NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:
Non-Computing Scale
Digital Electronic, Jeweler's, Prescription, Grain and Counting
Models: AB-S/A, GB-S/A, PB-S/A and JB Series
n_{max}: 210 000 (Class I) 61 000 (Class II)
e_{min}: (see page 2)
Capacity: 51g to 8100g (see page 2)
Platform: (see below)
Accuracy Class: I (AG-S/A and JB-C)
II (GB-S/A, JB-G and PB-S/A)

Submitted By:
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Standard Features and Options

Standard Features:

- Combined Semi-automatic (push-button) Zero/tare Function
- Initial Zero Setting Mechanism (IZSM)
- Semi-automatic Internal Calibration Feature (FACT)
- Liquid Crystal Display (LCD)
- Automatic Zero Tracking (AZT)
- AC/DC Adapter
- Stainless Steel Platter
- Draft shield on Models AB-/AS (optional on PB-S/A)

Options:

- Remote Display
- Battery Power Supply
- Counting Feature for Prescription Filling
- RS-232 Communication Port
- Remote Printer Capability

Units:

- mg, g, kg, lb, oz, ozt, GN, dwt, and ct display capability (may be set-up with any 2 listed units) on all models

Platform Sizes:

- AB-S/A: 84 mm diameter
- GB-S/A: 190 mm diameter
- PB-S/A: With draft shield, 100 mm diameter. Without draft shield, 190 mm diameter.
- JB: 80mm / 180mm diameter

Load Cell Used:

- Mettler-Toledo part number SK-1461 magnetic force restoration load cell.

Devices that comply with Grain Inspection Packers and Stockyards Administration (GIPSA, formerly FGIS) requirements for grain test scales are indicated on Page 2.

Temperature Range: 12.5 ºC to 27.5 ºC (55 ºF to 81 ºF) for Class I AB-S/A
10 ºC to 30 ºC (50 ºF to 86 ºF) for Class II GB-S/A, PB-S/A and JB Series

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.

Kurt Floren
Chairman, NCWM, Inc.

Tim Tyson
Chairman, National Type Evaluation Program Committee

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Mettler-Toledo, Inc.

Non-Computing Scale / AB-S/A, GB-S/A, PB-S/A and JB Series

Specific Models, Capacities and Division Sizes:

Model/Type	Capacity	e	d	Class	GIPSA Category
AB54-S/A-x	51 g	1 mg	0.1 mg	I	
AB104-S/A-x	110 g	1 mg	0.1 mg	I	
AB204-S/A-x	220 g	1 mg	0.1 mg	I	
GB802-S/A	810 g	0.1 g	0.01 g	II	
GB1302-S/A	1310 g	0.1 g	0.01 g	II	
GB1501-S/A	1510 g	0.1 g	0.1 g	II	
GB2002-S/A	2100 g	0.1 g	0.01 g	II	
GB3002-S/A	3100 g	0.1 g	0.01 g	II	
GB3002-S/A DR	600/3100 g	0.1/0.1 g	0.01 g/0.1 g	II	
GB3001-S/A	3100 g	0.1 g	0.1 g	II	
GB6001-S/A	6100 g	1.0 g	0.1 g	II	
PB153-S/A-x	151 g	10 mg	1 mg	II	Precision
PB303-S/A-x	310 g	10 mg	1 mg	II	Precision
PB303-S/A DR-F	60/310 g	10/10 mg	1/10 mg	II	Precision
PB403-S/A-x	410 g	10 mg	1 mg	II	Precision
PB602-S/A-x	610 g	0.1 g	0.01 g	II	
PB603-S/A-x	610 g	10 mg	1 mg	II	Precision
PB1501-S/A-x	1510 g	0.1 g	0.1 g	II	Moisture/General
PB1502-S/A-x	1510 g	0.1 g	0.01 g	II	
PB3001-S/A-x	3100 g	0.1 g	0.1 g	II	Moisture/General
PB3002-S/A-x	3100 g	0.1 g	0.01 g	II	
PB3002-S/A DR-F	600/3100 g	0.1/0.1 g	0.01/0.1 g	II	
PB4002-S/A-x	4100 g	0.1 g	0.01 g	II	Precision
PB5001-S/A-x	5100 g	1 g	0.1 g	II	
PB8000-S/A-x	8100 g	1 g	1 g	II/III	Precision
PB8001-S/A-x	8100 g	1 g	0.1 g	II	
JB203-x-C	255 ct /51 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	II	Precision
JB703-C/A-x	700 ct /140 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	I/II	
JB703-x-C/A	700 ct /140 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	I/II	
JB803-x-C	810 ct/162 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	II	Precision
JB1003-x-C	1100 ct / 220 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	I/II	Precision
JB1203-C/A-x	1200 ct / 240 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	I/II	
JB1203-x-C/A	1200 ct / 240 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	I/II	
JB1603-x-C/A	1600 ct / 320 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	I/II	Precision
JB1603-C/A-x	1600 ct /320 g	0.01 ct / 0.01 g	0.001 ct / 0.001 g	I/II	Precision
JB2503-x-C5	2550 ct /510 g	0.01 ct / 0.01 g	0.005 ct / 0.001 g	I/II	Precision
JB603-x-G	610 g	0.01 g	0.001 g	II	Precision
JB2002-x-G/A	2100 g	0.1 g	0.01 g	II	Precision
JB2002-G/A-x	2100 g	0.1 g	0.01 g	II	Precision
JB3002-x-G/A	3100 g	0.1 g	0.01 g	II	Precision
JB3002-G/A-x	3100 g	0.1 g	0.01 g	II	Precision
JB4002-x-G/A	4100 g	0.1 g	0.01 g	II	Precision
JB4002-G/A-x	4100 g	0.1 g	0.01 g	II	Precision
JB6001-x-G/A	6100 g	1 g	0.1 g	II	Precision
JB6001-G/A-x	6100 g	1 g	0.1 g	II	Precision
JB8001-x-G/A	8100 g	1 g	0.1 g	II	Precision
JB8001-G/A-x	8100 g	1 g	0.1 g	II	Precision

