EPE - MOBILE STRAIN GAUGE AMPLIFIER WITH DISPLAY

Wireless Handheld Force Gauge

EPE



EPE - MOBILE STRAIN GAUGE AMPLIFIER WITH DISPLAY

Preface

Thank you for choosing our products!
This manual contains the product's performance indicators, packaging shape, operating instructions, communication instructions, function instructions, parameter lists, common problems, warranty instructions, etc.
In order to use this product to maintain the best working condition for a long time, please read the operation manual carefully before using it, and keep it properly for reference at any time.
Without the permission of the company, the contents of this manual shall not be reproduced in reproduction.

Warn

- Exceeding the requirements of the operating environment will affect the measurement index and life of the meter, and will cause permanent damage to the meter in severe cases!
- The installation, debugging and maintenance of this product should be carried out by qualified engineering and technical personnel.
- The company is not responsible for any direct or indirect losses other than the product itself.
- The company reserves the right to change the product manual without notice.

Attention

- Please do not use it on nuclear power equipment and life-related medical equipment.
- For all input and output signal lines of this product, in order to prevent surges from occurring, please install a proper surge suppression circuit.
- Please do not mix metal pieces or wire scraps into this product, otherwise it may cause electric shock, fire, and malfunction.
- Please tighten the terminal screws firmly. If they are not tightened completely, it may cause electric shock or fire.
- Please make sure to clean it after turning off the power.
- When cleaning, please use a dry soft cloth to wipe off the dirt from this product. Please do not use moisture absorbent. Otherwise it may cause deformation and discoloration.
- Do not rub or knock the display part with hard objects.
- The installation, commissioning, and maintenance of this product should be carried out by qualified engineering and technical personnel.
- The handheld devices are calibrated before they leave the factory. If they are used improperly, errors may occur. Customers should calibrate them in time according to the situatio

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1. Performance indicators and features

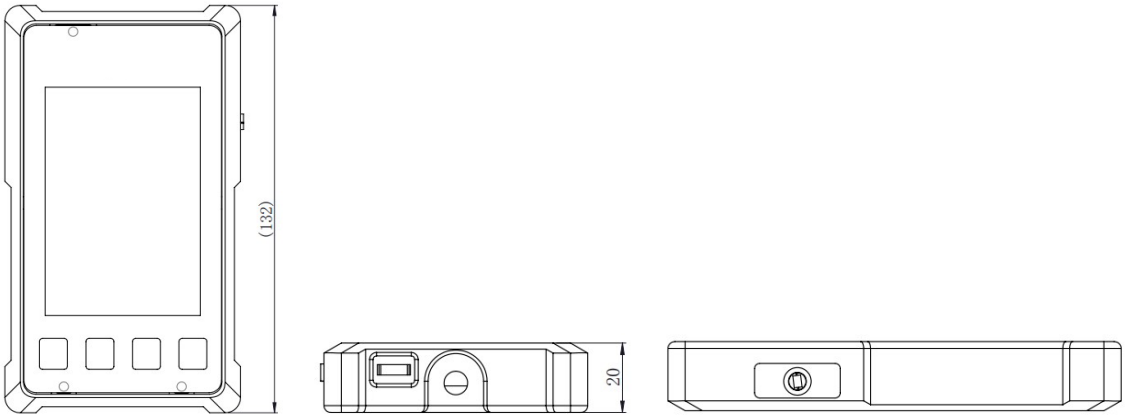
1.1. Technical Specifications

- Display graduation-99999~999999;
- The battery can be charged and discharged about 1,000 times;
- 3200mAh battery, can work continuously for 8 hours when fully charged
- The upload rate of wireless communication is 20Hz
- The acquisition rate of peak and valley values is 80Hz
- 3200mAh battery, can work continuously for 15 hours when fully charged
- Working environment -20℃ to 50℃
- The weight of the meter is about 290g
- Protection grade IP65

1.2. Main Function

- Real-time curve display, view the force status during the work process.
- Real-time automatic capture of equipment peak and valley values, analysis of sensor status.
- When the battery is low, the indicator interface will display the low battery mark, when the charger is plugged in, it will display the charging mark and the charging light will indicate.
- Use TYPE-C data cable (optional RS485) to directly connect with PC for Modbus communication, which is convenient for exporting force data.
- In the test interface of this handheld dynamometer interface, you can view the serial port and wireless communication debugging data.
- 200 groups of historical data of peak and valley values are saved, which will not be lost after power failure.
- A variety of alarm mode selection, upper limit alarm, lower limit alarm, peak and valley value alarm, automatic alarm of 1.2 times over range.

