Point Load Tester

INTRODUCTION

The HS-4157 Point Load Tester is a high-resolution digital pressure gauge that measures with high accuracy. Easy to install and critical pressure measurement is designed to be able to make a high measurement in the field. Two standard AA alkaline batteries can run continuously for more than 10 months.

1. BEFORE SET UP

Please read all instructions carefully before setting up the display. If there is an error in the installation, the indicator may be permanently damaged. The installation should be carried out by qualified personnel who are familiar with the standards for safety practices and pressure systems.

2. HOW TO USE MENU

Press the "ON" button once to turn the device on. To switch off the device, hold down the "ON" button for 3 seconds.

2.1. Uni X (Units)

The user can view the instrument's measurement with 5 different units. The "SET" button must be pressed to change the unit. After viewing "Uni X" on the screen, it can be easily changed with the up arrow button. All units are given below together with unit numbers:

Uni 0: bar

Uni 1: kg

Uni 2: tone

Uni 3: Newton

Uni 4: kN

2.2. FL XX (Filter)

The filter number is the number of samples that the device has received at intervals of 100 ms, and the device will display the measurement result by taking the average of these samples. For example, select "FL-02" as the filter number. The device will take 2 measurements in 100 ms interval and take the average of them and calculate the measurement result. The filter number can be selected from 1-99.

NOTE: If "FL 00" is selected as the filter number, the device can not perform any filtering and measurement. The result starts to flash at a fixed number. So this device should not be operated with "FL 00" option.

2.3. OFF XX (Automatic Shutdown)

This setting is used to set the time for automatic shutdown. An option of between "0-30" minutes can be selected. If "0" minutes is selected, the device will not turn off automatically.

2.4. CAL XX (Calibration)

This setting is used to calibrate. There are two types of calibration in this device. One for the bar unit and the other for the other units (kg, tone, kN and N)

2.4.1. Calibration for bar unit

When calibrating the bar unit, first select "CAL 05" to set the full scale value. This setting is 350 bar for the bar unit. Then "CAL 06" should be selected for calibration of the device. The CAL 06 option has calibration points in it. Here, the device will ask for 6 points between zero and full scale

(including 0).

First the display will show "0 000" calibration point. The system should not have loads at this point. Press the "zero" button and continue. After this zero point the device will show 20% of the full scale. In this step, a reliable load cell must be applied to the device by measuring the pressure load cell that the user requests. When the correct pressure is reached, press the "zero" button to continue. This procedure will be repeated 6 times in total. The pressure points are as follows:

"1 0XX"… %20 "2 0XX"… %40 "3 0XX"… %60 "4 0XX"… %80

"5 0XX"… %100 (full scale)

After pressing the zero button on the "5 XXX" digit, the instrument will display the calibration coefficient and the calibration will end.

2.4.2. Calibration for other unit

For other units, the calibration process is similar to the calibration process for the "bar" unit. For this calibration, the unit that is required first is to be selected. Once the unit has been selected, the

"CAL15" option must be selected to set the exact scale. Then "CAL16" should be selected. The CAL16 menu contains calibration points. You will see a total of 6 calibration points just like on the CAL06 menu. After this point, all operations are the same as the bar calibration. After the calibration is finished, set "CAL 00" to zero of the device and exit from

the menu.

NOTE: If the device exceeds the full scale value, the result will start flashing.

It is enough to calibrate a single unit for all other units except Bar unit. The device will translate this calibration for other units.

3. BUTTONS

ZERO: When this button is pressed, the device output is reset. This button has two different functions as "Up-arrow" and "Zero". The up-arrow function is used when changing options in the menu. The "Zero" function is only required during calibration. "Unloaded state" is required when calibrating. When the unloaded state is defined for the device, the user must apply pressure slowly to a load cell to find the nearest point to the zero point. At this pressure point the user presses the "zero" button of both the device and the load cell and defines this pressure point as zero for both. This is some kind of fine tuning.

Unloaded state: No pressure load on the device.

PEAK: When this button is pressed, the device will show the maximum pressure point at that time. For example; Assume that we make a pressure measurement as in Figure 1 and press the peak button at different times.

First time interval (A-B): The measurement results are increasing in the first time interval. So, whichever point in this region is pressed on the peak button, our maximum measurement will be the last measurement we made. However, the result at point B has begun to decrease.

Second time interval (B-C): Starting from point B until the point at which the pressure has passed, the pressure value at the maximum measured value B in this range will be.

Third time interval (C-D): The area between C-D is the same as the whole procedure A-B. By the way, our maximum measurement will be the last measurement we made.

Fourth time interval (D-E): The pressure will remain at the maximum measured value D at the pressure point D until the last time.

Figure 1
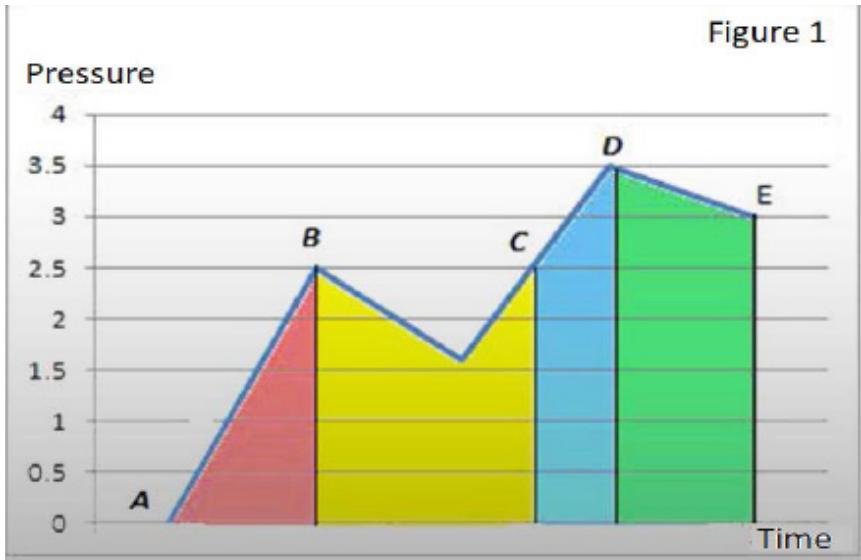
ON/SET: This button is used to switch the device ON and OFF and also it is used to change the menu.

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