

SECTION V.
BID FORM

BIDDER: Michelli Measurement Group, Inc.

The undersigned, hereby declares that we have carefully examined the location of the proposed Work, and have read and examined the Contract Documents, including all plans, specifications, and all addenda, if any, for the following Project:

City of Corona Utilities Dept WRF1 Truck Scale Bid, NIB No. 23-032SB

The undersigned agrees that this Bid Form constitutes a firm offer to the City which cannot be withdrawn for the number of calendar days indicated in the Instructions to Bidders or until a Contract for the Work is fully executed by the City and a third party, whichever is earlier.

Bidder certifies that it is licensed in accordance with the law providing for the registration of Contractors, License No. 1032272, Expiration Date 10/31/2023, class of license C-61/D21 DIR Registration No. 1000059844. If the bidder is a joint venture, each member of the joint venture must include the above information.

The undersigned acknowledges receipt, understanding and full consideration of the following addenda to the Contract Documents.

Addenda No. <u>1</u>	Dated: <u>12/01/2022</u>
Addenda No. _____	Dated: _____
Addenda No. _____	Dated: _____

The basis of Award of this Contract shall be on the lowest total for the Bid Schedule. In case of discrepancy between the unit price and the item cost set forth for a unit basis item, the unit price shall prevail and, shall be utilized as the basis for determining the lowest responsive, responsible bidder. However, if the amount set forth as a unit price is ambiguous, unintelligible or uncertain for any cause, or is omitted, or is the same amount as the entry in the "Item Cost" column, then the amount set forth in the "Item Cost" column for the item shall prevail and shall be divided by the estimated quantity for the item and the price thus obtained shall be the unit price.

No person, organization, or corporation is allowed to make, submit, or be interested in more than one Bid unless in a sub-contractual relationship with respect to the Bids. **A person, organization or corporation submitting sub-proposals or quoting prices on materials to Bidders is prevented from submitting a Bid to the City as a primary bidder**

Cash discount allowable 2 %NET 10 days. Unless otherwise stated, payment terms are Net Thirty (30) Days.

I hereby certify under penalty of perjury under the laws of the State of California, that all of the information submitted in connection with this Bid and all of the representations made herein are true and correct.

Signature: 

Print Name: **Robert J. Feigler**

Title: **Vice President & General Manager**

Date: **12/23/2022**



Sales and Service Of: Industrial Scales • Weighing Systems •
 Laboratory Balances • Force Measurement • Torque & Bolting Tools
 Calibration Laboratory Services Offered For: Scales, Balances, Force,
 Torque, Mass, Pressure, Temperature & Electronic Test Instruments

QUOTATION

Avery Digital Truck Scale City of Corona	
Quote Number	Date
29744	12/21/2022
Payment Terms	Valid Until
40% on Order/30% on Delivery/30% Net 30	01/31/2023
Prepared For	Quoted By
City of Corona 400 S. Vicentia Ave. Suite 320 Corona, CA 92882 Attn: Rich Hogate richard.hogate@coronaCA.gov 714-620-5404	Kaeo Partida Michelli Measurement Group, Inc. 10751 Forest St. Santa Fe Springs, CA 90670 kpartida@michelli.com 714-916-3977

Qty.	Item / Part / Model#	Description	Unit Price	Amount
1	ZT Digital	Standard Length and Width BMS-HD 7011-100T Three Module Steel Deck Truck Scale with Upgrade to 3/8" Thick Tread Plate, Upgrade to ZT Digital Load Cell System and Bolted, 8" High Single Rail Guide Rail Kit **ZT Digital Load Cell are equal to Power Cell PDX (no J-Box required)**	69,755.81	69,755.81T
48	48614-0015	Anchor bolt, nut & washer.	16.00	768.00T
1	AWT05-508016	ZM615 Desktop, Stainless Steel IP69K, ISTN Display SD5 **Custom Programming of ZM-615 for Truck In & Out**	2,807.14	2,807.14T
2	SBL-6	SBL-6 Remote display with 6"; High Character; sun visor; includes; auto learn; feature automatically configures to any data stream; swivel mounting bracket; 2 year factory warranty from date of shipment.	1,452.00	2,904.00T
1	AWT97-501690	Blue Blanket 5-Year Warranty **Includes lightning strike protection warranty** ***First year of warranty include inspections and preventative maintenance every 6 months***	2,300.00	2,300.00

Financing available: If interested in financing your total purchase, to calculate quote estimates and submit a preliminary application, visit <https://www.michelli.com/financing/>.



Michelli Measurement Group, Inc.

www.Michelli.com

ISO 9001 Registered
ISO/IEC 17025 Accredited

Sales and Service Of: Industrial Scales • Weighing Systems •
Laboratory Balances • Force Measurement • Torque & Bolting Tools
Calibration Laboratory Services Offered For: Scales, Balances, Force,
Torque, Mass, Pressure, Temperature & Electronic Test Instruments

QUOTATION

1	FOUNDATION	Foundations Above Ground Design Includes: 4" SCH 40 STEEL PIPE - 96" LENGTH - SAFETY YELLOW	57,471.26	57,471.26
1	CRANE	Crane	3,000.00	3,000.00
Installation/Setup/Calibration/Cert			6,363.64	6,363.64
Onsite Training (4 - 8 Hours)			750.00	750.00
Availability:			Subtotal	146,119.85

Financing available: If interested in financing your total purchase, to calculate quote estimates and submit a preliminary application, visit <https://www.michelli.com/financing/>.



Sales and Service Of: Industrial Scales • Weighing Systems •
 Laboratory Balances • Force Measurement • Torque & Bolting Tools
 Calibration Laboratory Services Offered For: Scales, Balances, Force,
 Torque, Mass, Pressure, Temperature & Electronic Test Instruments

QUOTATION

Comments: Sales Tax of 8.75% included for all equipment line items (marked with a "T" for taxes on line item total).

BID SPECIAL CONDITIONS RESPONSES:

NOTE 1: ALL BID TECHNICAL SPECIFICATIONS WILL BE MET OR EXCEEDED. WE HAVE INSTALLED THOUSANDS OF TRUCK SCALES OVER OUR 75 YEAR HISTORY AS THE LEADING PROVIDER OF INDUSTRIAL WEIGHING EQUIPMENT & CALIBRATION SERVICES.

NOTE 2: Detailed catalog of all products explaining the features and technical parameters are submitted as part of our proposal.

NOTE 3: All necessary training for your technical and operational personnel is included in this quotation.

NOTE 4: Total lightning protection and warranty is included for load cells, indicator, and platform.

NOTE 5: Pre-dispatch inspection is included in our quotation.

NOTE 6: As Require by your Technical Specifications/Scope of Work, SPECIAL CONDITIONS e) Details of installations of similar or higher capacity Weigh Bridge with year of installation shall be submitted along with the Technical Bid:

City of Corona - New Foundation/Approaches, and New Scale Install TURNKEY :

1. Form up and install rebar for ramps.
2. Pour and finish ramps with new 2 1/2 x 2 1/2 angle iron. 5000 psi concrete.
3. Strip forms and clean up.
4. All work to be performed on weekend and night.
5. Prevailing wage project.
6. Coordinate Scale Delivery and offload scale with crane into position
7. Place scale on foundation and anchor to foundation
8. Wire up digital load cells to indicator in scale house
9. Calibrate Scale and place in service with Weights and Measures
10. Provide Semi-Annual Calibration Agreement to maintain Extended Warranty Requirements

NOTE 7: Recommend Spares list is attached to our bid package.

NOTE 8: Asset management information to include the life cycle of each component is included in our line items on this quote, and our Asset Management System called TRAC is attached to this quotation.

All major credit cards accepted, surcharge may apply.

Tax	6,670.55
Estimated Shipping	3,800.00
Total	156,590.40

Financing available: If interested in financing your total purchase, to calculate quote estimates and submit a preliminary application, visit <https://www.michelli.com/financing/>.



Scale, Weighing System & Lab Balance Calibration

- Full-line weighing
- Up to 1,000,000 lbs.
- Custom weighing solutions
- Bench scales
- Floor scales
- Drum-filler systems
- High-speed grading systems
- Tank/hopper scales
- Truck scales
- Rail scales
- Counting scales
- Checkweighers
- In-Motion scales
- Top loading lab balances
- Analytical lab balances



Pressure, Dimensional & Temperature Calibration

- Hydraulic pressure gauges
- Pneumatic pressure gauges
- Micrometers
- Calipers
- Tape measures/rulers
- Dial indicators
- Granite surface plates
- Dial thermometers
- Infrared thermometers
- Temperature calibrators



Force Measurement Calibration

- 10 lbs to 550,000 lbs
- Dynamometers (electronic & mechanical)
- Load cells (tension & compression)
- Crane scales
- Force gauges (electronic & mechanical)
- Force stand fixtures
- Multi-load cell telemetry systems
- Custom proof-load testing



Electronic Calibration

- Multimeters
- Clamp meters
- Phase meters
- High voltage dielectric test sets (Hipot)
- Power quality analyzers
- Frequency analyzers
- Loop calibrators
- Multifunction process calibrators
- Oscilloscopes
- Timers
- Welding machines



Torque Wrench & Bolting Tool Calibration

- Mechanical "click" wrenches
- Dial type wrenches
- Cam-over drivers and wrenches
- Digital-pulse torque tools
- Pneumatic bolting tools
- Hydraulic bolting tools (up to 25,000 ft-lbs in-house)
- Hydraulic power pump services
- Pneumatic nut runners



Michelli Weighing & Measurement calibration capabilities are growing every day to include more measurement equipment.

Scan this code to visit our website & view a full list of our calibration lab capabilities.



CERT #3601.01
CERT #3601.02
CERT #3601.03
CERT #3601.04
CERT #5103.01

ISO 9001 Registered | ISO/IEC 17025 Accredited*

Contact Us Today to Request a Quote

West US 800.903.8823

quote@Michelli.com

South US 504.733.9822

www.Michelli.com



TRAC Simplify your asset management with TRAC

Leave your service & calibration management to us, so you can focus on operations

Track
Records,
Assets &
Calibrations

TRAC helps our customers keep asset records organized, and calibrations on schedule. Asset management has never been easier. Best of all, TRAC is free for Michelli Weighing & Measurement customers.

Let us help get you on **TRAC** today.

- Asset records are easily accessible 24/7
- Request service with just a few clicks



CONSOLIDATE YOUR RECORDS

Store your equipment list, complete with service records, calibration certifications & maintenance information, all in one place.



