HY-LCT Load Cell Tester

Operate Manual

Ver3.0

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HY-LCT/LCTA   Load Cell Tester

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Safety notice

Please read this manual before using, the wrong operation will damage the instrument.

1.Overview

HY-LCT/LCTA Test instrument is a universal portable test device,mainly for various types of analog load cells,digital load cells,analog weighing indicators, big screen display and on-site troubleshooting for some interfaces.

Suitable for the weighing service person at the scene to solve the problems,suitable for weighing sensor manufactures to make factory inspection.

2.Main features

ʊ Test the capacity ,sensitivity and output signal of analog sensor   (in microvolt).And conversion to display the current actual weight, used to judge the performance of analog sensor;

For example, zero output, stability,linearity and others parameters.More accurate, more intuitive, eliminated the traditional by multimeter to measure   the input and output resistance method;

ʊ Check the digital sensors AD code,and conversion display the current actual weight,used to judge the relative performance of digital sensors, such as the over output,stability,linearity and others parameters;

◆ It can automatically read or set the digital sensor address,zero setting and calibration operation for full capacity (calibration function for VIP users);

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ʊ Decimal point can be set and display the division value and filtering parameters, used as a conventional analog instrumentation；

ʊ It can output 0-20mv analog signal,1/4000 precision.For detecting or calibration traditional analog indicators.

ʊ Through RS232 to test the big screen display is normal or not.compatible with a variety of the communication protocol of big screen display from different manufactures(Yaohua and Qiuhao) and continuous improvement

ʊ Test the computer serial port is damaged or not.

3.Instrument   Appearance

External Dimension：   210mm×100mm×35mm

Weight：   550g

Exterior photo：   see   picture 1

(picture1)   HY-LCT/LCTA

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Keystrokes Description：

 On-Off key，press on it for 2 seconds ，"DI" voice for power on.

Press on it for 1 seconds, "DI" voice for power off。

 Function Key；   Backlight Key；

 Move up and down key；

 … Number select Key

 Cancel or return Key   Enter(Confirm) Key.

4.Function of the instructions

1．For Indicators

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　　　　　　　　2-2-1-1. 4 wires

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　3.For Big Screen Display

　　　　3-1. Yaohua protocol display

　　　　3-2. Qiuhao protocol display

　4. For Computer commport Interface

After power on,the system will self-check, display the model and version information, and then into the main interface functions

```
1-  Indicators
2-  Load cells
3-  Big screen display
4-  Computer interface
```

In this state，press the number keys 1/2/3/4 can direct access to the relevant test functional areas ，

Press the function key，the following parameters can be se**t**：

```
Unit：kg  (kg/t/lb)
Decimal point：0  （0..3)
Filter:1   (0..3)
Division value：1
```

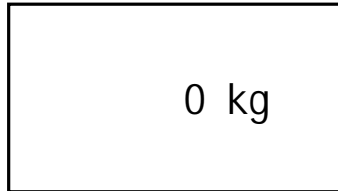Press the move up/down key to choose the corresponding parameters，press[OK]

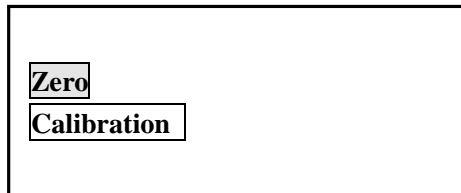# HY-LCT/LCTA   Load Cell Tester

key to save，and switch to the next set。

The division value of the option are ： 1/2/5/10/20/50/100

All of them are saved,according to the [C] key to exit

1-1.   **Handhold analog indicators** （interface:： S+ S- E+ E-）

```
            0  kg
```

Under this condition,by the function key enter to instruments calibration function.

```
 Zero
 Calibration
```

Zero operation: press the up/down key, select the "zero", the scale with no weight, enter [OK] key, system automatic clear zero, and save, return to the weighing mode;

Full range calibration: press the up/down key to select "calibration" full range, the weighing platform loaded weight, press [OK] key to prompt for the weight of the load, input the loaded weight, waiting for the weighing platform is stable and press [OK], calibration is completed, the system automatically save, return to the weighing mode；