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Non-Computing Scale / AB-S/A, GB-S/A, PB-S/A and JB Series

Notes: Suffix -S/A DR indicates "Delta Range" operation.

Suffix - S/A RS indicates optional RS232 communication port installed at factory.

Suffix – C indicates Carat

Suffix – G indicates Gold

Designator - x: L = No Internal Calibration

F = FACT Fully Automatic Calibration Technology (Internal)

Application: General purpose Class I and II and grain test weighing applications, including GIPSA applications. GIPSA has three categories of electronic laboratory scales used as grain test scales for official weighing: Precision, Moisture, and General. The models specified by an entry in the last column of the table below are suitable for the official weighing of grain in GIPSA applications. The scales are also approved with the counting feature for prescription filling.

Identification: The required marking information appears on an adhesive label applied to the side and to the front of the scale adjacent to the display.

Sealing: The scale can be sealed with a wire security seal threaded through a hole in the top and bottom halves of the rear of the enclosure preventing the housing from being separated. It is also necessary to place a self-destructive seal over one of the screws under the sub-platter and another over a hole on the rear of the scale (beneath the wall adapter input) to prevent access to calibration and configuration parameters.

Operation: Models with the "FACT" suffix to the model designation have an automatic calibration feature that internally re-calibrates the scale if the temperature changes enough to affect accurate weighing. A display begins to flash "auto cal" when the scale senses a need to re-calibrate. The platter must be emptied before the automatic calibration can proceed. The scale can also be calibrated with external weights by breaking the self-destructive seal on the rear of the scale to gain access to the calibration switch.

The scale displays both "e" and "d" from no-load to capacity. The inspector must be aware that the tolerances are based on "e" on a Class I or II scale, not on "d."

Operation of Counting Feature: The counting feature will only accept a minimum count of 10 or larger. The minimum weight to establish a sample is 30e. The counting feature may only be used for Prescription Filling.

Test Conditions: This Certificate supersedes Certificate of Conformance Number 99-133A9 and is issued to better identify model names with the AB and JB prefix in the certificate. No additional testing was deemed necessary. Previous test conditions are repeated below for reference.

Certificate of Conformance Number 99-133A9: This Certificate supersedes Certificate of Conformance Number 99-133A8 and is issued for editorial corrections to the certificate. The editorial corrections are to include the suffix designation note that was inadvertently omitted from the previous revision.

