

National Conference on Weights and Measures
1135 M Street, Suite 110 • Lincoln, NE 68508

Certificate Number: 94-080A3

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National Type Evaluation Program
Certificate of Conformance
for Weighing and Measuring Devices

For:

Indicating Element
Digital Electronic
Models: TI Series
 $n_{\max}$: 5000 and 10 000

Accuracy Class: III

Submitted by: Contact Info. Updated November 2022

Transcell Technology, Inc.
975 Deerfield Parkway
Buffalo Grove, IL 60089
Tele: (847) 419-9180
Fax: (847) 419-1515
Contact: Jon Heinlein
Email: jheinlein@transcell.com
Website: www.transcell.com

Standard Features and Options

Specific models covered under this certificate are listed on page 2

6 digits, 7-segment (numeric) display
Automatic zero setting mechanism (AZSM)
lb/kg external push button
Gross/net/tare display
Gross/Net/Tare annunciators
Stable or motion weight annunciator

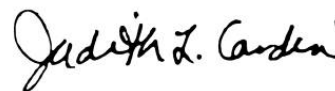
Single point calibration
Semi-automatic (pushbutton) tare
Center of zero annunciator
Semi-automatic (pushbutton) zero
RS-232 Bidirectional communication
Automatic Zero-Tracking Mechanism (AZT)
Initial Zero Setting Mechanism (IZSM)

Temperature Range: -10 to 40 °C (14 to 104 °F)

This device was evaluated under the National Type Evaluation Program (NTEP) and was found to comply with the applicable technical requirements of 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.



Jack Kane
Chairman, NCWM, Inc.



Judith L. Cardin
Chairman, National Type Evaluation Program Committee

Issued Date: March 9, 2009

Note: The National Conference on Weights and Measures does not "approve," "recommend," or "endorse" any proprietary product or material, either as a single item or as a class or group. Results shall not be used in advertising or sales promotion to indicate explicit or implicit endorsement of the product or material by the NCWM.

Transcell Technology, Inc.
Indicating Element
Model: TI Series

Model	n _{max}	Display Type	Enclosure	Power	Additional Features
TI-500	5000	LCD	Plastic	External AC adapter or 4-AA batteries	Low battery annunciator Automatic shut off feature
TI-500 Plus	5000	LCD	Aluminum	External AC adapter or 4-AA batteries	Low battery annunciator Automatic shut off feature Keyboard calibration, multiple
TI-500 SS	5000	LCD	Stainless Steel	Internal AC adapter	Automatic shut off feature
TI-500 SL	5000	LCD	Stainless Steel	External AC adapter or 6V rechargeable battery	Low battery annunciator Automatic shut off feature
TI-500 BWL	5000	LCD	Plastic	External AC adapter or 6V rechargeable battery	Low battery annunciator Automatic shut off feature
TI-500E	5000	LED	Plastic	External AC adapter	None
TI-500E Plus	5000	LED	Aluminum	External AC adapter	Keyboard calibration, multiple
TI-500E SS	5000	LED	Stainless Steel	Internal AC adapter	None
TI-600E SS	5000	LED	Stainless Steel	Internal AC adapter	Keyboard tare
TI-2200	10 000	LED	Stainless Steel	120 VAC, 60 Hz	Keyboard tare Four programmable set points

NOTES: All indicators require 4 wire plus ground wire cable connection and communication is using a RS-232 serial port, which is on demand or continuous.

Application: These indicators may be used with any approved and compatible weighing elements for general purpose weighing.

Identification: The identification information is on a label on top of the indicator. The indicator has a swivel mount that allows the indicators to be rotated to view the identification information.

Sealing: All TI-500 and TI-600 models require two wire security seals. Calibration and configuration parameters are accessed by toggling an internal switch or jumper which allows access to the calibration mode. This switch is covered with a plate which is secured with two sealing screws. A second security seal is required through the sealing screws which secure the back cover, this prevent the disassembly of the case. These devices will not return to their normal weighing mode unless the calibration switch is taken out of its calibration position.

Models TI-2200 and TI-2100 do not have a calibration access hole and only require one seal. Seal these devices using one wire security seal through two adjacent screws on the back cover, this prevents internal access.

Transcell Technology, Inc.
Indicating Element
Model: TI Series

Sealing models TI-500 and TI-500 Plus: These indicators use a Category I Audit Trail: Configuration and calibration counters update each time a configuration or calibration change occurs. The counters return to zero after 1000 changes, individually. The counters may be viewed by powering up the unit:

The screen will display the configuration audit counter ("CF") and the calibration audit counter ("CA").

Software Version: The software version number for each model is displayed at power up

Model/Software	TI-500	TI-500 Plus	TI-500 SS	TI-500 SL	TI-500 BWL	TI-500E	TI-500E Plus	TI-500E SS	TI-600E SS	TI-2200
Old Version Marked 94-080A2	10-05	N/A	N/A	10-05	N/A	08-05	N/A	08-05	09-05	10-05
New Version Marked 94-080A3	01-09	01-09	01-09	05-08	04-06	05-08	01-09	01-09	01-09	N/A

N/A = Not Applicable, in old version indicates only new version software is in production, in new indicates same as old

Test Conditions: This certificate supersedes Certificate of Conformance 94-080A2 and is issued to add 3 new models; TI-500, TI-500E and TI-600E, these indicators have different circuitry and A/D then those indicators previously evaluated. The emphasis of this evaluation was on device design, operation, and compliance with the influence factor requirements. Two samples of these devices were interfaced to load cell simulators (1- LED, stainless steel case, 1-LCD, aluminum case) and tested for accuracy over a temperature range of -10 °C to 40 °C and 100 VAC and 130 VAC. The device with DC power supply was also evaluated at and below 6 VDC. The devices were also connected to a weighing element and printer to evaluate zone of uncertainty, AZSM, width of zero and discrimination requirements.

Certificate of Conformance 94-080A2: This certificate supersedes Certificate of Conformance No. 94-080A1 and is issued to add the TI-600E and TI-600 to the TI series. Models TI-600E and TI-600 are metrologically similar to models TI-500E and TI-500, with the addition of a numerical keypad used to enter keyboard tares. Model TI-600E was submitted for evaluation. The emphasis of the evaluation was on the entry of keyboard tare compliance with tare requirements and its interaction with other indicator functions. Additionally, a new type of metal foil identification badge was evaluated for compliance with permanence of markings and durability requirements. The previous test conditions are repeated for reference.

Certificate of Conformance 94-080A1: This certificate supersedes Certificate of Conformance No. 94-080 and is issued to add model TI-2200 to the TI Series. Model TI-2200 is metrologically similar to model TI-2100, with the addition of some keys and software functions such as keyboard tare. The operation and functions of these keys were tested in the laboratory.

Certificate of Conformance 94-080: The emphasis of this evaluation was on device design, operation, and compliance with the influence factor requirements. Models TI-2100 and TI-500 were selected for evaluation. The indicating elements were interfaced to load cell simulators and tested for accuracy over a temperature range of -10 °C to 40 °C and 100 VAC and 130 VAC. Additionally, the indicating elements were attached to weighing elements and tested for compliance with zone of uncertainty, AZSM, width of zero and discrimination requirements. One indicator was attached to a printer to check print format.

Type Evaluation Criteria Used: NIST Handbook 44, 2008 Edition; NCWM Publication 14, 2008 Edition

Conclusion: The results of the evaluations and information provided by the manufacturer indicate the devices comply with applicable requirements.

Tested By: Bill Fishman (NY) and Ed Szesnat (NY) 94-080; Bill Fishman (NY) 94-080A1, 94-080A2 and 94-080A3

Information Reviewed by: S. Patoray (NCWM), 94-080A1, 94-080A2, J. Truex (NCWM) 94-080A3

**Transcell Technology, Inc.
Indicating Element
Model: TI Series**

Samples of TI Series indicators



Model TI-2200 Stainless Steel Enclosure



Model TI-500E Plastic Enclosure



Model TI-500E SS Stainless Steel Enclosure



Model TI-600E SS Stainless Steel Enclosure



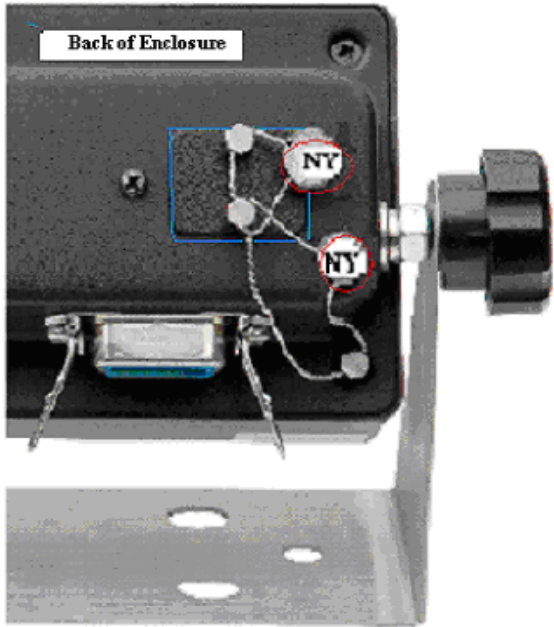
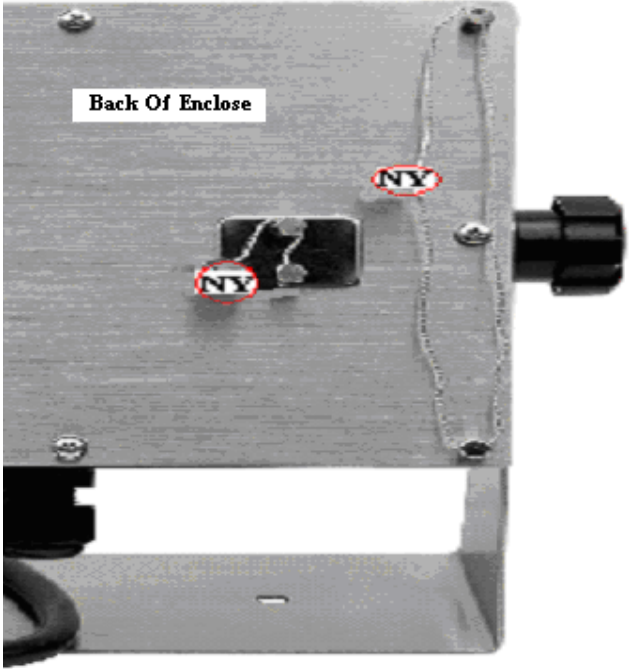
Model TI-500 Plus Aluminum Enclosure



Model TI-500 BWL Plastic Enclosure

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Sealing

 Back of Enclosure	 Back Of Enclose
TI-500E, TI-500E Plus, TI-500 BWL (similar to photo)	TI-500E SS, TI-500 SL, TI-500 SS, TI-600E SS, TI-2200

Note: Models TI-2100 and TI-2200 do not have a calibration access hole and only require one security seal to secure the back cover of the enclosure.

Audit Trail Displays for Models TI-500 and TI-500 Plus

	
Calibration Counter	Configuration Counter