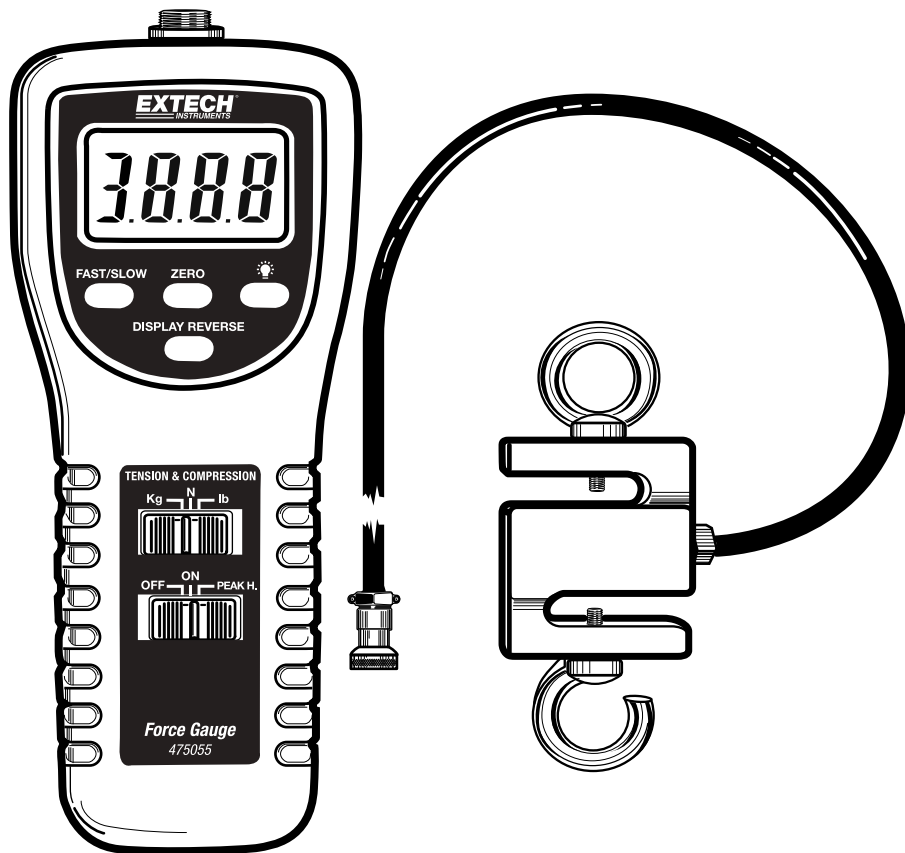


## **Models 475055** **Digital Force Gauge**

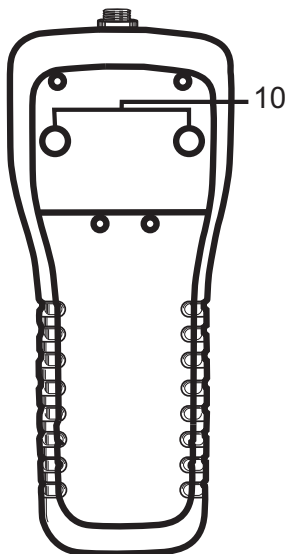
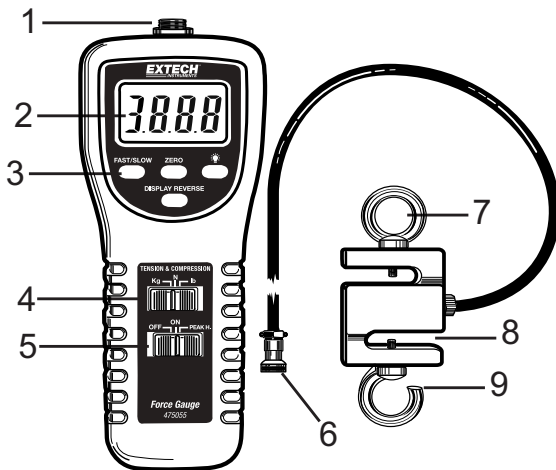


