Time Electronics
Calibration, Test and Measurement

User Manual

9760
Power Amplifier

Version 1.1
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This manual provides operating and safety instructions for the Time Electronics product. To ensure correct operation and safety, please follow the instructions in this manual.

Time Electronics reserves the right to change the contents, specifications and other information contained in this manual without notice.

Contents

1 Introduction

The 9760 power amplifier has been designed to complement the Time Electronics range of multifunction calibrators. The unit provides an output current suitable for driving even the most demanding analogue meters.

Operation is simple with connection via the front panel terminals. The reference calibrator (for example 5025C) connects to the input terminals. Then the output is connected to the meter. The user then presses the output button.

The amplifier has a gain of x10. So an input voltage of 1 V will produce an output of 10 V. Due to the output resistance of the amplifier, the accuracy of the output is specified for loads greater than 600 Ω. If loads less than this are present a reduction of 1 mV per 10 mA of load current will apply.

Features

- Compatible with 5051 and 5025 calibrators
- 60 V AC RMS, 100 mA
- 90 V DC, 100mA
- 0.02 % best accuracy
- ACV to 10kHz
- Short circuit protection: 160 mA

2 Operation

2.1 Safety Precautions

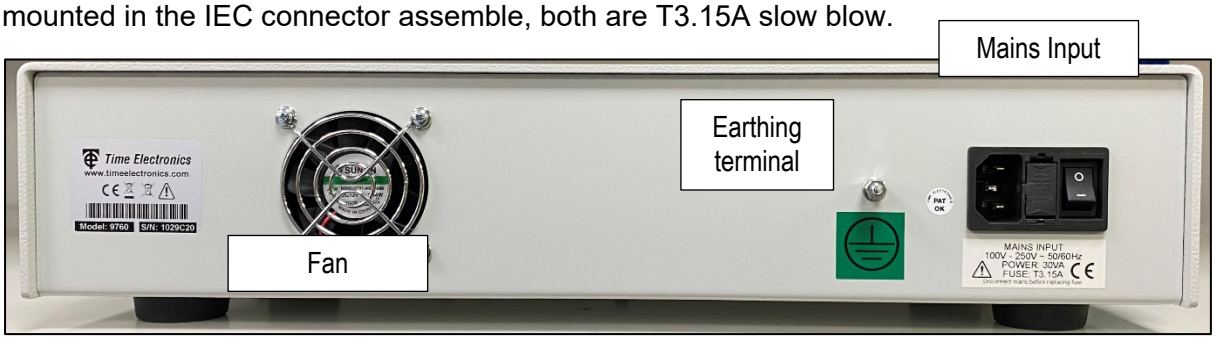
High Voltage: The instrument can output high voltage and users should be aware of the dangers involving serious electrical shock.

This instrument is rated as class 1, to protect against electric shock due to fault condition, the IEC C13 power cord supplied, connects the case to the protective ground provided by the local power utility company. An additional PE terminal is provided at the rear for use when the utility ground is unsatisfactory or does not exist. Please consult local regulations.

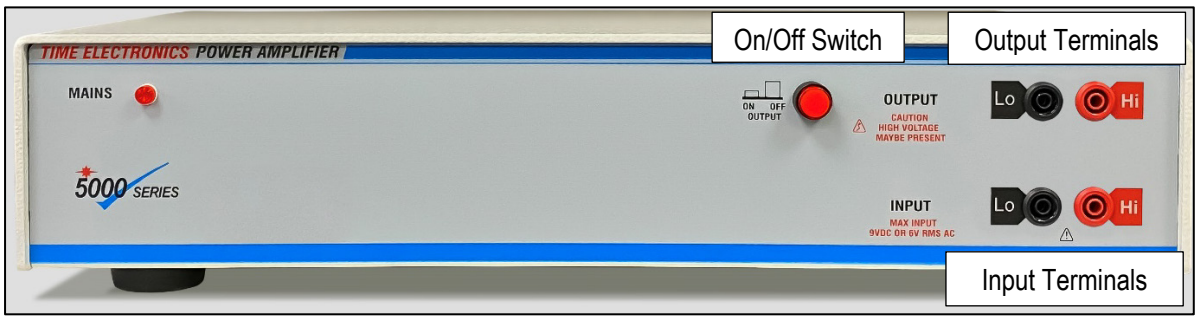
2.2 Mains (Line) Power Supply

The supply power is connected via a standard IEC Euro connector on the rear panel.

The standard voltage supply is 100V - 230V 50/60Hz. There are two protection fuses mounted in the IEC connector assemble, both are T3.15A slow blow.



