

# Directions Governing Type Approval of Electronic Nonautomatic Weighing Instruments

[Chronicle of Promulgation and Amendments]

Enacted and promulgated by Order Ching-Piao-Szu-Tzu No.09240007800 of the Bureau of Standards, Metrology and Inspection, Ministry of Economic Affairs on 12 September 2003

1. These Directions are enacted for conducting type approval and series type approval of electronic nonautomatic weighing instruments and other relevant activities.
2. To apply for type approval, series type approval or approbation, the applicant shall submit the following technical documents:
  - (1) Two instruction manuals of operating function (exempted for applicants for approbation);
  - (2) Two lists of the matters of lead seals and stamps (exempted for applicants for approbation);
  - (3) The original certificate of type approval (exempted for applicants for type approval); and/or
  - (4) Description of the difference caused by alteration (exempted for applicants for type approval).
3. To apply for type approval or series type approval, the applicant shall submit the following appearance photos (attached on A4 paper and bound into two volumes; the photos shall not be smaller than  $12.7 \times 8.8 \text{ cm}^2$ ):
  - (1) Totally six photos of the upper, lower, left, right, front and back face of the instrument; and
  - (2) Close-up photos of the marks, buttons and sealing.
4. An applicant for type approval shall submit the following technical documents to the designated laboratory recognized by the designated dedicated weights and measures authority to apply for test:
  - (1) Structural chart and 3D breakdown drawing (commonly called "exploded view") of the sample;
  - (2) Instruction manual of operating functions;
  - (3) Specification sheet of functions and devices (see the annexed table);
  - (4) Circuit block diagram and circuit diagram;
  - (5) List of the critical parts, at least including the detailed specifications of load cell, analog/digital converter and microcomputer processor;
  - (6) Description of sealing and locking methods (including the location diagram of lead seals and the list of the matters of lead seals and stamps);
  - (7) Description of pricing and weighing setting or adjusting methods (including calibration of weighing capacity);
  - (8) Illustration of the labels, marks, and other information displayed on the weighing instrument;
  - (9) Where the instrument has the pricing display function, flow chart explaining calculation of the amount payable (including the principle of rounding);
  - (10) Other illustrations (briefly describing the rated current and voltage, usage, attentions in usage, and performance of the machine);
  - (11) Photos of all circuit boards, load cells and important components.
5. Under any of the following circumstances, application for series type approval or approbation may be filed, directly without the need for test, for type-approved electronic nonautomatic weighing instruments:
  - (1) Where the verification scale interval increases without changing the maximum weighing capacity;
  - (2) Where the ratio of the maximum weighing capacity to the rated capacity of load cell varies within 0.5~1.0, without exceeding the number of verification scale interval originally approved;
  - (3) Where the range of tare decreases;
  - (4) Where a weighing instrument is used with the same circuit board as that of a type-approved pricing weighing instrument but without the pricing element and the pricing display;
  - (5) Where the type, color or size of display tube or display component is changed, or the arrangement of the elements on the panel is changed, without changing the driving electronic circuit;
  - (6) Where the pattern of buttons or their arrangement on the panel is changed without changing the driving electronic circuit;
  - (7) Where any button operating function is added or reduced without changing the effect of weighing or pricing, nor

changing the driving electronic circuit;

- (8) Where the size of the load receptor is changed within 20% of the original size approved;
  - (9) Where any active or passive component is replaced by another with the same or higher performance (only applicable to the performance that is easy to confirm on the manual or specification sheet);
  - (10) Where the specification of battery is changed;
  - (11) Where an internal jump wire is added with changing the intercrossing only;
  - (12) Where a few passive components are added to a non-weighing circuit or I/O circuit to prolong its service life;
  - (13) Where the appearance of the base is changed;
  - (14) Where the arrangement of external texts or marks is changed; or
  - (15) Where the foot pad of the instrument is changed.
6. Under any of the following circumstances, application for series type approval or approbation may be filed, after the process of relevant performance tests, for type-approved electronic nonautomatic weighing instruments:
- (1) Where the number of verification scale interval is out of the original range approved, the weighing performance, discrimination, repeatability, eccentricity, zero return, creep, tilting, tare, temperature, endurance and other relevant items shall be tested.
  - (2) Where the weighing circuit, the control program, or the control circuit of display is changed, the weighing performance, voltage variation, short time power reduction, electrical burst, electrostatic discharge, and immunity to radiated electromagnetic field and other relevant items shall be tested. (For example, change from LCD to LED display)
  - (3) Where the load cell or the structural connector (aluminum reinforcement, aluminum tray) of load cell is changed, the weighing performance, discrimination, repeatability, eccentricity, zero return, creep, temperature, tilting, tare, endurance and other relevant items shall be tested.
  - (4) Where the compensation method of I/O circuit is changed, the weighing performance, temperature, damp heat, voltage variation, short time power reduction, electrical burst, electrostatic discharge, immunity to radiated electromagnetic field and other relevant items shall be tested. (For example, change of LCD IC)
  - (5) Where the size of load receptor is changed by more than  $\pm 20\%$  of the original size approved or the shape of the support is changed, the weighing performance, eccentricity, tilting and other relevant items shall be tested.
  - (6) Where the materials of the structure and load receptor originally approved are changed, the short time power reduction, electrical burst, electrostatic discharge, immunity to radiated electromagnetic field and other relevant items shall be tested.
  - (7) Where the range of tare originally approved is increased, the tare test shall be conducted.
  - (8) Where the load receptor is made higher, the eccentricity, tilting, electrostatic discharge, immunity to radiated electromagnetic field and other relevant items shall be tested.
  - (9) Where the A/D converter and the circumference are changed without changing load cell, the weighing performance, temperature, damp heat, voltage variation, immunity to radiated electromagnetic field and other relevant items shall be tested.
  - (10) Where the circuit layout is changed without changing the circuit design, short time power reduction, electrical burst, electrostatic discharge, immunity to radiated electromagnetic field and other relevant items shall be tested.
  - (11) Where the type of display and the electronic circuit are changed, the electrical discharge, immunity to radiated electromagnetic field and other relevant items shall be tested.
  - (12) Where the shape or size of the structure is changed, the eccentricity, tilting, weighing performance, electrical discharge, immunity to radiated electromagnetic field and other relevant items shall be tested.
7. Under any of the following circumstances, application for type re-approval shall be filed for type-approved electronic nonautomatic weighing instruments:
- (1) Where the load conversion method or loading principle is changed;
  - (2) Where the ratio of the maximum weighing capacity and the rated capacity of load cell is changed out of the range of 0.5~1.0;
  - (3) Where the lever ratio is changed more than 1:50; or
  - (4) Where any I/O interface (e.g., RS-232) or printer function is added.

