Digital push-pull dynamometer

1. Brief introduction

Digital push-pull dynamometer is a small, simple, multifunctional and high-precision thrust and pull test instrument, which is widely used in the push-pull load, plug-in force test and destructive test of electronic appliances, building hardware, light industry textiles, auto parts, lighters and other ignition devices, fire-fighting equipment, pen-making, lock-making, fishing gear, chemical industry, power machinery, scientific research institutions and other industries. Digital display has high resolution, fast sampling speed and convenient use, and it is a new generation of high-efficiency and high-precision push-pull testing instrument.

2. Functional characteristics

2.1 High precision, high resolution;

2.2 Free switching of three measurement modes (real-time, peak, first peak);

2.3 Four measuring units are free to switch (N, kg , lb , Oz);

2.4 Gravity acceleration setting function: the user can input the exact value of gravity acceleration in the use place, so that the test and unit conversion are more accurate;

2.5 The upper and lower limits can be set for statistical analysis, through the upper and lower limits set over the limit range can make the buzzer alarm;

2.6 Minimum force value shielding function: it can shield the data within the set minimum range;

2.7 Automatic shutdown function: you can set the automatic shutdown time, and automatically shut down when there is no operation for a long time to achieve power saving effect.

2.8 Power supply: 21.5V dry batteries;

2.9 Automatic backlight, buzzer alarm function;

3. Specification parameter

Model	2	3	5	10	20	30	50	100	200	300	500
Maximum force 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
	7.2Oz	10.8Oz	18Oz	36Oz	72Oz	108Oz	180Oz	360Oz	720Oz	1080Oz	1800Oz
Display digit	0.001N			0.01N				0.1N			
	0.001kg			0.001kg				0.01kg			
	0.001Lb						0.01Lb			0.1Lb	
	0.01Oz				0.1Oz				1Oz		
Sensor structure	Built-in sensor										
Precision	± 1% (10%~100% of the full range)										
Power	2 5# dry batteries										
working temperature	5℃～35℃										
Transportation temperature	-10℃～60℃										
Working humidity	15％～80％RH										
Working environment	There is no seismic source and corrosive medium around.										
Outline dimension	177*67*34										
Weight	≈0.4Kg										

4. Appearance structure
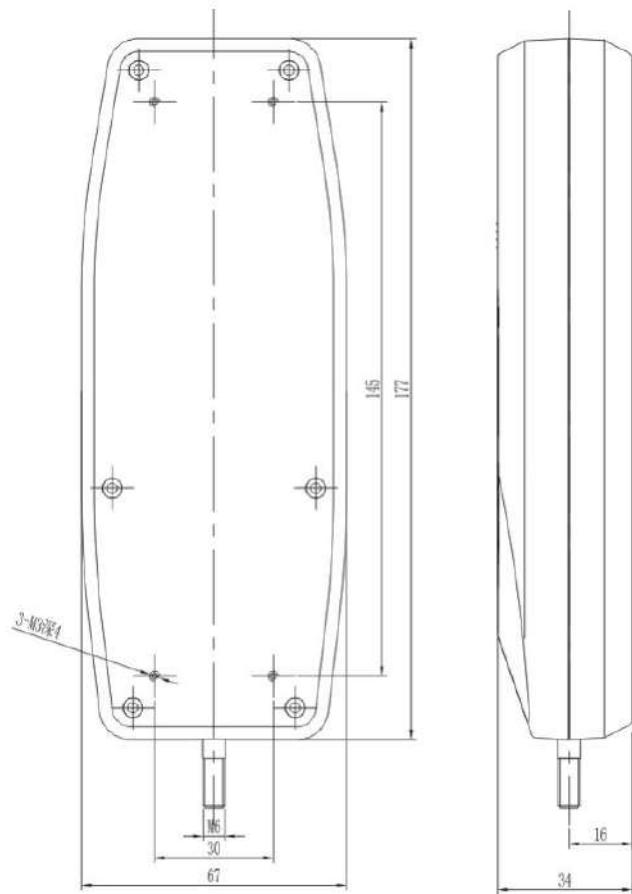
5. display screen
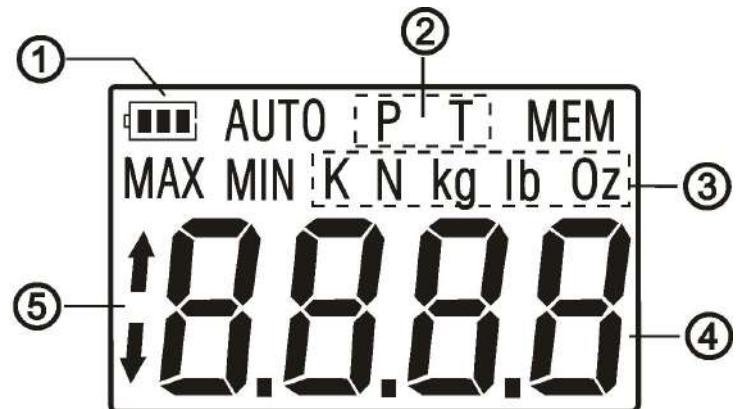
① Battery capacity.
② The screen simultaneously displays the "P" and "T" as the first peak mode,represents the first wave peak measured during a recording period.The screen displays a single "P" as the peak mode, indicating the maximum force value measured during a period of recording.Press PEAK to switch peak and first peak mode.
③ Unit display.
④ Measured force value display.
⑤ Push the pull: the upper arrow shows the pull, the lower arrow shows the thrust.