2.3 Front Panel



2.4 Operating Instructions

Ensure the output is off before the reference input, and output are connected.

1. The reference input is connected to the lower terminals marked ‘Input’ (see page 7 for input limits).
2. The ‘Output’ is connected from the two upper terminals.
3. To turn the output on, push the output button.
   The output button will illuminate to confirm the output is connected.

The amplifier has a gain of x10. So an input voltage of 1V will produce an output of 10V.

Note:

Due to the output resistance of the amplifier the accuracy of the output is specified for loads greater than 600Ω. If loads less than 600Ω are present a reduction of 1mV per 10mA of load current will apply.

Example:
The amplifier sourcing 10V into a meter with 100Ω input impedance will result in 100mA current being drawn.

Therefore, a reduction in output of 10mV will occur.

3 Specifications

Technical Specifications

AC Voltage

Gain x10

Input Range ..... 0.5 to 6 V RMS

Output Range ..... 5V to 60 V RMS

Maximum Output Current ..... 100 mA

Accuracy ..... 0.03 % + 3 mV*

Output Resistance ..... < 0.1 Ω*

Frequency Range ..... 45 Hz to 10 kHz

DC Voltage

Gain x10

Input Range ..... 0.5 to 9 V

Output Range ..... 5 to 90 V

Maximum Output Current ..... 100 mA

Accuracy ..... 0.02 % + 0.5 mV*

Output Resistance ..... < 0.1 Ω*

*Add additional error of 1 mV/10 mA of load current when loads of 600 Ω or less are being driven. Remote sensing is not available.

General Specifications

Short circuit protection ..... 160 mA

Switches/Indicators ..... Output On/Off Switch, Output On indication.

Power Supply ..... 100 to 230 V AC 50/60 Hz

Dimensions ..... 430 x 230 x 90 mm

Weight ..... 5 kg

4 Warranty and Servicing

Warranty

Time Electronics products carry a one-year manufacturer's warranty as standard.

Time Electronics products are designed and manufactured to the highest standards and specifications to assure the quality and performance required by all sectors of industry. Time Electronics products are fully guaranteed against faulty materials and workmanship.

Should this product be found to be defective, please contact us using the below details. Inform us of the product type, serial number, and details of any fault and/or the service required. Please retain the supplier invoice as proof of purchase.

This warranty does not apply to defects resulting from action of the user such as misuse, operation outside of specification, improper maintenance or repair, or unauthorized modification. Time Electronics' total liability is limited to repair or replacement of the product. Note that if Time Electronics determine that the fault on a returned product has been caused by the user, we will contact the customer before proceeding with any repair.

Product Registration

You can register your product at: www.timeelectronics.com/contact/product-registration. Registering your product will enable us to maintain a record of purchase for your warranty. You can also use the web form to provide feedback about our products and services.

Calibration and Repair Services

Time Electronics offers repair and calibration services for all the products we make and sell. Routine maintenance by the manufacturer ensures optimal performance and condition of the product. Periodic traceable or accredited calibration is available.

Contacting Time Electronics

Online:
Please visit www.timeelectronics.com and select Technical Support from the Contact links. From this page you will be able to send information to the Time Electronics service team who will help and support you.

By phone:
+44 (0) 1732 355993

By email:
mail@timeelectronics.co.uk

Returning Instruments

Prior to returning your product please contact Time Electronics. We will issue a return merchandise authorization (RMA) number that is to accompany the goods returning. Further instructions will also be issued prior to shipment. When returning instruments, please ensure that they have been adequately packed, preferably in the original packing supplied. **Time Electronics Ltd will not accept responsibility for units returned damaged.** Please ensure that all units have details of the service required and all relevant paperwork.

Send the instrument, shipping charges paid to:

Time Electronics Ltd
Unit 5, TON Business Park, 2-8 Morley Road,
Tonbridge, Kent, TN9 1RA.
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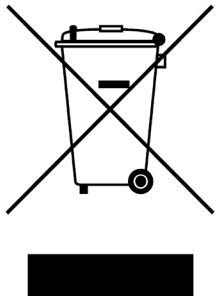
Email: mail@timeelectronics.co.uk
Web Site: www.timeelectronics.com

Disposal of your old equipment



1. When this crossed-out wheeled bin symbol is attached to a product it means the product is covered by the European Directive 2002/96/EC.
2. All electrical and electronic products should be disposed of separately from the municipal waste stream via designated collection facilities appointed by the government or the local authorities.
3. The correct disposal of your old appliance will help prevent potential negative consequences for the environment and human health.
4. For more detailed information about disposal of your old appliance, please contact your city office, waste disposal service or return to Time Electronics.