DIGITAL FORCE GAUGE

MANUAL

1.Overview

Digital display push-pull force meter is a small, simple, multi-functional and high-precision push and pull test instrument, which is widely used in electronic appliances, construction hardware, light industrial textiles, auto parts, lighters and other ignition devices, fire equipment, pen making Push-pull load, insertion force test, destructive test of locks, fishing gear, chemical industry, power machinery, scientific research institutions and other industries. The digital display has high resolution, fast sampling speed, and easy to use. It is a new generation of high-efficiency and high-precision push-pull test instrument.

2. Features

2.1 High precision and high resolution;

2.2 Three measurement mode for selection（Real time、Peak、First peak）;

2.3 N(Newton),Kg (Kilogram) , Lb (Pound) and Oz(Ounce) four units for selection and conversion.

2.4 Setting function of gravity acceleration----User can input at your option the accurate value of gravity acceleration at the using place so as to make the testing and unit conversion be more accurate.

2.5 Upper and lower limits can be set for statistic analysis. The buzzer will alarm if exceeding the limits.

2.6 Minimum force value shielding function: the data within the set minimum range can be shielded;

2.7 Automatic shutdown function: The automatic shutdown time can be set, and the automatic shutdown can achieve a point saving effect when there is no operation for a long time.

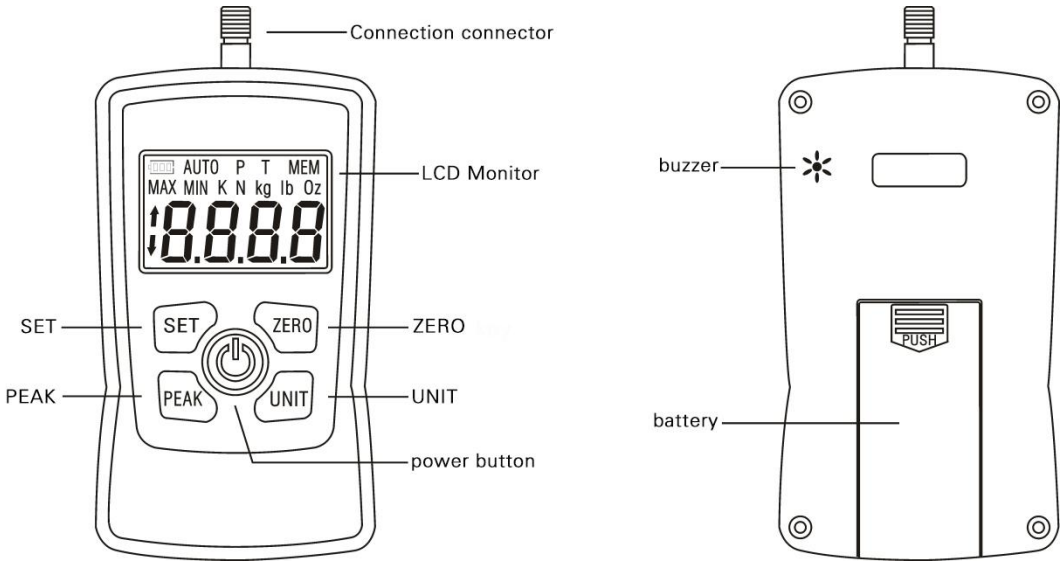
2.8 Power: 2pcs AAA battery (1.5V*2)