2. Outline Dimension



2-1 D.R300x 2-2 D.R300x 2-3 D.R300x

Package List:1pcs DY920 handheld for gauge；1pcs TYPE-C charge cable；





2.1 Selection and Wiring

2.1.1. Sensor selection

The external sensor needs to be connected to the instrument through the aerial plug, and the smart sensor of our company can be selected. When using a smart sensor, the meter can be automatically calibrated after power-on, eliminating customer calibration troubles.

It is very convenient when multiple sensors are switched. You only need to restart the meter to complete the calibration, and any range sensor can be connected.

2.1.2. Sensor interface

The hand-held instrument sensor wiring adopts aviation plug uniformly, align the aerial...

...socket notch with the access port under the hand-held instrument, and press the tail to connect the aerial socket.

Aviation slot number 1 corresponds to the smart sensor interface TD; bit number 2 corresponds to the sensor signal SIG-; bit number 3 corresponds to the sensor signal SIG+;

Bit number 4 corresponds to the negative EX- of the sensor power supply; Bit number 5 corresponds to the positive EX+ of the sensor power supply;



Figure 2-8 The internal wiring diagram of the aviation plug (the color of the cable is based on our products)

2.1.3. Data transmission and charging interface

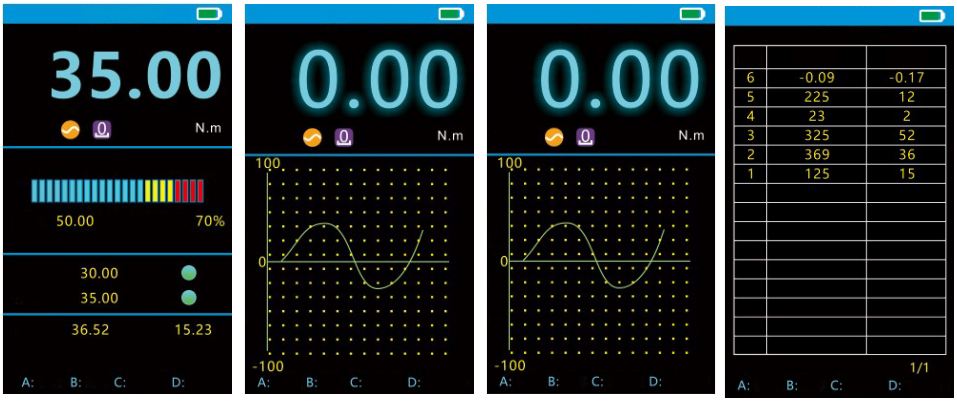
The charging port is above the handheld meter, the interface is a TYPE-C data cable, one end is connected to the meter, and the 5V USB interface can be connected to charge, such as a common mobile phone charging head;