1-2-1．   **Simulator Output:**(HY-LCTA model) （Interface：Analog signal output interface+ /- /GND）

```
Range： 0-20.000mV
Step： 0.005 mV

00.000  mV   ⇧
             ⇩
```
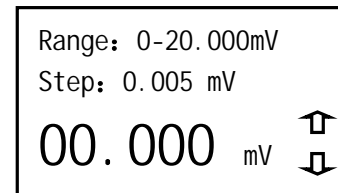
Under this condition, the simulator output 0mV, each time you press the up keys, the output increase by one step, until the maximum output value of is 20.000mV; Each time you press the down arrow button, the output reduced a step , until the output value is 0.000mV. Step value can be set,Default is 0.005mV Presss function keys can choose the step value (by the corresponding number key choice, value is not saved when the power is cut off)

```
Step:      （1） 0.005 mV
           （2） 0.01 mV
           （3） 0.1 mV
           （4） 1 mV
```
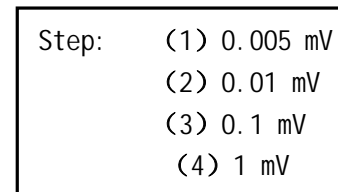
Simulator output 0-20mV analog,can be used for detecting the related properties of almost all weighing indicators, 1/4000 precision, stability and output range and can meet the general analog indicator set and calibration needs.If you need more, please order description.

1-2-2. **The simulator output calibration** (HY-LCTA model)

Full capacity calibration,it is zero and output full range calibration of indicators. Indicators has been calibrated at the factory. If you need accurate analog signal output value, After one cycle of need,you may need to calibration again. Calibration method is as follows：

Keep the indicator battery power is enough，Signal output port connect

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with the high precision voltage meter，press up/down key to adjust the output of the instrument to the high precision voltage meter display 20.000 mV,press[OK] confirmed，after that the indicator will display：

```
1-Output calibration

2-Output initialize
```

In this state, press number key [1], Please input the voltage values of the voltmeter display,such as input 20000uv, (= 20.000mV), then press [OK] at this time, the system automatically calibration is complete.

If an error occurs during calibration operations,it lead to unable for re-calibration, you can choice the keyboard [2], the initialization of analog signal output, so that the system into a normal calibration range.

2-1-1.   **General performance testing**（analog load cells） interface：S+ S- E+ E-）

```
capacity：030000    kg
sensitivity：2000 uV/V
Actual weight：0 kg
output：     0.000mV
```

System provide voltage DC5V for analog load cell, press the number keys to set the capacity of the sensor, press the up/down key to switch to the sensitivity input status, press number keys to set the sensitivity of the sensor, instrument shows the output of the value of the load cell,the millivolt signal being measured, the actual weight according to the value of the intuitive for conversion to the actual   eight according to the t o values judge whether

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measured analog sensor's zero range in a reasonable range, can apply to the tested sensor of a known weight force, and compared with actual weight shows that the value of the output of millivolt signal changes of direction, so as to determine whether the sensor is normal, can detect to judge the stability of the sensor output value of both properties, such as linear or creep.

When applying weight before, also can press the function key, select"take", so that the actual weight data can more intuitive

```
[OK]tare
[C] exit
```

```
【OK] cancel tare
 [C] exit
```

2-1-2. Testing for capacity of load cells（analog load cells）（interface：S+ S- E+ E-）

```
load：000000   kg
sensitivity：2000 uV/V
capacity：        0 kg
[OK]start to loading
```

Press number key to put the weight of the load value (can enter your own weight), press the up/down key to switch to the input sensitivity status, press number key also to enter the sensitivity of the sensor   (if you don't know the actual sensitivity, can enter a median estimates, for example 2000), then press [OK], and start loading the weight (or you may stand in the   stress of the station to the sensor area), the range of the instrument shows for the system calculated the theoretical value, but at this time according to the measured current experience clearly determine the actual range of the load cells.

Note: Please press [OK] to start before loading, because system have the

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functions of automatic zero calibration before loading。

2-1-3. Test for sensitivity （analog load cells） （Interface：**S+ S- E+ E-**）

```
Load：000000   kg
Capacity ：      00000 kg
sensitivity：            uV/V
   [OK]start to loading
```

Press number key to put the weight of the load value (can enter your own weight), press the up/down key to switch to the input capacity status, press number key also to enter the capacity of the sensor, then press [OK], and start loading the weight (or you may stand in the stress of the station to the sensor area), the sensitivity of the instrument shows for the system calculated the theoretical value, but at this time according to the measured current experience clearly determine the actual sensitivity of the load cells.

