



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Indicating Element

Digital Electronic

Models: 195, 200, 205, 210, 210-F, 210-FE, 212-G, 212-GX,
215, 225 $n_{\max}$: 10 000

Accuracy Class: III / III L

Submitted By:

Cardinal Scale Manufacturing Company

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- Semi-automatic Tare (push-button)
- Semi-automatic Zero (push-button)
- Gross/Net Display
- Gross/Net Weight Accumulation
- Automatic Zero Setting Mechanism (AZSM)
- Bi-directional RS232 Serial Interface
- Units Conversion Key
- Second RS232 Serial / Printer Interface
- Display Element Test Key
- LCD or LED Display
- Test Function Key
- Motion Detection
- AC Power Supply
- Category 1 Physical Seal
- Livestock Weighing Feature (210, 212-G and 212-GX only)

Options:

- DC Power Supply with Low Battery Indication (Models 205, 210, 212-G, 212-GX and 215)
- Third RS232 or Analog Interface or USB Serial Interface
- Ethernet/Wireless Interface
- Also see table on Page 2.

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.

Gene Robertson
Chair, NCWM, Inc.

Mahesh Albuquerque
Chair, NTEP Committee
Issued: April 12, 2024

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**Cardinal Scale Manufacturing Company**

Indicating Element /195, 200, 205, 210, 210-F, 210-FE, 212-G, 212-GX, 215 and 225

The features in the table below are in addition to the features in the Standard Feature Box which is on all the devices.

Model	195	200	205	210	210F	210FE	212G	212GX	215	225
Category 1 event counter	X									X
Truck storage feature	X									X
Fill Control	X									X
Batching	X									X
Maximum weight retention										
3-inch backlit LCD display					X					
Keyboard Tare	X			X		X	X	X	X	X
Time & Date	X			X		X	X	X	X	X
Automatic “shut off” mode		X	X	X	X	X	X	X	X	
Preset weight comparators	X			X		X	X	X	X	X
14 segment LCD display										
7 segment LCD display	X								X	
240 x 64 or 640 x 320 dot matrix display	X									X
Multi-point calibration	X									X
Multi-interval	X									X
Livestock Weighing Feature				X			X	X		
Transaction storage	X									X
Weigh-in/Weigh-Out	X									X
Alphanumeric identification	X									X
Auto print on balance	X			X		X	X	X	X	X
Multi-Load receiving elements	X									X

Application: General purpose indicating element when connected to a certified and compatible weighing/load-receiving element.**Identification:** The self-destructive identification label for the Model 200 is located on the front panel. The self-destructive identification label for the Models 195, 205, 210, 210-F, 210-FE, 212-G, 212-GX, 215 and 225 is located on top of the indicator.**Sealing:** For all models except the 210-F, 210-FE, 212-G and 212-GX, access to the set-up/calibration switch can be secured with a wire security seal threaded through two drilled-head screws on the back panel of the indicator. The screw must be removed to access the internal setup/calibration switch. For the Models 210-F and 210-FE, a wire security seal attaches the enclosure lid and mounting flange web thus eliminating access to the internal weight indicator calibration switch. For the Models 212-G and 212-GX, a wire security seal attaches the front panel to the enclosure preventing access to the internal setup/calibration switch. Models 195 and 225 are secured by sealing screws or nuts with lead and wire seal preventing separation of the housing to access the calibration jumper. Audit trail counters can be displayed through the SETUP/REVIEW MENU. Press the 2 key to select VIEW AUDIT TRAIL COUNTERS. On Model 225 the SETUP/REVIEW MENU can be accessed by pressing the red square navigation ENTER key simultaneously. On Model 195 the SETUP/REVIEW MENU can be accessed by pressing Setup soft key. Press the PRINT key to print the counter contents or any key to return to the SETUP/REVIEW MENU. Press the up-arrow navigation key to exit the setup menu and return to normal operation.



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Indicating Element /195, 200, 205, 210, 210-F, 210-FE, 212-G, 212-GX, 215 and 225

Test Conditions: This Certificate supersedes Certificate of Conformance Number 01-011A8 and is issued to add indicating element model 195 and next generation model 225 indicator to the certificate. One model 195 and two model 225 indicators, one stainless steel model and one mild steel model were submitted for the evaluation. All devices were tested for conversion of units of measure in (g), (kg), (lb), (oz), (t), and (T). All devices were tested in a voltage range of 85 vac to 140 vac. Multiple increasing/decreasing test were preformed along with susceptibility to temperature testing in a range of -10 °C to 40 °C. The model 225 was tested for multiple scale capability and wireless communication capabilities. Printing capabilities were also evaluated on both 195 and 225 models. Previous test conditions are listed below for reference.

Certificate of Conformance Number 01-011A8: This Certificate supersedes Certificate of Conformance Number 01-011A7 and is issued to add the livestock weighing feature, delete the Model 220 weight indicator and add the third RS232 / USB serial interface. It is also noted that the microcontroller has been changed on all but the Model 200 and 215 weight indicators. A Model 210 was submitted for evaluation. The emphasis of the evaluation was on device design, operation, and compliance with influence factor requirements. The indicator was interfaced with a load cell simulator and then tested for accuracy over a temperature range of -10° C to 40° C (14° F to 104° F). The indicator was interfaced with a load cell weighing element and printer. The device was tested for discrimination, power interruption, zero tests, and print format. Additionally, the device was tested with a supply voltage of 100 VAC to 130 VAC.