2.2 Instrument display interface

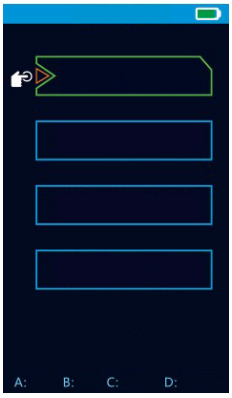


3. Operating instructions

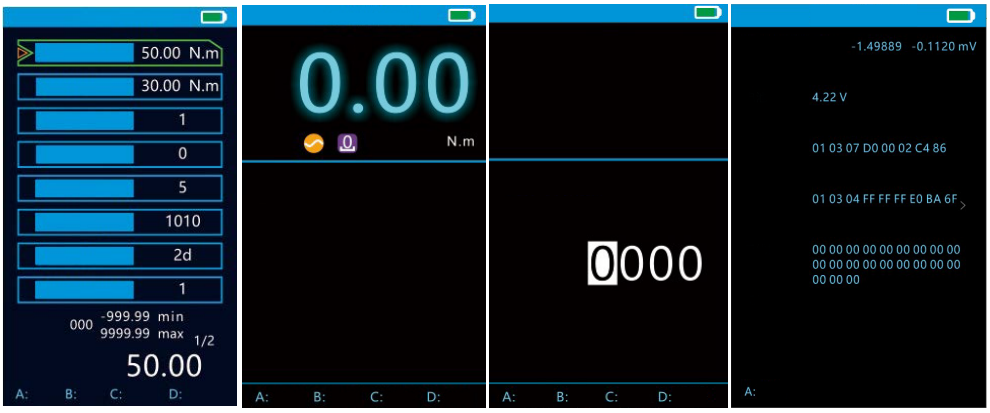
3.1. Main interface



Long press A to enter the menu interface



Choose to enter the function interface



The instrument is divided into 9 operating interfaces: start-up interface, shutdown interface, real-time value interface, real-time curve interface, historical curve interface, menu interface, parameter modification interface, weight calibration interface, interface test interface, and factory reset interface.

- Real-time value interface: When the machine starts, it will automatically enter the real-time value interface, displaying the real-time force value, peak and valley value of the meter and other data, and the corresponding button prompts are at the bottom of the interface.Note: To enter the menu and reset function, you need to press the button for 1 second to trigger.
- Real-time curve interface: when page down is pressed, the meter will switch to the real-time curve screen, in which the curve will be displayed in real time.
- History curve interface: When you press the page down again, the meter will switch to the peak interface. At this time, the upper display force value is the current working peak value, and the lower curve is the current working curve. Trigger condition: when the real-time force value is greater than the parameter "start capture threshold", start to record data, when the recording time is greater than the parameter "capture duration", end the recording, and display the current curve.
- History record interface: Press the page key in the real-time value interface to switch to this page. When the end conditions are met, the peak and valley values will be automatically stored in this interface. Up to two hundred sets of data will be stored. The company’s upper computer can export data.
- Menu interface: In the real-time value interface, real-time curve interface, and historical curve interface, press and hold button A to enter the menu interface. Under this interface, you can select the function screen to enter: parameter modification interface; weight calibration interface; interface test interface; Restore factory interface.
- Parameter modification interface: When entering this interface, enter the password 000 to enter the general parameter modification (working mode, filtering, etc.), and enter the password 100 to enter the system parameter modification. (Display and communication interface parameters).
- Weight calibration operation: when entering this interface, enter the password 000 to enter the weight calibration operation, and the password 100 to enter the digital calibration operation.
- Interface test interface: Enter the password 100 to enter this interface, and you can view the meter's communication data, battery voltage, and the original code of the force value after entering.
- Factory reset interface: Enter the password 100 to enter this interface. After entering, follow the prompts to restore the factory, data backup, restore backup, etc.

3.2. Power and switch

3.2.1. Battery display

The battery display icon is located on the upper right part of the handheld device. When the charger interface is connected, the charging logo as shown in the figure below will be displayed.

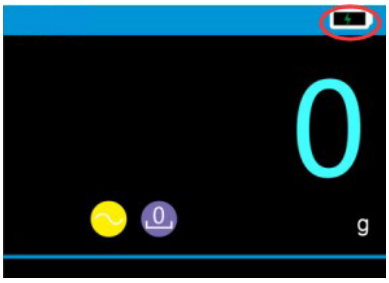


Photo 3-1Charging status

When the meter's power display shows the red status as shown in the figure below, please charge it within ten minutes. When the battery is undervoltage, the force value measurement may be abnormal.

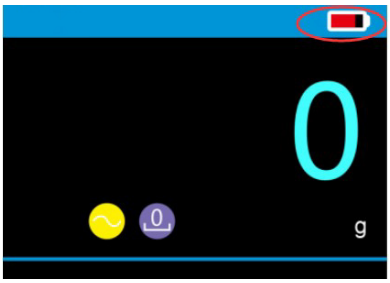


Photo 3-2 Low battery display

3.2.2. Turn on and turn off

Shutdown operation: press and hold the side button of the handset for about 1 second to turn it on, and let it go when the meter displays the boot image.

