

# DIGITAL FORCE GAUGE (LI-16-B)

The LI-16-B has been developed for quick & accurate measurement of tensile & compression force in material testing application. It is also suitable for accurate measurement of breaking strength of yarn or to find out spring rate of springs. The instrument is portable and can be easily held in hands during observations. A mounting block is also provided at back, which can be used to integrate the instrument in any test setup.

The Load Sensor can either be housed in the instrument or connected externally. The force experienced by test sample is converted into the equivalent electrical signal and is displayed on the digital display in terms of 'Kg, Grams, Newton or Lbs'. The instrument has a facility of peak force memory. It memorizes maximum value of force reached during the test.

## POWER SUPPLY

The LI-16-B operates on rechargeable 3.7V Li-ion battery.

## SAFETY PRECAUTIONS

Always ensure that force more than rated capacity is never applied on Load cell of the instrument. This will damage the load cell permanently. Above 95% of the rated load the LCD Display starts displaying 'Overload'.

The shelf life of batteries is maximum 3-4 weeks, if stored in fully charged condition. Hence batteries should be charged every month, even if the instrument not in use.

## OPERATING CONTROLS

### 1. ON/OFF SWITCH

This switch controls the main supply to the instrument. It is located on back of the main housing.

### 2. LCD DISPLAY

An 8-Character Alpha-Numeric Display is used for indication

### 3. KEYBOARD

The Keyboard has 4 soft keys, the function of which is defined below:

TARE Key:                 Resets the initial reading to zero.

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## OPERATING MANUAL

- UNIT Key: Changes the measurement unit. The device supports the following units Kg, lbs, N (Newton).
- PEAK Key: Shows the Peak force measured during the current test.
- PEAK CLEAR Key: Resets the peak value to the current force.

### 4. LO-BATTERY INDICATOR

A Red LED on the front panel indicates that the battery is in discharged condition.

**Note: The built-in batteries can be charged even with Power Switch in OFF position. The instrument can still be used even when the battery is being charged.**

### 5. BATTERY CHARGING SOCKET

A Battery charging socket is provided at the bottom of the panel. It is a standard USB-C type charger commonly used for charging of android smart phones.

### 6. OTHER PARTS

Separate clamps & hooks are provided along with the instrument. Fit either of these to the instrument based on your requirements. These fixtures are directly connected to Load Sensor housed in the instrument. We can provide suitable fixtures as per your requirement.

## OPERATING PROCEDURE

1. Turn on the instrument with ON / OFF switch provided on bottom panel.
2. The device boots in 1 sec while showing : 'LI-16-B'
3. After boot-up, it immediately shows the current force, for ex: F 0.012 Kg
4. Set the load reading to Zero by pressing TARE key.
5. Select the desired unit by pressing the UNIT Key
6. Connect suitable fixture on the threaded adapter at the top of the instrument.
7. Load the test sample and read the on - line force. After the required test has been completed, unload the test sample.
8. Push 'F/PEAK' key to display the maximum force reached during the test.

## OPERATING MANUAL

9. Before carrying out the next test, press 'PEAK CLEAR' key so that the peak force for previous test is reset. The instrument will go back to displaying the current force and is ready for the next test.
10. Because of self-weight of the sensor, the instrument reading varies by change in position of the instrument. In order to get the perfect stationary reading, instrument should be fixed to a stand (A mounting block is provided at bottom part of the instrument), otherwise slight deviation in reading is expected when it is hold in hand.

### BATTERY CHARGING & MONITORING INSTRUCTIONS

The instrument works on 3.7V DC rechargeable Li-Ion batteries housed in the instrument itself. If after putting ON the instrument the LO BAT indicator comes on, then first put the batteries for charging. For charging purposes a wall mount battery charger is provided with the instrument. Put the charger on mains supply (230V AC, 50 Hz) and charging cable jack to socket on bottom panel of the instrument. The instrument can be used even when the battery is being charged. There is another RED LED which glows when the battery is being charged. Once fully charged this will turn GREEN.

It will take roughly 2 hours for the battery to charge fully. Once the charging process is over, the instrument can be put on normal operation. The fully charged batteries can be used for continuous 8 hours of operation.

### MAINTENANCE

The LI-16-B by itself does not need any maintenance. The Load Cell provided with it however, needs to be calibrated as per the duration specified in the calibration certificate. Typically calibration certificates are valid for one year.

The Li-Ion rechargeable batteries have a 1000 charge-discharge cycles. If charged and used every day once, it will be required to be changed every 3 years.

### GUARANTEE

The LI-16-P is sold with a guarantee for a period of 12 months. This covers free repairs for any manufacturing defects. The guarantee is void in case of physical damage or attempted repairs from the customer end. The instrument must be sent to our facility to for repair works.

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## OPERATING MANUAL

### SPECIFICATIONS

Model:	LI-16-B
Display:	8-Character Alphanumeric Backlit LCD
Control Keys:	TARE, UNIT, FORCE/PEAK, PEAK CLEAR
Power Supply:	Built-in 3.7V Rechargeable Li-Ion Battery
Battery Charger:	Wall Mounted 5V, 1A USB-C Charger
Size:	84 mm * 150 mm * 30 mm (L *W *H)
Weight:	350 gms approx.
Accuracy:	+/- 1% FSD
Resolution:	16-Bit

### MODEL VARIATIONS

#### LI-16-B-L

This variation consists of logging functionality. It comes with an in-built SD card which can store the force value along with the time stamp. All the other specifications are same as the LI-16-B such as battery charging, force resolution etc. The only difference is that it comes with a different Keyboard which has functionality of starting and stopping logging function via START, STOP key respectively instead of PEAK and PEAK CLEAR Keys.

### CONTACT INFORMATION

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