

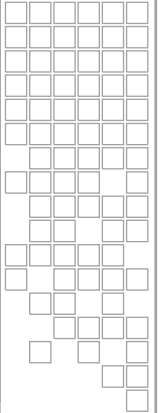
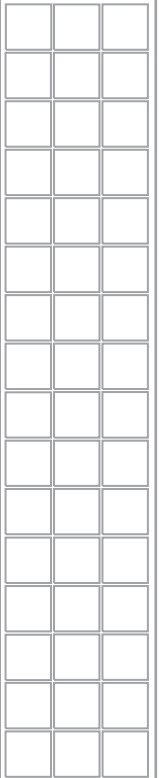
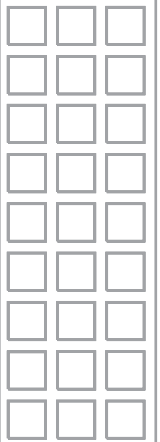
7600REF

REFERENCE GENERATOR

Installation and Safety Manual



071860200
OCTOBER 2007



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Grass Valley Web Site

The www.thomsongrassvalley.com web site offers the following:

Online User Documentation — Current versions of product catalogs, brochures, data sheets, ordering guides, planning guides, manuals, and release notes in .pdf format can be downloaded.

FAQ Database — Solutions to problems and troubleshooting efforts can be found by searching our Frequently Asked Questions (FAQ) database.

Software Downloads — Download software updates, drivers, and patches.



END-OF-LIFE PRODUCT RECYCLING NOTICE

Grass Valley's innovation and excellence in product design also extends to the programs we've established to manage the recycling of our products. Grass Valley has developed a comprehensive end-of-life product take back program for recycle or disposal of end-of-life products. Our program meets the requirements of the European Union's WEEE Directive, the United States Environmental Protection Agency, and U.S. state and local agencies.

Grass Valley's end-of-life product take back program assures proper disposal by use of Best Available Technology. This program accepts any Grass Valley branded equipment. Upon request, a Certificate of Recycling or a Certificate of Destruction, depending on the ultimate disposition of the product, can be sent to the requester.

Grass Valley will be responsible for all costs associated with recycling and disposal, including freight. However, you are responsible for the removal of the equipment from your facility and packing the equipment to make it ready for pickup.



For further information on the Grass Valley product take back system please contact Grass Valley at + 800 80 80 20 20 or +33 1 48 25 20 20 from most other countries. In the U.S. and Canada please call 800-547-8949 or 530-478-4148, and ask to be connected to the EH&S Department. Additional information concerning the program can be found at: www.thomsongrassvalley.com/environment



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Introduction

This Installation and Safety manual is provided to inform the user about specific safety and regulatory information for the 7600REF Reference Generator Frame. It ships with the frame to ensure that the user has this information when the frame is received.

Read the following sections concerning safety before attempting to install the unit:

- Safety Summary ([page 6](#))
- Warnings ([page 8](#))
- Cautions ([page 9](#))
- Regulatory Notices ([page 10](#))
- Frame Installation ([page 12](#))

The *7600REF Instruction Manual* which contains detailed installation and operation for the unit is included with this product on CD-ROM in PDF format. It describes all aspects of the unit, including cabling, complete operational details, and enabling software options.

All related documentation for this product can also be found in PDF format on the Thomson Grass Valley web site at this URL:

www.thomsongrassvalley.com/docs/modular

Safety Summary

Read and follow the important safety information below, noting especially those instructions related to risk of fire, electric shock or injury to persons. Additional specific warnings not listed here may be found throughout the manual.

WARNING Any instructions in this manual that require opening the equipment cover or enclosure are for use by qualified service personnel only. To reduce the risk of electric shock, do not perform any servicing other than that contained in the operating instructions unless you are qualified to do so.

Safety Terms and Symbols

Terms in This Manual

Safety-related statements may appear in this manual in the following form:

WARNING Warning statements identify conditions or practices that may result in personal injury or loss of life.

CAUTION Caution statements identify conditions or practices that may result in damage to equipment or other property, or which may cause equipment crucial to your business environment to become temporarily non-operational.

Terms on the Product

The following terms may appear on the product:

DANGER — A personal injury hazard is immediately accessible as you read the marking.

