



H7000 LOAD CELL TESTER COMMUNICATION MANUAL

Communication parameters:

- 1、 **Baud Rate: 57600,N,8,1.** (Could selected from parameters)
- 2、 **Communication protocol:** There are protocol selection options in the touch screen parameter settings, protocol selection = 0: custom continuous output sensitivity value protocol, protocol selection = 1: standard modbus-RTU communication protocol (supports 03H, 06H commands), directly supports man-machine interface, touch screen (WEINVIEW, Siemens, etc.). Protocol Select=2: Specifies the data protocol for custom continuous output.
- 3、 **modbus-RTU protocol parameters:**

Register Address	Data Name	Data Format	Type of Data	Original Data	Notes
Basic Parameters					
512 (0200H)	Filter times	Uint16	Read/Write	20	Scope: 1-25
513 (0201H)	Acquisition speed	Uint16	Read/Write	3	0: 7.5hz 1: 15hz 2: 30hz 3: 60hz 4: 120hz 5: 240hz 6: 480hz
514 (0202H)	Sensitivity display decimal	Uint16	Read/Write		
515 (0203H)	Baud rate selection	Uint16	Read/Write	0	0: 9600; 1: 19200 2: 38400 3: 57600 4: 115200
516 (0204H)	Engineering value(force) display decimal	Uint16	Read/Write	2	0、 1、 2、 3
517 (0205H)	filter method	Uint16	Read/Write	0	0.Double sliding filter (for detection) 1.Median sliding filter (for detection) 2.Tracking first-order filter (for control) 3.Double sliding anti-shake filter 4. Median anti-shake filter
518 (0206H)	Division of Force	Uint16	Read/Write	2	1-50

Load Cell Systems reserves the right to change specifications without notice. ©2022

Web: <https://loadcellsys.com>
 Email: sales@loadcellsys.com
 Phone: 607-426-1467

COMMUNICATION OF TESTER

519 (0207H)	Unit of Force	Uint16	Read/Write	0	0: kN 1: Nm 2: kg 3: t 4: MPa 5: g
520 (0208H)	Options of communication protocols	Uint16	Read/Write	0	0. It is the protocol of continuous output sensitivity 1. Modbus protocol (03/06 commands can be directly connected to the touch screen) 2. Specify data protocol for custom continuous output
521 (0209H)	Module address (station number)	Uint16	Read/Write	1	Range: 1-254
522 (020AH)	zero tracking for force	Uint16	Read/Write	5	0-10 divisions
523 (020BH)	Force correction points	Uint16	Read/Write	10	Range: 2-10
524 (020CH)	Sensitivity setting value	Uint16	Read/Write	0	0-5.0000mV/V
525 (020DH)	Sensitivity out-of-tolerance threshold	Uint16	Read/Write	0	0-5.0000mV/V
526 (020EH)	Insulation out-of-tolerance threshold	Uint16	Read/Write	0	0-7000 MΩ
527 (020FH)	Bridge arm resistance over-tolerance threshold	Uint16	Read/Write	0	0-1000 Ω

COMMUNICATION OF TESTER

528 (0210H)	Input resistance setting value	Uint16	Read/Write	0	0-1000Ω
529 (0211H)	Input resistance out-of-tolerance threshold	Uint16	Read/Write	0	0-1000Ω
530 (0212H)	Output resistance setting value	Uint16	Read/Write	0	0-1000Ω
531 (0213H)	Output resistance out-of-tolerance threshold	Uint16	Read/Write	0	0-1000Ω
Calibration parameters					
0 (0000H)	Point 1 of force Calibration	Int32	Read/Write	100	Unit: kN/N/kg/g/T/Nm
2 (0002H)	Point 2 of force Calibration	Int32	Read/Write	200	Unit: kN/N/kg/g/T/Nm
4 (0004H)	Point 3 of force Calibration	Int32	Read/Write	300	Unit: kN/N/kg/g/T/Nm
6 (0006H)	Point 4 of force Calibration	Int32	Read/Write	400	Unit: kN/N/kg/g/T/Nm
8 (0008H)	Point 5 of force Calibration	Int32	Read/Write	500	Unit: kN/N/kg/g/T/Nm
10 (000AH)	Point 6 of force Calibration	Int32	Read/Write	600	Unit: kN/N/kg/g/T/Nm
12 (000CH)	Point 7 of force Calibration	Int32	Read/Write	700	Unit: kN/N/kg/g/T/Nm
14 (000EH)	Point 8 of force Calibration	Int32	Read/Write	800	Unit: kN/N/kg/g/T/Nm
16 (0010H)	Point 9 of force Calibration	Int32	Read/Write	900	Unit: kN/N/kg/g/T/Nm
18 (0012H)	Point 10 of force Calibration	Int32	Read/Write	1000	Unit: kN/N/kg/g/T/Nm
20 (0014H)	Point 1 of Sens. Calibration	Int32	Read/Write	0.20000	Unit: mV/V
22 (0016H)	Point 2 of Sens. Calibration	Int32	Read/Write	0.40000	Unit: mV/V
24 (0018H)	Point 3 of Sens. Calibration	Int32	Read/Write	0.60000	Unit: mV/V
26 (001AH)	Point 4 of Sens. Calibration	Int32	Read/Write	0.80000	Unit: mV/V
28 (001CH)	Point 5 of Sens. Calibration	Int32	Read/Write	1.00000	Unit: mV/V