Certificate of Conformance Number 99-133A8: This Certificate supersedes Certificate of Conformance Number 99-133A7 and is issued for editorial corrections to the certificate. The editorial corrections are to n_{max} for Class II in the For Box and emin for JB6001-x-G/A and JB6001-G/A-x models in the table.

Certificate of Conformance Number 99-133A7: This Certificate supersedes Certificate of Conformance Number 99-133A6 and is issued to add several models and better identify model names with the JB prefix to the certificate. The additional models are metrologically equivalent to scales already evaluated and certified, therefore no testing was deemed necessary.

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Certificate of Conformance Number 99-133A6: This Certificate supersedes Certificate of Conformance Number 99-133A5 and is issued to add several Models with the JB prefix and editorial corrections to the certificate. The editorial correction was to the lower temperature range of the Class II devices under Standards Features and Options, which was -10 °C but should have been +10 °C. The additional models are metrologically equivalent to scales already approved, and based on information supplied by the manufacturer; there was no need for any testing. The reference to Certificate of Conformance 04-016A4P was also corrected to Certificate of Conformance 99-133A4P in the previous test conditions.

Certificate of Conformance Number 99-133A5: This Certificate supersedes NTEP Certificate of Conformance 99-133A4P and is issued to update the provisional certificate to full status, based on newly adopted changes to Publication 14. No additional testing was required. The original test conditions are listed below for reference.

Certificate of Conformance Number 99-133A4: This Certificate supersedes Certificate of Conformance Number 99-133A3 and is issued to add several Models with the JB prefix, which are identical to scales that were already approved.

Certificate of Conformance Number 99-133A3P: This Certificate supersedes Certificate of Conformance Number 99-133A2 and is issued to add several Models with the JB prefix, which are identical to scales that were already approved, and to add the Model PB-603-S/A, 610 x 0.01 g (with d = 0.001 g) with the option of the Counting Feature for Prescription Filling. One Model PB-603-S/A was submitted for evaluation. The emphasis of the evaluation was on the device design, operation, and environmental factors, marking requirements and the Counting Feature for Prescription Filling. Several increasing/decreasing load and shift tests were conducted. The scale was tested over a temperature range of 10 °C to 30 °C (50 °F to 86 °F). A load of approximately one-half capacity was applied to the scale at least 100 000 times. The scale was tested periodically over this time. Tests were also conducted using 100 VAC and 130 VAC power supplies. The counting feature was evaluated using the ad-hoc test procedure that was developed by the NTEP laboratories.

Certificate of Conformance Number 99-133A2: This Certificate supersedes Certificate of Conformance Number 99-133A1 and is issued without additional testing to note the models appropriate for GIPSA grain testing. Previous test conditions are listed below for reference.

Certificate of Conformance Number 99-133A1: This Certificate supersedes Certificate of Conformance Number 99-133 and is issued without testing to correct the model designation by adding the "/A" after the "S" suffix. The "/A" designates an "approved" device and has no metrological significance.

Certificate of Conformance Number 99-133: The Models AB204-S/A, GB3002-S/A, and PB8001-S/A were submitted for evaluation. The emphasis of the evaluation was on the device design, operation, environmental factors, and marking requirements. Several increasing/decreasing load and shift tests were conducted. The scales were tested over a temperature range of 10 °C to 30 °C (50 °F to 86 °F) for the Class II devices, and 12.5 °C to 27.5 °C (55 °F to 81 °F) for the Class I device. A load of approximately one-half capacity was applied to the scales at least 100 000 times. The scales were tested periodically over this time. Tests were also conducted using 100 VAC and 130 VAC power supplies.

Evaluated By: E. Matthews (OH) 99-133, W. West (OH) 99-133, W. West (OH) 99-133A3, T. Lucas (OH) 99-133A3, W. West (OH) 99-133A6

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2004. NCWM, Publication 14: Weighing Devices, 2004.

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

Information Reviewed By: L. T. Sebring (NIST) 99-133A1, W. West (OH) 99-133A2, S. Patoray, L. Bernetich (NCWM) 99-133A3, 99-133A4, 99-133A5, 99-133A6, 99-133A7, J. Truex (NCWM) 99-133A8, 99-133A9, 99-133A10

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Examples of Device: