

DIGITAL LOAD AND DISPLACEMENT INDICATOR

Features

- Load & Displacement Indication for Universal Testing Machines
- Large alphanumeric LCD display with backlight
- Direct display of instantaneous Pace rate
- Sample Area digitally settable
- Peak Stress displayed on peak detection
- Peak/Normal mode selectable
- Buzzer alarm for peak detection in Peak Mode
- Relay output for over load and over carry detection
- Digital tare provided
- Non-volatile memory for saving configuration
- Configuration Lock by Password
- Aesthetically designed front panel with membrane switches



Specifications

- Display : 2 Line alphanumeric display with back light illumination
- Range : Load - 0.1KN to 3500.0KN
Displacement – 0.001 to 9999.9 mm
Set Load (Limit) - 0.1KN to 3500.0KN
Set Displacement – 0 to 5000.0 mm
Sample Area - 0.1cm² to 600.00cm²
Stress – 1 to 5000 KN/cm²
- Accuracy : $\pm 0.1\%$ of Full Scale ± 1 digit
- Relay Logic : ON when Actual Load \geq Set Load Limit OR Displacement \geq Set Displacement
- Normal/Peak Mode : Selectable from front panel with indication on LCD
- Peak Detection : Buzzer alarm re-settable from front Reset switch
- Tare Facility (Zero) : Digital Tare for Load and Displacement using front panel Tare switch
- Memory : Non-volatile EEPROM to save settings
- Configuration Lock : Digital Password lock to prevent alteration of Calibration.
- Supply : 220V AC $\pm 15\%$ @ 50/60Hz
- Dimensions : Front Panel: 96mm x 192mm Cut Out : 92mm x 188mm

Instructions for usage and configuration

The front panel has 6 seven switches, namely:

<i>Switch</i>	<i>Function</i>	<i>Marking on switch</i>
1.	Increment	
2.	Decrement	
3.	Mode	MODE
4.	Reset	RESET
5.	Peak/Normal	PEAK/NORMAL
6.	Tare	TARE

- Connect 220V AC supply including earth to the 3 terminals marked on the rear panel as L, N, E.
- Connect the wires of the sensor as marked on the rear terminal strip.
- For Load Cell, connect the four wires as shown on the rear terminal strip.
- For the Displacement Sensor, connect the four wires as shown on the rear terminal strip.

Configuration Settings

Sample Area

- After previous setting, the LCD display shows “**SAMPLE AREA**” in the upper line and the current set area of sample on the lower line.
- This refers to the area of sample under test.
- Use the Increment and Decrement switches to make changes. The range is from 0.01-300.00cm².
- After changes have been made, press Mode switch to save current setting and go to next setting

Password Entry for changing configuration

- After previous setting, the LCD display shows “**PASSWORD**” in the upper line and “0000” on the lower line.
- This refers to the password to be entered to allow changes to be made to the Overload limit and Calibration factor. If entered correctly, it will allow changes to the following configuration settings.
- Use the Increment and Decrement switches to make changes. The range is from 1-9999
- After changes have been made, press Mode switch to save current setting and go to next setting

Displacement Cutoff Limit

- After previous setting, the LCD display shows “**DISTANCE SET LIMIT**” in the upper line and the current set cutoff limit on the lower line.
- This refers to the Displacement value at which the relay will switch on.
- Use the Increment and Decrement switches to make changes.
- The range is from 0.001-5000.0 mm. (The displayed resolution depends on the resolution selected for displayed Displacement)
- After changes have been made, press Mode switch to save current setting and go to next setting

Load Cutoff Limit

- After previous setting, the LCD display shows “**LOAD SET LIMIT**” in the upper line and the current set cutoff limit on the lower line.
- This refers to the Load value at which the relay will switch on.
- Use the Increment and Decrement switches to make changes.
- The range is from 0.1-3500.0 KN.
- After changes have been made, press Mode switch to save current setting and go to next setting

Load Calibration Factor

- After previous setting, the LCD display shows “**LOAD CALIBRATION FACTOR**” in the upper line and the current calibration factor on the lower line.
- This represents the maximum load that the sensor being used is specified for i.e. the load value corresponding to 20mV input from the sensor.
- Load display now shows linear change from 0 to Calibration factor value for input from 0-20mV.
- Use Increment and Decrement keys to change this value.
- The range of CAL is 0.1 to 3500.0
- After changes have been made, press Mode switch to save current setting and go to next setting

Load Resolution selection

- After previous setting, the LCD display shows “**LOAD RESOLUTION**” in the upper line and the current resolution on the line.
- This refers to the whether the displayed Load Value is on 0.1KN or 1KN least count.
- Use the Increment and Decrement switches to make changes to toggle between 000.0 or 0000.
- After changes have been made, press Mode switch to save current setting and go to next setting

Distance Calibration Factor

- After previous setting, the LCD display shows “**DISTANCE PER PULSE**” in the upper line and the current calibration factor on the lower line.
- This represents the distance moved for each pulse from the rotary encoder.
- Use Increment and Decrement keys to change this value.
- The range is 0.001 to 50.000
- After changes have been made, press Mode switch to save current setting and go to next setting

Distance Resolution selection

- After previous setting, the LCD display shows “**DISTANCE RESOLUTION**” in the upper line and the current resolution on the line.
- This refers to the whether the displayed resolution of Displacement to be 0.1/0.01/0.001
- Use the Increment and Decrement switches to toggle between 000.0 or 000.00 or 00.000
- After changes have been made, press Mode switch to save current setting and go to next setting

Load Unit selection

- After previous setting, LCD display shows “**LOAD UNIT**” in upper line and current unit on lower line.
- This refers to the whether the displayed Load Unit to be ‘KG’ or ‘KN’.
- Use the Increment and Decrement switches to make changes to toggle between KG and KN.
- After changes have been made, press Mode switch to save current setting and go to next setting

Working of the Instrument

- Ensure that all wiring of Mains 220V AC, relay contacts and the sensor has been done correctly.
- The lower display indicates “**Peak**” or “**Normal**” on the bottom right corner. This represents the mode in which the unit is being used.
- Use the switch marked Peak/Normal to select the desired mode.
 - **Peak Mode:** Whenever Peak Load is sensed, the buzzer is switched on. Display freezes at Peak load value. In order to de-freeze load display and to switch off buzzer, press the Reset switch.
 - **Normal Mode:** The buzzer is de-activated and instantaneous load value is displayed.
- The value displayed in 5 digits on the left corner of the top line is the Load Value in KN/KG.
- The value displayed in 5 digits on the right corner of the top line is the Displacement value in mm.
- The value displayed on the bottom left corner is the instantaneous Pace Rate.
- If at no load condition, the value shows not Zero, this represents the dead weight of the machine.
- Press the switch marked “**TARE**” to remove this initial offset for both load and displacement.
- Now place the sample to be tested and start the test.
- The Pace rate (bottom left corner) starts increasing.
- If the unit is in Peak Mode, when the sample breaks, a buzzer is sounded to indicate that a Peak has been detected and the Load and Displacement Value freeze at this Peak Load.
- The lower line of the display indicates the Peak Stress at this point in KN/cm^2 or KG/cm^2 .
- Press Reset switch to de-freeze the Load value display and also de-activate the buzzer.
- After the tests have been conducted, switch off the unit.