features, such as remote power on and fan speed selection, which should be set before installation takes place. Following this segment, the various rack mount options are presented with installation instructions.

BACKPLANE

The CT-310A mainframe has a jumper-less, auto-configurable backplane using active-automatic daisy chaining for the VME Interrupt acknowledge and bus grant daisy chain signal lines. This eliminates the need to configure manually the backplane and insures that these signals are properly configured at all times.



The power cord is the only way to disconnect the CT-310A mainframe from ac power. Therefore, the power cord must be accessible to the operator at all times. When the CT-310A mainframe is mounted in a system rack, the power cord need not be accessible since the rack must have its own disconnect device.

Le cordon de secteur est la seule manière de démonter l'unité centrale de CT-310A du courant alternatif Par conséquent, le cordon de secteur doit être accessible à l'opérateur à tout moment. Quand l'unité centrale de CT-310A est montée dans un support de système, le cordon de secteur n'a pas besoin d'être accessible puisque le support doit avoir son propre dispositif de débranchement.

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REMOTE POWER-ON OPTION

If the CT-310A mainframe is to be installed in a remote location, it is possible to apply and remove power from the unit via the remote power pins located on connector J201. To utilize the remote power feature, set the front panel switch to the standby position. Remove the power cord, then remove the power supply from the chassis and place the jumper on the power interface board to the 2 – 3 position (see Figure 3-1 for power supply removal instructions). The power interface board will be located inside the mainframe at the top right. Doing this will disable the front panel power switch. Pins 5 and 18 can now be used to control the powering of the chassis remotely. The circuit is diagramed below:

