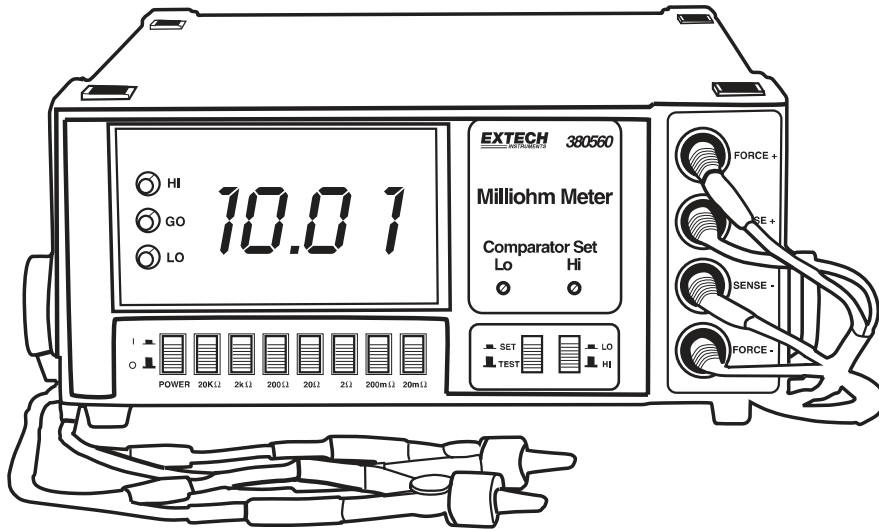


User's Guide

**EXTECH**<sup>®</sup>  
INSTRUMENTS  
A FLIR COMPANY

## High Resolution Benchtop MilliOhm Meter

Models 380560 and 380562

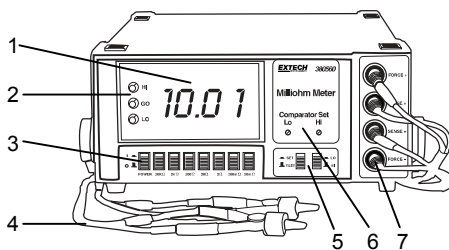


## Introduction

Congratulations on your purchase of the Extech 380560 (117V) or 380562 (220V) High Resolution MilliOhm Meter. This device offers seven resistance ranges with resolution as low as 0.01mΩ. The 4-wire Kelvin clip connection ensures optimum accuracy. The built-in comparator feature offers HI-LO-GO testing. Typical applications include transformer, motor coil, and PC Board resistance measurements. Careful use of this meter will provide years of reliable service.

## Meter Description

1. LED Display
2. HI/LO/GO Status Indicators
3. Power and Range pushbuttons
4. Kelvin clip leads
5. SET/TEST and HI/LO pushbuttons
6. Comparator adjustment screws
7. Kelvin clip lead input terminals



Note: The power cable input and audible alert button are on the rear of the instrument.

## Measurement Precautions



Ensure that the meter is connected to the correct power source (110V for model 380560 or 220V for model 380562).



Do not apply voltage to the meter input terminals. Meter damage may result.

## Warranty

**EXTECH INSTRUMENTS CORPORATION** (a FLIR company) warrants this instrument to be free of defects in parts and workmanship for **one year** from date of shipment (a six month limited warranty applies to sensors and cables). If it should become necessary to return the instrument for service during or beyond the warranty period, contact the Customer Service Department for authorization. Visit our website [www.extech.com](http://www.extech.com) for contact information. A Return Authorization (RA) number must be issued before any product is returned to Extech. The sender is responsible for shipping charges, freight, insurance and proper packaging to prevent damage in transit. This warranty does not apply to defects resulting from action of the user such as misuse, improper wiring, operation outside of specification, improper maintenance or repair, or unauthorized modification. Extech specifically disclaims any implied warranties or merchantability or fitness for a specific purpose and will not be liable for any direct, indirect, incidental or consequential damages. Extech's total liability is limited to repair or replacement of the product. The warranty set forth above is inclusive and no other warranty, whether written or oral, is expressed or implied.