8. For type-approved electronic nonautomatic weighing instruments, in case of any alteration other than listed in the preceding three articles, the Type Approval Commission of the BSMI or the designated laboratory recognized by the BSMI may examine the relevant technical documents to determine which items shall be tested.
  
9. To apply for extension of the validity period of a type approval certificate, the original applicant for type approval or the successor shall submit the following documents:
  - (1) Appearance photos as listed in 3;
  - (2) Declaration; and
  - (3) Technical documents as listed in 4.

## Annexed Table

## Specification Sheet of Functions and Devices

Manufacturer: \_\_\_\_\_

Trademark/Model: \_\_\_\_\_

Section	Feature of nonautomatic weighing instrument	Applicable	Not applicable	Remark/Documentation chapter
T.1.2.1	Graduated instrument			
T.1.2.2	Non-graduated instrument			
T.1.2.3	Self-indicating instrument			
T.1.2.4	Semi-self-indicating instrument			
T.1.2.5	Non-self-indicating instrument			
T.3.2.6	Multi-interval instrument			
T.3.2.7	Multiple range instrument			
T.1.2.6	Electronic instrument			
T.1.2.7	Instrument with price scales			
T.1.2.8	Price-computing instrument			
T.1.2.9	Price-labelling instrument			
T.1.2.10	Self-service instrument			
	Instrument for direct sales to the public			
Section	Device	Present	Not present	Remark/Documentation chapter
T.2.1	Main devices:			
T.2.1.1	Load receptor			
T.2.1.2	Load-transmitting device			
T.2.1.3	Load-measuring device			
T.2.4	Indicating device			
T.2.4.1	Indicating component			
T.2.5	Auxiliary indicating device			
	Device for changing from •/kg to •/100g			
	Device for changing from •/Chin to •/Liang			
	Device for changing from kg to lb			
	Device for changing from B to N			
	Device for changing from kg to Chin/Liang			
T.2.5.1	Rider			
T.2.5.2	Device for interpolation of reading			
T.2.5.3	Complementary indicating device			
T.2.5.4	Indicating device with differentiated scale division			
T.2.6	Extended indicating devices:			
	Device to determine stability of equilibrium			Description: _____

T.2.7	Supplementary device			
T.2.7.1	Leveling device			
Section	Device	Present	Not present	Remark/Documentation chapter
	Level indicator			
4.5.5	Zero indicating device of digital indicator weighing instrument			Range: _____% Accuracy: _____d
T.2.7.2	Zero-setting devices:			
T.2.7.2.1	Nonautomatic zero-setting device			Range: _____% Accuracy: _____d
T.2.7.2.2	Semi-automatic zero-setting device			Range: _____% Accuracy: _____d
T.2.7.2.3	Automatic zero-setting device			Range: _____% Accuracy: _____d
T.2.7.2.4	Initial zero-setting device			Range: _____% Accuracy: _____d
T.2.7.3	Zero-tracing device			Range: _____% Accuracy: _____d
T.2.7.4	Tare devices:			
	Initial tare setting device			Range: _____% Accuracy: _____d
	Semi-automatic tare device			Range: _____% Accuracy: _____d
	Nonautomatic tare device			Range: _____% Accuracy: _____d
	Automatic tare device			Range: _____% Accuracy: _____d
4.6.9	Combined zero-setting and tare balancing device			Range: _____% Accuracy: _____d
	Additive tare			
	Subtractive tare			
T.2.7.4.1	Tare balancing device			
T.2.7.4.2	Tare weighing device			
T.2.7.5	Preset tare device			Range: _____% Accuracy: _____d
T.2.7.6	Locking device			
T.2.7.7	Auxiliary verification device			

	Selective verification device			
T.2.7.8	Selection device for load receptors and load measuring devices			
T.2.7.9	Indication stabilizing device			
4.1.2.6	Gravity compensation device			
Section	Device	Present	Not present	Remark/Documentation chapter
	Calibration device			
	Automatic calibration device			
	Semi-automatic calibration device			
	Non-automatic calibration device			
	Device for weighing unstable samples			Description: _____
	Counting device			
4.4.4	Temporary display of digital indication other than primary indication			Description: _____
4.4.6	Memory storage device			
4.14	Instruments for direct sales to the public:			
	Printing device			
4.15.3	Price calculation device			
4.15.4.1	Pricing function for non-weighted articles			
4.15.4.2	Totalization function			
4.15.4.2	Totalization function with exchanges between several scales			
4.15.4.3	Multi-vendor function			
4.15.4.4	Cancellation function			
4.15.4.5	Additional information			