Evaluation Certificate

Number **TC8391** revision 0
Project number 13200302

Issued by	NMi Certin B.V.
In accordance with	WELMEC 8.8 Issue 2, Paragraph 8.1 of EN 45501:1992/AC:1993, WELMEC 2.1 Issue 4, OIML R76-1:2006
Producer	Shanghai Handfree Mechatronic Co., Ltd. 18th, No. 5018 Shangnan Road Shanghai 200124 Peoples Republic of China
Measuring instrument	An **Indicator**, tested as a part of a weighing instrument.

Brand : Shanghai Handfree Mechatronic
Designation : HF-L/S, GC-L/S, HC/E-200, PC/E-200

Further properties are described in the annexes:
- Description TC8391 revision 0;
- Documentation folder TC8391-1.

An overview of performed tests is given in the annex:
- Description TC8391 revision 0.

Issuing Authority **NMi Certin B.V.**
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Description

1 General information about the indicator

All properties of the indicator, whether mentioned or not, shall not be in conflict with the standard mentioned in the certificate.

This certificate is the positive result of the applied voluntary, modular approach, for a component of a measuring instrument, as described in WELMEC 8.8. The complete measuring system must be covered by an EC type-approval Certificate or an EC-type examination Certificate.

1.1 Essential parts

Number	Pages	Description	Remarks
8391/0-01	2	Mainboard HC200 LCD	Drawing + parts list
8391/0-02	2	Mainboard PE200 LED	Drawing + parts list

EMI protection measures:
- A ferrite around loadcell cable to mainboard (1 turn);
- A ferrite around RS232 cable to mainboard (1 turn);
- A ferrite around cable from power input to mainboard (2 turns).

1.2 Essential characteristics

Accuracy class	(III)	
Maximum number of verification scale intervals	6000	
Load cell excitation voltage	5 V DC	
Minimum input voltage per verification scale interval	1 µV	
Minimum load cell resistance	350 Ω	
Maximum load cell resistance	1050 Ω	
Fraction of the maximum permissible error	0,5	
Load cell connection	4-wire	6-wire (remote sensing)
Maximum value of the cable length per cross wire section (m/mm^2) between the indicator and the junction box or load cells	connected directly without junction box	No special cable length
Weighing range(s)	Single interval Multiple range	
Maximum number of load platforms	1	

Temperature range	-10 °C / +40 °C
Power supply voltage	230 V AC 50/60 Hz; AC/DC Adapter 9 V DC.
Software identification	Version number: 1.xx for LCD mainboard, 2.xx for LED mainboard. Where xx represents the metrological non-relevant part of the software.

Software:
- The identification number will be displayed at start-up;
- The indicator has embedded software.

List of legally relevant functions:
- Determination stability of equilibrium;
- Indication of stable equilibrium;
- Zero indicator;
- Semi-automatic zero-setting;
- Automatic zero-setting;
- Initial zero-setting;
- Zero-tracking;
- Semi-automatic subtractive tare balancing;
- Semi-automatic subtractive tare weighing;
- Preset tare;
- Gravity compensation;
- Adjustment / set-up mode via a switch on the main board;
- The adjustment mode is secured with a password, this software seal uses an event counter that contains a number that will be incremented each time any parameter changes or adjustment is made and saved; (when no hardware sealing is used)
- Acting upon significant faults;
- Checking the display;
- Check weighing mode;
- Set points;
- Indication of selected set point(s);
- Weighing unstable samples (animals);
- Weight unit selection (kg, g);
- Linearity compensation: the linearity can be compensated to a maximum of 3 points for each connected platform;
- Counting mode;
- Percentage mode.

1.3 Essential shapes

The indicator is built according to drawings:
- Exploded view HC200, drawing number 8391/0-03;
- Exploded view PE200, drawing number 8391/0-04.

The descriptive markings plate is secured against removal by sealing or will be destroyed when removed and contains at least the following information:
- This certificate number TC8391;
- The event counter value (when no hardware seal is used);
- Producers name or mark.

Inside the cabinet is an adjustment lock, located on the main board.

1.4 Conditional parts

The indicator may be equipped with one or more of the following protective interfaces that have not to be secured:
- RS232.

1.5 Non-essential parts

Display;
Keyboard.

2 Seals

To secure components that may not be dismantled or adjusted by the user, the indicator has to be secured in a suitable manner on the locations indicated in the drawings:
- Sealing HC200 8391/0-05;
- Sealing PE200 8391/0-06.

The event counter value will be displayed during start up. (when no hardware sealing is used)

The connecting cable of the load cell or the junction box is provided with possibility to seal.

3 Conditions for conformity assessment

The compatibility of load cells and indicator is established by the manufacturer by means of the compatibility of modules form, contained in WELMEC 2 Issue 5 Section 11, at the time of putting into use.

Other parties may use this Evaluation Certificate only with the written permission of the producer.

4 Test reports, evaluation reports and type (pattern) evaluation reports

An overview of performed tests is given in the reports:
- No. NMi-13200302-01 dated 29 November 2013 that includes 51 pages;
- No. NMi-13200302-02 dated 29 November 2013 that includes 11 pages.