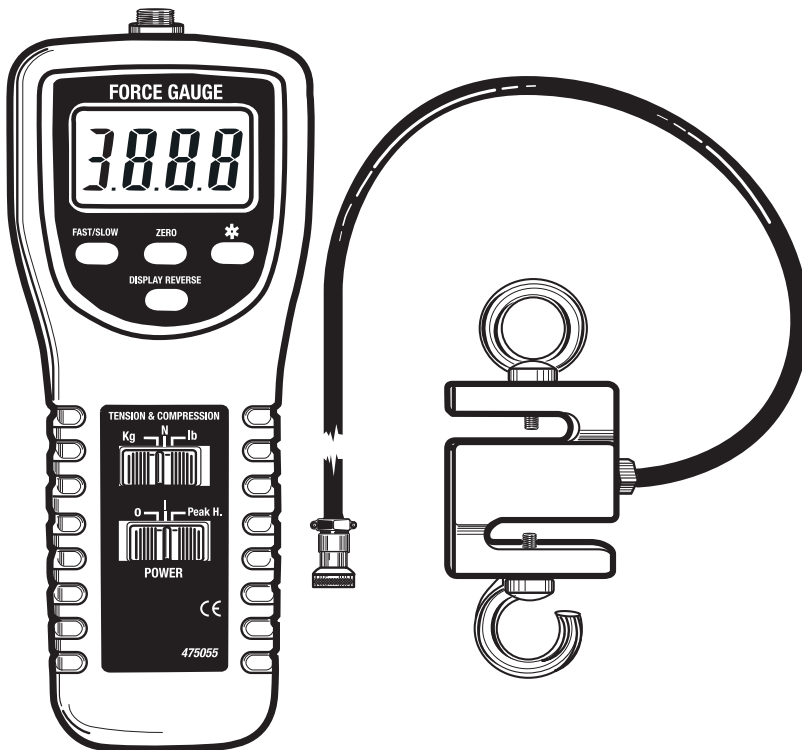


# User's Guide

**EXTECH**  
INSTRUMENTS

## Models 475055 Digital Force Gauge

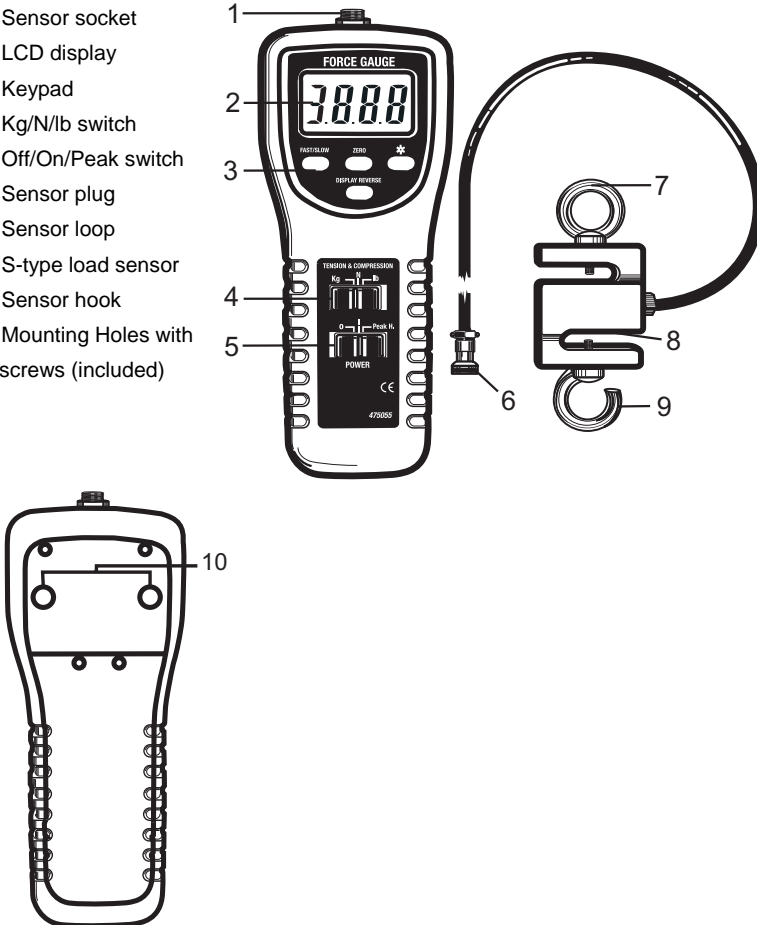


## Introduction

Congratulations on your purchase of Extech's Model 475055 Digital Force Gauge that measures Tension or Compression (pull/push) to 220 lbs. It features: Peak hold, fast/slow response time, positive or reverse display direction, and a separate sensor. An RS-232 PC interface provides data acquisition functionality. This meter is shipped fully tested and calibrated and with proper use will provide years of reliable service.

## Meter Description

1. Sensor socket
2. LCD display
3. Keypad
4. Kg/N/lb switch
5. Off/On/Peak switch
6. Sensor plug
7. Sensor loop
8. S-type load sensor
9. Sensor hook
10. Mounting Holes with screws (included)



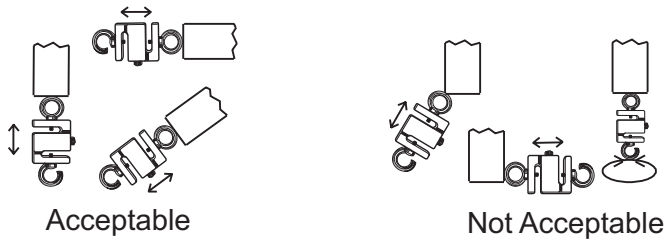
## Operation

### Preparation for Measurement

1. The 475055 automatically determines Tension or Compression (pull/push) force during use. Compression displays as a negative value and Tension displays as a positive value.
2. Select units of measure (kilograms, pounds, or Newtons) via the units select switch.
3. Screw in the sensor hook and loop on the load sensor and then connect the sensor to the meter via the input jack on top of the meter.
4. Select FAST (0.2 seconds) or SLOW (0.6 seconds) update rate.
5. Zero the display before each measurement via the Zero button.

