TSC3600

SHELFMOUNT

COMPUTER

&

TVC3400

Shelfmount

Video Display Wall Controller

No. TRC3600-xxx / TVC3400-xxx Revision B

INSTALLATION GUIDE

Publication No. 8403600-11302

WARRANTY

The following is an abbreviated version of Trenton Systems' warranty policy for rackmount computer products. For a complete warranty statement, contact Trenton or visit our website at http://www.trentonsystems.com/.

All boards used in systems delivered by Trenton are covered under a pass-through warranty. For example, if Trenton manufactured motherboards or PICMG 1.3 boards are used in the system then these boards will carry a five-year warranty. All other system sub-components including but not limited to power supplies, DVDs, CD-ROMS, etc. are covered under their original manufacturer's warranty. All systems built by Trenton are warranted against defects in material, workmanship and design for a period of one year from date of delivery. Repair or replacement products will be warranted for a period of three months from the date of shipment or for the remainder of the original warranty period for that particular product, whichever is longer. Any software or firmware that is delivered by Trenton will be warranted for a period of one year to perform in accordance with published specifications prepared, approved and issued by Trenton and/or the appropriate 3rd party vendor. Contact Trenton for the complete system warranty policy.

Buyer agrees that if a Trenton product proves defective, Trenton is only obligated to repair, replace or refund the purchase price of this product at Trenton's discretion. The warranty is void if the product has been subjected to alteration, neglect, misuse, or abuse; if any repairs have been attempted by anyone other than Trenton; or if failure is caused by accident, acts of God, or other causes beyond the control of Trenton. Trenton reserves the right to make changes or improvements in any product without incurring any obligation to similarly alter products previously purchased.

In no event shall Trenton Systems, Inc. be liable for any defect in hardware or software or loss or inadequacy of data of any kind, or for any direct, indirect, incidental or consequential damages arising out of or in connection with the performance or use of the product or information provided. Trenton Systems, Inc.'s liability shall in no event exceed the purchase price of the product purchased hereunder. The foregoing limitation of liability shall be equally applicable to any service provided by Trenton Systems, Inc.

RETURN POLICY

Products returned for repair must be accompanied by a Return Material Authorization (RMA) number, obtained from Trenton Systems prior to return. Freight on all returned items must be prepaid by the customer, and the customer is responsible for any loss or damage caused by common carrier in transit. Items will be returned from Trenton Systems via Ground, unless prior arrangements are made by the customer for an alternative shipping method

To obtain an RMA number, call us at (800) 875-6031 or (770) 287-3100. We will need the following information:

Return company address and contact
Model name
Serial number from chassis label
Description of the failure

An RMA number will be issued. Mark the RMA number clearly on the outside of each box, include a failure report for each item and return the product(s) to our Gainesville, GA facility:

TRENTON Systems, Inc.
2350 Centennial Drive
Gainesville, GA 30504
Attn: Repair Department

Contact Trenton for our complete service and repair policy.

TRADEMARKS

Trenton and Trenton Systems are trademarks or registered trademarks of TRENTON Systems, Inc.
Matrox and Matrox Mura MPX are trademarks or registered trademarks of Matrox Electronic Systems Ltd.
IBM, PC/AT, VGA, EGA, OS/2 and PS/2 are trademarks or registered trademarks of International Business Machines Corp.
Intel is a registered trademark of Intel Corporation.
PICMG is a registered trademark of the PCI Industrial Computer Manufacturers Group
MS-DOS and Microsoft are registered trademarks of Microsoft Corp.
All other brand and product names may be trademarks or registered trademarks of their respective companies.

LIABILITY DISCLAIMERS

In no event will Trenton Systems be responsible or liable for indirect or consequential damages resulting from the use or application of this equipment.

