



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Indicating Element
Digital Electronic
Model: 190, 190A
 n_{max} : 10 000
Accuracy Class: III / III L

Submitted By:

Cardinal Scale Manufacturing Co.
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Standard Features and Options**Standard Features:**

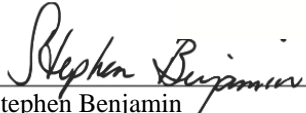
- Semi-automatic Tare (push-button)
- Semi-automatic Zero (push-button)
- Gross/Net Display
- Gross/ Net Weight Accumulation
- Automatic Zero Setting Mechanism (AZS)
- Motion Detection
- Unit Key
- lb/oz/kg/g Unit Capabilities
- LCD Display with LED backlight
- Time and Date
- Bi-Directional Serial RS232 Interface / Universal Serial Data Interface
- Multi-Point Calibration Feature
- Peak Hold Feature
- Plastic Enclosure
- Battery Operation with low battery indication
- Sleep Mode
- Three-Zone Weight Comparator Indication
- Axle Weighing Feature (**non- legal for trade**)


Options:

- DC Power Supply
- Wireless Interface

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.


Stephen Benjamin
Chairman, NCWM, Inc.


Kurt Floren
Chairman, National Type Evaluation Program Committee

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Cardinal Scale Manufacturing Company

Indicating Element / 190, 190A

Application: General purpose indicating element when connected to an approved and compatible weighing/load-receiving element.

Identification: The self-destructive identification label is viewed through a window on the bottom side of the enclosure.

Sealing: Access to the set-up/calibration inhibit jumper can be secured with a wire security seal threaded through two drilled-head screws on the back panel of the indicator. This indicator is also equipped with two (2) event counters. To access the audit trail information, with the indicator ON, press the Fn/UP ARROW and then press the NET/GROSS key. The display will change to "CAL=", then press the TARE/ENTER key. The display will change to show the current value for the number of calibrations. Press the TARE/ENTER key again to show "CF9=" then press the TARE/Enter key again to see then count for configurations changes. Press the TARE/ENTER key again and the indicator returns to a normal weighing mode.

Test Conditions: The model 190A digital weight indicator was submitted for this evaluation to add the axle weigh feature and the addition of a universal serial data port. The axle weighing feature is a **"non-legal for trade"** program feature. No other metrological changes were made from the initial evaluation. Numerous weighments were made using a load cell simulator and an Epson TM-U295 printer. Printed tickets and or weighments were examined for compliance with proper identification as well as motion detection requirements. Previous test conditions are listed below for reference.

Certificate of Conformance Number 10-084: The Model 190 digital weight indicator 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 receiving element, Cardinal EB-150-LPAN (Certificate of Conformance number 03-031A1) 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 6.1VDC to 9.9VDC.

Evaluated By: E. A. Payne, Jr. (MD) 10-084, 10-084A1

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2012. NCWM, Publication 14: Weighing Devices, 2012.

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

Information Reviewed By: J. Truex (NCWM) 10-084, 10-084A1

Examples of Device:



Model 190 (front)



Model 190 (rear)