MAINTAIN TRACEABILITY

Establish a historical record of calibrations, and set a calibration schedule for each asset in your list to receive automatic reminders.



KEEP MAINTENANCE UP-TO-DATE

Set preventative maintenance service schedules, then receive notifications to remind you when service is due.



SCHEDULE SERVICE VISITS

Submit a service request with just a few clicks. Request immediate service or choose your desired completion date.

Let's work together.

Harahan, LA
(504) 733-9822

Baton Rouge, LA
(225) 927-0682

Bossier City, LA
(318) 747-9730

Lafayette, LA
(337) 484-1304

Monroe, LA
(318) 343-3422

Sulphur, LA
(337) 882-5115

Olive Branch, MS
(662) 890-9073

Jackson, MS
(601) 936-6900

Greenwood, MS
(601) 936-6900

New Albany, MS
(601) 936-6900

Columbia, MS
(601) 731-2544

Mobile, AL
(251) 661-3656

Birmingham, AL
(205) 621-3151

Texarkana, AR
(870) 774-1521

Little Rock, AR
(501) 455-4301

Springdale, AR
(479) 750-4942

Nashville, TN
(615) 878-2219

Houston, TX
(281) 437-2005

Stockton, CA
(209) 464-9469

Fresno, CA
(800) 903-8823

San Jose, CA
(800) 903-8823

Bakersfield, CA
(800) 903-8823

Chula Vista, CA
(619) 240-3613

Santa Fe Springs, CA
(562) 903-1669

Phoenix, AZ
(800) 903-8823

Reno, NV
(800) 903-8823

Las Vegas, NV
(800) 903-8823

Seattle, WA
(971) 250-1277

Portland, OR
(971) 250-1277

www.Michelli.com | info@Michelli.com

Avery Weigh-Tronix

ZT DIGITAL LOAD CELL



ZT DIGITAL
LOAD CELL

SMART - RUGGED - ACCURATE

**High performance
weighing solution
to increase your
profits**

High quality and accurate weighing solution to increase your profit!

Avery Weigh-Tronix

Its innovative design provides faster installation and advanced performance diagnostics.

The weighing system is the heart of the business and having an accurate and reliable weigh scale is vital to the success of your business. You need to consider the quality of the scale which will mean having reliable and accurate weighing componentry to ensure your business is protected from unexpected costs.

It ensures you are not giving product away or charging too much for product, reduces downtime when having to be repaired which can be expensive, and ensures you are complying with legislations.

Avery Weigh-Tronix, with its established years of manufacturing, provides high-quality componentry for efficient weighing operations, while protecting your profits.

Buying a quick fix is not going to be beneficial to you in the long run, buying an innovative solution with a long-term return is going to protect your profits and give you peace of mind.



ZT Digital Load Cell Weighing System

The **ZT Digital Load Cell**, used in conjunction with the Avery Weigh-Tronix ZM510/605/615 Series Indicators, will provide a superior weighing system that is:



Heavy loads and daily high-volume weighing cycles can cause wear and tear to your weighing system with costly repairs.

ZT Digital Load Cell Weighing Applications

The **ZT Digital Load Cells** are a high accuracy, hermetically sealed with integral lightning protection, rocker-column digital compression canister cell designed to survive the world's most extreme operating conditions. Due to its rugged and industry-leading design, the **ZT Digital Load Cells** are used in a wide variety of weighbridge applications around the world.

Ensuring these key areas are functioning 100% daily, with heavy loads and constant abuse is challenging. **We have designed our range of products with this in mind.**



Tired of Having Constant Breakdowns due to poor quality?

Avery Weigh-Tronix

ZT Digital Load Cell Proven Design

With a proven track record with over 30 years of manufacturing the canister load cell, Avery Weigh-Tronix prides itself on manufacturing the **ZT Digital Load Cell** to the highest industry and quality standards (ISO 9001). Using the latest state-of-the-art load cell manufacturing and testing equipment, the Avery Weigh-Tronix load cells and components are designed to improve accuracy and performance.

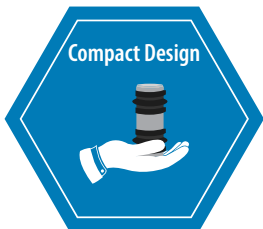


The specially designed weighing element is manufactured from a solid piece of aircraft-quality alloy stainless steel, that in combination with a 24-bit A/D converter provides outstanding weighing performance:

- ▶ 150% safe load limit of the **ZT Digital Load Cell** rated capacity for maximum reliability
- ▶ 6 million internal divisions for the highest accuracy



The 2.35mm thick stainless-steel outer wall is hermetically sealed to IP69K and designed to protect internal elements from accidental damage and prevents the ingress of water and dust (IP68, 1 m 7-days). Each **ZT Digital Load Cell** has integral two-stage lightning protection (Level 4 certified) and waterproof, corrosion and abrasion resistant industry-leading data cables and connectors.



The compact design, pre-assembled anti-rotation load buttons and intelligent connecting system simplify the service and installation operations. Due to its 200 mm industry-standard height, the **ZT Digital Load Cell** allows more application options than ever before.



Our canister load cell has been supplied into geographies around the world over the last 30 years.

Prevent inaccurate weight readings which damages your profits, unexpected stock shortages and weight disputes with customers.

ZT Digital Load Cell Weighing Performance

When choosing your weighing system, you need to take into consideration the quality of the load cell which is the major part of the weighing system. If the load cell chosen is not suitable for your system and business needs, this will result in inaccurate weight readings and lost revenue.

The **ZT Digital Load Cell** is NTEP Class III, 10,000d approved with a capacity of 30 tons. Every cell is built and accurately precalibrated, temperature compensated and linearized in our company facility (ISO9001 certified).

The 24-bit A/D converter digitizes the signal generated by the 8 strain-gauges. This design offers outstanding weighing performance (6 million divisions, unaffected by off center load up to 3°) and signal protection from electromagnetic interferences and fraud attempts.

The **ZT Digital Load Cell** makes the installation, cornering and calibration a faster and simpler process and is ideal for critical weighing applications in extreme conditions such as lightning rich or monsoon areas.

Each load cell can be easily configured and monitored via an Avery Weigh-Tronix ZM510/605/615 Series Indicator, making it the trusted choice for high capacity applications in every environment and industrial operating conditions.

SPECIFICATIONS

METROLOGICAL APPROVALS



NTEP approved for accuracy Class III-L 10,000d

OIML R60 approved for accuracy Class C6, 6000 intervals

Combined Error <150 ppm R.C.

TEMPERATURE RANGE

Compensated (NTEP/OIML) +14° F to +104° F / -10° C to +40° C

Operating -40° F to +149° F / -40° C to +65° C

LOAD CELL

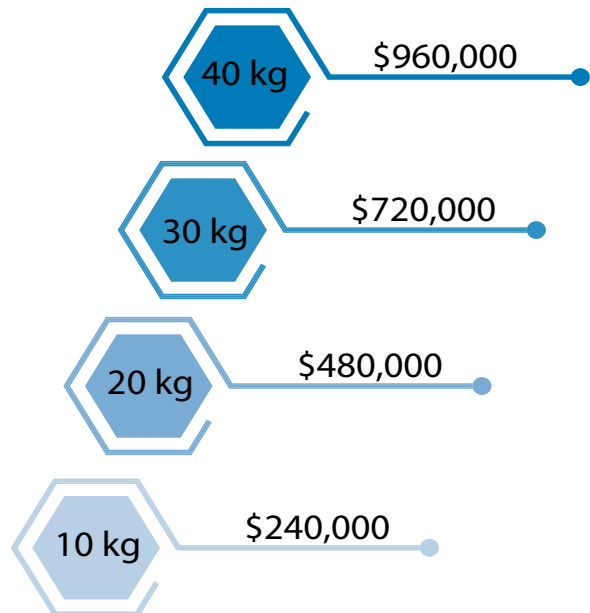
Safe Load 150% of the rated capacity

Breakage Load 230% of the rated capacity

FULLY ASSEMBLED AND PRE-CALIBRATED

Potential Annual Misprofit Error per Transaction

Assuming 24,000 trucks per year and product cost \$1/lb



How the transactions are calculated

Transactions/day	100
Transactions/week	500
Transactions/month	2000
Transactions/year	24,000

Extreme Weather Can Be Costly

Avery Weigh-Tronix

System Protection in all Environments

The **ZT Digital Load Cell** is designed to handle every environmental factor - wind, vibrations, temperature changes, and marine corrosion. These, along with tough industrial applications and atmospheres, can all impact how well your weighing system performs.

If your location is in a harsh environment and at risk of lightning strikes, dust storm or monsoon weather the Avery Weigh-Tronix **ZT Digital Load Cell**, used in conjunction with the Avery Weigh-Tronix ZM510/605/615 Series Indicator, will provide the extra protection you need for your weighing system.

It is important that the whole weighing system is protected to prevent your system from being inactive and waiting repair, as any downtime of key equipment can be very costly to your business.

IP Rating

All the components are designed for long service in extreme conditions, including corrosive environments and frequent heavy washdown.

- › The ZT Digital Load Cell is hermetically sealed to IP68 (1 m - 7 days submersion) and is fixed with a Glass-to-Metal header, hermetic to IP69K certified cable entry, providing outstanding reliability in a wide range of environments.
- › Amphenol LTW® X-LOK Cable and Connectors are designed to exceed IP68 (IEC 60529). Due to a proven polyurethane sheath this data cable guarantees also excellent flexibility and maximum oil and abrasion resistance.
- › The ZM510/605/615 Series Indicators are IP69K certified and enclosed in 304 brushed stainless steel fitted with a GORE® Vent, a membrane which makes it ideal for use in heavy washdown (food) or dusty environments.

The logo for IP69K certification, featuring a stylized 'IP' symbol above the text 'IP69K' in a bold, sans-serif font.

Lightning Protection

We provide lightning protection at each level.

- › ZT/ZM Interface Card with surge protection.
- › ZM510/605/615 Series Indicators with medical grade PSU.
- › ZT Digital Load Cells certified to IEC 61000-4-5, Level 4 EMC and Surge Immunity.
- › Amphenol LTW® Cables with dual screen system: metal braid and drain for electrical earthing and maximum EMI immunity.



ZT Digital Load Cell Environmental Performance

To maximise protection and reliability, Avery Weigh-Tronix has developed and adopted the latest state of the art, industry-leading solutions.