Power-on operation: Press and hold the side button for about 2 seconds to shut down, and the handheld will display a power-off prompt page, as shown in the following figure：

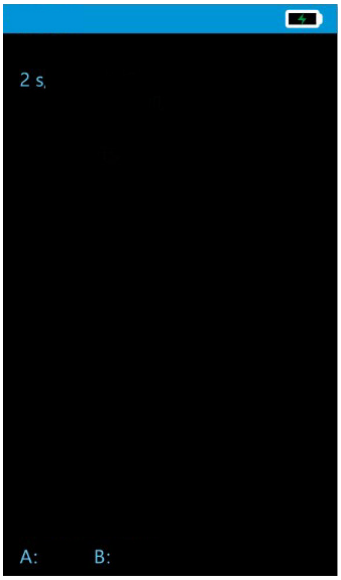


Photo 3-3 Shutdown reminder

At this time, press the A button to shut down immediately or wait for 5 seconds to automatically shut down, and press the B button to cancel the shutdown operation.

3.3. Status Icon

When running, the handheld meter will display some running status icons, the following is the icon description：

3.3.1. Unstable status



Photo 3-4 Unstable force

When the force value fluctuation is greater than the stability criterion parameter, this icon will appear, indicating that the system is currently in an unstable state.

3.3.2. Zero point status



Photo 3-5

When the real-time force value is less than the power-on auto-zero range, it will be judged as a zero state and the icon will be displayed.

3.3.3. Wireless communication



3-6

When the handheld meter wireless communication is successful, the icon will be displayed, and the icon will disappear when the communication is lost within 200 milliseconds.

3.3.4. Serial port communication



3-7

When the handheld instrument serial communication is successful, the icon will be displayed, and when there is no communication within 200 milliseconds, the icon will disappear.

3.3.5. Alarm status



3-8

When the handheld meter reaches the set alarm condition, this icon will be displayed, and the buzzer will work accordingly; when the real-time force value exceeds 1 times the set range, this icon will also be displayed once every 50ms, and the buzzer Work once every 100 milliseconds to alert you.

3.4. Function selection

The following running screens refer to [real-time value interface][real-time curve interface] [historical curve interface][historical record interface]

3.4.1. Parameter modification

- Long press【A:Menu】→menu interface on the running screen
- Select parameter modification in the menu interface and press【A:Enter】—>password input screen
- Enter the password screen: [C: add value] data addition, [D: right shift] right shift the current position, [A: confirm] confirm the input. The default passwords are "0" and "100", 0 is a normal password, and 100 is an advanced password; enter the ordinary password → modify common

parameters; enter the advanced password → system settings;

- ●Parameter selection page: Press【C:Next】【D:Next Page】to select the required parameter, 【A:Modify】to modify the parameter. 【B: Exit】Return to the running screen.
- ● When parameter modification: [C: add value] add data, [D: shift right] shift the current position right, [A: confirm] confirm the input. The input parameter should be within the parameter range.

3.4.2. Weight calibration

- ● Long press on the running screen 【A:Menu】—>Menu interface
- ●Display the menu to select the weight calibration function, [A: Enter] —> Password input screen
- ●Enter the password screen→【C:Add value】Add data, 【D:Shift right】shift the current position right, 【A:Confirm】confirm the input. The default passwords are "0" and "100", 0 is the ordinary password, and 100 is the advanced password; enter the ordinary password to enter the common weight calibration; enter the advanced password to enter the digital calibration;
- ●Calibration of weights: 1. Press【C:Clear】to zero when no load; 2. Put the weight on; 3. Press 【D:Calibrate】after stabilization; 4. Enter the weight of the weight according to the prompt and press 【A :Confirm] to complete the calibration
- ●Digital calibration: 1. After inputting the parameter [sensor range] on the sensor label, press the confirm key; 2. After inputting the parameter [sensor sensitivity] on the sensor label, press the confirm key to complete the digital calibration;