## Introduction

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 (60mm apart)



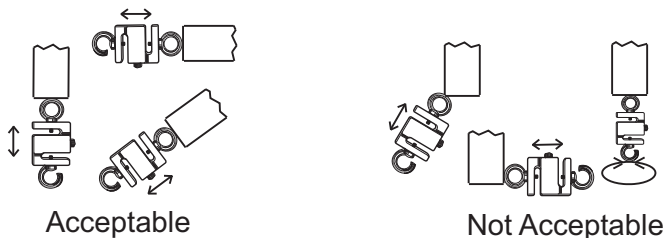
## Operation

### 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**



### 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***

---

The 475055 is equipped with a 3.5mm phone jack (meter bottom) for connection to a PC for data acquisition purposes. For streaming of data to a PC via the RS232 Output jack, the optional 407001-USB kit (RS232 to USB cable and driver CD) along with the 407001 software (available free at [www.extech.com](http://www.extech.com)) are required.

## 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 (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: 5.7 x 2.0 x 0.6" (145 x 51 x 15 mm)
	Cable length: 6.5 ft. (2m)
Test Stand Mounting Holes	Located on rear (thread size: M5 x 0.8mm ISO); mounting screws included. Holes are 60mm apart

## Warranty

---

*FLIR Systems, Inc. warrants this Extech Instruments brand device 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 the website [www.extech.com](http://www.extech.com) for contact information. A Return Authorization (RA) number must be issued before any product is returned. 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. FLIR Systems, Inc. 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. FLIR'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.*

## Calibration, Repair, and Customer Care Services

---

FLIR Systems, Inc. offers repair and calibration services for the Extech Instruments products we sell. NIST certification for most products is also provided. Call the Customer Service Department for information on calibration services available for this product. Annual calibrations should be performed to verify meter performance and accuracy. Technical support and general customer service is also provided, refer to the contact information provided below.

**Support Lines: U.S. (877) 439-8324; International: +1 (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 are subject to change without notice

**Please visit our website for the most up-to-date information**

**[www.extech.com](http://www.extech.com)**

FLIR Commercial Systems, Inc., 9 Townsend West, Nashua, NH 03063 USA

**ISO 9001 Certified**

**Copyright © 2014 FLIR Systems, Inc.**

All rights reserved including the right of reproduction in whole or in part in any form

**[www.extech.com](http://www.extech.com)**

## Garantie

---

*FLIR Systems, Inc. garantit que cet appareil Extech Instruments est exempt de défauts matériaux et de fabrication pendant un an à partir de la date d'envoi (une garantie limitée de six mois s'applique aux capteurs et aux câbles). Si le renvoi de l'appareil pour réparation devient nécessaire durant ou après la période de garantie, contactez le service client pour autorisation. Pour obtenir les coordonnées, visitez le site Web suivant : [www.extech.com](http://www.extech.com). Un numéro d'autorisation de retour (AR) doit être délivré avant tout retour de produit. L'expéditeur prend à sa charge les frais d'expédition, le fret, l'assurance et l'emballage correct de l'appareil afin de prévenir toute détérioration durant le transport. Cette garantie ne s'applique pas aux dommages imputables à l'utilisateur, tels que l'usage impropre ou abusif, un mauvais câblage, une utilisation non conforme aux spécifications, un entretien ou une réparation incorrecte, ou toute modification non autorisée. FLIR Systems, Inc. déclinera spécifiquement toute garantie ou qualité marchande ou aptitude à l'emploi prévu, et ne sera en aucun cas tenu responsable pour tout dommage consécutif, direct, indirect ou accidentel. La responsabilité totale de FLIR est limitée à la réparation ou au remplacement du produit. La garantie définie ci-dessus est inclusive et aucune autre garantie, écrite ou orale, n'est exprimée ou implicite.*

## Calibrage, réparation et services après-vente

---

FLIR Systems, Inc. offre des services de calibrage et de réparation pour les produits Extech Instruments que nous commercialisons. Nous fournissons également une certification NIST pour la plupart des produits. Contactez notre service client pour toute information sur les services de calibrage disponibles pour ce produit. Un calibrage doit être effectué chaque année pour vérifier les performances et la précision du mètre. Nous offrons également une assistance technique et un service à la clientèle. Veuillez vous reporter aux coordonnées fournies ci-dessous.