**Support lines: U.S. 877-439-8324, Intl. 603-324-7800**

Technical support: Option 3; E-mail: [support@extech.com](mailto:support@extech.com)

Repair & Returns: Option 4; E-mail: [repair@extech.com](mailto:repair@extech.com)

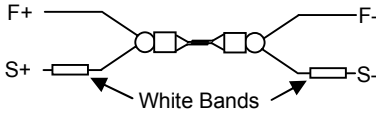
**Product specifications subject to change without notice**

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Extech Instruments Corporation, 9 Townsend West, Nashua, NH 03063

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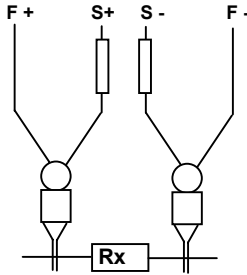
## Measurement Procedure

1. Connect the Kelvin test leads to the meter.
2. Press the **POWER** pushbutton to turn power on.
3. Position the **SET/TEST** pushbutton to the **TEST** position.
4. To check the meter zero, clip the test leads together as shown at right.
5. Select the desired measuring range using the labeled black pushbuttons. When the resistance of the device is unknown, start with the highest range and work downward.
6. Clip the leads onto the device under test as shown below.
7. Observe the reading on the LED display.

### Comparator Operation (HI-LO-GO)

The meter is equipped with a Comparator function allowing the user to sort resistance measurements against programmable HIGH and LOW limits. To program the comparator:

1. Position the **SET/TEST** pushbutton to SET.
2. Position the **LO/HI** pushbutton to LO.
3. Adjust the **LO** comparator screw to the desired low limit (shown on the LED display).
4. Position the **LO/HI** pushbutton to HI.
5. Adjust the **HI** comparator screw to the desired high limit.
6. Position the **SET/TEST** pushbutton to TEST.
7. Set the rear buzzer switch ON or OFF. When ON, the meter will sound an audible tone for each GO measurement.



Each time a measurement is taken, the appropriate Comparator status LED will light. If the measurement is lower than the LO setting, the LO LED will light. If the measurement is higher than the HI setting, the HI LED will light. If the reading is between the HI and LO settings, the green GO LED will light. If the rear beeper pushbutton is set ON, an audible tone will sound each time a GO reading is detected.

## Measurement Principles

The test current flows through the resistance from the **FORCE+ (F+)** terminal to the **FORCE- (F-)** terminal. The **S+** and **S-** (**SENSE**) terminals measure the voltage drop across the device under test only, thus eliminating the lead and contact resistances. The meter displays the resistance based on the test current and the measured voltage; refer to the equation below:

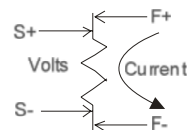
$$R_x = V_x / I_s$$

Where:

**V<sub>x</sub>** is the voltage drop across the device under test;

**I<sub>s</sub>** is the test current;

**R<sub>x</sub>** is the resistance of the device under test.



## Specifications

### General Specifications







Circuit	Custom one-chip LSI microprocessor circuit
Display	0.8" (20 mm) 2000 Count LED Display
Connection type	4-Terminal Kelvin
Measurement ranges	Seven ranges (see listing below)
Test voltage	5V DC
Comparator	Built-in HI/LO/GO testing with audible beeper
Zero adjust	Automatic (no adjustment necessary)
Over-range indication	Display reads "1 ____" when the reading is out of range
Operating Temperature	32°F to 122°F (0°C to 50°C)
Operating Humidity	Max. 80% RH
Power Supply	110V (380560) or 220V (380562) $\pm 15\%$ , 50/60Hz
Weight	4.85 lbs (2.2kg)
Dimensions	11 x 8.3 x 3.5" (280 x 210 x 90mm)

### Range Specifications

Range	Resolution	Test Current	Accuracy (%rdg)	Test Voltage
20 m $\Omega$	0.01m $\Omega$	1A	$\pm (0.2\% + 6 \text{ digits})$	2.7V DC
200 m $\Omega$	0.1m $\Omega$	1A		3.3V DC
2 $\Omega$	.001 $\Omega$	0.1A		3.5V DC
20 $\Omega$	.01 $\Omega$	10mA		4.1V DC
200 $\Omega$	0.1 $\Omega$	1mA		4.5V DC
2K $\Omega$	.001k $\Omega$	0.1mA		
20K $\Omega$	.01k $\Omega$	10uA		

Note: Specifications based on RF Field Strength <3V/m and frequency <30MHz

### International Symbols

	DC Voltage DC Current		Refer to explanation in owners manual
	AC Voltage AC Current		Dangerous voltage risk of electrical shock
	Ground		Double Insulation