3.4.3. Restore factory

- ●This function can restore the parameters of the instrument to the factory default values. After restoring the factory, recalibration and necessary settings are required.
- ●When the instrument is adjusted normally, all parameters can be backed up through data backup. When the parameters are modified by human error and the system cannot operate normally, it can be restored to the normal state by restoring the backup operation.
- ●Long press on the running screen 【A:Menu】—>Menu interface
- ●Display the menu to choose factory reset,【A:Enter】—>password input screen
- ●Enter the password screen→【C:Add value】Add data, 【D:Shift right】shift the current position right,【A:Confirm】confirm the input. Enter the advanced password to enter the function;
- ●Enter the corresponding command code on the function selection screen for data maintenance Command code:
  0900 Restore factory value (calibration parameters will not be restored) 0200 backup all
  0300 Restore backup parameters

3.4.4. Interface test

- ● This function can check the corresponding interface condition of the instrument.
- ●You can view data such as communication data, battery voltage, and original code collected on this interface to facilitate analysis of the operating status of the instrument.
- ●Long press on the running screen 【A:Menu】—>Menu interface
- ●Display menu to select interface test,【A:Enter】—>password input screen
- ●Enter the password screen→【C:Add value】Add data, 【D:Shift right】shift the current position right,【A:Confirm】confirm the input. Enter the advanced password to enter the function;
- ● View the operating data of the instrument

4. Communication description

There is one RS485 serial port at The instrument.Supports three communication protocols, Modbus-RTU protocol (sub-station), ASC active upload, and HEX custom upload.The instrument default factory settings: 19200 baud rate, 01 machine code and no parity, eight data bits, one stop

bit.Modify the communication-related parameters and re-power on to take effect.

When using a TYPE-C data cable to directly connect to a PC, please confirm that the CH340 driver has been correctly installed on the PC; find the corresponding serial port number in the device manager, and use the serial debugging assistant to communicate.

4.1. Modbus-RTU Protocol

Modbus-RTU protocol supports 03 read command and 0x10 write command. The data is 32-bit Long integer or Float floating-point data.

For details about Modbus-RTU, please refer to Modbus standard text. When using this function, you need to modify the serial communication protocol parameter to 1.

4.1.1. Read command

In this instrument, reading needs to use the 0x03 read command, most of the parameters are larger than 16 bits, so the minimum read is 32 bytes, and the number of bytes read each time must be an even number. Example 1: 0x03 to read the measured value

Sent by the master：

01 03 07 D0 00 02 C4 86

Machine code read command start address read number

check code Instrument return：

01 03 04 00 00 03 E8 FA 8D

Machine code read command number of bytes measured value (1000) check code

4.1.2. Write instruction

Example 1: 0x10 communication clear

Sent by the master

Clear command：

Machine code 01

Command 10

Communication command address

0B B8 the number of registers 00 02

the number of bytes written 04

write 10 to clear 00 00 00 0A

check code 0A 4A

Instrument confirmation：

01 10 0B B8 00 02 C2 0F

Machine code command address number of registers check code

Example 2: 0x10 communication calibration

1、Send a reset command when the meter is empty

01 10 0B B8 00 02 04 00 00 00 0A 0A4A

2、Place the weight on the sensor, and write the weight force value 10000 (0x2710) into 3000 (0xBBA address) after stabilization

01 10 0B BA 00 02 04 00 00 27 10 11 A8

3、Send the calibration command to complete the calibration

01 10 0B B8 00 02 04 00 00 00 14

8A 42 Some parameter address table：

Parameter name	Operation	Address (decimal)	Function
Cleared	Write only	Write 10 to 3000 address	Clear the real-time value displayed on the meter
Clear peak	Write only	Write 11 to 3000 address	Clear the peak and valley values of the meter

Peak reading	Read only	2562
Read Valley value	Read only	2564
Read real-time force value	Read only	2000

4.2. ASCII active upload protocol

Use ASCII upload method, the advantage is that the communication speed is fast, the meter does not need to receive data, and always sends real-time force values out. When using this function, the serial communication protocol parameter needs to be modified to 2. Examples of data are as follows:

20	20	20	20	31	2E	31	3D
blank	blank	blank	blank	1	.	1	=

By looking up the ASCII table, it can be seen that the force value data is 1.1. , 0x3D at the end is the symbol "=", which is the separator of communication data.