The examples and diagrams in this manual are included solely for illustrative purposes. Because of the many system variables and application requirements associated with any particular installation, Trenton Systems cannot assume responsibility or liability for actual system use based on the examples and diagrams. No patent liability is assumed by Trenton Systems with respect to the use of the information, components, equipment or software described in this manual. This manual is as complete and factual as possible at the time of publication; however, the information in this manual may have been updated since that time. Trenton Systems, Inc. reserves the right to change the functions, features or specifications of their products at any time, without notice.

E-mail: Support@TrentonSystems.com
Web: www.TrentonSystems.com

TRENTON Systems, Inc.
2350 Centennial Drive • Gainesville, Georgia 30504
Sales: (800) 875-6031 • Phone: (770) 287-3100 • Fax: (770) 287-3150

Table of Contents

Handling Precautions

WARNING: This system has internal components which may be damaged by electrostatic discharge.

To protect internal components from electrostatic damage, be sure to observe the following precautions when handling or storing the system:

- The TSC3600 and TVC3400 both have a net chassis weight of approximately 15lbs. (6.8kg). This base system weight includes the chassis, a microATX motherboard and a rear-mounted, fixed power supply. Use proper lifting techniques when moving and installing the system.
- When removing or installing boards and sub-components, keep these components in their static-shielded bag and/or packaging until you are ready to for component installation.
- Handle the sub-components by their edges.
- Do not touch any sub-component I/O connector pins. Do not apply pressure or attach labels to the board-level sub-components.
- Use a grounded wrist strap at your system or ground yourself frequently by touching the metal chassis of the system before handling any sub-components.
- Ensure the systems external power source has a solid connection to an earth ground.
- Use antistatic padding on all work surfaces when installing or removing sub-components.
- Avoid static-inducing carpeted areas.

Before You Begin

INTRODUCTION

It is important to be aware of the information listed below before installing your Trenton shelfmount computer. System performance may be affected by incorrect usage of these features.

EXTERNAL POWER SOURCE

Incoming AC power must be supplied to the rear-mounted, fixed power supply receptacle located in the rear of the chassis. This AC power connection ensures that the system power supply is connected to a power source with a solid earth ground and is capable of delivering 90-264VAC at 50 to 60Hz. At 115VAC incoming power, the typical maximum current draw of the shelfmount computer / video controller is 6.96A.

INTERNAL CURRENT LIMITS

The maximum current limits for the +5V, +5VSB, +3.3V and +12V DC outputs from the system's power supply assembly are 25A, 3.5A, 25A and 40A respectively. The assembly has power monitoring circuits that will shut the system down if these maximum current limits are exceeded.

CHASSIS AIRFLOW

When installing the chassis, ensure that a minimum free air space is available around the system. The installation should have a minimum of 4-6 inches (101-152mm) behind the chassis and 1-3 inches (25-75mm) in front of the chassis. Any front cabinet doors or access aisles must accommodate a TSC3600 / TVC3400 front chassis clearance of at least 4.0" (102mm) in order to provide proper cable clearances for any front panel I/O port connections and to gain access to the system air filter for maintenance. A chassis clearance of 0.5-1.5 inches (13-38mm) above the system is desirable.

CHASSIS SHELF OR WALL MOUNTING

The TSC3600 / TVC3400 system can be installed on a solid metal or wooden shelf or wall that can either be inside or outside of a rackmount equipment cabinet. If mounting the system inside an equipment cabinet, ensure that the cabinet conforms to EIA standards for computer equipment with 19-inch wide panels. The cabinet must be tall enough to accommodate the computer's height and deep enough to accommodate the system's depth, while providing the proper clearances for air flow and cabling. A cabinet with a standard depth of 31.5 inches (800mm) should be sufficient; however, a rack with a non-standard depth dimension of at least 18 inches (457mm) will provide the suggested minimum front and rear chassis clearances needed for an installation.