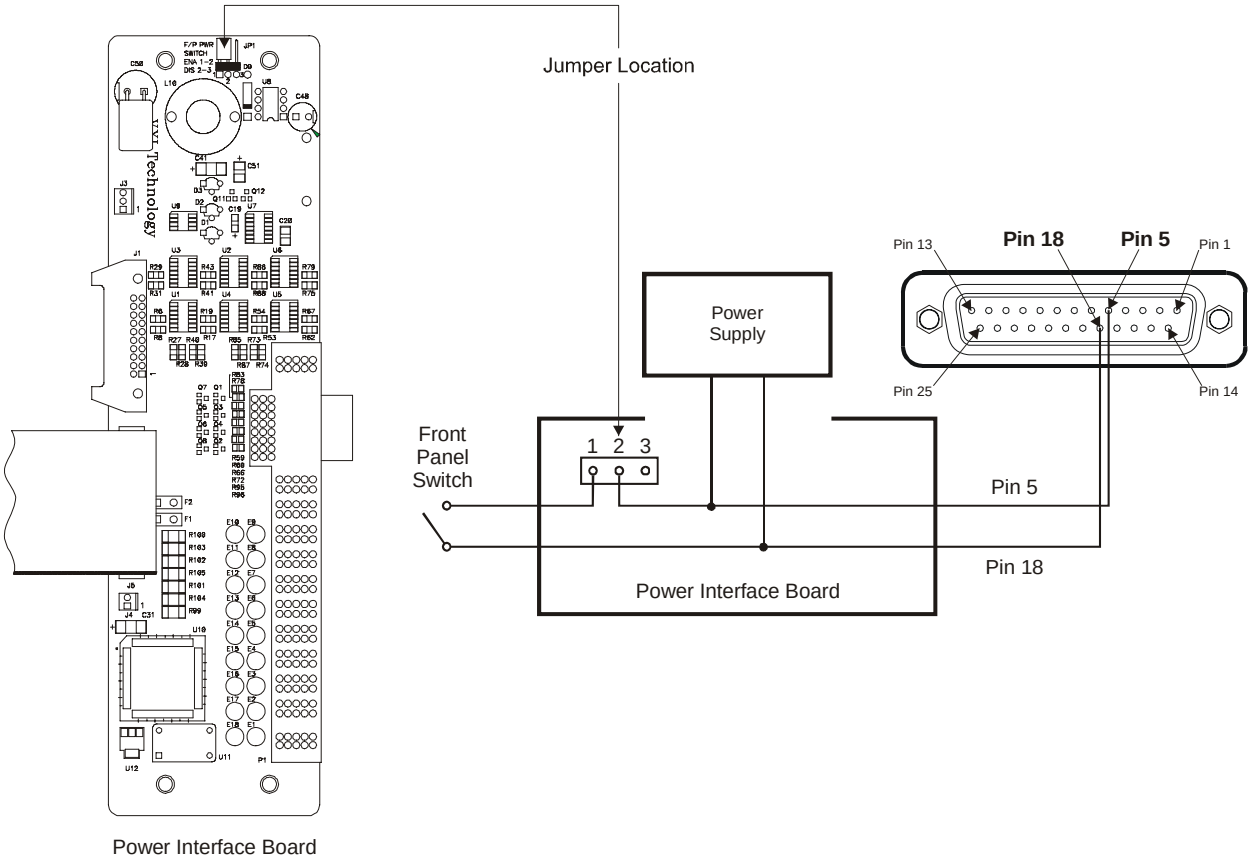


FIGURE 2-1: REMOTE POWER-ON SWITCH WIRING

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+5 V STANDBY USAGE

To prevent timers and other circuits from loosing power when the CT-310A is in standby mode, +5 V Standby pins are made available on connector J201. An external power source can be wired to these pins with a maximum allowed current of 1 A total across Pins 8 and 21, as these pins are wired in parallel.

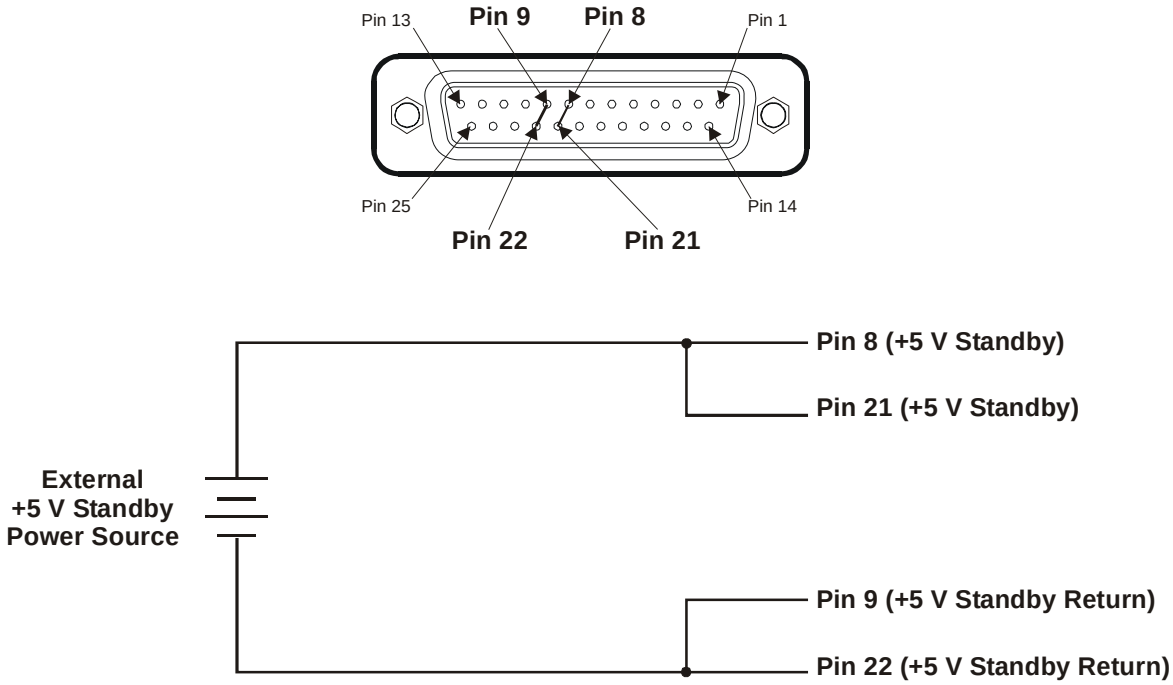


FIGURE 2-2: +5 V STANDBY WIRING DIAGRAM

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FAN SPEED SWITCH

A fan speed selector switch is located at the rear of the CT-310A chassis. To set the fans to operate at HIGH speed, move the switch at the rear of the chassis to the left. At HIGH speed, the chassis is provided maximum cooling to the instruments.

The fans will operate in the LOW speed mode when the fan speed switch is toggled to the right. The low speed mode provides for quieter operation, but decreases the cooling capability of the fans. To determine best which mode of operation is best in a given application, refer to Figure 1-5 on page 19 that delineates the cooling requirements of populated mainframes. If all instruments installed in the chassis receive adequate cooling in the low speed mode, then this mode may be used.