COMMUNICATION OF TESTER

30 (001EH)	Point 6 of Sens. Calibration	Int32	Read/Write	1.20000	Unit: mV/V
32 (0020H)	Point 7 of Sens. Calibration	Int32	Read/Write	1.40000	Unit: mV/V
34 (0022H)	Point 8 of Sens. Calibration	Int32	Read/Write	1.60000	Unit: mV/V
36 (0024H)	Point 9 of Sens. Calibration	Int32	Read/Write	1.80000	Unit: mV/V
38 (0026H)	Point 10 of Sens. Calibration	Int32	Read/Write	2.00000	Unit: mV/V
Display parameters					
768 (0300H)	Sensitivity disp.	Int32	Only Read		Unit: mV/V
770 (0302H)	Force disp.	Int32	Only Read		Unit: kN/N/kg/g/T/Nm
772 (0304H)	Input Resistan.	Int32	Only Read		
774 (0306H)	Output Resistan.	Int32	Only Read		
776 (0308H)	EX+ to S+ Resistance	Int32	Only Read		
778 (030AH)	EX+to S- Resistance	Int32	Only Read		
780 (030CH)	EX-to S+ Resistance	Int32	Only Read		
782 (030EH)	EX-to S- Resistance	Int32	Only Read		
784 (0310H)	External resistor	Int32	Only Read		
786 (0312H)	Insulation resistance	Int32	Only Read		
Control parameter					
1280 (0500H)	test result reset	Uint16	Only Write		Clear the test result content to zero (After writing 1, it will automatically return to 0 after clearing)

COMMUNICATION OF TESTER

1281 (0501H)	Clear	Uint16	Only Write		1:Sensitivity reset/zero (after writing 1, it will automatically return to 0 after clearing) 6:Sensitivity reset (after writing 6, it will automatically return to 0 after reset) 10: The engineering value is cleared (after writing 10, it will automatically return to 0 after clearing)
1282 (0502H)	Call default	Uint16	Only Write		Write 25999 to automatically load the default value
1283 (0503H)	Start Testing	Uint16	Only Write		Write 1 to start the test (after writing 1, the test will automatically return to 0)
1284 (0504H)	test selection	Uint16	Read/Write		The upper 8 bits are 0, the lower 8 bits are selection, 1 for each bit means selection, 0 means not selection, for example, the last 2 bits of 0x0003 are 1, indicating that the input resistance test and the output resistance test are selected.
1285 (0505H)	test end status	Uint16	Read		0x0000 End of testing 0x0001 In testing

4、 Simple Description of Modbus-RTU protocol Modbus-RTU.

Protocol frame format:

ADR (communication address 1 byte) + command code (1 byte) + register address (high) + register address (low) + number of registers (high) + number of registers (low) + CRC check (high) + CRC parity (low).

Command code: This module supports 03H, 06H

Command code: 03H, read N words (word) (N<10)

Command code: 06H, write 1 word (word)

Example: read the value in the register address 512 (0200H). (Assume the module address (station number) is 1)

Send: 01 03 02 00 00 01 85 B2

Response: 01 03 02 00 14 B8 4B (0014H=20 means the read data is 20)

Example: Write the value 25=19H to the register address 512 (0200H). (Assume the module address (station number) is 1)

COMMUNICATION OF TESTER

Send: 01 06 02 00 00 19 49 B8

Response: 01 06 02 00 00 19 49 B8 (0019H=25 means the written data is 25)

The driver directly supports the touch screen, select modbus-RTU in the touch screen, and the address type is 4X.

5. Customize continuous output specified data protocol

Meter issued: XXXXXXXXXXXXX

The front is generally the type, and the back is the data, both of which are ASCII codes.

E.g:

The meter sends the string:

mV:+2.49427 means that the transmission is the sensitivity +2.49427mV/V

R1:+0050.45 means that the input resistance is 50.45 ohms sent

R2:+0050.45 means the output resistance is 50.45 ohms

R3:+0050.45 means sending EX+--S+ resistance 50.45 ohms

R4:+0050.45 means that the sending is EX+--S- resistance 50.45 ohms

R5:+0050.45 means sending EX---S+ resistance 50.45 ohms

R6:+0050.45 means sending EX---S-resistance 50.45 ohms

R7:+0050.45 indicates that the external resistance 50.45 ohm is sent

R8:+006.658 indicates that the transmission is insulation resistance (G ohm) 6.658 G ohm

The meter sends the string:

S:00000000 The first 8 items are project selection, 1 is selected, 0 is not selected, the last one is the test status, 1 means testing, 0 means the test is over.

The computer sends the command string:

@CSX# Start testing command X is 0 or 1. For example, when the computer sends @CS1#, the meter starts testing.

@CMX# Clear the result X is 0 or 1 For example, the computer sends @CM1# to clear the test result

@CLX# Reset X is 1: Sensitivity reset/zero (after writing 1, it will automatically return to 0)
6: Sensitivity reset (after writing 6, it will automatically return to 0) for example, the computer sends @CL1# clear.

@EXX# Select items The first X is 0-7 corresponding to 8 choices The second X is T or F, T means select, F means no choice. For example, the computer sends @E0T# to indicate that the input resistance test is selected.

@CRX# Continuous output data selection X is 0: output sensitivity, 1: output status 2: output test result. For example, when the computer sends @CR1#, the meter will continuously output the status.