**Note:** The sensing head with adapter must be in line with the object being measured. Avoid rotating the sensing head. Refer to the Figure 1.

**Figure 1 – Correct and Incorrect Angles of Measurement**



### Measurement Mode

1. Slide the POWER switch to the ON (I) position. Reverse the LCD display if desired via the Display Reverse key.
2. Zero the meter before each measurement.
3. Touch the adapter to the object being measured in a straight line. Refer to Fig.1.
4. Begin measurement by applying force (Push or Pull). Read the LCD display.
5. After completing the measurement, the display will indicate "0.00" if the position and angle of the Force Gauge have not changed.

**Note:** Be sure to press "ZERO" before taking a new measurement.

### Overrange Indication

The Model 475055 uses a strain gauge sensor to measure force. Avoid subjecting the instrument to forces outside the specified measurement range. The sensitive strain gauge can be damaged or otherwise compromised by misuse. When an over-range condition is sensed by the meter the LCD displays all dashes.

Note that the dashes are shown at the top of the LCD (-----) for tension measurements and at the bottom of the display (-----) for compression measurements.

### **Peak Load Measurement**

1. Slide the POWER switch to the PEAK position.
2. Touch the adapter to the object being measured in a straight line, refer to Fig. 1.
3. Zero the meter before each measurement.
4. Begin measurement by applying force (pull or push). The LCD will display the peak value, which is the highest reading encountered.
5. After completing the measurement, the display will hold the peak reading until a higher reading is reached or the switch is moved out of the peak hold position.

**Note:** Be sure to press "ZERO" before taking a new measurement.

### **Fast/Slow selection**

Press the FAST/SLOW key to select the desired display update rate. The "FAST" icon will appear in the display when FAST is selected.

### **Mounting**

For best results, mount the Digital Force Gauge to a test fixture. Mounting holes are provided on the rear of the meter for use with fixtures and test stands.

### **Display Backlight**

Pressing the backlight button momentarily will turn on the backlight. After approximately 15 seconds, it will automatically shut off.

### ***RS-232 PC Interface***

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The 475055 is equipped with a 3.5mm phone jack (meter bottom) for connection to a PC for data acquisition purposes. To obtain optional PC interface cabling and Windows® data acquisition software (Model 407001A), contact Extech Instruments. Instructions for use are provided with the software/cable kit.

## Maintenance

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### Battery Replacement

The low battery indication appears as a "LO" on the display when battery voltage is less than 6.8V. To replace the battery:

1. Remove the two screws from the battery compartment cover.
2. Lift off the battery cover.
3. Replace with six (6) 1.5V 'AA' batteries.
4. Replace compartment cover and screws.

## Specifications

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Range	220 lbs, 100kg, 980 Newtons
Accuracy (23°C)	±(0.5%rdg + 0.1lbs, 0.1kg or 0.4N)
Resolution	0.05lbs, 0.05kg, 0.2 Newtons
Overload Capacity	150kg
Circuit	Custom LSI microprocessor
Zero adjust	Button for Peak Hold and normal display zero
Display	5 digit LCD type; Digit height: 0.63" (16 mm)
Update Rate	Fast mode 0.2 seconds; Slow mode 0.6 seconds
Over range Indicators	LCD displays "-----" for tension measurements and "-----" for compression measurements
Zero / Tare Control	Up to Maximum capacity
Full Scale Deflection	<1mm
Transducer type	S-type load cell with 2 hooks (thread size: M6 x 1mm ISO) and 6.5 ft (2m) cable
Peak Hold	Freezes Max reading on display
Data Output	RS-232 serial interface with 16-bit data stream output
Operating Temperature	32 °F to 122 °F (0°C to 50°C)
Operating RH	Max. 80% Relative Humidity (RH)
Power Supply	6 x 1.5V 'AA' batteries or 9VDC adapter (not included)
Power consumption	28mA (approx.)
Weight	Meter: 1 lb (450g) Sensor: 0.84 lbs (380g)
Dimensions	Meter: 8.5 x 3.5 x 1.8" (215 x 90 x 45 mm) Sensor with 2 hooks: 4.7 x 2 x 0.7" (130 x 51 x 18 mm) Cable length: 6.5 ft. (2m)
Test Stand Mounting Holes	Located on rear (thread size: M5 x 0.8mm ISO); mounting screws included

## **Calibration and Repair Services**

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**Extech offers repair and calibration services** for the products we sell. Extech also provides NIST certification for most products. Call the Customer Service Department for information on calibration services available for this product. Extech recommends that annual calibrations be performed to verify meter performance and accuracy.

## **Warranty**

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*EXTECH INSTRUMENTS CORPORATION warrants the basic instrument to be free of defects in parts and workmanship for one year from date of shipment (a six month limited warranty applies on 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 at (781) 890-7440 EXTENSION 210 for authorization or visit [www.extech.com](http://www.extech.com) for more 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 line (781) 890-7440**

Technical support: Extension 200; E-mail: [support@extech.com](mailto:support@extech.com)

Repair & Returns: Extension 210; E-mail: [repair@extech.com](mailto:repair@extech.com)

### **Product specifications subject to change without notice**

For the latest version of this User's Guide, Software updates, and other up-to-the-minute product information, visit our website: [www.extech.com](http://www.extech.com)  
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