Chapter 1 - System Overview

DESCRIPTION

The Trenton TSC3600-xxx / TVC3400-xxx is a CE-compliant and UL recognized *, 3U shelfmount computer chassis / video display wall controller that offers choices of 2.5" or 3.5" HDDs and an optical media drive. The system features a long-life, embedded microATX motherboard (Trenton JXM7031/JXMS7031) and a fixed, rear-mounted system power supply. The TVC3400 model supports up to two, Matrox Mura MPX-series video wall controller cards.

The TSC3600 / TVC3400 shelfmount chassis supports one 3.5" HDD bay, a Slim-Line optical media bay, a 550W rear-mounted, fixed-mount power supply and a front access air filter. These components maximize power delivery and cooling to ensure long-life system reliability with a low Mean-Time-To-Repair (MTTR). The motherboard option supported in these systems use the standard MicroATX form factor.

**Refer to chapter five for a complete listing of standards to which conformity is declared.*

MICROATX MOTHERBOARD & SYSTEM POWER SUPPLY MODELS

NOTE: The chart below illustrates motherboard and system power supply supported in the Trenton TSC3600 / TVC3400-xxx system. The three characters to the right on the hyphen indicate the specific system configuration.

System Model Number	Motherboard Number	Description of the Motherboard and System Power Supply Combination
TSC3600-000 -OR- TVC3400-000	JXM7031/JXMS7031	Motherboard: 1 or 2 CPUs, 1 x16 PCIe*, 2 x8 PCIe and 1 32-bit/33MHz PCI *Only available with the dual-processor motherboard configuration Processor(s): Single or dual Quad-Core Intel® Xeon® C5548 processor(s) and two 2GB DDR3-1333 MiniDIMMs installed System Power Supply: 550W, Fixed See the JXM7031 web page for more microATX motherboard details

ADDITIONAL SYSTEM ELEMENTS

Each TSC3600-xxx / TVC3400-xxx configuration contains the following active components:

- 1 – SATAIII, 2.5" HDD, 500GB, front access, tray mount
- 1 – Slim-Line R/W DVD
- 2 – 80mm system fans

Consult with Trenton for available storage drives and optical media drives compatible with the TSC3600 / TVC3400.

MOTHERBOARD BATTERY

CAUTION: Risk of explosion if the system host board battery is replaced by an incorrect type. Replace only with the same type of battery. Dispose of used batteries according to the instructions.

PACKING LIST

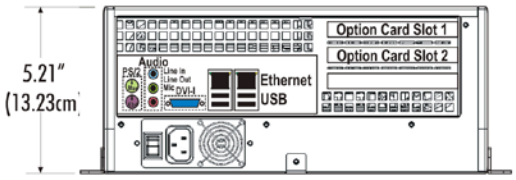
Trenton TSC3600 / TVC3400 is shipped with the following

- TSC3600 shelfmount computer / TRC3400 shelfmount video display wall controller
- Two mounting brackets for shelfmount or wallmount installations
- One, 10ft. (3.1m) AC power cord

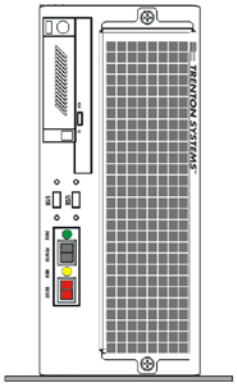
Chapter 2 - Physical Dimensions & Layout Drawings

LAYOUT DIMENSION DRAWING

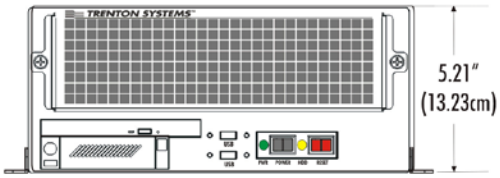
Note: Ensure that there is at least 4-6 inches (101-152mm) front and rear chassis clearance for cable connections and airflow.