- ▶ The IP68/69K, 2.35 mm thick stainless steel ZT Digital Load Cell enclosure, offers anti corrosive properties and performs exceptionally well in damp, wet and humid environments, as well as industrial atmospheres in operating temperature range -40 °F to +149 °F / -40 °C to +65 °C.
- ▶ The ZM510/605/615 Series Indicator is IP69K certified and its 304 stainless steel casing featured a high contrast display and metal domed tactile keys for lifelong operability.
- ▶ The Amphenol LTW® X-LOK cable and connectors guarantee superior abrasion resistance and immunity to EMI/RFI interferences. The IP68 connectors comply also with EIA364 - Environmental Performance and meet the highest industry standard by using UL94V-0 and UL-f1 rated thermoplastic materials for flammability and UV exposure protection.

Protection Against All External Factors



Intelligent Connecting System - Just Plug and Weigh!

Avery Weigh-Tronix

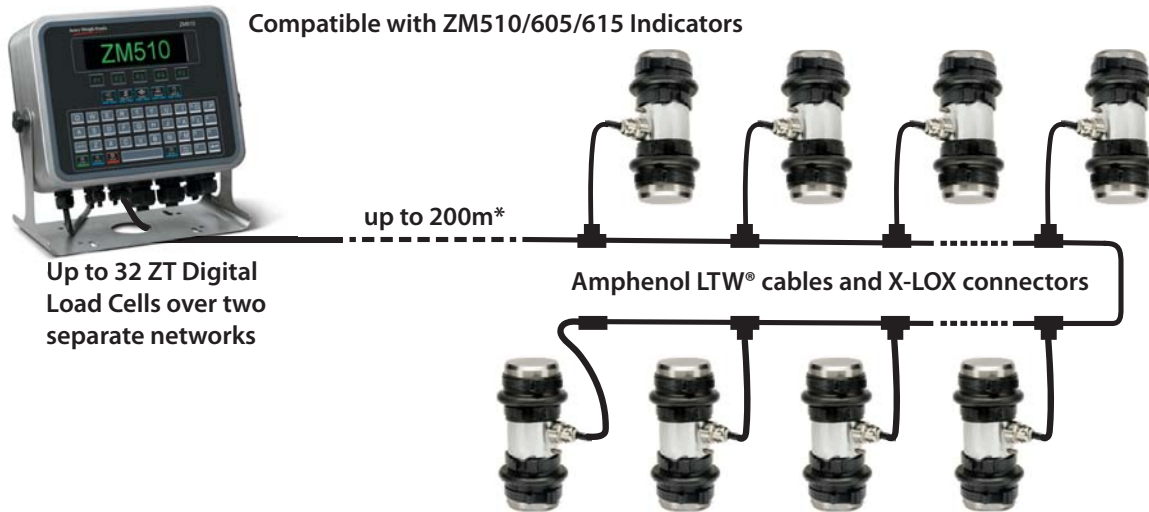
ZT Digital Load Cell Connectivity

The **ZT Digital Load Cell** is connected to a Bus Network without the need of a junction box or termination plug, providing Fast, Flexible, and Simple interconnections using the Amphenol LTW® X-LOX push lock system – you just plug-and-play! This simplifies the connection process and reduces time terminating wiring connections when using a junction box.

In addition to the pre-assembled load buttons, each **ZT Digital Load Cell** comes as standard with Amphenol LTW® 1 m digital cable with SST overbraiding and single connector. This design increases the overall system robustness in two ways:

- › It allows each cell to be easily isolated for rapid cell-specific servicing without interrupting the network.
- › It protects the connections from undesired mechanical stress and adverse environmental conditions (e.g. flood and sand dust).

System Diagram



*Maximum length of the home run cable is subject to the number of cells connected.

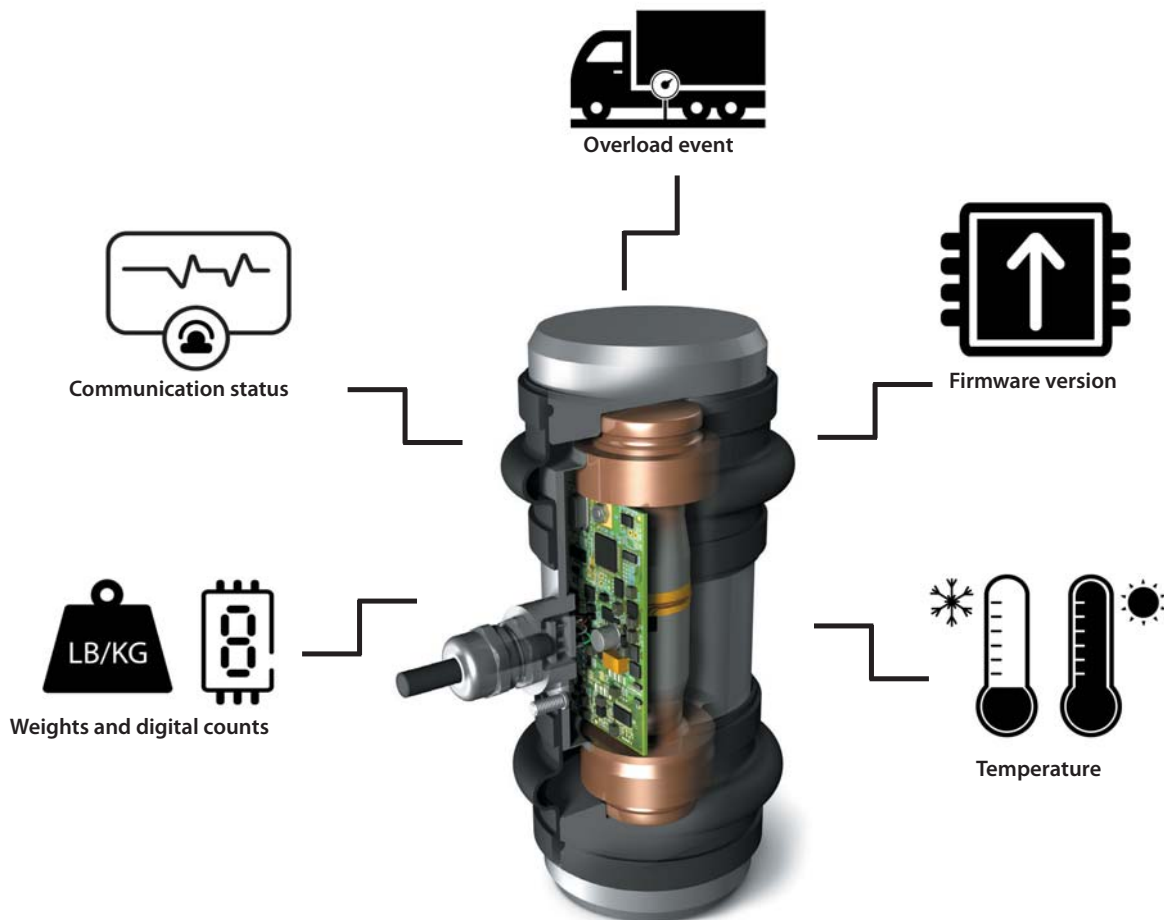
The Amphenol LTW® cable and X-LOX connectors (EIA364 and IP68 submersible) are designed for simplified interconnection and superior electrical - mechanical - chemical performances. Due to the tough polyurethane sheath with SST overbraiding, this data cable guarantees excellent flexibility and maximum oil and abrasion resistance.



Continuous Self Diagnostic Feature Identifies a Fault in Realtime Allowing you to Contact your Service Provider Quickly to Resolve the Issue.

ZT Digital Load Cell Monitoring and Diagnostic Features

The **ZT Digital Load Cell's** continuous diagnostics monitor the status, performance and security integrity of each cell on the network for faster and traceable servicing. The active alarm messaging feature notifies the operator in real-time so that you can inform your service provider to enable a first-time fix. This can also be set up to send an email to the known service provider when not being manned.



Faster, Simplified, Installation and Service

Avery Weigh-Tronix

Pre-calibrated, Linearised and Temperature Compensated ZT Digital Load Cells Saves Installation Time On-Site.

Using the **ZT Digital Load Cell** makes the installation, cornering and calibration a lot faster and a simpler process because each **ZT Digital Load Cell** comes as standard pre-calibrated from our factory, resulting in quick & simple load cell replacement with minimum downtime.

All these factors combine to make the **ZT Digital Load Cell** an ideal choice for hard to reach locations like isolated quarry pits or tropical plantations.



ZT Digital Load Cell is Provided with Factory Assembled Rubber Gaiter Bellows and Pre-Greased Buttons Designed to Reduce Rotation.

The sealed rubber gaiter protects the load cell from harsh wet & dusty environments while the factory pre-greased load buttons ensure the correct type and amount of grease is applied and keep it free of any contamination.

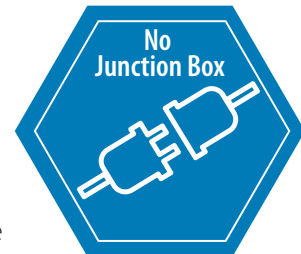
The top and bottom rocker-column suspension load buttons are designed to improve point loading contact and accuracy and greatly reduce the cell rotation that can cause damage.



The Amphenol® Push Lock Connector System Simplifies the Cabling and Allows Each Load Cell to be Easily Isolated for Inspection.

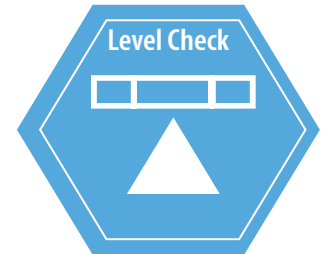
The Amphenol LTW® X-LOK connectors make the connection of the ZT Digital Load Cells to the bus network a faster and error-free (no hand wiring required) operation, without the use of a junction box or termination plug.

This network topology allows the whole weighing system to be continuously monitored to prevent misuse or fraud attempts and makes each cell always accessible without having to interrupt the network.



The Platform Balancing Check Feature Maximises the Weighing Performance of Your Weighing System.

When installed to the manufacturer’s specifications, the **ZT Digital Load Cells** are fitted on level decks. To make sure that the decks are also standing on their static balance point correctly, this feature displays the dead load percentage on each cell before performing the calibration and ensures that the weighbridge has been installed level to maximise the weighing performance and accuracy.



The Ghosting Feature Helps to Keep Your Weighing System Functioning if a Load Cell is Faulty – Preventing Expensive Downtime.

The Ghosting feature detects a faulty weight sensor output, isolates the weight sensor, and replaces the faulty sensor output with a simulated replacement. It will allow the system to keep functioning in a limited capacity (non-trade mode only) until repairs can be made.

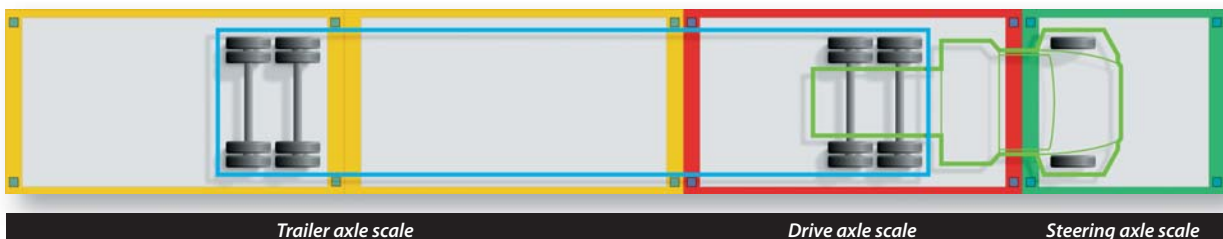


Multi-Platform Scale

The multi-platform scale feature allows each of the 32 **ZT Digital Load Cells** to be grouped on the network into independent platforms for a faster axle-vehicle weighing application.

Each scale can be easily configured and monitored via an Avery Weigh-Tronix ZM510/605/615 Series Indicator, making it the trusted choice for axle-weighing applications.

The Avery Weigh-Tronix ZM510 Indicator can support four scales and the ZM605/615 Indicator can support up to eight scales.



Delivering Service Excellence Globally

- › At Avery Weigh-Tronix, we strive to deliver cost effective service options that fit your specific requirements.
- › Our solutions help you to maximise continuous operation, keeping your equipment running smoothly and minimising costly disruption to your business.
- › We have more than 250 years of experience, backed by worldwide investment in research and development.
- › Advanced reporting systems to give you visibility and control.
- › ISO9001:2015 and ilac - MRA Laboratory ISO 17025 accredited.
- › Our distributor network provides localized support to install and maintain your equipment, including regular calibration, servicing and repair.

Approvals

Environmental Performance Certificates:

IEC 60529 - IP68 hermetic, submersible

DIN 40050-9 and IEC 60529 - IP69K high pressure and temperature washdown

IEC 61000-4-5 - Level 4 EMC and surge immunity: for severe environments

EIA 364-09/26B/31B/21C/23C/20D electrical connectors

Metrological Certificates:

CE - EU DoC

UKCA

NTEP Class III-L, 10,000d Approved, OIML - R60, Accuracy Class C6



Avery Weigh-Tronix

www.averyweigh-tronix.com

Avery Weigh-Tronix is an ITW company

KEY FACTS

1. What are the applications of the ZT Digital Load Cell?

The ZT Digital Load Cells are factory pre-calibrated and have an industry standard height of 7.87" (200 mm), making them ideal for many applications such as:

- › Weighbridge

2. Does the ZT Digital Load Cell need a junction box?

No, the ZT Digital Load Cells are connected directly to a secure bus network without the need of a dedicated junction box or termination connector.

3. Is the ZT Digital Load Cell approved?

Yes, NTEP approved to 10,000 verification intervals (Class III-L) and OIML R60, approved to 6000 verification intervals (accuracy C6) with a capacity of 30 t.

4. What indicators are compatible with the ZT Digital Load Cell?

The Avery Weigh-Tronix ZM510/605/615 Series Indicators support the ZT Digital Load Cell.

5. How many ZT Digital Load Cells can be linked together?

Up to 32 ZT Digital Load Cell can be connected together.

6. ZT Digital Load Cells are connected to a backbone network through a single connector. What are the advantages?

Unlike other systems, this design:

- › Simplifies the cable routing and connection process
- › Keeps the connectors away from adverse environmental conditions (e.g. flood and sand dust) and protected from accidental damage.
- › Makes each cell and connection always individually accessible for inspection.
- › Allows each sensor to be preconfigured, even before installation.
- › In addition, the scale can be kept functioning in a limited capacity even when one sensor fails (Ghosting feature, non-trade approved mode).

7. Can the ZT Digital Load Cell System handle multiple and separate scales?

Yes, when configuring the indicator in Ztools, each of the ZT Digital Load Cells on the network can be grouped into logically independent platforms.

- › The ZM510 can have up to four scales
- › The ZM605/615 can have up to eight scales

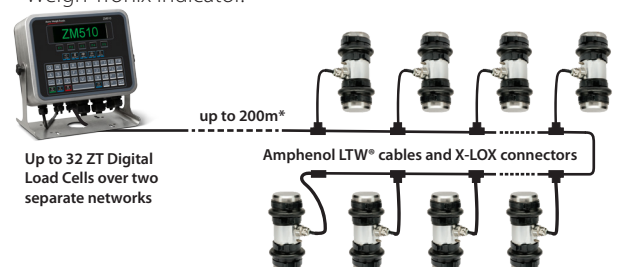
SERVICE AND INSTALLATION

8. What are the advantages of having the ZT Digital Load Cell with pre-fitted load buttons?

- › Faster and uniform installation.
- › Buttons are pre-greased at factory using the correct type and amount of grease.
- › The load buttons properly coupled to the specially designed load bearing surfaces, i.e. rocker-column, guarantee the correct alignment full up to 10,000d and help to reduce the cell motion.
- › The sealed rubber gaiter bellows protect the weighing element from external factors and reduce the cell motion that can cause damage.
- › The bottom load button is secured by a dual pin system to eliminate cell rotation.

9. How are the ZT Digital Cells networked to each other?

The load cells are connected using Amphenol LTW® connectors as shown below. The connectors create a backbone network linked to a ZM510/605/615 Avery Weigh-Tronix indicator.



*Maximum length of the interface cable is subject to the number of cells connected

10. What is the maximum length of the home run cable?

Number of ZT Load Cells	Max Home Run Cable	Max System Cable Length
Up to 8	200 m	264 m
10	175 m	257 m
12	150 m	250 m
14	125 m	243 m
16	100 m	236 m

11. What is the “Weighbridge Balancing Check” feature?

To make sure that the decks are not only level but also standing on their static balance point, this feature displays the dead weight on each cell before performing the calibration.

If required, the ZT Digital Load Cell alignment can then be adjusted to evenly balance the platform dead weight and prevent any problems with repeatability and calibration errors.

12. What is the “Ghosting” feature?

Ghosting detects one faulty weight sensor output, isolates the weight sensor, and replaces the faulty sensor output with a simulated replacement. It can allow a scale to keep functioning in a limited capacity (not trade mode) until repairs can be made. The “Ghost” alert will pop up on the ZM510/605/615 screen and the “Non-Legal Weight” message will be printed on any tickets.

13. How accurate is the weighbridge in Ghosting mode?

The accuracy of a weighbridge working in Ghosting mode depends on:

- › The current mechanical conditions of the platform and last calibration date.
- › The module design and number of active sensors.
- › The load distribution of each truck axle (shaft) across the deck sections.

The specific accuracy achieved at a location can be confirmed on installation. For reference only, the tests conducted by Avery Weigh-Tronix demonstrate that, for a weighbridge of 1 or 4 sections (6 x 3 m and 3500 kg weight each), the accuracy of a uniformly distributed load may vary from $\pm 4\%$ to $\pm 1\%$ respectively.

14. What diagnostics specific to the ZT Digital Load Cells are available in the indicator diagnostics menus?

The parameters monitored are:

- › Communication status
- › Temperature
- › Overloads counter and peak weight
- › Live weight and counts
- › ZT firmware version

15. What are the errors logged in the ZM510/605/615 Indicators internal database?

If the ZT Digital Load Cell detects an error, the following messages will be shown on the upper right of the indicator display.



The ZM log is a SQLite database file that can be accessed by the indicator application (Diagnostic Menu) and copied from the flash drive to another, like a FTP, USB memory stick or sent to a printer.

The errors logged are:

- › Scale over/under load
- › ZT cell over load
- › Communication status
- › Ghosting activation

PROTECTIONS

16. What is the ZT Digital Load Cell IP rating?

The ZT Digital Load Cell is hermetically sealed to IP68, 1 m - 7 days submersion (IEC 60529) and designed to survive the world’s most extreme weather conditions with operating temperature range from -40°F to $+149^{\circ}\text{F}$ / -40°C to $+65^{\circ}\text{C}$.

The cell-cable entry is featured with a Glass-to-Metal header that makes it hermetic to IP69K (DIN 40050-9 certified) while the proven industry leading cable and connectors (Amphenol LTW[®]) are conformed to the EIA364 and IP68 standards to ensure maximum protection against external agents.

17. Can the ZT Digital Load Cell be used in a hazardous area?

No, the ZT Digital Load Cell does not have any ratings for hazardous areas and must be located in a safe area.

18. Is the ZT Digital Load Cell immune from high voltage surges and RFI interference.

Yes, the system has been tested to and passes IEC 61000-4-5 simulating lighting surge at Level 4: Severe harassment environment such as civil aerial, high-pressure power substation without protection.

19. Is the ZT Digital Load Cell fraud-protected?

Yes, as part of the continuous monitoring diagnostic features, the ZT digital communication protocol is designed to recognise only the ZT Digital Load Cells which serial number has been linked to a unique address generated by the indicator. The watchdogs inside the indicator and each cell monitor the ZT network status contributing to prevent any attempt of fraud.

20. How is the ZT Digital Load cell protected from mechanical shock and operating stress?

- › The 2.35 mm thick stainless steel outer wall protects the internal elements (e.g. the eight strain gauges and 24-bit ADC) from accidental damage.
- › The stainless steel aircraft-quality alloy column guarantees a safe load limit 150% of the rated capacity and outstanding weighing performance (6 million internal divisions) even when weighing loads up to 3° off center loads.
- › The Amphenol LTW® cables have an extra electrically – mechanically – chemically tough polyurethane sheath for maximum protection. A stainless steel overbraid is standard on truck scale applications.
- › The Amphenol LTW® X-LOK connectors comply with the EIA364 environmental performance requirements and meet the highest industrial standards by using UL94V-0 and UL-f1 rated thermoplastic materials for flammability and UV exposure protection.