WARNING — A personal injury hazard exists but is not immediately accessible as you read the marking.

CAUTION — A hazard to property, product, and other equipment is present.

Symbols on the Product

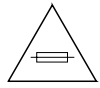
The following symbols may appear on the product:



Indicates that dangerous high voltage is present within the equipment enclosure that may be of sufficient magnitude to constitute a risk of electric shock.



Indicates that user, operator or service technician should refer to product manual(s) for important operating, maintenance, or service instructions.



This is a prompt to note fuse rating when replacing fuse(s). The fuse referenced in the text must be replaced with one having the ratings indicated.



Identifies a protective grounding terminal which must be connected to earth ground prior to making any other equipment connections.



Identifies an external protective grounding terminal which may be connected to earth ground as a supplement to an internal grounding terminal.



Indicates that static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Warnings

The following warning statements identify conditions or practices that can result in personal injury or loss of life.

Dangerous voltage or current may be present — Disconnect power and remove battery (if applicable) before removing protective panels, soldering, or replacing components.

Do not service alone — Do not internally service this product unless another person capable of rendering first aid and resuscitation is present.

Remove jewelry — Prior to servicing, remove jewelry such as rings, watches, and other metallic objects.

Avoid exposed circuitry — Do not touch exposed connections, components or circuitry when power is present.

Use proper power cord — Use only the power cord supplied or specified for this product.

Ground product — Connect the grounding conductor of the power cord to earth ground.

Operate only with covers and enclosure panels in place — Do not operate this product when covers or enclosure panels are removed.

Use correct fuse — Use only the fuse type and rating specified for this product.

Use only in dry environment — Do not operate in wet or damp conditions.

Use only in non-explosive environment — Do not operate this product in an explosive atmosphere.

High leakage current may be present — Earth connection of product is essential before connecting power.

Dual power supplies may be present — Be certain to plug each power supply cord into a separate branch circuit employing a separate service ground. Disconnect both power supply cords prior to servicing.

Use proper lift points — Do not use door latches to lift or move equipment.

Avoid mechanical hazards — Allow all rotating devices to come to a stop before servicing.

Cautions

The following caution statements identify conditions or practices that can result in damage to equipment or other property

Use correct power source — Do not operate this product from a power source that applies more than the voltage specified for the product.

Use correct voltage setting — If this product lacks auto-ranging power supplies, before applying power ensure that the each power supply is set to match the power source.

Provide proper ventilation — To prevent product overheating, provide equipment ventilation in accordance with installation instructions.

Use anti-static procedures — Static sensitive components are present which may be damaged by electrostatic discharge. Use anti-static procedures, equipment and surfaces during servicing.

Do not operate with suspected equipment failure — If you suspect product damage or equipment failure, have the equipment inspected by qualified service personnel.

Ensure mains disconnect — If mains switch is not provided, the power cord(s) of this equipment provide the means of disconnection. The socket outlet must be installed near the equipment and must be easily accessible. Verify that all mains power is disconnected before installing or removing power supplies and/or options.

Route cable properly — Route power cords and other cables so that they are not likely to be damaged. Properly support heavy cable bundles to avoid connector damage.

Use correct power supply cords — Power cords for this equipment, if provided, meet all North American electrical codes. Operation of this equipment at voltages exceeding 130 VAC requires power supply cords which comply with NEMA configurations. International power cords, if provided, have the approval of the country of use.

Use correct replacement battery — This product may contain batteries. To reduce the risk of explosion, check polarity and replace only with the same or equivalent type recommended by manufacturer. Dispose of used batteries according to the manufacturer's instructions.

Troubleshoot only to board level — Circuit boards in this product are densely populated with surface mount technology (SMT) components and application specific integrated circuits (ASICs). As a result, circuit board repair at the component level is very difficult in the field, if not impossible. For warranty compliance, do not troubleshoot systems beyond the board level.

Regulatory Notices

Certifications and Compliances

FCC Emission Control

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communications. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his own expense. Changes or modifications not expressly approved by Grass Valley Group can affect emission compliance and could void the user's authority to operate this equipment.

Canadian EMC Notice of Compliance

This digital apparatus does not exceed the Class A limits for radio noise emissions from digital apparatus set out in the Radio Interference Regulations of the Canadian Department of Communications.