**Lignes d'assistance: États-Unis (877) 439-8324; international: +1 (603) 324-7800**

Service d'assistance technique : Option 3 ; E-mail : [support@extech.com](mailto:support@extech.com)

Réparations et retours : Option 4 ; E-mail : [repair@extech.com](mailto:repair@extech.com)

Les spécifications produit sont sujettes à modifications sans préavis.

**Pour les toutes dernières informations, veuillez visiter notre site Web.**

**[www.extech.com](http://www.extech.com)**

FLIR Commercial Systems, Inc., 9 Townsend West, Nashua, NH 03063 USA

**Certifié ISO 9001**

**Copyright © 2014 FLIR Systems, Inc.**

Tous droits réservés, y compris la reproduction partielle ou totale sous quelque forme que ce soit.

**[www.extech.com](http://www.extech.com)**

## Garantía

---

*FLIR Systems, Inc., garantiza este dispositivo marca Extech Instruments para estar libre de defectos en partes o mano de obra durante un año a partir de la fecha de embarque (se aplica una garantía limitada de seis meses para cables y sensores). Si fuera necesario regresar el instrumento para servicio durante o después del periodo de garantía, llame al Departamento de Servicio al Cliente para obtener autorización. Visite [www.extech.com](http://www.extech.com) para Información de contacto. Se debe expedir un número de Autorización de Devolución (AD) antes de regresar cualquier producto. El remitente es responsable de los gastos de embarque, flete, seguro y empaque apropiado para prevenir daños en tránsito. Esta garantía no se aplica a defectos resultantes de las acciones del usuario como el mal uso, alambrado equivocado, operación fuera de las especificaciones, mantenimiento o reparación inadecuada o modificación no autorizada. FLIR Systems, Inc., rechaza específicamente cualesquier garantías implícitas o factibilidad de comercialización o idoneidad para cualquier propósito determinado y no será responsable por cualesquier daños directos, indirectos, incidentales o consecuentes. La responsabilidad total de FLIR está limitada a la reparación o reemplazo del producto. La garantía precedente es inclusiva y no hay otra garantía ya sea escrita u oral, expresa o implícita.*

## Servicios de calibración, reparación y atención a clientes

---

**FLIR Systems, Inc., ofrece servicios de reparación y calibración** para los productos que vendemos de Extech Instruments. Además ofrecemos certificación NIST para la mayoría de los productos. Llame al Departamento de Servicio al Cliente para solicitar información de calibración para este producto. Para verificar el funcionamiento y precisión se debe realizar la calibración anual. Además se provee Soporte Técnico y servicios generales al cliente, consulte la información de contacto en seguida.

**Líneas de soporte: EE.UU. (877) 439-8324; Internacional: +1 (603) 324-7800**

Soporte Técnico Opción 3; correo electrónico: [support@extech.com](mailto:support@extech.com)

Reparación / Devoluciones: Opción 4; correo electrónico: [repair@extech.com](mailto:repair@extech.com)

Las especificaciones del producto están sujetas a cambios sin aviso

**Por favor visite nuestra página en Internet para la información más actualizada**

**[www.extech.com](http://www.extech.com)**

FLIR Commercial Systems, Inc., 9 Townsend West, Nashua, NH 03063 USA

***Certificado ISO 9001***

**Copyright © 2014 FLIR Systems, Inc.**

Reservados todos los derechos, incluyendo el derecho de reproducción total o parcial en cualquier medio

**[www.extech.com](http://www.extech.com)**