



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Indicating Element
 Digital Electronic
 Models: 420-XY, 420 HE-XY, 420 Plus-XY and Tracer AV
 n_{max} : 10 000
 Accuracy Class: III / III L

Submitted By:

Rice Lake Weighing Systems
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Standard Features and Options**Standard Features Models: 420-XY*, 420 HE-XY AND 420 Plus-XY*:**

- Semi-automatic (push-button) Zero
- Automatic Zero Tracking (AZT)
- Initial Zero Setting Only During Calibration
- Keyboard Tare
- Semi-automatic (push-button) Tare
- AC Power Supply
- DC Power Supply
- Remote Printer Capability
- Gross/Net Display
- LED Display
- RS232 Connector
- 4-20mA Loop
- Two Set Points (e.g. Target wt, overflow, underweight, etc)
- Wireless Communication

Standard Features Model: Tracer AV:

- Semi-automatic (push-button) Zero
- Initial Zero Setting Mechanism (IZSM)
- AC Power Supply
- Optional Remote LCD Customer Display
- Unit Switching (push-button) (lb and kg)
- RS232 Connector
- Remote LED Customer Display

*The model suffixes XY designate the following:

X= Enclosure Type; 1= Plastic, 2= Stainless Steel, 3= Panel mount

Y= Power Input; A= AC voltage, D= 9 – 36 VDC, E= 10 – 60 VDC

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.

Jerry Buendel
 Chairman, NCWM, Inc.

Ronald Hayes
 Chairman, National Type Evaluation Program Committee
 Issued: October 6, 2015

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Rice Lake Weighing Systems

Indicating Element / 420-XY, 420HE-XY, 420 Plus-XY and Tracer AV

Application: A general purpose indicating element to be interfaced with an approved compatible weighing element and/or as a single draft hopper controller.

Identification: The capacity by division statement and, where applicable, the CLC or Section Capacity will appear on an adhesive label on the front bezel plate of the indicator. The other required information appears on an adhesive label on the side of the indicator.

Sealing: The Model 420-XY, 420HE-XY and 420 Plus-XY wire security seal can be threaded through two drilled head screws that secure the back cover of the indicator to prevent undetected access to a switch that must be depressed to enter the set-up and calibration mode, on the bottom side of the indicator. The Model Tracer AV requires two wire security seals, one of which goes through two drilled head screws on the top right side and through two holes drilled in the lid/front and lid/back near each screw, and the other wire security seal goes through two drilled head screws on the top left side and through one drilled head screw on the back left side.

Test Conditions: This certificate supersedes Certificate of Conformance Number 04-076A5 and is issued to add a remote LCD Customer Display option. A model Tracer AV with remote LCD display was submitted for testing and was interfaced to a 10 000 division load cell simulator. The emphasis of the evaluation was on performance and compliance with influence factor requirements. An increase/decrease test was run four times for repeatability. The indicator was tested over a temperature range of -10 °C to 40 °C (14 °F to 104 °F). Previous test conditions are listed below for reference.

Certificate of Conformance Number 04-076A5: This certificate supersedes Certificate of Conformance Number 04-076A4 and is issued to add the power input range of 10 – 60 VDC which is suffix letter E. A model 420 Plus – 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. No further testing was deemed necessary.

Certificate of Conformance Number 04-076A4: This certificate supersedes Certificate of Conformance Number 04-076A3 and is issued to include model Tracer AV, which is electrically identical to the models 420-XY, 420HE-XY, and 420 Plus-XY. Model Tracer AV has up to two remote keypads and only has two basic keys for Zero and Units. Model Tracer AV has a metal enclosure with up to two remote displays. The only tests deemed necessary were the RFI test and the Generic Increase/Decrease with Repeatability since the Tracer AV is electrically identical to the models 420-XY, 420HE-XY, and 420 Plus-XY.

Certificate of Conformance Number 04-076A3: This Certificate supersedes Certificate of Conformance 04-076A2 and is issued to include a wireless communication indicating element and the option of wireless output and wireless remote control for the 420 and family of indicating elements. For the purpose of this evaluation, two model iQube Indicating Elements – 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 two 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.

Certificate of Conformance Number 04-076A2: This Certificate supersedes Certificate of Conformance 04-076A1 and is issued to include the models 420-XY & 420HE-XY, which are electrically identical to the model 420 Plus-XY. The model 420Plus-XY has a full keypad and the models 420-XY & 420HE-XY only have the 5 basic keys for Zero, Gross/Net, Tare, Units and Print. The 420HE-XY has a plastic enclosure with a larger display that has been previously evaluated on other Rice Lake Weighing Systems indicators. Evaluation verified that Tare functions as required with only Push Button (Platter) Tare and no Keyboard Tare. No further testing was deemed necessary. Changed the designation for DC Voltage from a "B" to a "D."

Certificate of Conformance Number 04-076A1: This Certificate supersedes Certificate of Conformance 04-076 and is issued without additional testing to change the model number from 420-XY to 420 Plus-XY. No metrological features were changed on the device.

Certificate of Conformance Number 04-076: The emphasis of the evaluation was on design, operation, performance, marking and compliance with influence factor requirements. A model 420-2A indicator was fully evaluated and a model 420-2B indicator was used for VDC evaluation. The indicator was interfaced with a Rice Lake Model CW 80 Weighing/Load Receiving Element (Certificate of Conformance of Conformance Number 96-107) and a generic printer to evaluate center of zero, discrimination, zone of uncertainty,



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motion detection, and print format. A load cell simulator was used to do performance testing. 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 86 to 265 VAC and 9 to 36 VDC.

Evaluated By: A. McCoy (OH) & T. Lucas (OH) 04-076, W. West (OH) 04-076A2, W. West (OH) & J. Bigrigg (OH) 04-076A3, J. Morrison (OH) 04-076A4, 04-076A5, 04-076A6

Type Evaluation Criteria Used: *NIST Handbook 44 Specifications, Tolerances, and Other Technical Requirements for Weighing and Measuring Devices*, 2015 Edition. *NCWM Publication 14 Weighing Devices*, 2015 Edition.

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

Information Reviewed By: S. Patoray (NCWM), L. Bernetch (NCWM) 04-076, 04-076A1, 04-076A2, 04-076A3, 04-076A4, 04-076A5; J. Truex (NCWM) 04-076A6

Examples of Device:



Model 420-XY



Model 420 Plus-XY



Model 420 HE-XY



Model Tracer AV