Le présent appareil numérique n'émet pas de bruits radioélectriques dépassant les limites applicables aux appareils numériques de la classe A prescrites dans le Règlement sur le brouillage radioélectrique édicté par le ministère des Communications du Canada.

EN55022 Class A Warning

In a domestic environment, products that comply with Class A may cause radio interference in which case the user may be required to take adequate measures.

Canadian Certified Power Cords

Canadian approval includes the products and power cords appropriate for use in the North America power network. All other power cords supplied are approved for the country of use.

Canadian Certified AC Adapter

Canadian approval includes the AC adapters appropriate for use in the North America power network. All other AC adapters supplied are approved for the country of use.

FCC Emission Limits

This device complies with Part 15 of the FCC rules. Operation is subject to the following two conditions: (1) This device must cause not interference, and (2) this device must accept any interference received, including interference that may cause undesirable operation.

Certifications

Safety – This product has been evaluated and meets the following Safety Certification Standards listed under the Safety category in the table below.

EMI – This product has been evaluated for Electromagnetic Compatibility under the EN 55022 / EN 55024 standards for Emissions and Immunity and meets the requirements listed under the EMI Category in the table below. This product complies with Class A. In a domestic environment this product may cause radio interference in which case the user may be required to take adequate measures.

Category	Standard	Designed/tested for compliance with:
Safety	ANSI / UL60950	"Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements", (ANSI/UL 60950-1, First Edition, Dated April 1, 2003, with revision through and including November 26, 2003.)
	IEC 60950	"Standard for Safety for Information Technology Equipment - Safety - Part 1: General Requirements", (IEC 60950-1, First Edition, 2001, Corrigendum 1:10-2002)
	CAN/CSA C22.2, No. 60950	"Standard for Safety of Information Technology Equipment - Safety - Part 1: General Requirements", (CAN/CSA-C22.2 No. 60950-1-03. First Edition Dated April 1, 2003, with revisions through and including November 26, 2003)
	EN60950	Safety of Information Technology Equipment, including Electrical Business Equipment.
	73/23/EEC	Low Voltage Directive
EMI	EMC Directive 89/336/EEC	Information and Technology Equipment
	EN 55022: 1998, Inc. A1:2000 & A2:2003 Radio Disturbance Characteristics	Electromagnetic compatibility. Product family standard for Information and Technology equipment for professional use. Emissions, Class A EN 61000-3-2: Power Line Harmonic Emissions, Radiated Magnetic Field Emissions, Peak Inrush Current EN61000-3-3: Mains voltage flicker and manual switching (Dmax = 4%)
	EN 55024:1998, Inc. A1:2000 & A2:2003 Immunity Characteristics	Electromagnetic compatibility--Product family standard for Information and Technology equipment for professional use. EN 61000-4-2: Electrostatic Discharge "ESD" Immunity EN 61000-4-3: Radiated RF Electromagnetic Field Immunity EN 61000-4-4: Electrical Fast Transient/Burst "EFT" Immunity EN 61000-4-5: Surge Immunity EN 61000-4-6: Conducted RF Immunity EN 61000-4-11: Voltage Dips, Short Interruptions and Voltage Variations
	US FCC Class A Canada FCC Industry Canada	CISPR Pub. 22 (1997 Class A)
	Australia & New Zealand:	AS/NZS 3548

Frame Installation

Follow the instructions below to unpack and install the 7600REF frame. For more detailed instructions and cabling the rear of the frame, refer to the *7600REF Instruction Manual*.

Unpacking

Carefully unpack the unit from its packing box and check for signs of damage. Check the contents of the box against the packing list and your original order to ensure that you have received the correct parts.

In the event the unit has been damaged or does not match your order, contact the Thomson Grass Valley Sales office listed on [Contacting Grass Valley on page 2](#).

Rack Mounting

The 1 RU rack frame has integral rack mounting ears on the frame front cover for direct mounting into a standard 19 inch rack. Carefully place the unit in your rack and firmly attach it to the rack using four standard rack screws (not provided).

CAUTION This unit has air intakes on one side of the unit and fan-assisted exhaust vents on the other side. Ensure that these vents have an unobstructed air flow, to prevent the unit from overheating. Pay particular attention to ensure that any rack wiring or cable trays do not obstruct the vents. 60 mm (2.36 in.) of clear space should be allowed between the vents and any potential obstruction.