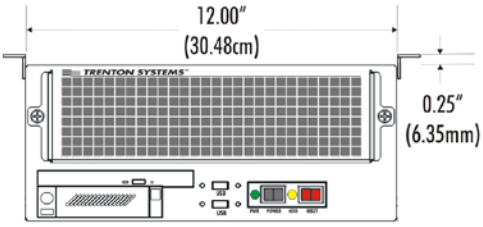
Rear View - Lower Mounting Bracket Position



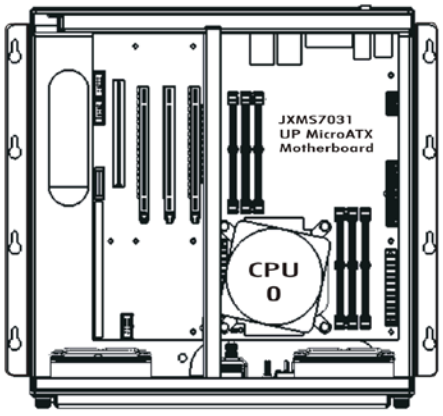
Front View - Side Mounting Bracket



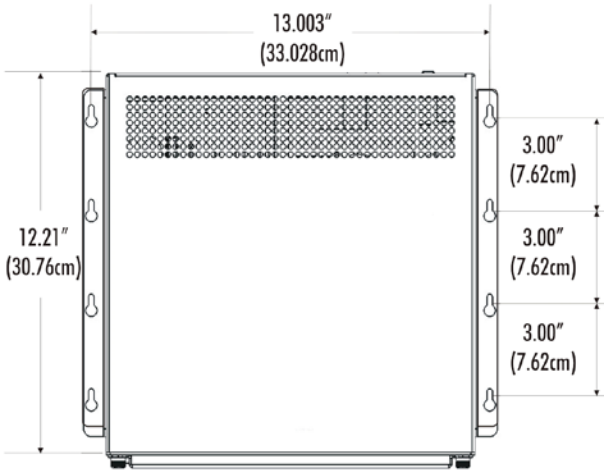
Front View - Lower Mounting Bracket Position



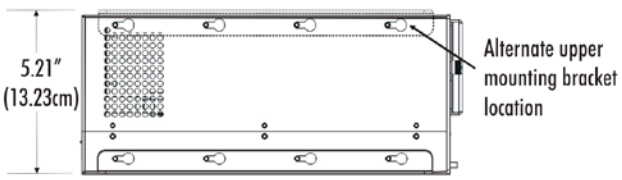
Front View - Upper Mounting Bracket Position



Top View - Without Top Cover



Top View - With Top Cover



Left Side View

Chapter 3 - Installation Instructions

ENVIRONMENTAL CONSIDERATIONS – AIR FLOW

When installing the chassis, ensure that a minimum free air space is available around the system. The installation should have a minimum of 4-6 inches (101-152mm) behind the chassis and 1-3 inches (25-75mm) in front of the chassis. Any front cabinet doors or access aisles must accommodate a TSC3600 / TVC3400 front chassis clearance of at least 4.0" (102mm) in order to provide proper cable clearances for any front panel I/O port connections and to gain access to the system air filter for maintenance. A chassis clearance of 0.5-1.5 inches (13-38mm) above the system is desirable. The computer is equipped with fans to help ensure proper cooling.

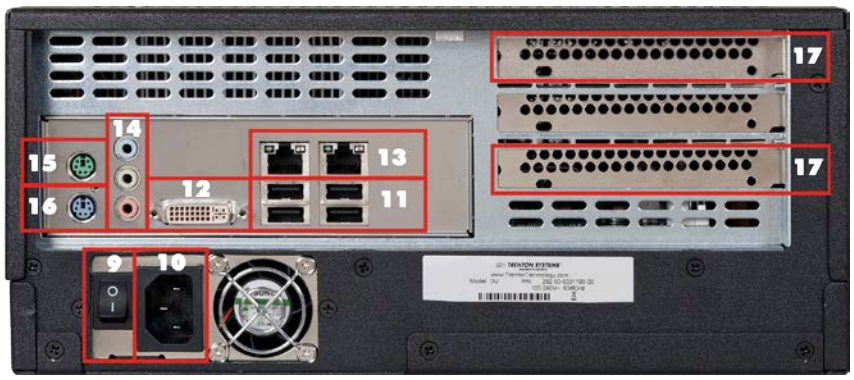
TRC3600 / TVC3400 SYSTEM LAYOUT

The following figures will be helpful in installing the TSC3600 / TVC3400 system.