4.3. HEX active upload

HEX upload is a customized upload protocol of our company. When using this function, the serial communication protocol parameter needs to be modified to 3. The data format is as follows: 00 00 C2 CA 8C

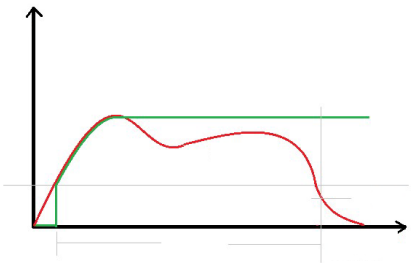
A packet length is 5 bytes, the first four bytes are 32-bit long integer force value data, the high bit is in the front, and the last bit is the cumulative check of the previous four bits to the eighth bit.

5. Function description

5.1. Peak capture

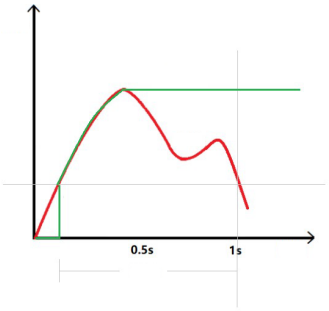
The handheld meter can be divided into three modes during the capture peak start and stop, namely threshold-threshold mode; threshold-time mode; threshold-key mode; the front part represents the start capture condition, and the rear part represents the end capture condition. The acquisition condition of the handheld device only supports threshold start for the time being. Only when the start and end meet the set conditions, the instrument can carry out a complete capture.

5.1.1. Threshold end method



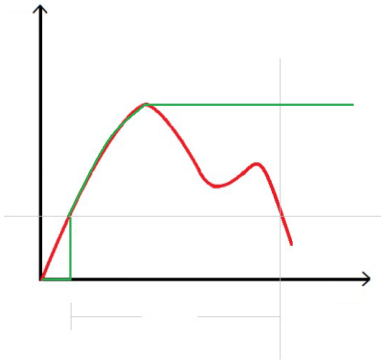
When the absolute value of the real-time force value is greater than the start capture threshold, the peak value is recorded. When the absolute value of the real-time force value is less than the start capture threshold minus the hysteresis, the capture ends and the current working curve is drawn. This capture method is suitable for low-speed down pressure conditions;

5.1.2. Delayed end method



When the set end capture condition is the delayed end condition, it can be seen from the above figure that when the real-time force value is greater than the threshold, the peak value will be recorded, and the peak value will be captured after a delay of 1 second in the "capture duration parameter", and the current working curve will be displayed. . In this way, it is necessary to determine the working time and set the appropriate capture time parameters, which is suitable for high-speed test situations.

5.1.3. Key end method



When the setting end capture condition is the end of the button, the screen needs to be switched to the history interface. When the threshold is greater than the threshold, the capture starts. After the capture is started, press the B key on the history curve interface to end the capture

5.2. Alarm mode

5.2.1. Overload alarm

When the real-time force value is greater than 1.2 times of the set range, the handheld instrument will give an over-limit alarm, the buzzer will work at an interval of 500ms, and the instrument status area will display the alarm status symbol.

5.2.2. Real-time value upper limit alarm

When the real-time force value is greater than the set alarm value, the buzzer sounds and the alarm icon is displayed in the status bar; when the force value is less than the alarm value, the buzzer is turned off and the alarm icon disappears.

5.2.3. Real-time value lower limit alarm

When the real-time force value is less than the set alarm value, the buzzer sounds and the alarm icon is displayed in the status bar; when the force value is greater than the alarm value, the buzzer turns off and the alarm icon disappears.

5.2.4. Peak upper limit alarm

When the real-time peak value is greater than the set alarm value, the buzzer sounds and the alarm icon is displayed in the status bar; after the alarm time is delayed, the buzzer is turned off and the alarm icon disappears.

5.2.5. Peak lower limit alarm

When the real-time peak value is less than the set alarm value, the buzzer sounds and the alarm icon is displayed in the status bar; after the alarm time is delayed, the buzzer is turned off and the alarm icon disappears.