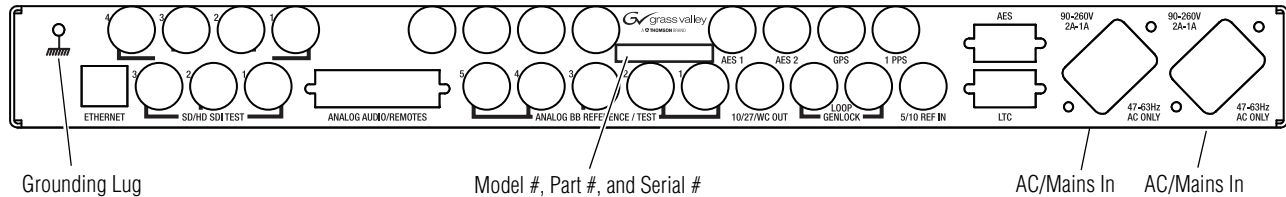
Module Installation

No installation of any modules should be necessary. All modules will come installed in the frame from the factory. The presence of modules depends on the 7600REF model you have ordered. Software options for the frame type you have ordered will already be enabled when the frame is received.

Frame Rear Connections

The rear backplane of the 7600REF Reference Generator is illustrated in [Figure 1](#).

Figure 1. 7600REF Rear Backplane



Grounding Lug

The unit is provided with a single 4 mm (0.16 in.) ground lug on the far left of the rear panel. Incoming mains ground from the IEC connector is internally bonded to both the chassis and technical 0V to meet safety requirements and performance specifications. The stud allows the addition of an ground strap, if required, for rack installations.

AC Mains Connection and Fusing

CAUTION The power supply cord is used as the main power disconnection device. Ensure that the socket outlet is located/installed near the equipment and is easily accessible.

ATTENTION Le cordon d'alimentation est utilisé comme interrupteur général. La prise de courant doit être située ou installée à proximité de l'équipement et être facile d'accès.

The power supplies within the unit are a switch mode design and are auto-sensing to handle a wide input voltage range. See [Specifications on page 15](#).

Each 7600REF model is fitted with two AC mains power supplies. Each power supply has its own dedicated IEC mains plug on the rear of the unit. You should receive the correct line cord for your line standard in the shipping box.

Module Cabling

Cabling of module BNCs and Sub-D connectors depends upon the frame model type and what modules are included with the model. Refer to the *7600REF Instruction Manual* for details on cabling the required connections.

Power Up

When one or both of the AC mains is connected to a power source, the unit will power up.

Once powered up, the LCD display will display initialization messages as it configures the internal hardware installed in the unit. Once initialization is complete, a message indicating a normal operating status is displayed as shown below.

7600REF Main Menu

<Digital Video> Analogue Video Audio ->

Specifications

The specifications for the 7600REF Reference Generator frame are given in [Table 1](#).

Table 1. 7600REF Frame Specifications

Parameter	Value
Frame Dimensions	
Width	19 in. rack mounting
Height	44 mm (1.73 in.) 1 Rack Unit
Depth	433 mm (17.0 in.) excluding connectors
Weight	4 kg (8.82 lbs) no option modules 5 kg (11 lbs) maximum with option modules
Operating temperature range	0 to 45 degrees C
Storage temperature range	-25 to 70 degrees C
Operating humidity	95% RH non-condensing
Power	
Input voltage range	100-240 VAC, 50-60 Hz
Maximum input current	1.4 Amps
Internal fuse	3.15 Amps
Miscellaneous	
Setup data retention when unit not powered	> 1000 hours. Unit must have been powered for > 24 hours prior to this.
Serial communication type	RS422/232 (software configured)
Power fail indication	Relay contact, closed under normal operation, open for any failure state.
Fan fail indication	Relay contact, closed under normal operation, open for any failure state.
Remote inputs	Two grounding inputs provided on Sub-D connector.
Remote outputs	Two outputs provided on Sub-D connector. Open collector outputs rated at 45V/500mA maximum.
Option interfaces	Up to three single width option modules may be installed in the unit.
Ethernet	RJ-45 interface. Software configured for DHCP or static IP address.

