



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Point-of-Sale Scale
Bench Scale, Digital Electronic
Models: PD-I, PD-II
 n_{max} : 3000
 e_{min} : 0.005 lb; 0.1 oz
Capacity: 30 to 150 lb; 2000 oz
Platform: See Below
Accuracy Class: III

Submitted By:

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Standard Features and Options

Model PD-I

Features:

- Automatic Zero Setting Mechanism
- 14.2" x 12.6" Platform
- 30 lb x 0.01 lb Single Range

Option:

- Remote Display

Model PD-II

Utilizes Non-NTEP CAS model BCS load cells of the following capacities: 20 lb, 44 lb, 100 lb, 200 lb. The model PD-II can be configured during installation, as a single range or as a multi-interval device.

Features	Options	Single Range	Multi-Interval
Automatic Zero Setting Mechanism	Remote Display	15 lb x 0.005 lb/0-300 x 0.1 oz	0-6 lb x 0.002 lb / 6-15 lb x 0.005 lb 0-150 x 0.05 oz/150-300 x 0.1 oz
Semi-Automatic (push button) Zero		30 lb x 0.01 lb/0-600 x 0.2 oz	0-15 lb x 0.005 lb / 15-30 lb x 0.01 lb 0-300 x 0.1 oz/ 300-600 x 0.5 oz
Initial Zero Setting Mechanism (on/off switch)		60 lb x 0.02 lb/0-1000 x 0.5 oz	0-30 lb x 0.01 lb / 30-60 lb x 0.02 lb 0-400 x 0.2 oz/400-1000 x 0.5 oz
120 VAC Power Supply		150 lb x 0.05 lb/0-2000 x 1 oz.	0-60 lb x 0.02 lb / 60-150 lb x 0.05 lb 0-1000 x 0.5 oz/ 1000-2000 x 1 oz
RS-232 (with electronic cash register)			
Integral Primary Weight Display			
15" x 11" Platform			

Temperature Range: -10 °C to 40 °C (14 °F to 104 °F)

This device was evaluated under the National Type Evaluation Program and was found to comply with the applicable technical requirements of "NIST Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices." Evaluation results and device characteristics necessary for inspection and use in commerce are on the following pages.

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Issued: August 7, 2009

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CAS USA, Corporation

Point-of-Sale Scale / PD-I, PD-II

Application: For general purpose weighing (single range and multi-interval). For interfacing with approved and compatible electronic cash registers. The weight display must be visible to both the customer and the operator.

Identification: The identification plate is riveted to the operator side of the model PD-1 scale. The metal identification plate is riveted to the model PD-II scale enclosure on the left side of the weight display.

Sealing: Access to the calibration and set-up switches, in the model PD-1 scale, is prevented by a metal plate whose screws can be sealed with a wire security seal.

Calibration of the model PD-II scale is initiated by pressing a button located inside the device. Access to that button is prevented by a cover, located under the scale platter near the weight display. The cover can be secured by threading a wire security seal through two bolts.

Operation: A multi-interval scale is an instrument having one weighing range that is divided into partial weighing ranges. Each weighing range is defined by its division size, its minimum capacity, and its maximum capacity. The selection of the appropriate weighing range is determined automatically according to the load applied, both on increasing and decreasing loads. The shift test shall be conducted at one-half the capacity of the scale. Corner tests, if appropriate, shall be run at one-quarter of the scale capacity. The number of scale divisions, n , for each weighing range is determined by dividing the maximum capacity of the weighing range (segment) by e of the same weighing range.

A multi-interval scale shall operate as follows:

- The motion detection requirement must be satisfied for each scale division (See S.2.1.2.).
- The division size for the first weighing segment applies to the tests to determine the width of zero and the amount of the automatic zero setting mechanism.
- The scale division must change when a lower weighing segment reaches its maximum value so that rounding occurs properly and the number of displayed decimal places does not change within the same weight indication

Test Conditions: This certificate supersedes Certificate of Conformance Number 92-174A3 and is issued to include an ounce feature to the device. The emphasis of this evaluation was on the device design, marking and operation. The evaluation was conducted using the CAS PD II 30 lb/ 600 oz model. Several increasing/decreasing load and shift tests were conducted. Previous test conditions are listed below for reference.