2.9 Automatic backlight, buzzer alarm function;

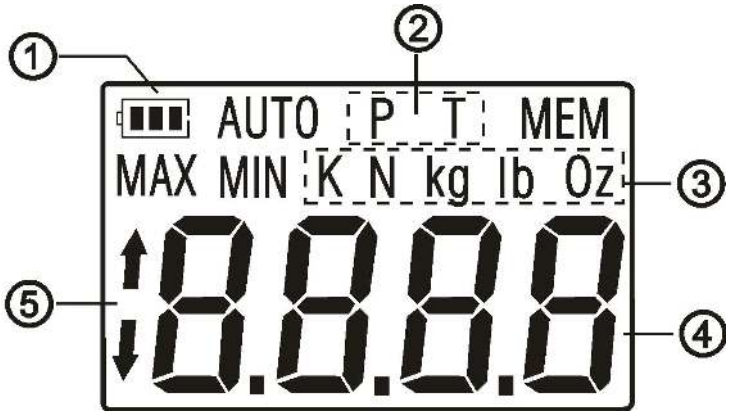
3. Specifications

Model	2	3	5	10	20	30	50	100	200	300	500
Maximum load value	2N	3N	5N	10N	20N	30N	50N	100N	200N	300N	500N
	0.2kg	0.3kg	0.5kg	1kg	2kg	3kg	5kg	10kg	20kg	30kg	50kg
	0.45Lb	0.65Lb	1.1Lb	2.2Lb	4.5Lb	6.5Lb	11Lb	22Lb	45Lb	65Lb	110Lb
Load division value	0.001N			0.01N				0.1N			
	0.001kg			0.001kg				0.01kg			
	0.001Lb			0.001Lb				0.01Lb			
Sensor structure	Inner sensor										
Accuracy	±1%										
Power	2 AAA batteries 1.5V										
Working temperature	5℃～35℃										
Transport temperature	-10℃～60℃										
Relative humidity	15%～80%RH										
Working conditions	No vibration source around and no corrosive environment.										
Dimensions	124*60*31(mm)										
Net weight	~0.4Kg										

4. Shape and structure



5. Display



① battery power;

② The screen simultaneously displays "P" and "T" as the first peak mode, indicating that the first peak value measured within a period of time is recorded; the screen displays a single "P" as the peak mode, indicating that the measured period of time is recorded Maximum force value; press "PEAK" key to switch between peak and first peak mode freely.

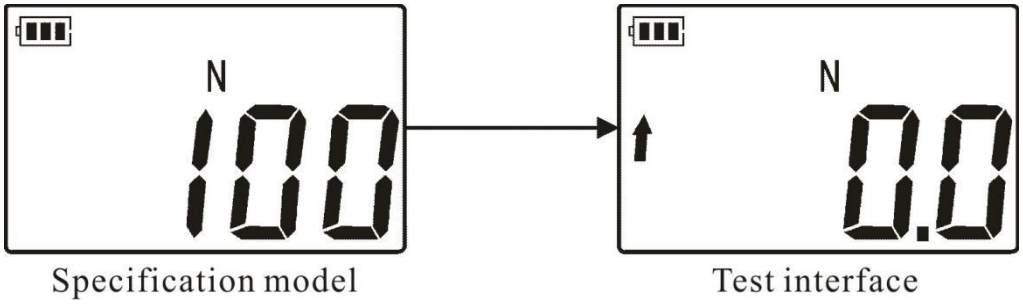
③ unit display;

④measurement force value display;

⑤Push-pull force: the upper arrow shows the pulling force, and the lower arrow shows the pushing force.

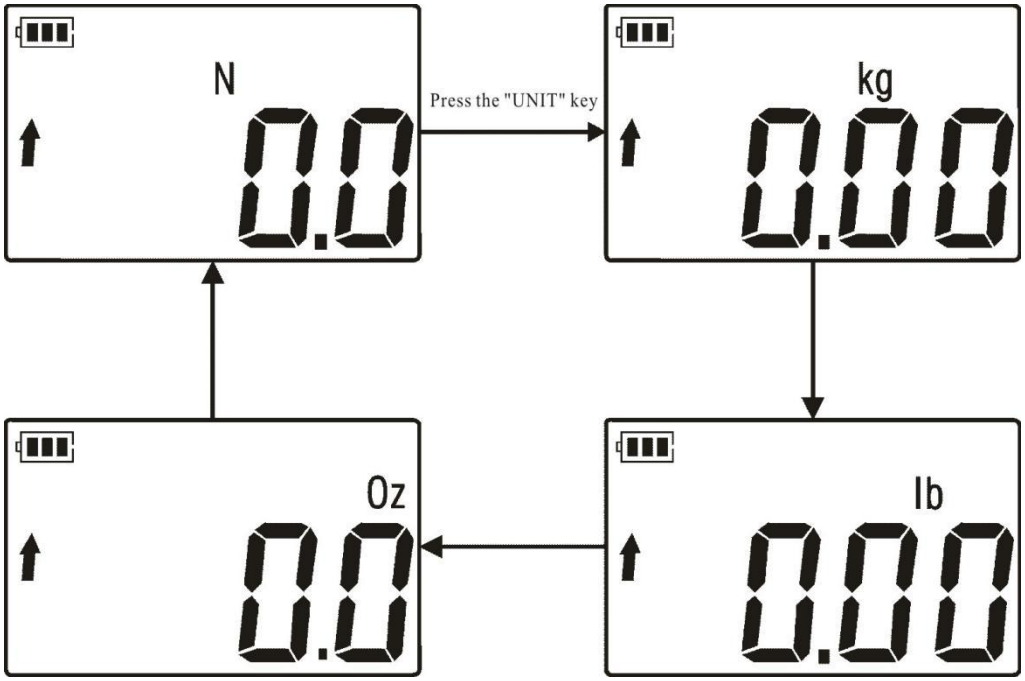
6. Operating Instructions

6.1 Boot display



6.2 Unit switching

Press the "UNIT" key to select the desired measurement unit.



6.3 Zero value reset

Press the "ZERO" key, the measured value on the screen will be cleared.

6.4 Measurement mode conversion instructions

Press the "PEAK" key to select the desired measurement mode.

6.4.1 Real-time mode

Turn on the measurement interface, the system defaults to real-time measurement mode, and no mode is displayed on the screen. In this mode, the displayed measured value will change along with the load.

6.4.2 Peak mode

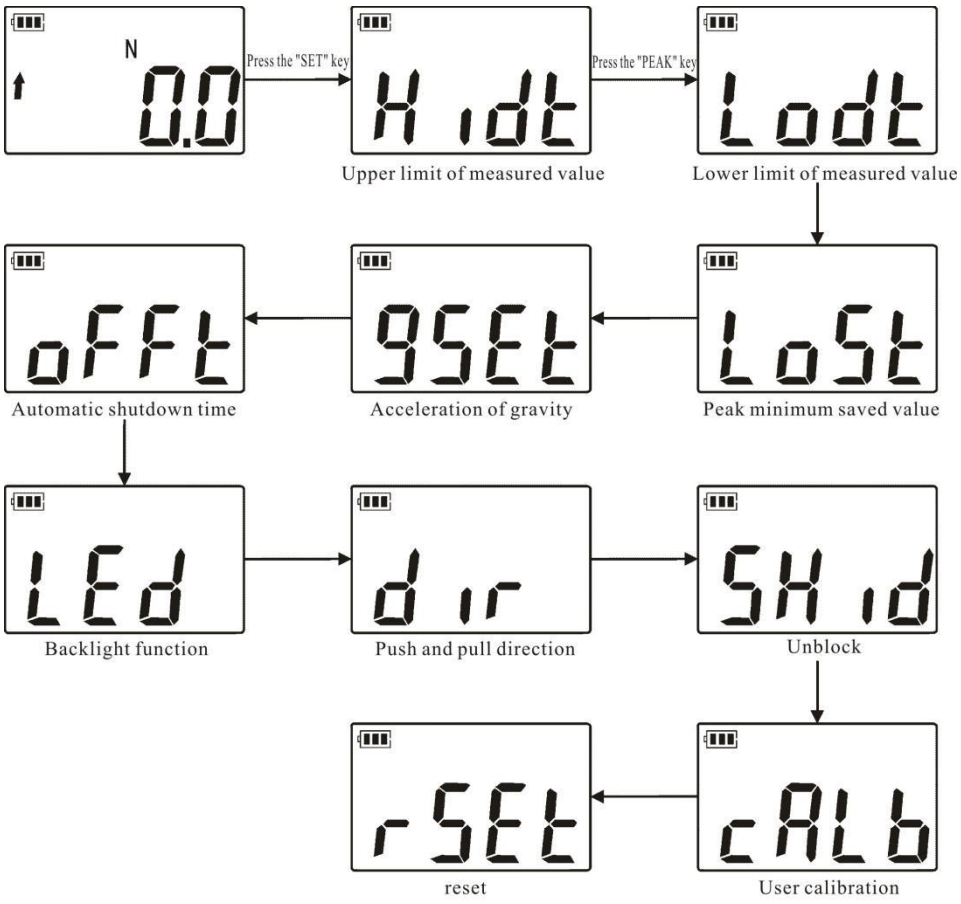
Press the "PEAK" key, and the word "P" displayed on the screen is the peak mode. In this mode, the displayed measurement value is the maximum value. (When measuring again, if the measured value is lower than the previous maximum value, the displayed measured value will not change; if the measured value is higher than the previous maximum value, the displayed measured value will update and change.)

6.4.3 First peak mode

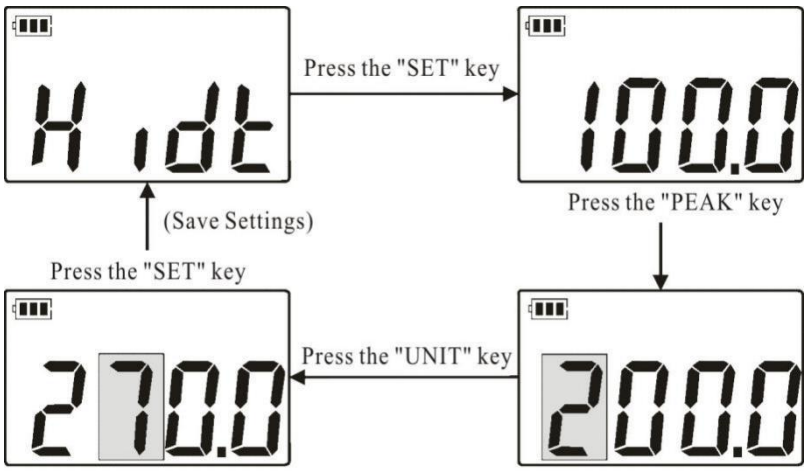
Press the "PEAK" key, and the words "P" and "T" are displayed on the screen at the same time is the first peak mode. In this mode, the instrument only displays the first peak value measured in a period of time, and the measured value will not be displayed again. If there is a change, press the "ZERO" key to clear it before testing again.

7.System settings

Press the "SET" key to enter the system setting interface; then press the "PEAK" key to scroll down to select the setting item or press the "UNIT" key to scroll up to select the setting item, confirm to press the "SET" key, exit and press the "ZERO" key.



7.1 Upper limit of measured value: Set the upper limit of the measured value. The upper limit is the full range by default. The measured value is higher than the upper limit and is out of range. The screen displays "MAX" and the buzzer alarm sounds for a long time. As shown below:



7.2 Measured value lower limit: Set the measured value lower limit. The lower limit value is 0 by default. If the measured value is lower than the lower limit, it is out of range. The screen displays "MIN" and the buzzer sounds long. The user can freely set the lower limit value, select this menu to set the value, the operation steps are the same as the upper limit value.

7.3 Peak minimum saved value: minimum peak saved value. In peak mode, when the current value is less than this value, the peak value will not be saved and displayed. The user can freely set the minimum saved value, select this menu to set the value, the operation steps are the same as above.

7.4 Gravity acceleration: The user can set the gravity acceleration value according to the location of the area of use. The default value is 9.800.

7.5 Automatic shutdown time: users can freely set the shutdown time of 0-15 minutes, select this menu and press "SET" key to enter the shutdown time setting. Press the "PEAK" or "UNIT" button to set the shutdown time value, press the "SET" button to save the settings, the system default automatic shutdown time is 10 minutes.

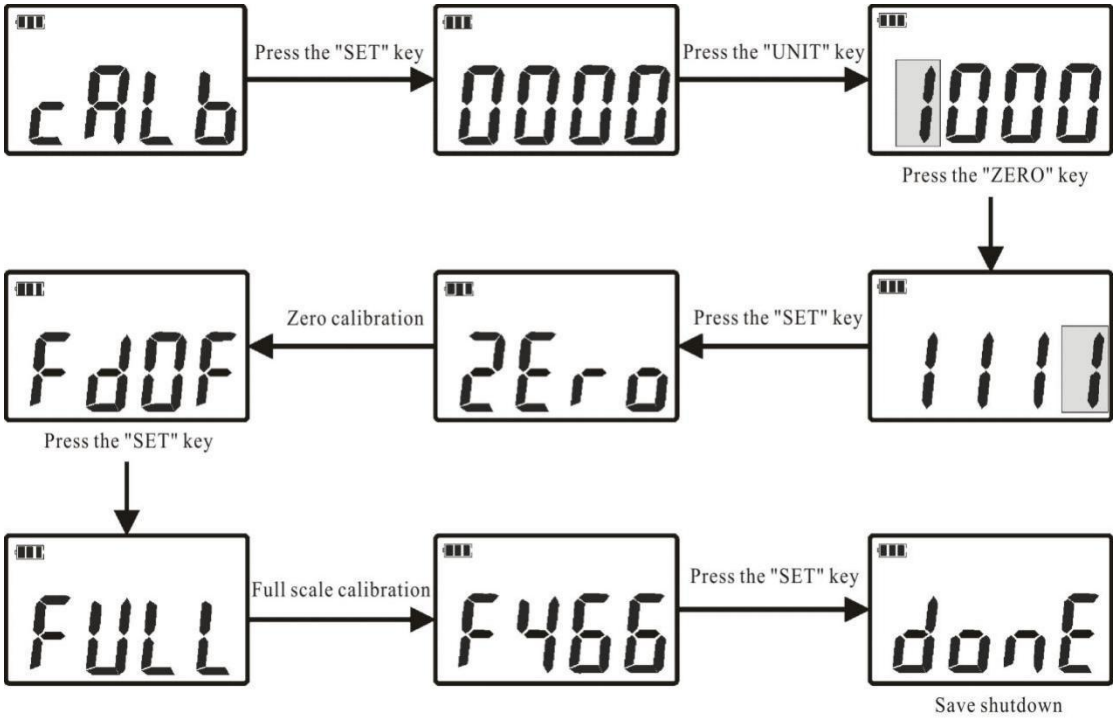
7.6 Backlight function: This function has three setting modes, AUTO is automatic mode, that is, the instrument automatically turns off the backlight when there is no operation; OPEN is the normally open mode, that is, the instrument is always in the backlight on state; CLOS is the normally closed mode, that is, the instrument is always in the backlight

Disabled. Select this menu and press “SET” to enter the mode setting, press “UNIT” to switch the mode freely, and then press “SET” to save the setting.

7.7 Push-pull direction setting: used to switch the display direction of the push-pull force gauge.

7.8 Cancel the shielding: shield the data display below 0.5% of full scale, "YES" is shielding, "NO" is not shielding, the system default is "YES". The user can freely set this item, press "SET" to enter the setting, and then press "UNIT" to switch YES or NO freely, and press "SET" to save the setting after setting.

7.9 User calibration: This setting item is the instrument calibration function. Select this menu and press the "SET" key to enter the password "1111" to enter the calibration interface. First display “ZERO” to start zero-scale calibration and calibration, press “SET” key after calibration, display “FULL” to start full-scale calibration and calibration, press “SET” key to save calibration after calibration, and the instrument will automatically shut down. As shown below:



7.10 Restore factory settings: This setting is convenient for users to set up confusion, and can restore the factory settings with one key. Enter the system menu, select this setting and press the "SET" key to restore the factory settings, the instrument automatically shuts down. If you continue to use the instrument and press the power button, the instrument has been restored to the factory default settings.