6. Instructions

6.1 Boot display

specifications and models → Test interface
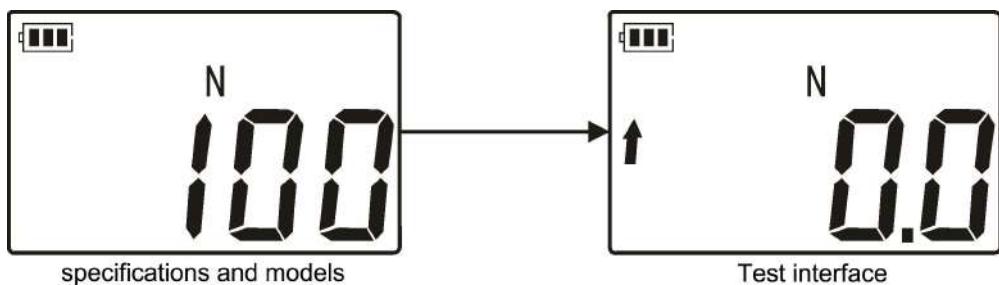
6.2 Unit switching

Press UNIT to select the desired measurement units.
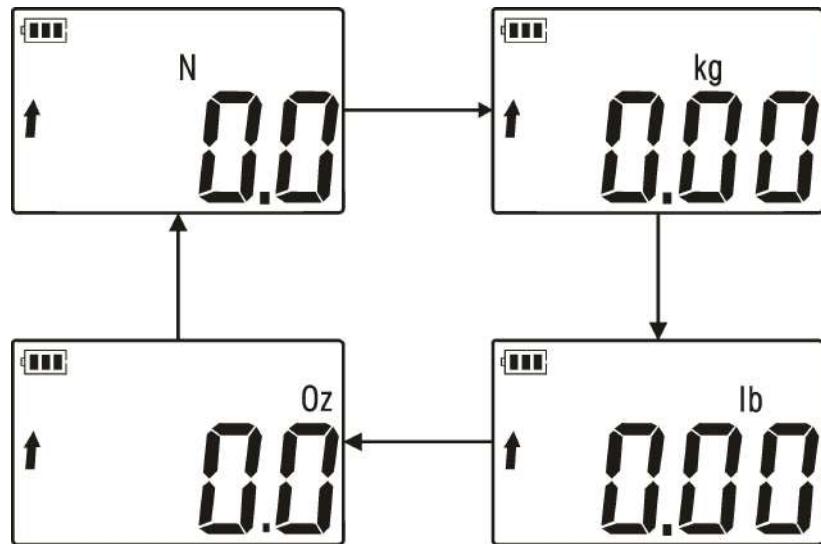
6.3 Numerical clearance

Press the ZERO key, and the measurements on the screen are reset.

6.4 Description of the measurement mode conversion

Press PEAK to select the desired measurement mode.

6.4.1 Real-time mode

Enter the measurement interface, the system default real-time measurement mode, no mode words are displayed on the screen. In this mode, the display measurement value changes with the load weight.

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 measured value is the maximum value.(When measured again, the displayed measurement value will not change if the measured value is lower than the previous maximum value.）

6.4.3 First peak value pattern

Press the "PEAK" key, and the words "P" and "T" displayed on the screen are the first peak mode. In this mode, the instrument only displays the first wave peak measured in one period, and the measured value will not change again. Press the "ZERO" key to clear the zero before testing again.

