

***National Type Evaluation Program  
Certificate of Conformance  
for Weighing and Measuring Devices***

**For:**

Platform Scale  
Digital Electronic  
Model: FW and HW Series\*  
 $n_{\max}$ : 10,000  
Capacity: 10 kg to 150 kg (See Page 2)  
Platform: 330 mm x 424 mm (12.8" x 16.5"), or  
390 mm x 530 mm (15.4" x 20.8") (See Page 2)  
Accuracy Class: III

**Submitted by:**

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**Standard Features and Options**

\*The specific models and capacities covered by this certificate are listed on page two.

The Models FW-150KA1, FW-31KA2, and FW-15KA2 are automatic multi-interval scales.

Liquid crystal display  
Push-button tare and zero with motion detection  
Automatic zero-setting mechanism  
Externally selectable weight units (unit key)  
Internal 9V DC battery operation  
Comparator mode (preset) with "HI" and "LO" indications

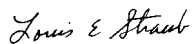
**Options:**

Wall mounting kit  
AC adapter  
RS-232C interface and comparator buzzer/relay board

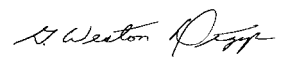
Temperature Range: -10°C to 40°C (14°F to 104°F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of 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.

Effective Date: April 18, 1997



Louis E. Straub  
Chairman, NCWM, Inc.



G. Weston Diggs  
Chairman, National Type Evaluation Program Committee

Issue date: September 24, 1997

Note: The National Conference on Weights and Measures does not "approve", "recommend", or "endorse" any proprietary product or material, either as a single item or as a class or group. Results shall not be used in advertising or sales promotion to indicate explicit or implicit endorsement of the product or material by the NCWM.

This is a reissuance by the NCWM of a Certificate of Conformance already issued by the National Institute of Standards and Technology.

**A and D Engineering  
Platform Scale  
Model: FW and HW Series**

**Application:** General purpose weighing.

**Identification:** The model designation tag is on the right side of the indicating element. The serial number tag is on the left side of the indicating element.

**Specific Models and Capacities:**

Model	Capacity	$n_{\max}$	Platform
FW-150KA1*	150 kg x 20 g, 300 x 0.1 lb/199.95 x 0.05 lb	7500	15.4" x 20.8"
HW-150KA1	150 kg x 20 g, 300 x 0.05 lb	7500	390 mm x 530 mm
FW-100KA1	100 kg x 10 g, 199.98 x 0.02 lb	10,000	15.4" x 20.8"
HW-100KA1	100 kg x 10 g, 200 x 0.02 lb	10,000	390 mm x 530 mm
FW-60KA2	60 kg x 10 g, 120 x 0.02 lb	6000	12.8" x 16.5"
HW-60KA2	60 kg x 10 g, 120 x 0.02 lb	6000	330 mm x 424 mm
FW-31KA2*	19.995 kg x 5 g/31 kg x 10 g, 60 x 0.01 lb	6000	12.8" x 16.5"
HW-30KA2	30 kg x 5 g, 60 x 0.01 lb	6000	330 mm x 424 mm
FW-15KA2*	15 kg x 2 g, 19.995 x 0.005 lb/30 x 0.01 lb	7500	12.8" x 16.5"
HW-15KA2	15 kg x 2 g, 30 x 0.005 lb	7500	330 mm x 424 mm
FW-10KA2	10 kg x 1g, 19.998 x 0.002 lb	10,000	12.8" x 16.5"
HW-10KA2	10 kg x 1 g, 20 x 0.002 lb	10,000	330 mm x 424 mm

\* Automatic multi-interval scale

**Sealing:** The keyboard calibration mode is activated by an internal switch. Access to the switch is sealable with a physical security seal inside the battery compartment.

**Operation:** The counting and percent mode options are not permitted for commercial applications. The scale must be marked on both the operator and customer side with the statement "The counting feature is not legal for trade" if the counting feature is operational. The rear of the scale platform must be marked for proper positioning.

**Test Conditions:** This Certificate supersedes Certificate of Conformance (CC) Number 90-061A4 and is issued without additional testing to include the platform sizes that were inadvertently omitted from CC Numbers 90-061A3 and 90-061A4. Previous test conditions are listed below for reference.

**Certificate of Conformance Number 90-061A4:** This Certificate superseded CC Number 90-061A3 and was issued to make editorial changes and to change the capacity of the HW-31KA2 from 31 kg to 30 kg, and the model number from HW-31KA2 to HW-30KA2.

**Certificate of Conformance Number 90-061A3:** This Certificate superseded CC Number 90-061A2 and was issued to include the HW Series scales. The HW Series is metrologically equivalent to the FW Series. Information provided by the manufacturer indicates that the differences between the HW and FW are non-metrological and do not affect performance. This CC was issued based on that information without additional testing.

**A and D Engineering  
Platform Scale  
Model: FW and HW Series**

**Test Conditions (Continued):**

**Certificate of Conformance Number 90-061A2:** This Certificate superseded CC Number 90-061A1 dated February 12, 1991 and was issued to correct the model number and capacity of the FW-31KA2 scale.

**Certificate of Conformance Number 90-061A1:** This Certificate superseded CC Number 90-061 and was issued to add additional models. The Model FW-10KA2 was submitted for evaluation. The emphasis of the examination was on the device design, operation, visibility of the liquid crystal display, and accuracy during low battery conditions. A load of one-half capacity was applied to the scale more than 101,000 times. The scale was tested for accuracy periodically during this time. Additionally, the scale was tested over a temperature range of  $-10^{\circ}\text{C}$  to  $40^{\circ}\text{C}$ . The results of the tests were within the applicable acceptance tolerances.

**Certificate of Conformance Number 90-061:** The Model FW-150KA1 was submitted for evaluation. The emphasis of the examination was on the device design, operation, visibility of the liquid crystal display, and accuracy during low battery conditions. A load of one-half capacity was applied to the scale more than 101,000 times. The scale was tested for accuracy periodically during this time. Additionally, the scale was tested over a temperature range of  $-10^{\circ}\text{C}$  to  $40^{\circ}\text{C}$ . The results of the tests were within the applicable acceptance tolerances.

Results of the evaluations and information provided by the manufacturer indicate that the scales comply with applicable requirements.

**Type Evaluation Criteria Used:** NIST Handbook 44, 1997 Edition

**Tested By:** S. Cook (CA), G. Castro (CA), R. Flores (CA) (90-061) (90-061A1) (90-061A2)

**Information Reviewed By:** Constantine Cotsoradis (NIST) (90-061A3) (90-061A4); L. Sebring (NIST) (90-061A5)