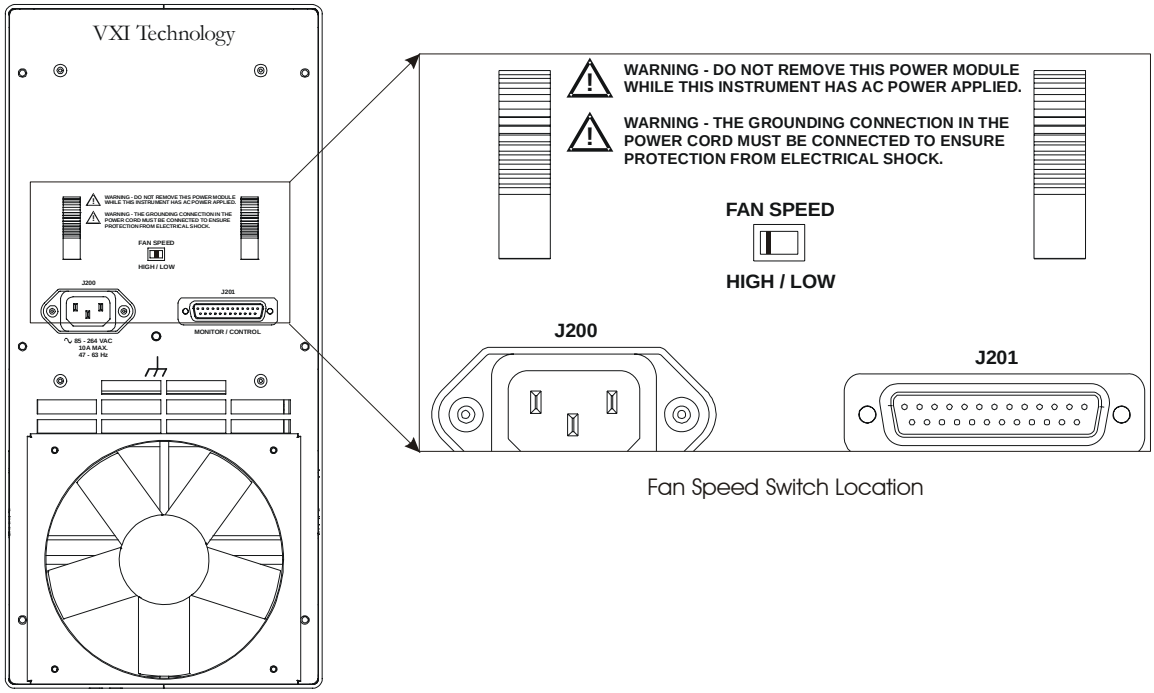


FIGURE 2-3: FAN SPEED SWITCH LOCATION

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RACK MOUNT OPTION INSTALLATION

OVERVIEW

This section contains the procedures for installing a CT-310A chassis into a standard 19" relay rack. The available rack mounting options are:

Option 52 – Rack Mount Ear Kit
Option 53 – Rack Mount Door Kit
Option 57 – 20" Slide Kit
Option 58 – 24" Slide Kit

The rack mount ear kit provides the basic hardware necessary to rack mount the CT-310A chassis. Because the chassis is only 15" wide, standard rack support rails cannot provide mechanical support to the chassis. If the equipment mounted below the CT-310A cannot provide mechanical support to the chassis, either 20" or 24" slides will be required to support the chassis in the rack. The rack mounting ears are designed to allow the chassis to be flush mounted in the rack or recessed 4".

The rack mount door kit provides the necessary hardware to install a 1/8" thick aluminum door in front of the rack mounted chassis. This option requires that the rack mount ear kit also be installed and configured for recessed mounting. The door may be customer modified to hold connectors, controls, indicators and similar components.

The 20" and 24" slide kits provide the ability to remove the chassis easily from the rack for servicing and provides mechanical support for the chassis when installed in the rack. The 20" slide kit is used when the chassis is flush mounted in the rack. If the chassis is to be recess mounted, then the 24" slides are required.

When installing the CT-310A into an EIA rack, please refer to the rack manufacturer's installation instruction for details.

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RACK EAR INSTALLATION PROCEDURE

The rack mount ear kit provides the basic hardware necessary to rack mount the CT-310A chassis. Because the chassis is only 15" wide, standard rack support rails cannot provide mechanical support to the chassis. If the equipment mounted below the CT-310A cannot provide mechanical support to the chassis, either 20" or 24" slides will be required to support the chassis in the rack. The rack mounting ears are designed to allow the chassis to be flush mounted in the rack or recessed 4".

Required Tools

1. #2 Phillips Screw Driver

Parts List – Option 52

QTY	ITEM	VTI P/N
8	Screw, 8-32 x 3/8" Pan Head Phillips, Sems Zinc	37-0073-037
2	Bracket, Rack Mount Ear	41-0110-000

Assembly Procedures

1. Lay the chassis on a protected work surface on its long side with the voltage monitor LEDs of the chassis facing front with the power switch toward the top.