7. System Settings

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

N

0.0

↑

H idt
Upper limit of measured value

L odt
Lower limit of measured value

o F F t
Automatic shutdown time

9 S E t
Acceleration of gravity

L o S t
Peak minimum saved value

L E d
Backlight function

d i r
Push-pull direction

S H i d
Unmask value

r S E t
Restore factory settings

c A L b
User calibration
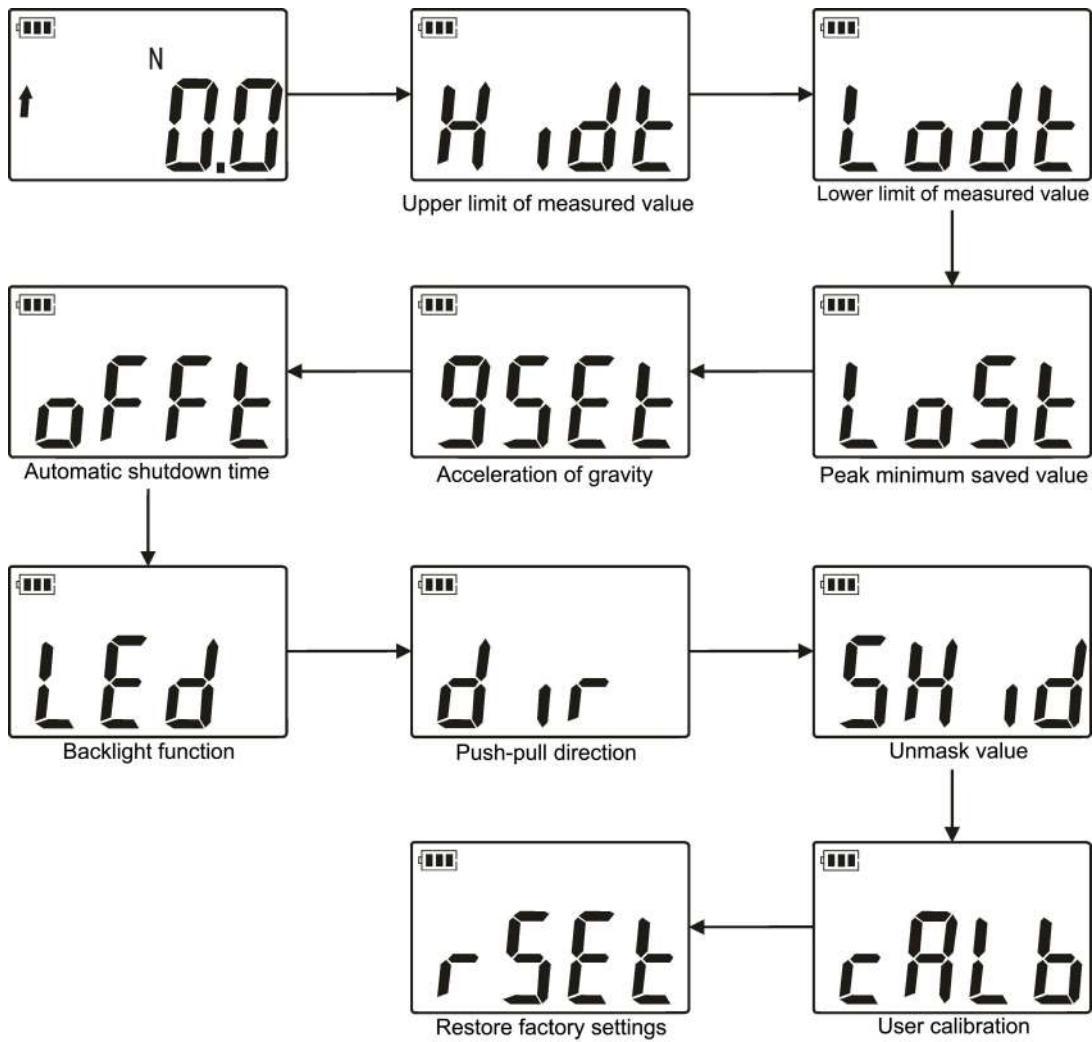
7.1 Upper limit of measurement value: set the upper limit of measurement value, the upper limit is full range, the measurement value is above the upper limit range, the screen shows "MAX" and the buzzer alarm long, and the user can set the upper limit freely. As shown in the figure below:

H idt → Press "SET" key → 100.0

Press "PEAK" key

200.0 → Press "UNIT" key → 270.0

Press "SET" key (Save settings) ↑
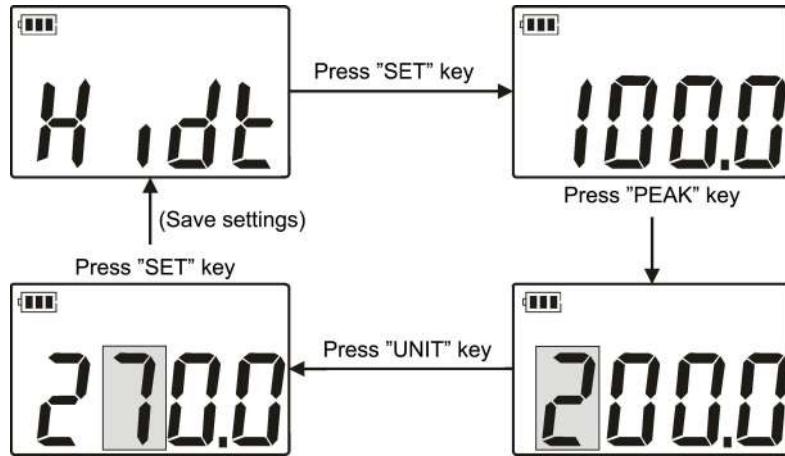
7.2 Lower limit of measured value: set the lower limit of measured value. The lower limit is 0 by default. If the measured value is lower than the lower limit, it is out of range. The screen displays "MIN" and the buzzer sounds long. The user can freely set the lower limit value, select this menu to set the value, and the operation steps are the same as the upper limit value.

7.3 Minimum saved value of peak value: the minimum saved value of peak 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, and 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 use area, and 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 the "set" key to enter the shutdown time setting. Press "PEAK" or "UNIT" to SET the shutdown time value, and press "set" to save the setting. The default automatic shutdown time of the system is 10 minutes.

7.6 Backlight function: there are three setting modes for this function. AUTO is the automatic mode, that is, the backlight of the instrument is automatically turned off under the condition of no operation; OPEN is normally open mode, that is, the instrument is always in the backlight on state; CLOS is normally off mode, that is, the instrument is always in the backlight off state. Select this menu and press "SET" to enter the mode setting, press "UNIT" to switch modes freely, and then press "set" to save the setting.

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

7.8 Unmask: screen the data display below 0.5% of the full scale, with "YES" as the screen, "NO" as the unmask, and the system defaults to "YES". Users can SET this item freely, press "SET" to enter the setting, then press "UNIT" to switch YES or NO freely, and press "set" key to save the setting after setting.

7.9 User calibration: this setting item is the instrument calibration function. Select this menu, press the "set" key and enter the password "1111" to enter the calibration interface. First, display "ZERO" to start zero-range calibration; after calibration, press "SET" key, display "FULL" to start full-range calibration; after calibration, press "SET" key to save calibration, and the instrument will automatically shut down. As shown in the figure below:
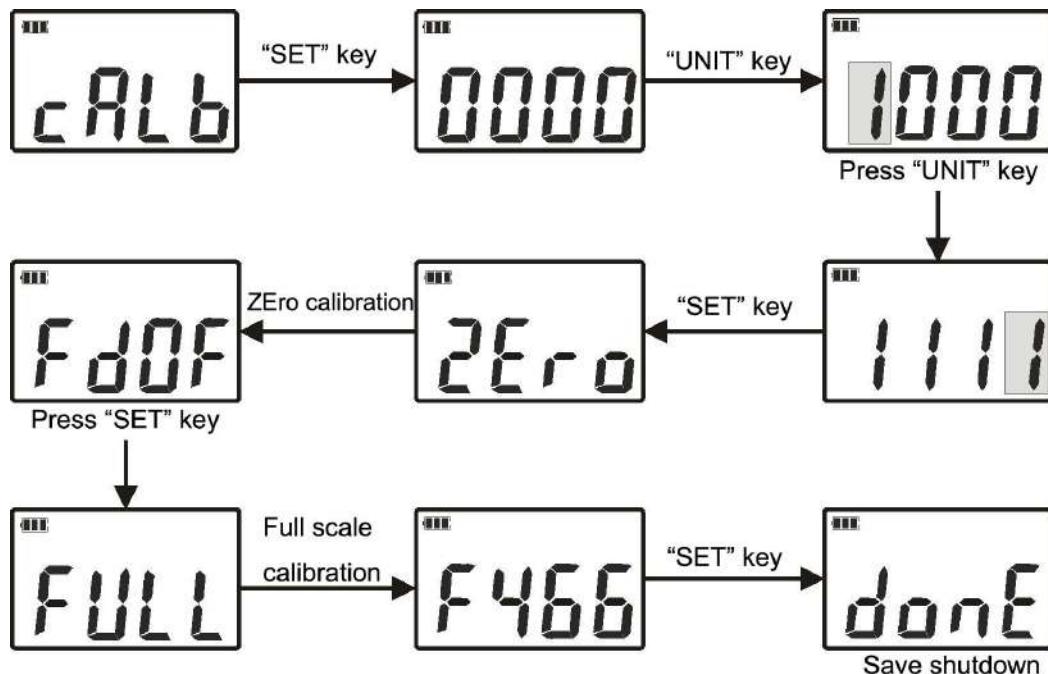
7.10 Restore factory settings: this setting is convenient for users to set up confusion, and can restore the factory settings with one button. Enter the system menu, select this SETting and press the "set" key to restore the factory setting, and the instrument will automatically shut down. If you continue to use the instrument and press the power-on key, the instrument has been restored to the factory default setting.