PROGRAMMING

21. What version of Ztools and indicator firmware does the ZT Digital Load Cell need?

- › Ztools version 2.3.4.0 or newer is required
- › ZM Firmware version 2.5.0.0 or newer is required

22. What information can a Lua application pull from the ZT Digital Load Cell?

Version 2.5.0.0 of the ZM firmware adds the following LUA keyword to the 'awtx.protocol' namespace. See the API for full descriptions:

- › getScaleCellPercentage
- › getScaleCellWeights
- › getScaleCellStatus
- › getScaleCellZero

A custom Lua application can be written to register the event and use the information for any purpose:

- › Email, webpage, printer output, etc.
- › Custom system initialization
- › Advanced applications and monitoring: connection and sensor status change, motion, out of balance (ratio metric error), sensor over capacity, multiscale, etc.

DOCUMENTATION

ZT Digital Load Cell Technical Specifications	AWT35-100151
ZT Digital Load Cell Brochure	AWT35-100149
MANUALS	
BridgeMont Series Truck Scales ZT Installation Instructions	AWT35-500618
ZT Digital Load Cell Installation Instructions & Parts List	AWT35-100031
ZT/ZM Interface Card Installation Instructions	AWT35-100053
ZT Digital Load Cell Configuration and Calibration	TG.E-ZT/1
ZT Digital Load Cell Diagnostics and Error Log Menus	TG.E-ZT/2 and TG.E-ZT/3
ZM500/600 Series Indicator	Service and User Manuals
LUA API Reference Manual	1.0.5.3 or newer
APPROVALS	
NTEP	CC 21-086
OIML Certificates of Conformity	R60/2000-A-GB1-21.01
EU DoC and UKCA	Certificate on file
Surge Immunity Class	IEC 61000-4-5: Class 4 test reports on file
IP69K Rating	DIN 40050-9 and IEC 60529 test reports on file

Avery Weigh-Tronix

www.averyweigh-tronix.com

Avery Weigh-Tronix is an ITW company

ZM500 & ZM600
SERIES INDICATORS

Avery Weigh-Tronix



ZM
500 & 600 SERIES

Flexible, high performance
indicators for advanced
weighing tasks

Flexible weight indicator for advanced applications

Responsive Performance

Avery Weigh-Tronix

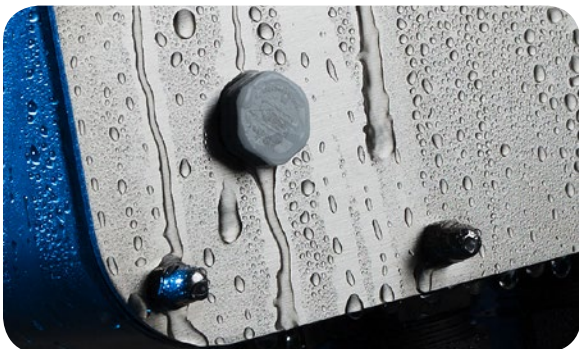
The ZM505, ZM510, ZM605 and ZM615 are high performance, multi-function programmable indicators which adapt to complex weighing tasks. Suitable for use with a wide range of scales, these versatile indicators provide a fully configurable solution. Their sleek design and user-friendly features provide an ideal platform to create application programs and solutions that are specifically tailored to your business.

Built to fit your environment

These versatile indicators can adapt to desk, wall or column mount applications, with a panel mount version also available for incorporating into systems and panels.

IP69K Certification/GORE® Vent

The laboratory certified IP69K 304 brushed stainless steel desktop enclosure offers complete resistance to dust and water ingress, making them suitable for use in dusty, wet or high pressure, heavy washdown (food) and outdoor environments. GORE® Vent technology allows the indicator to breathe, preventing water ingress in situations where condensation might be present.



Easy to use interface and displays

The use of high definition, Improved Super Twisted Nematic (ISTN) or Improved Black Nematic (IBN) graphic display technology gives the weight displays excellent visibility and color contrast. With wide viewing angles, the ultra bright green and black dot graphic display is easily visible in extreme working conditions and can be inverted for optimum viewing in brightly lit environments. Pixels can be organized on the displays to create personalized messages and images.

All models feature chemical resistant, metal domed keys which give the user crisp, positive tactile feedback when compressed. Assign commonly used weighing tasks to five programmable function keys below the display.



ZM505 – A nine segment numerical display is complemented by a small dot matrix graphic array area to the right of the screen, enabling use of status annunciators and limited graphics.



ZM510 – A dot matrix 320 x 80 display can be used to create personalized messages such as user prompts, images and status annunciators. (Inverted display colors shown). A large QWERTY keypad offers input flexibility where adding an external keyboard would be difficult, such as panel-mount applications.



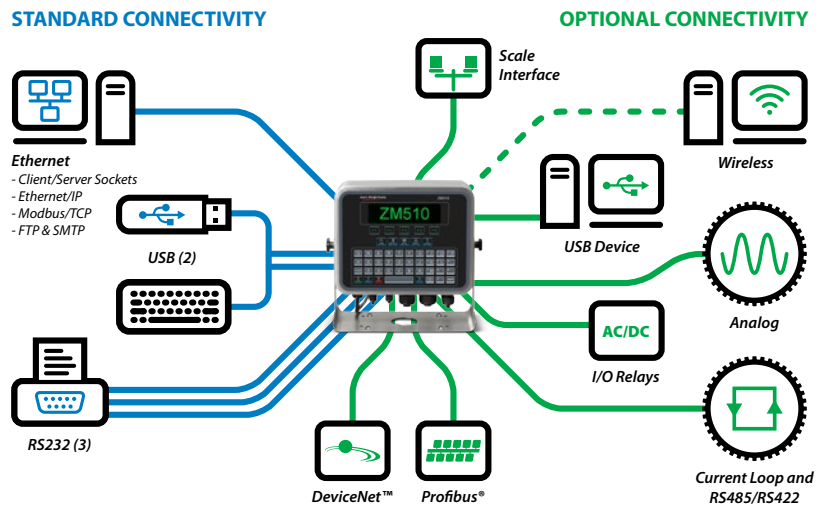
ZM605 – Pixels across the full length and height of the 320 x 80 display can be used to create personalized Human Machine Interface (HMI) messages such as user prompts, images and status annunciators.



ZM615 – The addition of a larger 320 x 160 display helps to improve usability. This large display provides an increased area to show more user prompts and graphics.

Versatile connectivity

All ZM series indicators offer multi-connectivity, ensuring compatibility and communication between old and new peripheral technologies. The standard Ethernet port can be configured to support multiple independent devices, including DHCP client/server and Ethernet sockets in addition to all serial protocols. Three RS232 serial interface ports are included, enabling data transfer to older equipment and connection to the Avery Weigh-Tronix BSQ digital bench base. Two USB host ports facilitate communication with printers or keyboards and data transfer via a USB storage device.



Option Kits

- › Analog output kit: 0-5 VDC, 0-10 VDC and 4-20 mA
- › Current loop kit: Current loop and RS232/RS422
- › USB device kit: Provides USB interface to PC (Virtual COM Port)
- › Device Net™
- › Profibus®
- › Wireless (Ethernet) internal kit: 802.11b/g wireless data communications kit with antenna
- › Internal 120 VAC Relay module for IP69K model
- › Scale Input 5 VDC excitation
- › Scale Input 10 VDC excitation with STVS kit
- › External I/O interface kit
- › DC Output, 4 relays 3-60VDC at 2A Kit
- › DC Input, 4 Inputs 4-30VDC kit
- › AC Output, 4 relays 20-240VAC at 1A kit (IP69K models)
- › AC Input, 4 Inputs 120-240VAC kit (IP69K models)
- › Severe Transient Voltage Suppressor (STVS)
- › Option Expansion - RS232
- › PDIO - Pulse Counting, PWM (ZM605 and ZM615 only)

Approvals

Patent

- › US Patent 672,262

Agencies

- › NTEP (US) Class III/IIIL 10,000d (CC# 14-039)
- › Measurement Canada class III/III HD (AM-5955C)
- › UL/cUL
- › IP69K

Avery Weigh-Tronix

www.averyweigh-tronix.com

Avery Weigh-Tronix is an ITW company



Avery Weigh-Tronix is a trademark of the Illinois Tool Works group of companies whose ultimate parent company is Illinois Tool Works Inc ("Illinois Tool Works"). Copyright © 2017 Illinois Tool Works. All rights reserved. This publication is issued to provide outline information only and may not be regarded as a representation relating to the products or services concerned. This publication was correct at the time of going to print, however Avery Weigh-Tronix reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service at any time.

zm500-zm600_Series_L_501654.indd (C&D)
V1 AWT35-501654

TRUCK SCALES



Avery Weigh-Tronix

Legendary reliability and precision with the exclusive Weigh Bar® and rugged truck scale design backed by an industry-leading warranty.

Truck Scales

A Rugged Lineup

A wide variety of reliable, rugged and precise truck scales to suit any vehicle or location

Avery Weigh-Tronix

Avery Weigh-Tronix offers the best selection, features, options and value in the industry, backed by an exceptional warranty.

BridgeMont®

Long-lasting performance for heavy to moderate traffic and axle loads

The versatile BridgeMont series offers an unbeatable combination of structural integrity and cost effective ownership. With many sizes and capacities to choose from, BridgeMont fits virtually any application.

- › **Fully assembled** – Scales arrive on-site fully assembled and are easily installed in a pit, or above ground on a slab or piers. Available with a steel or concrete deck surface.
- › **Low profile** – Features a low 14" profile that saves real estate and construction costs by using a shorter approach area. Higher profile for additional clearance is easily accomplished with affordable base plate options.
- › **Standard to custom** – A wide range of standard lengths and widths or custom built to customer specifications.

BridgeMont Heavy Duty

The BridgeMont Heavy Duty is a rugged scale that can easily handle heavy traffic and axle loads beyond legal highway limits. It is also available as a portable unit. The Low-Pro 8 version of the BridgeMont Heavy Duty comes in special lengths with an extra-low profile down to 11" to serve as a replacement for other brands of scales on existing foundations.

BridgeMont Standard Duty

The BridgeMont Standard Duty provides an economical solution for applications with moderate traffic and axle loads up to highway limits. It utilizes the same sandwich steel construction and Weigh Bars as the heavier models for outstanding strength and reliability.





SteelBridge XT

Long-lasting performance for extreme traffic and axle loads

SteelBridge XT is a true heavyweight in the industry. Engineered to thrive on heavy, frequent, day-to-day use, the XT is often used in aggregate, logging, and recycling operations as well as for high traffic, over-the-road weighing.

The extra rugged design and construction means structural integrity will be maintained, even after many years of heavy use. With a 15-year truck scale warranty, you can be sure SteelBridge XT will still be in operation long after a competitor's scale has worn out.