1. Power LED
2. Hard Drive LED
3. Reset Button
4. System Power Button
5. Front USB Ports
6. DVD Slot
7. Hard Drive Slot(s)
8. Fan Filter

Figure 1 – TSC3600 / TVC3400 Front View

9. Power Supply Power Button
10. AC Power Input
11. Rear USB Ports (4)
12. Onboard DVI Video
13. Ethernet (2)
14. Audio
15. PS/2 Mouse
16. PS/2 Keyboard
17. Available Option Card slots



Note on callout 17: The specific card slot availability is riser card dependent.

Figure 2 – TSC3600 / TVC3400 Rear View

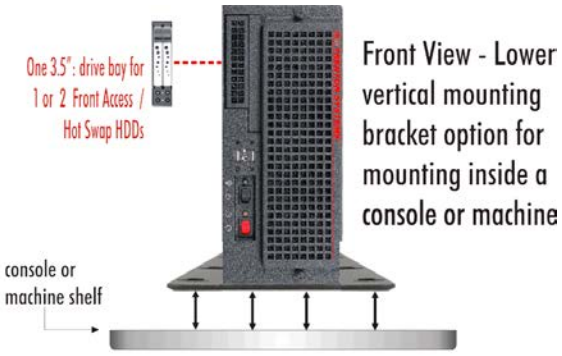
CHASSIS SHELF OR WALL MOUNTING

The TSC3600 / TVC3400 system can be installed on a solid metal or wooden shelf or wall that can either be inside or outside of a rackmount equipment cabinet. If mounting the system inside an equipment cabinet, ensure that the cabinet conforms to EIA standards for computer equipment with 19-inch wide panels. The cabinet must be tall enough to accommodate the computer's height and deep enough to accommodate the system's depth, while providing the proper clearances for air flow and cabling. A cabinet with a standard depth of 31.5 inches (800mm) should be sufficient; however, a rack with a non-standard depth dimension of at least 18 inches (457mm) will provide the suggested minimum front and rear chassis clearances needed for an installation.

MOUNTING PLACEMENT INSTRUCTIONS

The TSC3600 / TVC3400 ships with two shelf / wall mount brackets for above and below mounting surface installations. For below surface mounting, remove the bracket mounting screws from the factory installed locations along the lower sides of the chassis and use them to attach the brackets to the upper mounting-hole locations on the system as shown below. For above shelf surface mounting and wall mount application attach the brackets to the lower mounting hole locations using the hardware provided. Shown below are the possible mounting arrangements for the TSC3600 / TVC3400 using the standard mounting brackets shipped with your system. Vertical chassis mounting is supported and a vertical mounting bracket is available for purchase from Trenton Systems.

Front View - Upper mounting bracket position for mounting in a console or under a shelf



Front View - Lower vertical mounting bracket option for mounting inside a console or machine

TVC3400 Wall or Shelf Mount View

CAUTION: Use care when choosing the installation location. Follow these recommendations to ensure that the system does not overheat.

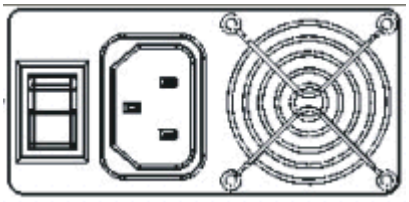
- Do not block any ventilation openings on the system.
- Do not place the system on a bed, sofa or other soft surface that may block the ventilation openings.
- Do not place the system in a confined space unless the space is well ventilated.
- Do not place the system near any heat sources such as a radiator, heat registers, stoves or amplifiers.
- Only mount the system to solid metal or wooden surfaces.