8. Test

Press the "Power On" button to open the instrument, and test directly or select the test mode as required.

8.1 Select a suitable joint fixture for testing and install it on the push-pull meter.

8.2 Please hold the push-pull meter firmly or install the push-pull meter on a suitable testing machine for testing. When testing, please align the tested force with the push-pull rod of the push-pull meter so as to measure the accurate load value.

8.3 After the test is completed, unload the load, turn off the power supply, take off the fixture, clean all the objects and put them back in the tool box for the next use.

Incorrect measurement

Incorrect measurement
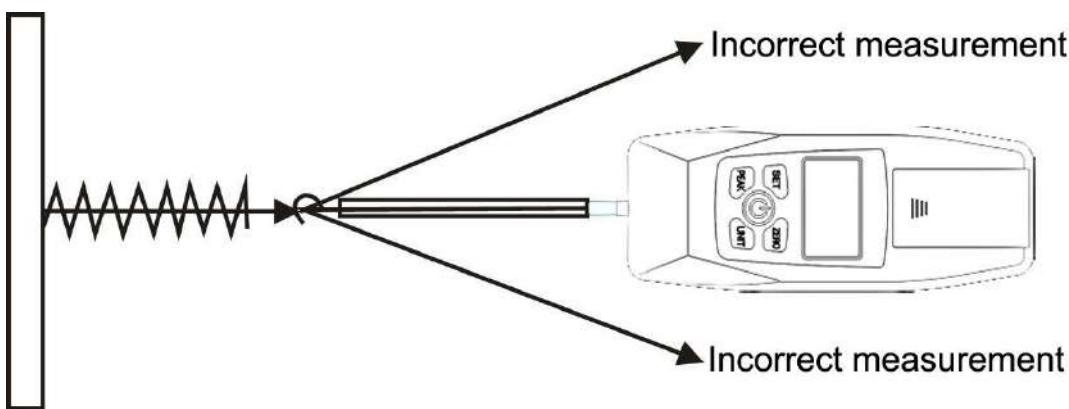
9. Safety precautions

9.1 matters need attention
9.1.1   If the operation is wrong, it may damage this instrument or cause serious accidents. This manual points out the important matters to prevent accidents and the use of the instrument. Please read this manual carefully before using it, and keep it properly after reading it for further reading.

9.1.2   If testing the impact load, please choose the model with the maximum load twice as large as the impact load to be tested.

9.2 Warning:
9.2.1   During destructive testing, protective masks and gloves should be worn to prevent splashing materials from hurting people during testing.

9.2.2   Do not use damaged or severely bent fixtures (our company has other fixtures, and customers can purchase them separately according to their needs).

9.2.3   Do not use this 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 the full scale, the buzzer will beep continuously. At this time, please quickly remove the added load or reduce the load. When the test value exceeds 120% of the full scale, the instrument may be damaged.

9.3 Solve the crash state:
When the instrument crashes unexpectedly, open the battery cover, take out the battery, reinstall and restart the instrument.

9.4 Security matters:
9.4.1   Please use a 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 this machine with a soft cloth. Immerse the cloth in water soaked with detergent, wring it out and then remove dust and dirt. Attention: Do not use volatile chemicals to clean this machine (such as volatiles, diluents, alcohol, etc.).

9.4.4   Do not operate this machine in the following environments

A, humid environment B, dusty environment C, places where oil or chemicals are used D, places with earthquake sources around.

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

9.4.6   Do not disassemble, repair or transform this machine by yourself, which may cause permanent failure of the instrument.

9.4.7   Other matters needing attention in safety production

9.5 Prompt message:

Project	Symptom	Causes or phenomena	deal with
Power	Press the "power on" key and there is no display	The battery is dead	Replace the battery
test value	The test value is inaccurate	Excessive error	User calibration
Other	Unexpected crash	Press any key and there is no response	Dismantle the battery again

10. Random attachment

Number	Name	quantity
1	Digital push pull force meter	1
2	1.5v No.5 battery	2
3	Instructions	1
4	Certificate and warranty card	1
5	Measuring head	6
6	Screw parts package	1