EXTECH®
INSTRUMENTS
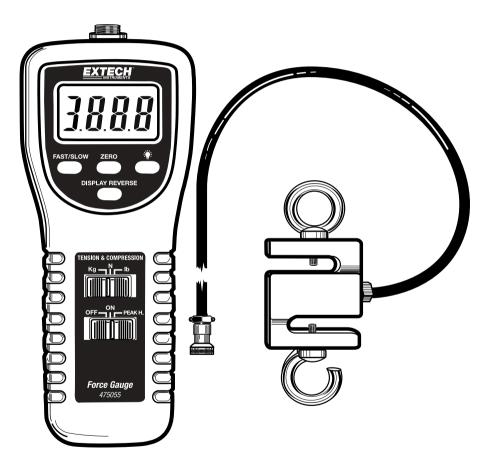
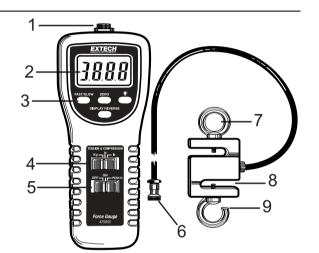## Models 475055
Digital Force Gauge

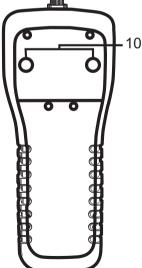Additional User Manual Translations available at www.extech.com

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
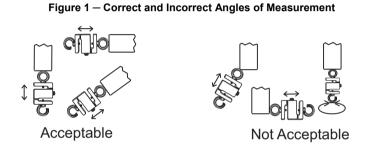10. Mounting holes (60mm apart)

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

Acceptable   Not Acceptable

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.

Remove the sensor hook/loop from the "S" load cell for a PUSH or compression measurement.

Over Range 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.
Remove the sensor hook/loop from the "S" load cell for a PUSH or compression 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.

PC Interface

PC interface port
For streaming of data from the meter to the PC via the RS232 port, the optional 407001-USB cable is required. Contact Extech for the Software protocol for the data stream (Support@Extech.com).

Maintenance

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

Range	220 lbs, 100kg, 980 Newtons
Accuracy (23ºC)	±(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	0°C to 50°C (32 °F to 122 °F)
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: 450g (1 lb)
	Sensor: 380g (0.84 lbs)
Dimensions	Meter: 215 x 90 x 45 mm (8.5 x 3.5 x 1.8")
	Sensor with 2 hooks: 145 x 51 x 15 mm (5.7 x 2.0 x 0.6")
	Cable length: 2m (6.5 ft.)
Test Stand Mounting Holes	Located on rear (thread size: M5 x 0.8mm ISO); mounting screws included. Holes are 60mm apart