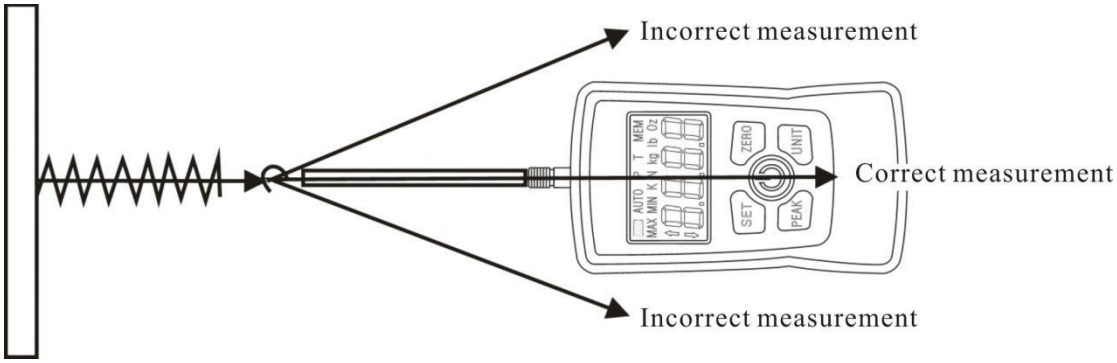
8. Test

Press the "Start" button to turn on the instrument, and use the factory default settings to perform the test directly or set the test mode for testing as required.

8.1 Select the appropriate test joint fixture to install on the push-pull force gauge.

8.2 Please hold the push-pull force gauge firmly or install the push-pull force gauge on a suitable testing machine for testing. During the test, please align the tested force with the push-pull rod of the push-pull force gauge in order to measure the accurate load value.

8.3 After the test is completed, unload the load, turn off the power, remove the fixture, and clean the objects back into the tool box for the next use.



9. Safety precautions

9.1 Matters needing attention:

9.1.1 If the operation is wrong, it may damage the instrument or cause serious accidents. This manual points out important matters for preventing accidents and how to use the instrument. Please read this manual carefully before use, and keep it properly after reading, so that you can read it again.

9.1.2 For testing the impact load, please select the model with the maximum load twice the impact load to be tested.

9.2 Warning matters:

9.2.1 During destructive testing, protective masks and gloves should be worn to prevent the splashing material from hurting the human body during the testing process.

9.2.2 Do not use damaged or severely bent fixtures (the company also has various fixtures, customers can purchase them according to their needs).

9.2.3 Do not use the instrument beyond the maximum range. Otherwise, the sensor may be damaged or even an accident may occur.

9.2.4 When the test value exceeds 100% of full scale, the buzzer will beep continuously. At this time, please quickly release the added load or reduce the load. When the test value exceeds 120% of full scale, the instrument may be damaged.

9.3 Resolve crash status: when the instrument crashes unexpectedly, open the battery cover, remove the battery, reinstall and restart the instrument.

9.4 Security matters:

9.4.1 Please use the matching battery with correct parameters, otherwise it will cause circuit failure and even fire.

9.4.2 Do not touch the power battery with wet hands, otherwise it may cause chronic damage to the battery.

9.4.3 Please clean the machine with a soft cloth. Immerse the cloth in water soaked with detergent and wring it out to remove dust and dirt. Note: Do not use volatile chemicals to clean the machine (such as volatile agent, thinner, alcohol, etc).

9.4.4 Do not operate the machine in the following environment

A. Humid environment B. Dusty environment C. Places where oil or chemicals are used D. Places with vibrating sources around

9.4.5 Please use and store within the specified temperature and humidity range, otherwise it may cause instrument failure.

9.4.6 Do not dismantle, repair or modify the machine by yourself, these actions may cause permanent failure of the instrument.

9.4.7 Other matters that need to be paid attention to in safety production.

9.5 Prompt information:

project	symptom	Cause or phenomenon	Dispose
power supply	Press the "start" button no display	No battery	Replacement battery
test value	Test value is not accurate	The error is too large	User calibration
other	Unexpected crash	No response when pressing any key	Reinstall the battery

10. Random accessories

Serial number	Item	Quantity
1	Digital push-pull force gauge	1 set
2	1.5V AAA battery	2 pcs
3	Instructions	1 pcs
4	Certificate of conformity and warranty card	1 pcs
5	Fixture head	6 pcs
6	Socket head cap screws M4*8	4 pcs
7	Socket head cap screws M4*10	4 pcs
8	Spring pad Φ4	8 pcs
9	Nuts M6	2 pcs