



***Time Electronics***  
*Calibration, Test and Measurement*

# User Manual

## 9766 and 9767 Low Noise Attenuators

Version 1.1  
June 2022

### **Time Electronics Ltd**

Unit 5, TON Business Park, 2-8 Morley Road,  
Tonbridge, Kent, TN9 1RA, United Kingdom.

T: +44 (0) 1732 355993 | F: +44 (0) 1732 350198  
mail@timeelectronics.co.uk | www.timeelectronics.com

© 2022 Time Electronics Ltd.

All rights reserved.

Nothing from this manual may be multiplied, or made public in any form or manner, either electronically or hard copy, without prior written consent from Time Electronics Ltd.

This also applies to any schematics, drawings and diagrams contained herein.

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

<b>1</b>	<b>Introduction.....</b>	<b>4</b>
<b>2</b>	<b>Operation.....</b>	<b>5</b>
<b>3</b>	<b>Specifications .....</b>	<b>6</b>
<b>4</b>	<b>Warranty and Servicing.....</b>	<b>7</b>

# 1 Introduction



High quality low noise passive resistance 1000:1 and 100:1 attenuators designed for general laboratory work. They have been designed to complement the 5018, 5025 and 5051 laboratory calibrators by allowing small AC or DC signals with low noise to be processed from the 2 and 20 V ranges.

The 9766 attenuator (1000:1 version) allows 10 k $\Omega$  input resistance.

The 9767 (100:1 version) allows 1 k $\Omega$  input. Output resistance is 10  $\Omega$  for both.

Connection is made via BNC leads using 4 mm to BNC adaptors. These are available as individual extras or come as standard with test lead set options for multifunction calibrators.

Both units are housed in a heavy duty die cast case for robustness, with an airtight seal between the lid and the case body.

## Features

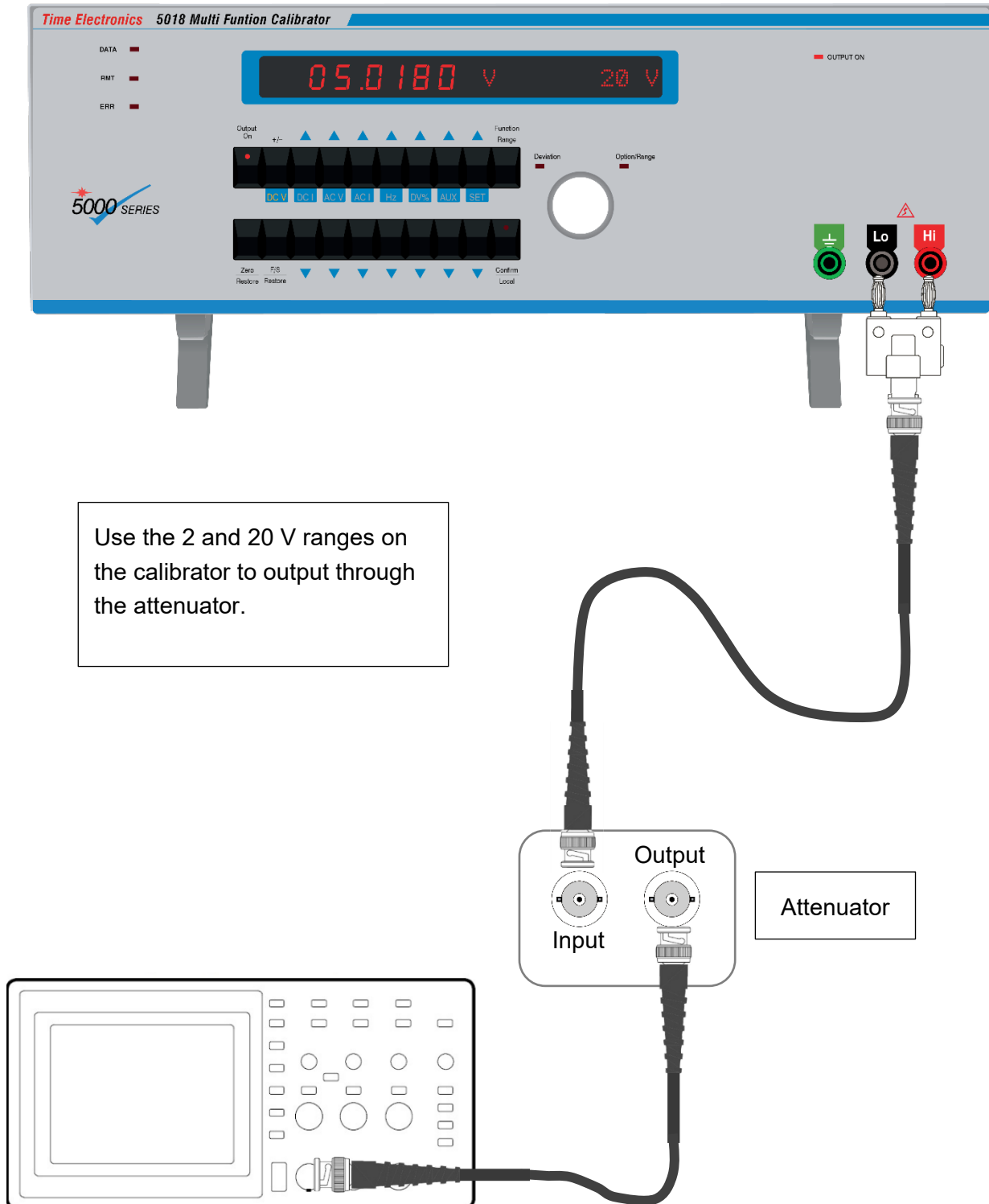
- Low noise passive resistance attenuators
- 0.01 % DC accuracy
- 1 Watt metal film resistors
- BNC quality connectors
- 25 ppm/ $^{\circ}$ C temperature coefficient
- Heavy duty die cast case

## 2 Operation

Connection is made via BNC leads using 4 mm to BNC adaptors.

Connect the calibrator to the attenuator input as shown below.

Then connect to the device under test to the output of the attenuator.



### 3 Specifications

<b>Attenuation</b> .....	9766 = 1000:1 9767 = 100:1
<b>Input Resistance</b> .....	9766 = 10 kΩ 9767 = 1 kΩ
<b>Accuracy</b> .....	0.01 % DC 0.1 % 10 Hz to 10 kHz
<b>Output Resistance</b> .....	10 Ω
<b>Maximum Voltage</b> .....	22 V DC or AC RMS
<b>Power Rating</b> .....	1 W
<b>Temperature Coefficient</b> .....	25 ppm/°C
<b>Dimensions</b> .....	L 115 x H 52.5 x D 64 mm (height includes BNC sockets)
<b>Weight</b> .....	0.28 kg
<b>Optional Extras</b> .....	BNC/BNC lead 1 meter. BNC/4 mm adaptor Calibration certificates - traceable (factory) or accredited (ISO 17025).

## 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](http://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](http://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](mailto: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.  
United Kingdom.

Tel: +44(0)1732 355993

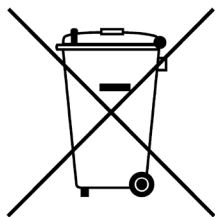
Fax: +44(0)1732 350198

Email: [mail@timeelectronics.co.uk](mailto:mail@timeelectronics.co.uk)

Web Site: [www.timeelectronics.com](http://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.