CONNECTING AC POWER

The TSC3600 / TVC3400 requires a single-phase power source providing 90-264VAC at 50 to 60Hz to the AC input power outlet located at the rear of the chassis. At 115VAC incoming power, the typical maximum current draw of the shelfmount computer / video controller is 6.96A. An over-current protection device should be used to protect the system.

To connect AC power to the computer:

1. Establish a chassis to earth ground connection to the TSC3600 / TVC3400 chassis.



2. Connect the AC power cord to the AC receptacle.
3. Connect the plug end of the power cord into the main outlet.

NOTE: The maximum current limits for the +5V, +5VSB, +3.3V and +12V DC outputs from the system's power supply assembly are 25A, 3.5A, 25A and 40A respectively. The assembly has power monitoring circuits that will shut the system down if these maximum current limits are exceeded.

INSTALLING SIGNAL CABLES

Refer to Figure 2 located in Chapter 2 when connecting signal cables and peripheral devices to the TSC3600 / TVC3400. Ensure that cables connected to the system are appropriate for the locality and routed and secured properly in order to avoid cable or system damage. Coil and secure extra cable lengths in an out of the way location taking care to avoid blocking critical airflow paths such as air intakes for the system fans.

Chapter 4 - Replacing System Components

OPENING THE TSC3600 / TVC3400

A trained electronics technician may need to remove the top cover of the TSC3600 / TVC3400 to install or remove the option cards.

NOTE: When installing option cards into the TSC3600 / TVC3400 rackmount computer you must ensure that the card installation does not result in non-conformance to the safety or EMC requirements for this product.

To open the computer:

1. Disconnect the AC power cords
2. Remove the sixteen (16) screws attaching the top cover to the chassis.
3. Lift the cover off the chassis
4. Ensure you are properly grounded before installing or removing option cards
5. Remove the option card hold down bar to install or remove cards

---

NOTE: NEVER install or remove any option card from the system's riser card if the motherboard's +5V AUX / Standby LED; located in the lower left corner of the motherboard near SATA connector P31, is in the green illuminated ON state. All LEDS should be OFF before removing system cards.

REPLACING COMPONENTS

The system fans and storage drives for the TSC3600 / TVC3400 are designed for easy access. Make sure you have a top chassis clearance of at least 6" (152mm) to remove or install system cards.

COOLING FANS

The two cooling fans of the TSC3600 / TVC3400 are mounted along the top of the chassis. Each fan is secured to the front of the chassis frame and can be removed by removing the attachment screws and lifting out the fan. Each fan is connected to the system's wiring harness via a plug-in connector that provides the connection to the chassis' +12V supply line.

STORAGE DRIVES

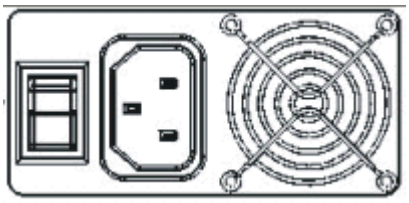
The 3.5" fixed-mount storage drive option on the TSC3600 / TVC3400 is hard mounted to the chassis frame and you will need to remove the fourteen (14) screws holding on the chassis' bottom cover in order to replace the system's fixed-mounted 3.5" HDD or optical drive. The 2.5" HDD option uses front access drive carriers for easy insertion and removal of these types of hard drives. Drive carrier mounted HDDs are secured to the chassis with a black slide catch. Slide the black HDD catch to the left and grasp the drive carrier handle and then pull out the carrier to remove. Once the carrier is removed, you may mount or remove the drive or drives as necessary. The number of HDDs used is dependent on your specific system requirements. The HDD and optical media drive bays are located in the lower left front corner of the system as shown in Figure 1 located in Chapter 3.