2. Locate and remove the four, black plastic feet on the bottom of the chassis. Retain the feet if restoring the chassis to its original portable use is anticipated.

3. Find four threaded holes on each side of the chassis (the plastic feet were attached to two of these holes) towards the front of the unit.

4. Line up the rack mount ears with the threaded holes selecting the flush or recessed position as desired. Refer to the rack mount ear installation diagram for visual assistance.

5. Secure the rack ears using the supplied 8-32 x 3/8" pan head Phillips screws.

Before installing the chassis into an EIA switch rack, the chassis handle should be removed. This can be accomplished by performing the following steps:

1. Remove the four screws located near the handle.

2. Remove the two, black decorative covers at each end of the carrying handle using a flat blade screwdriver. Place a piece of paper under the screwdriver blade to prevent scratching the chassis cover.

3. Remove the four Phillips screws holding the handle in place and then remove the handle itself. Retain the carrying handle components if there may be some need to restore the chassis to its original portable use in the future.

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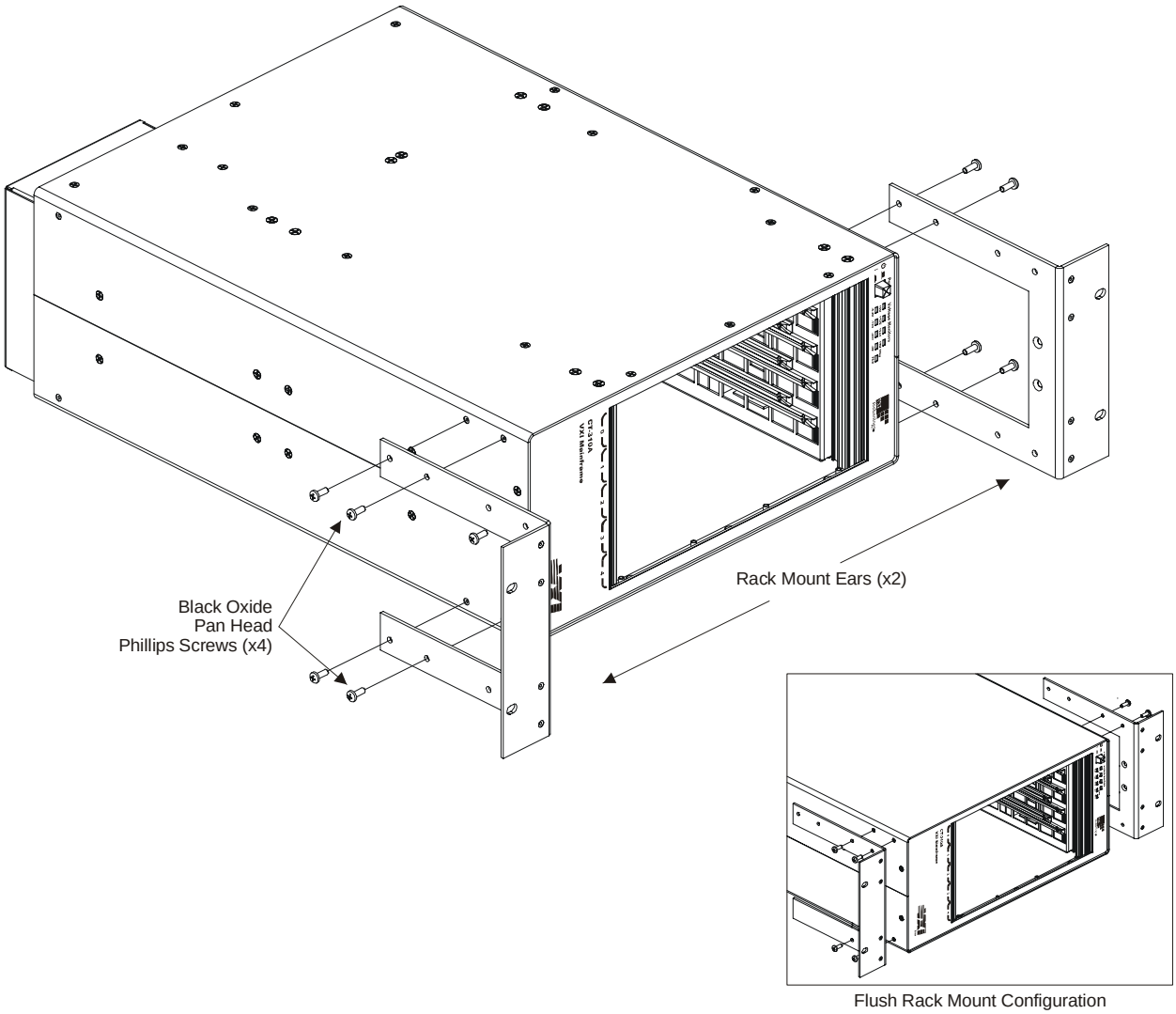