Certificate of Conformance Number 01-011A7: This Certificate supersedes Certificate of Conformance Number 01-011A6 and is issued to include the table on the top of Page 2. The table was inadvertently removed when addendum certificate 01-011A5 was issued. The table included key features for models of the indicating element. No additional testing was necessary. Previous test conditions are listed below for reference.

Certificate of Conformance Number 01-011A6: This Certificate supersedes Certificate of Conformance Number 01-011A5 and is issued to include the Models 212G and 212GX weight indicators which are metrologically equivalent to the Models 200, 205, 210, 210-F, 210-FE, 215, 220 and 225. except for the enclosure, keyboard and display. The Model 212G uses a 12 character 15 segment 0.8-inch high back lit LCD display while the Model 212GX uses a 6 character 15 segment 1-inch high back lit LCD display. Both are housed in a polycarbonate enclosure with a 24-key keyboard. Models 212G and 212GX were submitted for review in an NTEP laboratory.

Certificate of Conformance Number 01-011A5: This Certificate supersedes Certificate of Conformance Number 01-011A4 and is issued to include the audit trail information in the Sealing section of the certificate. The audit trail feature was evaluated during the laboratory evaluation of the Model 225 number certificate 01-011A4. No additional testing was deemed necessary.

Certificate of Conformance Number 01-011A4: This Certificate supersedes Certificate of Conformance Number 01-011A3 and is issued to include the Model 225 weight indicator which is metrologically equivalent to the Models 200, 205, 210, 210-F, 210-FE, 215 and 220. The Model 225 is identical to the Model 220 except for the display, keyboard and enclosure. The Model 225 uses a 260 x 64 dot matrix monochrome display with LED backlight and a 60-key keyboard. A Model 225 was submitted for evaluation. The emphasis of the evaluation was on device design, operation and compliance with influence factors. The indicator was interfaced with a load cell simulator and tested for accuracy over a temperature range of -10° C to 40° C (14° F to 104° F). The indicator was interfaced with a load cell weighing element and printer. The device was tested for discrimination, power interruption, zero tests, and print format. Additionally, the device was tested with a supply voltage of 100 VAC to 130 VAC.

Certificate of Conformance Number 01-011A3: This Certificate supersedes Certificate of Conformance Number 01-011A2 and is issued to include the Model 210-FE which is metrologically equivalent to the Models 200, 205, 210, 210-F, 215 and 220 and to add a wireless interface option. The Model 210-FE is identical to the Model 210-F except for the display and enclosure. The Model 210-FE uses a 2.5 inch LED 7-segment display rather than the 3-inch LCD display used by the Model 210-F. The enclosure has been changed for simplification. With exception of the display, the Model 210-FE is metrologically identical to the Model 210-F. A Model 205 with a wireless interface option was tested with a load receiver connected to a Model 180 (NTEP CC 06-105) equipped with a wireless interface. The indicator was tested for its response to the loss and degradation of the wireless signal and for interference from an adjacent identical wireless system. This certificate is issued without additional testing.

Certificate of Conformance Number 01-011A2: This Certificate supersedes Certificate of Conformance Number 01-011A1 and is issued to include the Model 215 which is metrologically equivalent to the Models 200, 205, 210, 210-F, and 220. The Model 215 is identical to the Model 210 except for the display. The Model 215 uses a LCD 7-segment display rather than the red light-emitting LED display used by the Model 210. This certificate is issued without additional testing.



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Indicating Element /195, 200, 205, 210, 210-F, 210-FE, 212-G, 212-GX, 215 and 225

Certificate of Conformance Number 01-011A1: This Certificate supersedes Certificate of Conformance Number 01-011 and is issued to include the Models 210-F and 220 which are metrologically equivalent to the Models 200, 205 and 210. The Model 220 differs only in the features available and in the use of a multi-segment LCD display. The Model 210-F differs only in that it is housed within a fiberglass enclosure and has a LCD display with 3 inch-high characters. This certificate is issued without additional testing.

Certificate of Conformance Number 01-011: The Model 210 digital weight indicator with the NEMA 4X enclosure was submitted for this evaluation. The emphasis of the evaluation was on device design, operation, and compliance with influence factor requirements. The indicator was interfaced with a load cell simulator and then tested for accuracy over a temperature range of -10 °C to 40 °C (14 °F to 104 °F). The indicator was interfaced with a load cell weighing element and a printer. The device was tested for discrimination, power interruption, zero tests, and print format. Additionally, the device was tested with a supply voltage of 100VAC to 130VAC and 10.8VDC to 13.2VDC

Evaluated By: Dan Parks (CA) 01-011, W. West (OH) 01-011A1, 01-011A2, J. Morrison (OH) 01-011A3; Angie McCoy (OH) 01-011A4; E. A. Payne, Jr. (MD) 01-011A6, 01-011A8; J. Coffey (OH) 01-011A9 (CN 10951)

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2024. NCWM, Publication 14: Weighing Devices, 2024.

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) 01-011; 01-011A1; 01-011A2, 01-011A3, 01-011A4; J. Truex (NTEP) 01-011A5, 01-011A6, 01-011A7, 01-011A8; D. Flocken 01-011A9

Examples of Device:



Model 200



Model 205



Model 210



Model 210-FE



Model 215



Model 225



Cardinal Scale Manufacturing Company

Indicating Element /195, 200, 205, 210, 210-F, 210-FE, 212-G, 212-GX, 215 and 225



Model 212-GX



Model 212-GX Rear Panel



Model 212-G



Model 195



Model 225



Model 225