



## NATIONAL TYPE EVALUATION PROGRAM

# Certificate of Conformance

for Weighing and Measuring Devices

**For:**

Indicating Element

Digital Electronic

Models: 820i-XY and 920i-XY\* (see below)

 $n_{max}$ : 10 000 d for Class III L and Single Range Class III

5 000 for Multi-interval or Multiple Range

Accuracy Class: III / III L

**Submitted By:**

Rice Lake Weighing Systems

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Email: [plewis@ricelake.com](mailto:plewis@ricelake.com)Web site: [www.ricelake.com](http://www.ricelake.com)**Standard Features and Options**

\* The model suffixes XY designate the following:

X = Enclosure type; 1= Desk top, 2= Universal, 3= Wall mount, 4= Panel mount, 5=Universal Deep Enclosure

Y = Power input; A= 115 volts AC, B= 230 volts AC, D=9-36 Volts DC, E=10-60 Volts DC

**Standard Features:**

- Semi-automatic (push-button) Zero (SAZSM)
- Automatic zero setting mechanism (AZSM)
- Initial zero setting (only during calibration)
- Keyboard Tare
- Semi-Automatic (push button) tare
- Programmable tare
- Multiple tare memories
- Remote printer capability
- LCD Display
- In/Out vehicle weighing
- Configurable set points
- Configurable Secondary & Tertiary weights
- Operator prompted & Graphical Display
- User programmable for non metrological functions
- Category 2 Audit Trail
- Multi Interval / Multiple Range
- Local / Remote Operation
- Separate Gross/Tare/Net Display
- Gross/Net Display
- Alphanumeric Display
- lb/kg/g/oz/ton/metric ton unit's capability
- RS 232 communication port
- RS 485 communication port
- 20 mA Loop connector
- Linearity Calibration points
- Variable print format
- PC Keyboard
- Password protection
- Database memory
- ROC Display
- Configurable soft Keys
- Multideck (Multichannel) Capability 2 channels + summing
- Wireless communication

**Model 920i-XY Additional Features:**

- Multideck (Multichannel) Capability (up to 4 channels including summing of selected or all channels)
- Graphical Character Display
- Automatic Bulk Weighing System (ABWS) controller

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  
Issued: July 31, 2012

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## Rice Lake Weighing Systems

Indicating Element / 820i-XY and 920i-XY

**Application:** A general-purpose indicating element to be interfaced with an NTEP Certified and compatible weighing element(s).

**Identification:** The capacity by division statement and, where applicable, the CLC will appear on an adhesive label on the front of the indicator. The other required information appears on an adhesive label on the back the indicator (except for the panel mount version. The label requirements will be placed adjacent to the weight display on the housing that surrounds the indicator.)

**Sealing:** The 920i indicator model versions; "upright, desk top and wall mount" utilize a wire security seal threaded thru any two of the drilled head screws that hold a metal access plate located on the bottom of the indicator and a third larger drilled head screw that blocks the hole to the calibration switch.

The panel mount and universal deep enclosure versions: also utilizes a wire security seal that passes through a drilled head screw the holds the metal casing that surrounds the internal parts of the indicator and a larger drilled head screw that blocks the calibration switch located in the lower right corner on the back of the indicator.

All versions of the 920i Indicating Element include a Category 2 Audit Trail. The device may still be sealed with a physical seal as described above or the inspector may record the audit trail event counters at the time of test. To view the event counters for the audit trail, press and hold the "Gross/Net" key for approximately 5 seconds. The event counters will appear on the screen. There will be one set of calibration and configuration counters for each individual scale that is connected to the indicator. To return to normal weighing mode, press and release the "Gross/Net" key.

**Test Conditions:** This certificate supersedes Certificate of Conformance Number 01-088A5 and is issued to add Automatic Bulk Weighing System controller to model 920i. A model 920i indicating element with ABWS simulation inputs and outputs was submitted for testing and was interfaced to a 10 000 division load cell simulator. NCWM Publication 14 ABWS checklist was used to evaluate the device. Previous test conditions are listed below for reference.