- › **Fully assembled** – Scales arrive on-site fully assembled and are easily installed in a pit, or above ground on a slab or piers. Available with a steel or concrete deck surface.
- › **Low profile** – SteelBridge XT features a low 14" profile that saves real estate and construction costs by using a shorter approach area. Higher profile for additional clearance is easily accomplished with affordable base plate options.
- › **Standard to custom** – A wide range of standard lengths and widths or built to customer specifications. Also available as a portable unit.



Multi-Platform Scale

One-stop, legal-for-trade axle weighing

Choose any combination of SteelBridge XT or BridgeMont scale platforms to create a legal-for-trade, one-stop axle weighing system.

- › **Fast axle weighing** – Individual scale platforms trim minutes off traditional axle weighing methods, substantially increasing productivity.



Trailer axle scale

Drive axle scale

Steering axle scale



Off-Road

Built for extreme environments and extreme loads

Avery Weigh-Tronix Off-Road truck scales are designed to meet the tough requirements of industries such as mining and excavating.

With various widths, lengths and capacities available, you can specify the vehicles to be weighed and let Avery Weigh-Tronix take care of the rest.



Portable Truck Scales

Quick set-up for weighing almost anywhere

Avery Weigh-Tronix portable truck scales go anywhere there is an immediate need for on-site vehicle weighing. They quickly fill temporary needs when other scales fail or there are delays with foundation construction.

The self-contained modular sections eliminate costly site preparation and can be installed on any stable surface in just 2 to 4 hours. They can be readily converted for installation as permanent, low-profile scales. Also available as rental units.

Selection Guide

	SteelBridge XT Extreme Duty	BridgeMont Heavy Duty	BridgeMont Standard Duty	BridgeMont Low Profile	SteelBridge XT Portable	BridgeMont HD Portable	Off-Road
Standard Profile	14"	14"	14"	11.25"	19"	19"	⚡
Gross Capacity	50,000 to 270,000 lb	40,000 to 270,000 lb	35,000 to 270,000 lb	40,000 to 270,000	50,000 to 270,000 lb	40,000 to 270,000 lb	Up to 270,000 lb
CLC/DTA	45 tons	45 tons	35 tons	45 tons	45 tons	40 tons	⚡
NTEP Approved	✓	✓	✓	✓	✓	✓	✓
Standard Lengths	10' to 150'	10' to 150'	10' to 120'	⚡	20' to 100'	20' to 100'	10'
Standard Widths	10' to 14'	10' to 14'	10', 11'	10', 11'	10', 11'	10', 11'	up to 20'
Custom Lengths & Widths	⚡	⚡	⚡	⚡	⚡	⚡	⚡
Weight Sensor	Weigh Bar	Weigh Bar	Weigh Bar	Weigh Bar	Weigh Bar	Weigh Bar	Weigh Bar
Alloy Steel	✓	✓	✓	✓	✓	✓	✓
Stainless Steel	○	○	○	○	○	○	○
Warranty							
Weight Sensor	5 years	5 years	5 years	5 years	5 years	5 years	5 years
Weighbridge Structure	15 years	10 years	5 years	10 years	15 years	10 years	10 years
Suspension System	Easi-Post	Easi-Post	Easi-Post	Easi-Post	Easi-Post	Easi-Post	Link
Deck Surface	Steel or Concrete	Steel or Concrete	Steel	Steel	Steel	Steel	Steel or Concrete
Finish	Paint	Paint	Paint	Paint	Paint	Paint	Paint
Stainless Steel Sheathed Cable	✓	✓	✓	✓	✓	✓	✓
Stainless Steel Analog J-Box	✓	✓	✓	✓	✓	✓	✓
SensorComm Digital J-Box	○	○	○	○	○	○	○
Guide Rails	○	○	○	○	○	○	○
Manholes	○	○	⚡	○	—	—	○
Dump Modules	○	○	⚡	—	—	—	—
Pre-Fab Foundation	○	○	○	—	—	—	—

✓ = standard ○ = optional ⚡ = consult factory — = not available



Options & Accessories

Create a complete truck scale system

Select from a wide range of options and accessories to create a powerful and versatile vehicle weighing system.

- 1 **Guide rails and posts** – Extreme-duty guide rails provide a strong barrier against accidental drive-offs. An extra tall version is available for MSHA considerations. The rails are finished with bright yellow paint to optimize visibility.
- 2 **Stop & go lights** – Help direct vehicle movement and improve safety. Rugged design withstands all types of weather and environments.
- 3 **Loop detectors** – Installed at the entrance and exit to detect vehicle weight data and ensure proper positioning.
- 4 **Remote displays** – Allow clear, comfortable viewing of scale information at considerable distances, indoors and outdoors. Available with integrated traffic light and wireless interface.
- 5 **Unattended system** – Allows 24/7 scale availability. Can be customized with options such as loop detectors, ID readers, traffic lights, and wireless communication.
 - › **Manhole** – Provides easy access in pit installations. Reinforced 2' x 2' manhole includes a heavy-duty cover to maintain truck scale integrity.
 - › **Grain dump module** – An easy-flow grate allows trucks to weigh and dump over a BridgeMont truck scale. Available in various lengths and widths.
 - › **Pre-fab foundations** – The scale and foundation can arrive on the same truck shipment to be set-up in just a few hours. If the scale needs to be relocated, the foundation can be re-used.



ETHERNET



USB



SERIAL



- › **Indicators** – A range of digital indicators meet the exact needs of any truck scale application, from basic weighing to advanced transactions and data management.
- › **Digital junction box** – Convert analog load cell signal to digital outputs, offering faster calibration, remote monitoring of individual cells, connection to a PC and improved signal strength over long distances.
- › **Printers** – We offer a range of printers which will meet the needs of your truck scale operation.
- › **Software** – Our truck scale software offers powerful yet flexible truck scale management, supply chain function and business intelligence capabilities. Use the data collected to help control inventory and monitor costs while improving site efficiency and throughput.

Design Features

Exclusive design features are what make Avery Weigh-Tronix truck scales #1 in the industry.

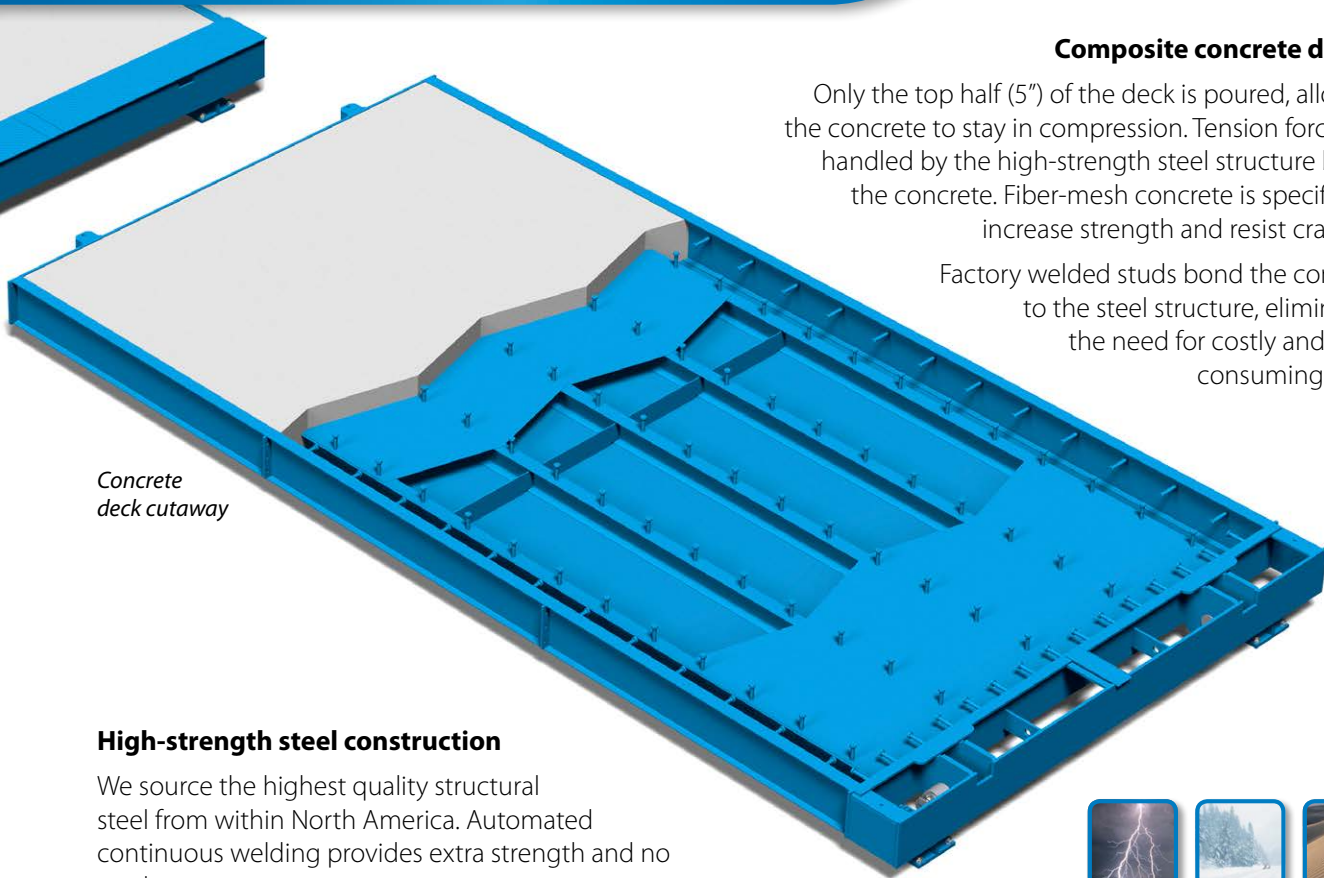


Composite concrete design

Only the top half (5") of the deck is poured, allowing the concrete to stay in compression. Tension forces are handled by the high-strength steel structure below the concrete. Fiber-mesh concrete is specified to increase strength and resist cracking.

Factory welded studs bond the concrete to the steel structure, eliminating the need for costly and time-consuming rebar.

Concrete deck cutaway



High-strength steel construction

We source the highest quality structural steel from within North America. Automated continuous welding provides extra strength and no weak spots.

Steel surface protection

A detailed surface preparation and coating process protects the scale from the elements. Individual components are shot-blasted, entire decks are sand-blasted and cleaned, then primed with a high solids urethane primer and finished with a tough, acrylic polyurethane top coat.

Low profile

14" height from baseplate to driving surface minimizes ramp requirements. Higher profile for additional clearance is easily accomplished with affordable base plate options.