AIR FILTER

As the system ages and depending on the installation you may need to periodically clean or replace the system's air filter. The filter cleaning/replacement frequency is highly dependent on the installation environment, but should be done at least once a year. Loosen the thumbscrews on either side of the filter guard and remove the filter located inside for cleaning or replacement.

POWER SUPPLY

The 550W, rear-mounted, power supply assembly used in the TSC3600 / TVC3400 rackmount computer is shown below.



The system's fixed, rear-mounted, power supply should only be removed and replaced by a trained electronics technician. Like the 3.5" HDD and optical media drive, the power supply is hard mounted to the chassis frame and you will need to remove the fourteen (14) screws holding on the chassis' bottom cover in order to replace a TSC3600 / TVC3400 power supply.

NOTE: The maximum current limits for the +5V, +5VSB, +3.3V and +12V DC outputs from the system's power supply assembly are 25A, 3.5A, 25A and 40A respectively. The assembly has power monitoring circuits that will shut the system down if these maximum current limits are exceeded.

CAUTION: Risk of explosion if the system host board battery is replaced by an incorrect type. Replace with only the same battery type. Dispose of used batteries according to the instructions.

PREPARATION FOR SHIPMENT

The TSC3600 / TVC3400 should always be removed from its mounting shelf or cabinet wall if the unit must be shipped to another site. If possible, use the original shipping carton to ship the TSC3600 / TVC3400.

NOTE: Never ship the TSC3600 / TVC3400 when it is mounted inside a cabinet; damage to the computer and cabinet will likely result.

Reverse the installation steps in chapter three to remove the TSC3600 / TVC3400 from the rack cabinet. Do not forget to remove the chassis' earth ground wire before attempting computer removal.

Chapter 5 - Chassis Specifications

ENVIRONMENTAL

Temperature	
Operating	5°C to 35°C typical
Storage	-20°C to 70°C
Cold Excursion Temp	-40°C for up to sixteen hours
Relative Humidity	5% to 90%, non-condensing

Specific operating temperature ranges for the TSC3600 / TVC3400 are dependent on the number of option cards and other system components installed. Extended operating temperature CPUs resulting in a system's achieving an operating temperature range higher than what is stated here may be available for use. The reverse can also be true in that a system subcomponent could have a lower operating temperature range that could lower the system's overall operating temperature range. Contact Trenton for more details.

ELECTRICAL

Line Voltage	90-264VAC
Line Frequency	50-60Hz
Power Consumption	400W typical (application dependent),550 max.

PHYSICAL

Approximate Dimensions (W x H x D)	12.0" 5.21" x 12.11" 30.48cm x 13.23cm x 30.76cm
Net Weight	15.0 lbs. (6.81 kg) (doesn't include option cards)

SHOCK & VIBRATION

Shock - Class 3M4 operational and non-operational under EN60721-3-3	10G operating; 100m/s^2 ; Type I
Vibration - Class 3M4 operational and non-operational under EN60721-3-3	Sinusoidal Vibration: 1G; 3mm; 10 m/s2; 2-9 9-200Hz

AGENCY APPROVAL

UL	UL recognized product listed in file #E208896-A4-UL dated 2013-02-28
CE – LVD (2006/95/EC)	EN60950-1:2006
CE –Application of Council Directive: 2004/108/EC-EMC Directive	EN55022:2006 + A1:2007 Class A, EN61000-3-2:2006 Class D, EN61000-3-3:2008 Long and Short Duration, EN55024:1998 + A1:2001 + A1:2003 All applicable tests and levels
FCC / IEC - Certified compliance to the applicable test requirements per FCC.ANSI C63.4-2009 guidelines for Radiated & Conducted Emissions	FCC Part 15 Subpart B / IEC CISPR 22:2006 Class A