**Certificate of Conformance Number 01-088A5:** This certificate supersedes Certificate of Conformance Number 01-088A4 and is issued to add the power input range of 10-60 VDC which is suffix letter E. A model 820i-2E was submitted for DC input power testing and was interfaced to a 10 000 division load cell simulator. An increase/decrease test was run at 10 VDC and 60 VDC input power.

**Certificate of Conformance Number 01-088A4:** This certificate supersedes Certificate of Conformance Number 01-088A3 and is issued to include local or remote operation of the indicating elements. The model 920i was evaluated and several performance tests were conducted with the indicator to assure compliance with Handbook 44 requirements.

**Certificate of Conformance Number 01-088A3:** This certificate supersedes Certificate of Conformance Number 01-088A2 and is issued to include a wireless communication indicating element and the option of wireless output and wireless remote control for the 820i and 920i family of indicating elements. For the purpose of this evaluation, 2 model iQube Indicating Element – Active Junction Boxes with load cell simulators were set up in the laboratory, both with wireless communication. Several tests were conducted to verify that the signal from the iQube Active Junction box was sent to the correct indicator and that there was no interference between the 2 iQubes. Tests were also conducted to determine how the indicator reacted when the signal was interrupted between the iQube Active Junction box and the indicating element.

The 920i with a DC power supply was evaluated from 8.62 to 31.9 Volts DC.

The 920i was connected to a 50 lb scale base (Rice Lake BM181850 NTEP CC 95-072), and a load cell simulator, and evaluated for multi interval and multiple ranges. The indicating element was set up with three intervals and tested and then set up with three ranges and tested.

Model 820i-XY was included which is electrically identical to the model 920i-XY. The 820i-XY displays alpha-numeric characters and only has one expansion slot and the 920i displays alpha-numeric and graphic characters and can have up to 14 expansion slots.

Based on these tests and information supplied by the manufacturer, no further testing was deemed necessary



## Rice Lake Weighing Systems

Indicating Element / 820i-XY and 920i-XY

**Certificate of Conformance Number 01-088A2:** This certificate supersedes Certificate of Conformance Number 01-088A1 and is issued to include Category 2 Audit Trail Sealing method. The Category 2 Audit Trail was evaluated for compliance with Handbook 44 requirements and since no other changes were made to the device, no further testing was required.

**Certificate of Conformance Number 01-088A1:** This certificate supersedes Certificate of Conformance Number 01-088 and is issued to include model 920i-5 which is electrically identical to the 920i-4 except with a type 4 (water resistance) enclosure. No testing was deemed necessary.

**Certificate of Conformance Number 01-088:** A Rice Lake Model 920i indicator was submitted for evaluation. The emphasis of the evaluation was on the device design, marking requirements, operation and compliance with influence factor requirements. Several performance tests were conducted with the indicator (stainless steel housing) interfaced with a weighing element, 3 load cell simulators (multiple weighing elements) and a printer. The indicator was tested over a temperature range of -10 °C to 40 °C (14 °F to 104 °F). Additionally, tests were conducted using power supplies of 100 VAC / 130 VAC and 200 VAC to 250 VAC.

**Evaluated By:** T. Lucas (OH) 01-088; A. McCoy (OH) 01-088A1, Bill West (OH) 01-088A2, T. Buck (OH) 01-088A3, W. West (OH) & J. Bigrigg (OH) 01-088A4, J. Morrison (OH) 01-088A5, 01-088A6; C. Harris (OH) 01-088A6

**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:** S. Patoray (NCMW), L. Bernetich (NCWM) 01-088, 01-088A1, 01-088A2, 01-088A3, 01-088A4, 01-088A5; J. Truex (NCWM) 01-088A6

### **Examples of Device:**



Model 820i-XY



Model 920i-XY