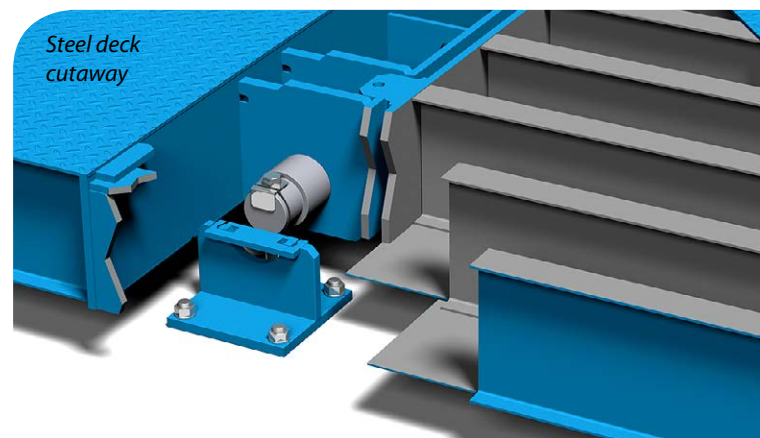
No-bolt module connections

Simple hook & notch design allows quick, easy joining of the modules. Overall scale length is easily increased by adding modules.



Environmental Shielding

Environmental seals, stainless steel sheathed cable, surge protection, heavy-duty coatings and rugged construction help Avery Weigh-Tronix scales defend against Mother Nature's worst.



Steel deck cutaway



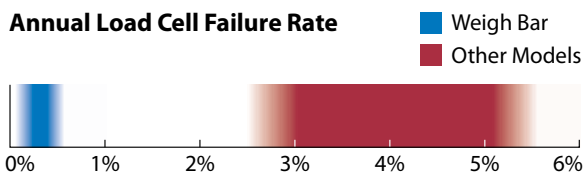
Weigh Bar® Weight Sensor

A proven weight sensor

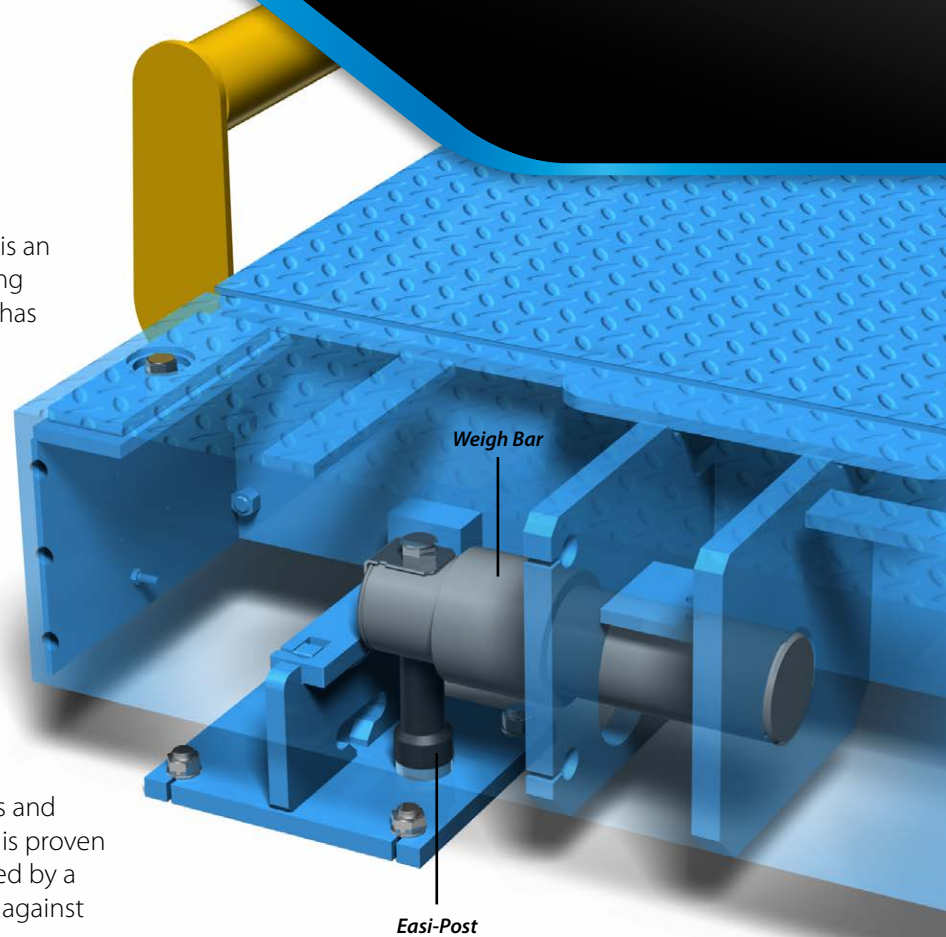
The exclusive Avery Weigh-Tronix Weigh Bar is an extremely rugged, highly reliable, load sensing device. Over several decades, the Weigh Bar has built a reputation for precision, reliability and durability that no other load cell can match.

- › **Reduced cost of ownership** – Precision machined from aircraft-quality, alloy steel, the Weigh Bar offers excellent repeatability and long-term durability, reducing cost of ownership and need for load cell replacement.
- › **Rugged** – With up to ten times more steel content than shear beams or compression cells, it absorbs impact to minimize peak forces and is virtually fatigue-proof. The Weigh Bar is proven to resist electrical surges and is protected by a 5-year warranty that includes coverage against lightning damage.
- › **Accurate** – The sensor's design automatically cancels the effects of side loading, end loading and twisting, resulting in quick, accurate readings which are achieved regardless of temperature change, vibration, and shock loads on the scale.
- › **Sealed** – The Weigh Bar is well protected against harsh environments by an exclusive 5-layer, sealing process. It is approved by Factory Mutual as intrinsically safe for hazardous locations.

Annual Load Cell Failure Rate



For the harshest environments, stainless steel Weigh Bars are available to provide an extra level of protection.



Easi-Post™ Suspension

Rugged, precise and easy to install

The Easi-Post suspension system is a proven design that offers a high degree of performance, efficiency, and durability while absorbing the energy applied to the truck scale during braking and acceleration.

Easi-Post greatly simplifies the job of leveling a scale with the foundation. Each module may be raised or lowered by ½" with a simple turn of the adjustment bolt.

- › **Strength** – The heavy-duty, stainless steel components provide long-lasting performance.
- › **Checking** – Checking systems are internal and self-aligning. They allow for deck expansion/contraction without the hassle of periodic adjustment like bumper-bolt systems.
- › **Dampening** – The patented features of Easi-Post quickly stabilize rocking motion as trucks stop and go, for fast and stable weight readings.
- › **Installation** – Base plates are anchored directly to pier tops. No grouting is necessary for proper alignment.



Outstanding warranty programs

Makes the cost of ownership even lower

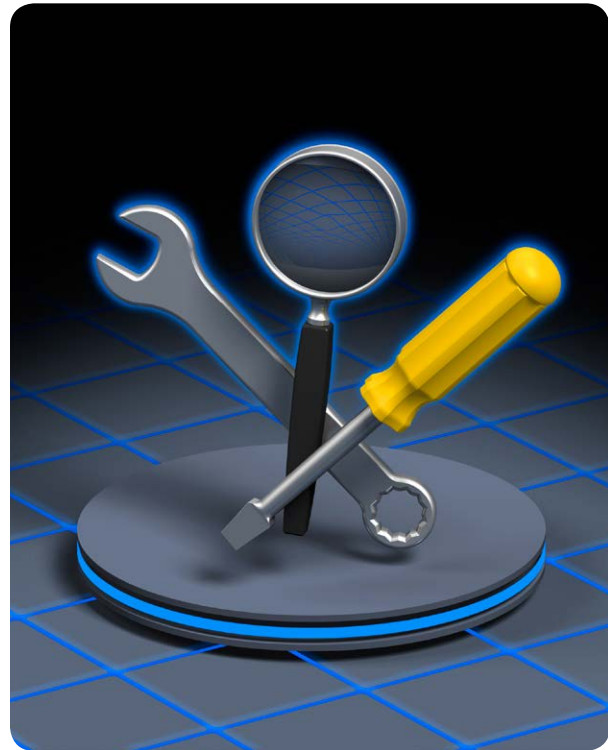
5 YEARS: Internal scale components on BridgeMont & SteelBridge XT models. BridgeMont Standard Duty weighbridge structure.

10 YEARS: BridgeMont Heavy Duty weighbridge structure.

15 YEARS: SteelBridge XT weighbridge structure.

Localized sales and service support

Your local Avery Weigh-Tronix representative has extensive application experience and can help to determine which truck scale is best suited to your needs. We are committed to providing high quality, lifetime service, support and maintenance for all of our weighing equipment. Our network of dedicated technicians is on hand to install and maintain your equipment, including regular calibration, servicing and repair.



About Avery Weigh-Tronix

Avery Weigh-Tronix is one of the world's leading suppliers of weighing solutions. With over 250 years of experience, the company designs, manufactures, installs and services a broad range of high quality industrial products and weighing systems.

Avery Weigh-Tronix operates worldwide through a network of wholly-owned companies and international dealers and distributors, allowing us to provide a fast response and locally tailored solutions in more than 100 countries.

More online

[www.averyweigh-tronix.com/
products/truck-scales](http://www.averyweigh-tronix.com/products/truck-scales)

› Product literature
& specifications



Avery Weigh-Tronix

www.averyweigh-tronix.com

Avery Weigh-Tronix is an ITW company



Avery Weigh-Tronix is a trademark of the Illinois Tool Works group of companies whose ultimate parent company is Illinois Tool Works Inc ("Illinois Tool Works"). Copyright © 2014 Illinois Tool Works. All rights reserved. This publication is issued to provide outline information only and may not be regarded as a representation relating to the products or services concerned. This publication was correct at the time of going to print, however Avery Weigh-Tronix reserves the right to alter without notice the specification, design, price or conditions of supply of any product or service at any time.