FIGURE 2-4: RACK MOUNT EAR INSTALLATION DIAGRAM

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RACK SLIDE INSTALLATION PROCEDURE

The slide hardware kit provides standard flanges to mount the slides into standard EIA relay racks. It should be noted that the slide flanges in the front should be installed behind the rack's front panel mounting rails. This will allow the rack mounting ears to sit flush with the front of the rack. It should also be noted that although the hardware provided in this kit will provide all the necessary components to install the CT-310A into the rack successfully, there are many variations in how EIA relay racks are designed. The application may need additional adapter hardware to install the chassis. Please refer to relay rack manufacture's catalog for additional options.

This procedure provides instructions for installing the 20" or 24" slide kits. Note that the 20" and 24" slide kits are identical except for the length of the slide units. A 20" slide kit is used when the chassis is flush mounted while the 24" slide kit is used when the chassis is recess mounted.

Required Tools

1. #2 Phillips screwdriver
2. 1/8" flat-blade screwdriver

Parts List – Options 57 & 58

QTY	ITEM	VTI P/N
2	Slide, Rack Mount, Steel, 20" (Option 57)	37-0054-020
	-or-	
2	Slide, Rack Mount, Steel, 24" (Option 58)	37-0054-024
2	Hardware Kit, Rack Mount Slide, Steel	37-0055-000
4	Screw, 8-32 x 3/8" Pan Head Phillips, Sems Zinc	37-0073-037
4	Screw, 8-32 x 3/8" Pan Head Phillips, Steel/Zinc	37-0074-037
4	Screw, 8-32 x 3/8", Flat Head Phillips, Zinc	37-0080-037
2	Bracket, Slide, Front	41-0108-000
2	Bracket, Slide, Rear	41-0111-000

Assembly Procedures

1. Lay the chassis on a protected work surface on its long side with the voltage monitor LEDs of the chassis facing front with the power switch toward the top.

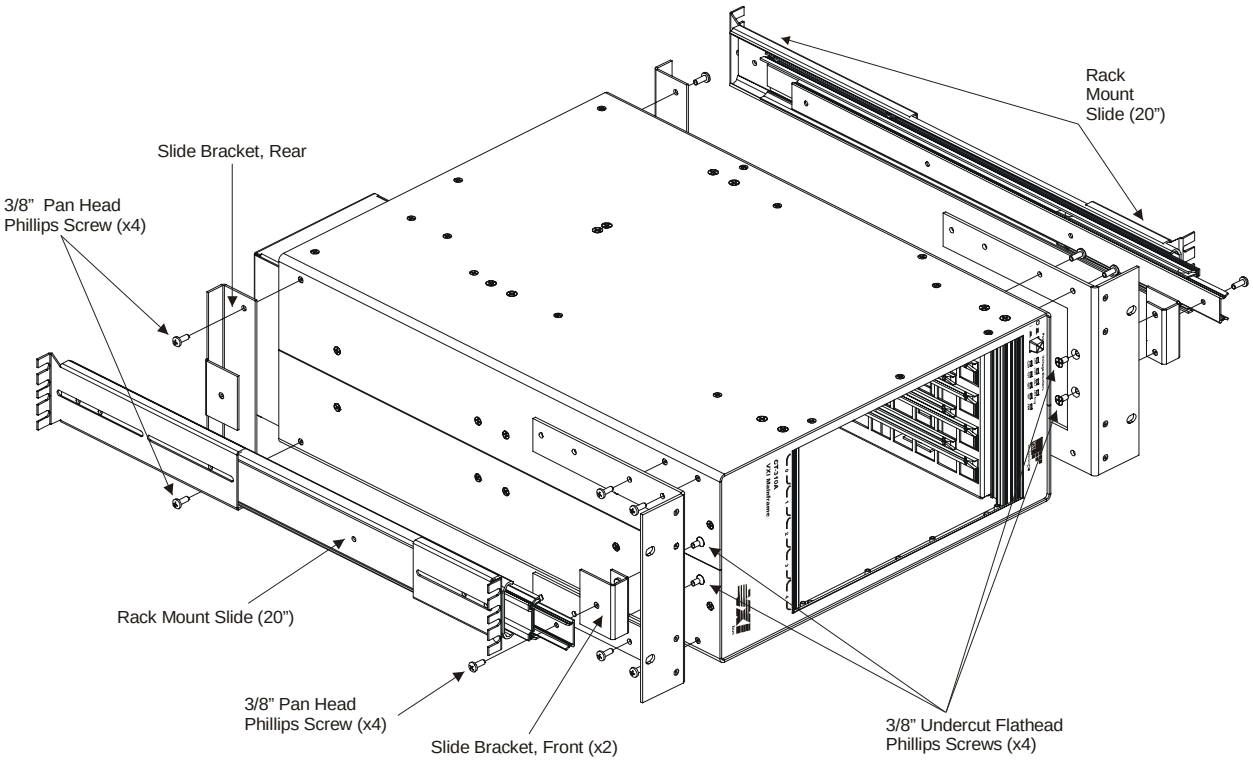
2. If the rack mount ears are installed flushed, remove the rack mount ears and install the front slide bracket to them as shown in the assembly drawing (see Figure 2-3) using a flat head screwdriver, then reinstall the rack mount ears in the flushed position. If the rack mount ears were originally installed recessed, simply install the slide brackets onto the ears.

3. Locate two threaded holes on each side of the chassis toward the end where the power supply module is located. Install the rear slide brackets using the provided hardware.

4. Locate the slide hardware kit provided. Install the rack flanges to the slides as required by the application using the hardware in the kit. Note that the screws are inserted from the inside of the slides and the nuts would show on the outside.

5. Install the slides to the mounting brackets already installed on the chassis using the provided hardware.

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* Flushed Rack Slide Configuration Shown

FIGURE 2-5: RACK SLIDE INSTALLATION DIAGRAM

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RACK MOUNT DOOR INSTALLATION PROCEDURE

This procedure provides the necessary instructions for installing the rack mount door option. This option requires that the rack mount ears be installed in the recessed position and that this procedure be completed. The door is reversible and can be installed to open toward the left or right.

Required Tools

1. #2 Phillips screwdriver
2. 1/8" flat-blade screwdriver
3. 11/32" open-ended wrench

Parts List – Option 53

QTY	ITEM	VTI P/N
1	Latch, Vise Action, Knob Style, Black	37-0065-000
2	Hinge, Adjustable Damping, Black	37-0066-000
2	Screw, 8-32 x 3/8", Pan Head Phillips, Sems Zinc	37-0073-037
8	Screw, 8-32 x 3/8", Pan Head Phillips, Black Oxide	37-0079-037
1	Bracket, Door Latch	41-0106-000
1	Door, Front, Rack Mount	41-0107-000

Assembly Procedure

1. Lay the chassis on a protected work surface on its long side with the voltage monitor LEDs of the chassis facing front with the power switch toward the top.

2. Locate the front door and two hinges. Install the two hinges to the front door using four of the black screws provided.

3. Locate the latch kit and install it into the door, opposite from the side where the hinges are mounted.

4. Locate the door latch bracket and install it on the rack mount ear opposite the end where the hinges will be installed. Use the rack mount door installation diagram on the following page as a reference.

5. Locate the four tapped holes on the front surface of the rack mount ear to which the door is to be attached.

6. Install the door by its hinges to the rack mount ear using four black screws provided with the option kit.

7. Test that the door opens and closes smoothly and adjust the latch as necessary to secure the door when latched close.

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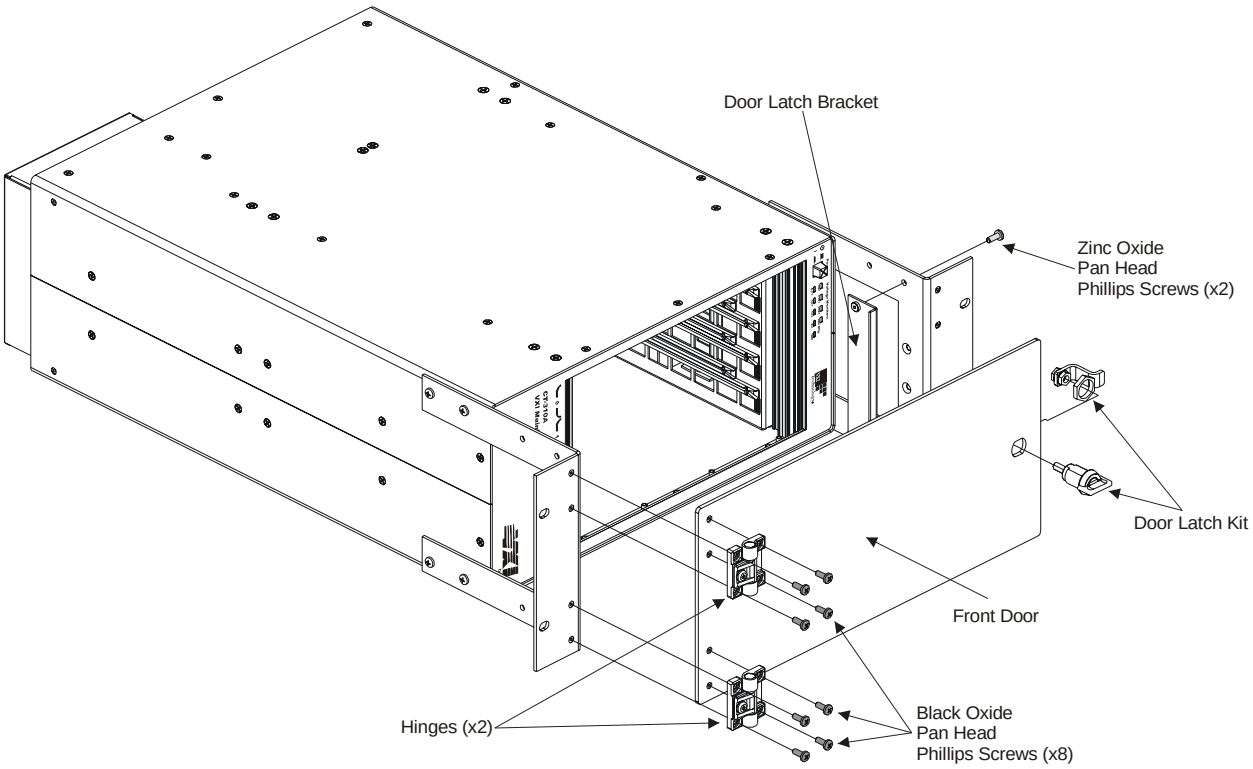


FIGURE 2-6: RACK MOUNT DOOR INSTALLATION DIAGRAM

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INSTALLATION OF VXI MODULES

OVERVIEW

After the successful installation of rack mount accessories, the chassis is ready for installation of the VXIbus base units (i.e. an SMP1100, SMP1200, etc.). It is recommended that the instruments be installed after rack mount accessories have been installed to avoid any unnecessary physical strains that may be incurred during the installation of the accessories. Whether single- or double-wide, the process of installation is simple.

Required Tools

1. Phillips head screw driver

Installation Procedure

Install C-size modules directly into the mainframe as follows:

1. To prevent damage to the module, insure the mainframe is powered off.

2. Insert the module into the mainframe by aligning it with both the upper and lower card guide of the desired slot. The card guide for the module is the right, longer guide-pair of each guide set.

3. Gently push the module into the slot until it seats into the backplane connectors. The front panel of the module should be flush with mainframe.

4. Tighten the mounting screws at the top and bottom of the module.

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DISCONNECTING THE MAINFRAME

To disconnect the CT-310A from its installation, simply follow the instructions below:

1. Place the mainframe in standby by depressing the power switch.

2. Remove the power cord from the mainframe to ensure that no power is running to the mainframe.

3. Remove all cabling associated with the VXI modules installed in the CT-310A.

4. If the chassis is rack mounted, remove the chassis from the rack by removing the screws that attach the mainframe to the rack.

Rack mount options can be removed from the mainframe at this time if desired.

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SECTION 3

SERVICE INFORMATION

INTRODUCTION

There are no operating instructions required for the CT-310A VXIbus chassis. After the chassis is installed, operation is completely transparent to the operator. Just plug in the instruments then power up the chassis.

NOTE	Service should only be performed by qualified personnel. *Le service devrait seulement être assure par le personnel qualifié.*

REPLICABLE PARTS LIST

The following table lists the parts that can be replaced on the CT-310A chassis.

Description	Part Number
Final Assembly, Power Supply Replacement Kit	70-0232-000

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CT-310A Power Supply Replacement

The CT-310A should operate without the need for service. In the event that the cooling fans or power supply must be replaced, they are contained in a single, easy to remove module. Replacement of the power supply can be accomplished as follows:

1. Remove the ac power cord from the chassis.



To avoid the possibility of shock, wait a minimum of ten seconds for electricity to dissipate from the mainframe after removing power.

Pour éviter la possibilité de choc, attendez dix secondes au minimum affin que l'électricité se dissipe l'unité centrale.

2. Locate the two screws at the bottom of the chassis toward the rear (the side where the power cord attaches) and remove these screws (refer to the diagram below for assistance.)

3. Locate the five screws on each side of the chassis toward the rear and remove all ten.

4. Locate the two handles on the power supply and firmly pull the module straight back.

5. Locate the replacement power supply module and bring it up to the rear of the chassis.

6. Back the new power supply module into the rear of the chassis. Ensure that the connector on the power supply is in line with the mating connector on the power interface board.

7. Seat the power supply module firmly in place and install the previously removed screws to 9.5 lbf/in (11.0 kgf/cm).

8. Verify that the front panel power switch is in the OFF position and reattach the power cord.

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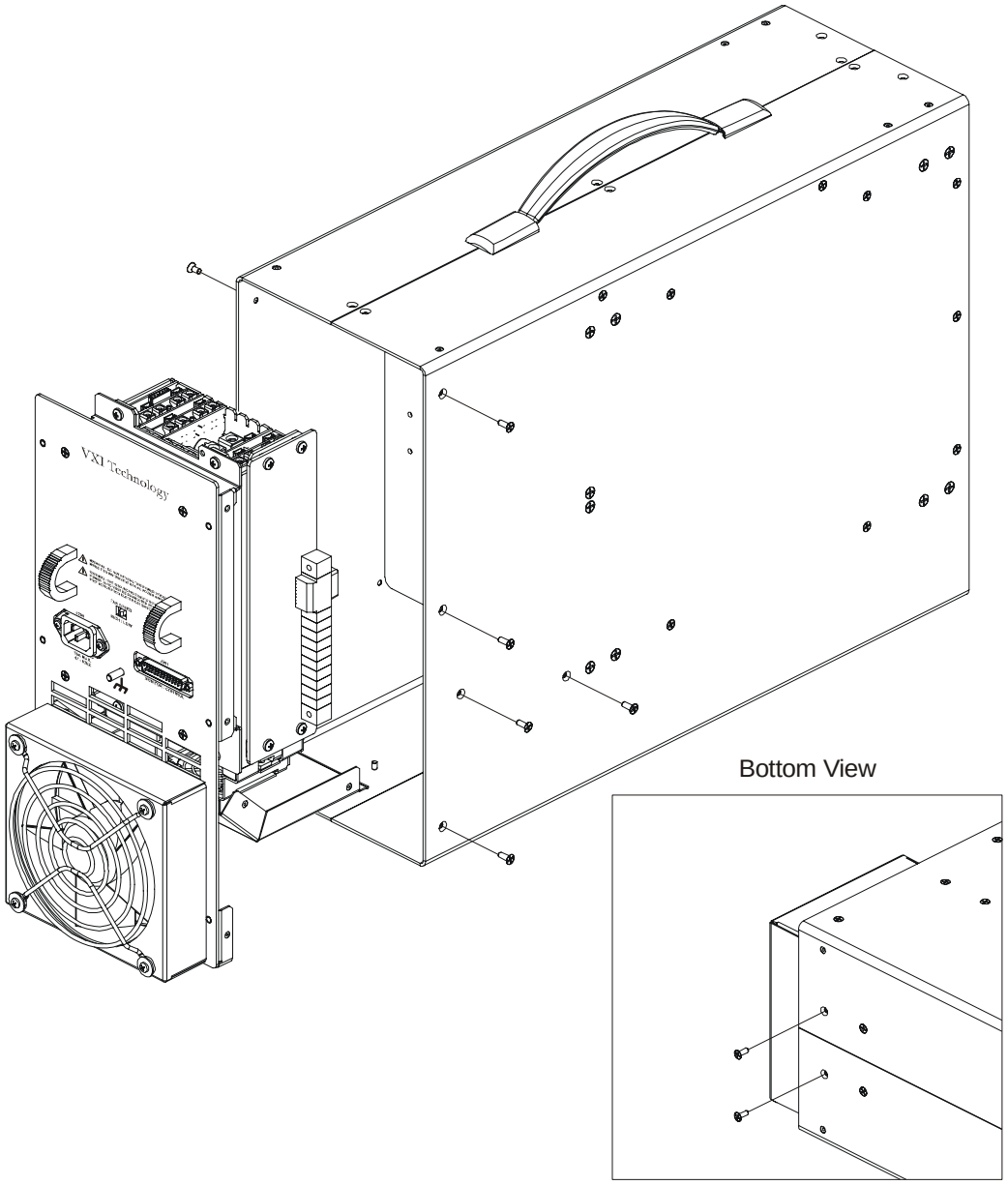


FIGURE 3-1: POWER SUPPLY REPLACEMENT DIAGRAM

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CLEANING THE MAINFRAME

During normal operation, dust is likely to accumulate inside the power supply of the CT-310A. To remove this dust, power down the chassis and remove the power cord. Follow the instructions provided on the previous page to remove the power supply from the mainframe. After removing the power supply, use a pressurized air can to remove any dust present.

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