5.3. Impact test application case

During the impact test, there are several parameters that need to be paid attention to

Sampling rate: Choose a suitable sampling rate. The higher the sampling rate, the more accurate the sampling data, but the larger the displayed fluctuation value. The rate required by different test sites is also inconsistent. Choose according to your actual situation;

End capture conditions: When conducting high-speed impact experiments, our meters usually adopt the delayed end method for measurement, because the measurement time state is controllable; the less than the threshold method is generally used for low-speed press-fit testing;

Capture time: The parameter that needs to be used when the use delay is over is the peak value and curve during the period of time when the test is greater than the threshold and the "capture time" parameter is delayed;

Capture interval time: After the capture is completed, delay the time to start the next capture to prevent the second peak update caused by vibration after the test is completed;

Start the capture threshold. This threshold must be greater than the usual fluctuation value caused by the vibration of the test bench. The parameter is too large, resulting in incomplete capture, and the parameter is too small. The captured curve may not be what you need. Adjust it according to the actual situation.

After setting the corresponding parameters, it can be debugged to the historical curve interface, and the corresponding curve and peak value will be displayed after the impact is completed;

6. Parameter List

6.1. System parameters

The general content of system parameters is to modify system parameters such as instrument display, communication, sampling rate, etc. Select parameter modification in the menu and enter the advanced password to enter. The default advanced password is '100'.

address	parameter name	Default value	Scope	Description
282	Sampling speed	1	0-3	0-50 1-200 2-800 3-3200 4-6400 5-12800Hz (Restart to take effect)
284	Unit	3	0-7	0-no unit 1-T 2-KN 3-kg 4-lb 5-N 6-g 7-N.M
286	Decimal point	2	0-5	0-No decimal point 1-1 decimal point 2-2 decimal points
290	Ordinary PWD	0		Modify the common parameter password, the default is 0
292	Advanced PWD	100000	0-999999	Modify the advanced parameter password by default to 100000
360	Run screen	753	0-999999	Run page settings, non-professionals do not modify
368	Y axis end	1000	0-999999	The end point of the Y-axis of the curve, increase the value, and the Y-axis display of the curve will be more comprehensive, and the value will be reduced to show more detailed
378	Curve interva	0	0-9.999	Curve drawing speed, the longer the interval time, the slower the curve drawing
380	Serial protocol	1	0-3	0-invalid, 1-modbus-RTU, 2-ascii active upload, 3-16 hexadecimal active upload
382	Machine number	1	0-255	Machine number, wireless communication, RS485 all use this address
384	Baud rate	4	0-6	2400 4800 9600 19200 38400 57600 115200 (Restart to take effect)

386	Data Format	0	0-1	0-N81 1-N82（No parity bit, eight data bits, two stop bits）
388	News gap	10	0-9999ms	Receive the communication data packet after delaying this time and return
430	Zero point code value	0	-99999-999 9999	The AD code value corresponding to the zero point
432	Range factor	5000	0-9999999	Force value related parameters (if the displayed value is always 0, you can increase the parameter)
474	TEDS Function	0	0-1	0: Off 1: On
476	Linear repair	0	0-1	0: Off 1: On
488	485 high select	0	0-1	0: High bit 1: Low bit
540	Measured value1	5000	-99999-999 999	Point 1 real-time value before correction
542	Revise factor1	1.0000	5000-99999	Point 1 adjustment coefficient = actual value/real-time value before correction (retain four decimal places for input)
544	Measured value2	5000	-99999-999 999	Point 2 real-time value before correction
546	Revise factor2	1.0000	5000-99999	Point 2 adjustment factor = actual value / real-time value before correction
548	Measured value3	5000	-99999-999 999	Point 3 real-time value before correction
550	Revise factor3	1.0000	5000-99999	Point 3 adjustment factor = actual value / real-time value before correction
552	Measured value4	5000	-99999-999 999	Point 4 real-time value before correction
554	Revise factor4	1.0000	5000-99999	Point 4 adjustment factor = actual value / real-time value before correction
556	Measured value5	5000	-99999-999 999	Point 5 real-time value before correction
558	Revise factor5	1.0000	5000-99999	Point 5 adjustment factor = actual value / real-time value before correction
560	Measured value6	5000	-99999-999 999	Point 6 real-time value before correction
562	Revise factor6	1.0000	5000-99999	Point 6 adjustment factor = actual value / real-time value before correction
564	Measured value7	5000	-99999-999 999	Point 7 real-time value before correction
566	Revise factor7	1.0000	5000-99999	Point 7 adjustment factor = actual value / real-time value before correction
568	Measured value8	5000	-99999-999 999	Point 8 real-time value before correction
570	Revise factor8	1.0000	5000-99999	Point 8 adjustment factor = actual value / real-time value before correction
572	Measured value9	5000	-99999-999 999	Point 9 real-time value before correction
574	Revise factor9	1.0000	5000-99999	Point 9 adjustment factor = actual value / real-time value before correction
576	Measured	5000	-99999-999	Point 10 real-time value before correction