Certificate of Conformance Number 92-174A3: This certificate supersedes Certificate of Conformance Number 92-174A2. It is issued to include single range versions of the CAS model PD-II. The emphasis of this evaluation was on device design, marking, and operation. The evaluation was conducted using the CAS 15 lb model device and the 150 lb model device. The devices under evaluation utilized software version 1.8. The devices are the same equipment used for the last two evaluations and the devices remained in the lab. No changes have been made since the last evaluation of the device. The configuration parameters were selected to change the devices from multi-interval devices to single range devices. The scales were tested interfaced with a Samsung model ER-650 electronic cash register via RS232 port. The Samsung Model ER-650 utilized ECR software version 4.5 USA (non-NTEP). The evaluation included a review of: the indicated representations up to capacity, the width of zero, and the discrimination test detection. The previous test conditions are noted below for reference.

Certificate of Conformance Number 92-174A2: This certificate supersedes Certificate of Conformance Number 92-174A1. It is issued to include the optional integral primary weight display, located on the side of the scale, to the CAS model PD-II. The emphasis of this evaluation was on device design, marking, and operation. The evaluation was conducted using the CAS 0-6 lb x 0.002 lb / 6-15 lb x 0.005 lb model device and the 0-60 lb x 0.02 lb / 60-150 lb x 0.05 lb model device. The devices under evaluation utilized software version 1.8.

The scales were tested interfaced with a Samsung model ER-650 electronic cash register via RS232 port. The Samsung Model ER-650 utilized ECR software version 4.5 USA (non-NTEP). The evaluation included a review of: the indicated representations up to capacity, and motion detection.



CAS USA, Corporation

Point-of-Sale Scale / PD-I, PD-II

Certificate of Conformance Number 92-174A1: This certificate supersedes Certificate of Conformance Number 92-174. It is issued to include multi-interval models with 15 lb, 30 lb, 60 lb and 150 lb capacities. The emphasis of this evaluation was on device design, marking, operation, and compliance with influence factors. The devices under evaluation utilized software version 1.8. The 0-6 lb x 0.002 lb / 6-15 lb x 0.005 lb model and the 0-60 lb x 0.02 lb / 60-150 lb x 0.05 lb model were tested for accuracy over a temperature range of -10 °C to 40 °C (14 °F to 104 °F).

A load of one-half scale capacity was applied to the devices 100 000 times. Increasing/decreasing load and shift tests were conducted periodically during this time. The devices were tested over a voltage range of 102 VAC to 132 VAC. The devices were tested with the maximum IZSM load that could be added to the dead load (10% of capacity).

The scales were tested interfaced with a Samsung model ER-650 electronic cash register via RS232 port. The Samsung Model ER-650 utilized ECR software version 4.5 USA (non-NTEP). The evaluation included a review of: the indicated and recorded representations up to capacity, motion detection, and the operation of the POS system when the scale is behind zero or exceeds 105% of capacity.

Certificate of Conformance Number 92-174: The emphasis of this evaluation was on device design, operation and compliance with the influence factors. The device was tested for accuracy over a temperature range of -10 to 40 °C and over a power supply voltage range of 100 to 130 VAC. In addition, a test load of approximately one-half capacity was applied to the scale 100,000 times. The device was tested periodically during this time. The results of this evaluation indicate that the device complies with the applicable requirements of NIST Handbook 44.

Evaluated By: C. V. Cotsoradis (MD) 92-174; A.P. Buie, J.T. Price (MD) 92-174A1; A.P. Buie (MD) 92-174A2, 92-174A3; E.A. Payne, Jr. (MD) 92-174A4

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2009; NCWM, Publication 14: Weighing Devices, 2009.

Conclusion: The results of the evaluation and information provided by the manufacturer indicate the device complies with applicable requirements.

Information Reviewed By: S. Patoray, L. Bernetich (NCWM) 92-174A2, 92-174A3; J. Truex (NCWM) 92-174A4

Example of Device:



Model PD-I



Model PD-II