Note: Please press [OK] to start before loading, because system have the functions of automatic zero calibration before loading。

2-2-1. Yaohua A/D module （digital load cell）
（Interface：T+(485A) T-(485B) R- R+ Power- powe+）

```
   1-4 wire
   2-6 wire
```

Press number key o choose the corresponding mode, system into the digital sensor communication interface，

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```
   ID：- - - - - -
- - - - - - - - - - - - - - - - - - - - - - -
Capacity : 030000   kg
Actual weight：      kg
```

When the last normal communication system default address, if consistent with the address of the tested sensor, will display encode value and the actual weight,

Press the number key to set the capacity of the measured sensor now, force of the sensor will be displayed real-time, you can press the function key, select tare or cancel tare functions.

Press the up/down key, the system will into the interface for set communication address.

```
   ID：- - - - - -
- - - - - - - - - - - - - - - - - - -
      address= 01
set          Auto read
```

At this time,you can press the number key to enter the address which you need to modify.then by up/down key move to the "settings",press [OK],wait for some seconds.The address of digital load cells will be changed.

If you want to know the current measured the address of the digital load cells,can press up/down move to "automatic reading",then press [OK],the system will be automatic inquiry for the address from 01

If the address have been inquired,the system will automatically stop on the currently valid address,and will display the internal encode.Otherwise,the system will stop on the last address have been inquired.

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Can through the above encode or actual weight values to determine whether the sensor is normal, if the weight of the load and display the actual weight of the far, can determine the sensor is not normal, need to calibration; If it have not been able to read normal communication, or can't read the address, can determine the sensor may be damaged.

2-2-2．Keli A/D module（digital sensor）updating，system will support soon。

2-2-3．Dingsong module（digital sensor ）operation method refer to the above instructions。

2-2-4．Benui/Boast module（digital sensor）operation method refer to the above instructions.

3-1. Test Yaohua big screen   （Interface：**TXD RXD GND**）

```
Test   Yaohua   display
（2400,n,8,1）

- - - - - - - - - - -
        123456   >>>>
```

The indicator according to the 2400 baud rate, no calibration, 8 data bits, 1 stop bit, send the RS232 communication formats to yaohua big screen and can identified by yaohua big screen, can enter different numbers for big screen , if display is normal, then judge the big screen   is normal, if the display is not normal, to check the cable connect or judge big screen   damage

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3-2． **Test for Qiuhao big sreen display**   （interface：**TXD RXD GND**）

```
Test the Qiuhao display
（9600,n,8,1）

- - - - - - - - - - -
        123456   >>>>
```

Same as the above operation method, the instrument according to the 9600 baud rate, no calibration, 8 data bits, 1 stop bit, for send data.

4.Test for PC interface   （interface：TXD RXD GND）

```
Test the PC interface：
（9600,n,8,1）
 0123456789ABCDEF
[OK]send    [C]exit
```

Tester in the receiving state at this time, 9600 baud rate, no calibration, 8 data bits, 1 stop bit, and if the computer through a serial port debug tool to send the data to tester , the tester immediately send data back to the computer, compare with the data by send and receive , in order to judge the computer interface is good or not. also can press [OK] sent directly fixed a list of data to the computer serial port, with debugging tools or the super terminal to receive

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5.Interface: (DB15 wire interface)

```
    9        15
  ┌─────────────┐
  │ o ( ....... ) o │
  │   ( ..... )     │
  └─────────────┘
    1        8
```
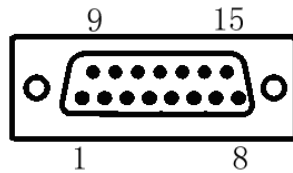
	Signal	Instruction
1	VCC7.4V	Digital load cells Power+
2	R-	R-,connect 6 wire digital load cells's T-
3	R+	R+,connect 6 wire digital load cells's T+
4	T+ (485A)	T+,connect 6 wire digital load cells's R+ Or 4 wire digital load cells's 485A
5	T- (485B)	T-，connect 6 wire digital load cells's R- Or 4 wire digital load cells's 485B
6	RXD	RS232 receive，connect to TXD port of PC
7	TXD	RS232 send，connect to PC or RXD port of big screen display.
8	GND	Digital load cell power-/GND
9	E-	E-,test for analog load cells/GND
10	S+	S+,test for analog load cells
11	S-	S-,test for analog load cells
12	E+	E+，test for analog load cells
13	Output V+	0-20mV signal output+(HY-LCTA model)
14	Output V-	0-20mV signal output-(HY-LCTA model)
15	GND	GND (HY-LCTA model)

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6.Maintenance

1 Don't use corrosive solvent to clean the surface of instrument
(such as gasoline alcohol etc)

2 To avoid impact when using and transport

3 Don't take   the machine parts, it will not work properly

Accessories ：

Test Interface ：

Charger：

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