	value10		999	
578	Revise factor10	1.0000	5000-99999	Point 10 adjustment factor = actual value / real-time value before correction
580	Measured value11	5000	-99999-999999	Point 11 real-time value before correction
582	Revise factor11	1.0000	5000-99999	Point 11 adjustment factor = actual value / real-time value before correction
584	Measured value12	5000	-99999-999999	Point 12 real-time value before correction
586	Revise factor12	1.0000	5000-99999	Point 12 adjustment factor = actual value / real-time value before correction
588	Measured value13	5000	-99999-999999	Point 13 real-time value before correction
590	Revise factor13	1.0000	5000-99999	Point 13 adjustment factor = actual value / real-time value before correction
592	Measured value14	5000	-99999-999999	Point 14 real-time value before correction
594	Revise factor14	1.0000	5000-99999	Point 14 adjustment factor = actual value / real-time value before correction
596	Measured value15	5000	-99999-999999	Real-time value before point 15 correction
598	Revise factor15	1.0000	5000-99999	Point 15 adjustment factor = actual value / real-time value before correction

6.2. Basic parameters

The basic parameters are commonly used parameters when the instrument is working, and can be entered at the parameter modification place of the menu interface. The default entry password is '000'

Address	parameter name	Default value	Scope	Description
8	Hysteresis ratio	10	1-99	The force value is less than the hysteresis ratio multiplied by the start capture threshold to end the capture
14	End capture condition	0	0-2	0-End of delay; 1-End of less than threshold; 2-Key-press end; 3-Unconditional mode
16	Start capture threshold	50	0-999999	When the force value is greater than this value, the historical curve record will be started, and the peak and valley values will be cleared to zero
18	Capture time	1s	0-999.9s	After reaching the condition, delay the time to end the capture
20	Capture interval	0.5s	0-999.9s	The interval between two captures (to prevent accidental capture)
240	First level filter setting	10	1-99	Data filtering for curve records, communication, etc., the larger the value, the stronger the filtering ability
246	Judgment of stability	2	0-200d	Fluctuations within this range are judged to be stable
252	Power-on reset range	50	0-999999	When the power is on, if the force value is within this range, it will be automatically cleared.

254	Auto-clearing range	0	0-999999	When the end condition is reached, the force value range that starts to be automatically cleared
258	Automatic reset delay time	1	0-9.999s	After the end condition is reached, it will be automatically cleared after a delay of this length of time
260	Alarm method	0	0-4	Alarm when this condition is reached 0-no alarm; 1-force value>alarm value; 2-force value<alarm value 3-peak value>alarm value; 4-bottom value<alarm value;
262	Alarm value	5000	-99999-999999	Value to compare in case of warning
264	Peak and valley alarm time	1.0	0-99.9	Peak and valley value alarm duration

7. Frequently Asked Questions

Q: Is the value displayed on the meter bouncing around?

A: Please confirm whether the sensor wiring is normal. In order to improve the high-speed sampling performance, when the sensor is not connected, the force value display will not be fixed to 0; usually the display value is too large because the sensor is not connected; please check the range in the advanced parameters Coefficient parameter, this parameter is generally within 100000, if it is much larger than this value, reduce this parameter and recalibrate;

Q: The peak is not captured in the way I want?

A: Please refer to the parameter description of "End Capture Conditions" in Chapter 5, and adjust the parameters according to your desired mode;

Q: How to display the historical curve?

A: When a complete start-end condition process is completed, it will be automatically displayed.