TruckScale_L_09940-0012.indd (C&D)
V1 AWT09940-0012



NATIONAL TYPE EVALUATION PROGRAM

Certificate of Conformance

for Weighing and Measuring Devices

For:

Weighing/Load Receiving Element
Modular Design/Load Cell Electronic: Vehicle/Livestock**
Models: BMC and BMS Series*
 n_{max} : 10,000;
 e_{min} : 10 lb to 50 lb
Capacity: 35 000 lb to 270 000 lb (See Below)
Platform: 100 sq ft to 2262 sq ft (See Below)
CLC: 60 000 lb to 90 000 lb
Accuracy Class: III L

***Submitted By: Contact Info. Updated March 2020**

Avery Weigh-Tronix, LLC
1000 Armstrong Drive
Fairmont, MN 56031
Tel: 507-238-4461
Contact: Cory Hainy
Email: chainy@awtx-itw.com
Web site: www.averyweigh-tronix.com

Standard Features and Options

e_{min} : 10 lb scales with capacities between 35 000 lb to 100 000 lb
20 lb for scales with capacities between 100 000 lb to 200 000 lb
50 lb for scales with capacities between 200 000 lb to 270 000 lb

Platform width: 7.7-ft to 14.0-ft (**12.0-ft maximum on systems with digital load cells**)

Platform material: Concrete (Model BMC) or steel (Model BMS)

Maximum distance between sections: 30-ft (**28-ft maximum on systems with digital load cells**)

Platform sizes: Minimum 100 sq ft (additional lengths may be covered by this certificate provided criteria for v_{min} , CLC, etc., are met)

*Models: BM(C/S) XXXYY ZZT, where XXX is the length and YY is the width of the platform in feet, and ZZT is the capacity in tons.

A suffix "J" after the "T" indicates a jointed column suspension. No suffix indicates a link suspension system. A suffix "C" after the "T" indicates a system with digital load cells.

Models with digital load cells are NTEP certified for vehicle weighing only

Options: Dump through modification, Manhole option,
Guide rail option, Analog load cells, digital load cells (Vehicle weighing only)

**** Optional Livestock or Combination Vehicle/Livestock Scale (analog load cells only):**

e_{min} : 10 lb
Minimum number of sections: 2
Minimum net load (vehicle scale used to weigh livestock) : (500d)

Analog load cells: Weigh-Tronix Model WBT Series NTEP CC 87-119A7 or any NTEP certified metrological equivalent.

Digital load cells: Weigh-Tronix Model T301x NTEP CC 21-086 or any NTEP certified metrological equivalent.

Installations must satisfy the relationships of $v_{min} d / N$, where N = number of load cells and d = the scale division; and nominal capacity $CLC \times (N - 0.5)$ where N is the number of sections in the scale.

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.

Mahesh Albuquerque
Chair, NCWM, Inc.

Ivan Hankins
Chair, NTEP Committee
Issued: September 1, 2022

1135 M Street, Suite 110 / Lincoln, Nebraska 68508

The National Conference on Weights and Measures (NCWM) 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.



Avery Weigh-Tronix, LLC

Weighing/Load Receiving Element / BMC and BMS Series

Application: General purpose vehicle weighing. Scales of two sections or more may be used to weigh livestock with 10lb divisions, where the minimum net load is at least 500d. Models with digital load cells are for vehicle weighing only.

Identification: The required information is on an identification plate riveted to the outside of the end module for above ground installations and on the inside of the end module for pit installations.

Sealing:

For analog load cell systems: The load cells and sections can be adjusted in the load cell junction boxes and can be sealed with a wire security seal threaded through two drilled nuts that secure the cover of the load cell junction box. Sealing may be necessary on more than one load cell junction box for scales with several modules. Module summing junction boxes have no adjustments that require the use of a security seal. The overall scale calibration can be sealed at the approved indicating element according to its provisions for sealing.

For digital load cell systems: There is no junction box or other way to change the calibration of the individual load cells. Overall scale calibration adjustments or replacing load cells in the system requires changes in the indicating element. Any of these changes would trigger an audit trail event and audit counter increment.

Test Conditions: This Certificate supersedes Certificate of Conformance Number 97-074A6 and is issued to add Avery Weigh-Tronix digital load cells to the Models: BMC (concrete deck) and BMS (steel deck) weighing element for vehicles. An Avery Weigh-Tronix model BMC and BMS weighing element containing Avery Weight-Tronix Model: T301x digital load cells (Certificate of Conformance Number 21-086) was interfaced with an Avery Weigh-Tronix model ZM-615-SD5 indicating element (Certificate of Conformance Number 14-039) and set up in a 200 000 lb x 20 lb capacity. The weighing element was tested using 81 000 lb of known test weight to perform increasing/decreasing load, shift, and mid-span tests. Strain load tests were conducted using 81 000 lb of known test weight to a maximum of 169 588 lb. No additional testing was deemed necessary. Previous test conditions are listed below for reference.

Certificate of Conformance Number 97-074A6: This Certificate supersedes Certificate of Conformance Number 97-074A5 and is issued to adjust and correct the scale parameters in accordance with NCWM Publication 14, Weighing Devices, Technical Policy. No additional testing was deemed necessary upon review of the previous test conditions listed on the certificate. Previous test conditions are listed below for reference.

Certificate of Conformance Number 97-074A5: This Certificate supersedes Certificate of Conformance Number 97-074A4 and is issued to increase the CLC to 90 000 lb, increase platform width to 14-ft, and include a dump through modification option. The emphasis of this evaluation was on the design marking requirements, and performance of the wider weighing element. A Model BMC 8014 100TJ with both concrete and steel decks was submitted for evaluation. The scale was interfaced with an Avery Weigh-Tronix Model 1310 (Certificate of Conformance 01-033A4). The load cells used were 60 000 lb capacity Weigh-Tronix Model WBT-60.0K (Certificate of Conformance Number 87-119A4). The scale was initially tested using 81 000 lb of known test weight to perform increasing/decreasing load, shift, and mid-span tests. Strain load tests were conducted using 81 000 lb of known test weight to a maximum of 162 740 lb. The scale was used with the minimum use criteria being met, then tested again. The increasing/decreasing load, shift, and mid-span tests were repeated using 45 000 lb of known test weight. Strain load tests were again conducted to a maximum of 132 865 lb.

Certificate of Conformance Number 97-074A4: This Certificate supersedes Certificate of Conformance Number 97-074A3 and is issued to include a jointed column suspension system. The emphasis of this evaluation was on the design, marking requirements, and performance of this suspension system. A Model BMS 7011 100TJ was submitted for evaluation. The scale was interfaced with a Weigh-Tronix indicator Model WI-130 (Certificate of Conformance Number 95-005A1). The load cells used were 60 000 lb capacity Weigh-Tronix Model WBT-60.0K (Certificate of Conformance Number 87-119A4). The scale was initially tested using 72 000 lb of known test weight to perform increasing/decreasing load, shift and mid-span tests. Strain load tests were conducted using 72 000 lb of known weights to a maximum of 166 680 lb.

Certificate of Conformance Number 97-074A3: This Certificate supersedes Certificate of Conformance Number 97-074A2 and is issued to include livestock weighing as an option of this device. Test data (test pattern for two section livestock scales), engineering drawings, NIST Handbook 44 (e_{min} and minimum net load), and engineering calculations were submitted and reviewed to determine the minimum parameters for the livestock scale option. The Certificate is issued without further testing.



Avery Weigh-Tronix, LLC

Weighing/Load Receiving Element / BMC and BMS Series

Certificate of Conformance Number 97-074A2: This Certificate was issued to include a 30' long module. The emphasis of this evaluation was on the design, marking requirements, and performance of the longer weighing element. A Model BMS10011-100T [5 (five) section, 100' x 11' (100-ton capacity with a 60 000-lb CLC)] was submitted for evaluation. The scale was interfaced with a Weigh-Tronix indicator Model WI-130 (Certificate of Conformance Number 95-005A1). The load cells used were 50 000 lb capacity Weigh-Tronix Model WBT-50.0K (Certificate of Conformance Number 87-119A3). The scale was initially tested using 54 000 lb of known test weights to perform increasing/decreasing load, shift and mid-span tests. Strain load tests were conducted using 54 000 lb of known test weights to a maximum load of 184 200 lb. The scale was used with the minimum use criteria requirement being met, then tested again. The increasing/decreasing load, shift, and mid-span tests were repeated using 40 000 lb of known test weights. Strain load tests were again conducted to a maximum load 136 480 lb.

Certificate of Conformance Number 97-074A1: This Certificate was issued to evaluate a 13' wide platform configuration. The emphasis of the evaluation was on the design, marking requirements, and performance of the wider weighing element. A Model BMS11613-100T [six section, 116' x 13' (100-ton capacity with a 60 000 lb CLC)] was submitted for evaluation. The scale was interfaced with a Weigh-Tronix indicator Model WI-130 (Certificate of Conformance Number 95-008A1). The load cells used were 50 000 lb capacity Weigh-Tronix Model WBT-50.0K (Certificate of Conformance Number 87-119A3). The scale was initially tested using 58 000 lb of known test weights to perform increasing/decreasing load, shift and mid-span tests. Strain load tests were conducted using 58 000 lb of known test weights to a maximum load of 182 640 lb. The scale was used for more than one month with the minimum use criteria requirement being met, then tested again. The increasing/decreasing load, shift, and mid-span tests were repeated using 58 000 lb of known test weights. Strain load tests were again conducted to a maximum load of 143 350 lb.

Certificate of Conformance Number 97-074: The emphasis of the evaluation was on the design, marking, and performance of the weighing element. A Model BMS 8011-100T [five section, 80' x 11' (100 ton capacity with a 60 000 lb CLC)] was submitted for evaluation. Two sections of the scale used concrete for the deck material and the remaining three sections used steel for the deck material. Additionally, a two-section module was physically and electronically isolated from the scale and evaluated as a 20' x 11' scale (70 000 lb x 10 lb with a 60 000 lb CLC). The scale was interfaced with a Weigh-Tronix Model WI-127 indicator (Certificate of Conformance Number 96-140A1). The load cells used were 50 000 lb capacity Weigh-Tronix Model WBT-50.0K (Certificate of Conformance Number 87-119A3). The scale was initially tested using 56 200 lb of known test weights to perform increasing/decreasing load, shift and mid-span tests. Strain load tests were conducted using 56 200 lb of known test weights to a maximum load of 198 924 lb. The scale was used for more than one month with the minimum use criteria requirement being met, then tested again. The increasing/decreasing load, shift, and mid-span tests were repeated using 48 200 lb of known test weights. Strain load tests were again conducted to a maximum load of 199 032 lb.

Evaluated By: R Rigdon (MN) 97-074A5; T. Lucas (OH), L. Wilson (MN), and B. Olson (MN) 97-074A4; A. McCoy (OH), R. Harrison (NY), and M. Claprod (NY) 97-074A2; L. Bies (SD), C. Haliburton (SD) and W. West (OH) 97-074A1; W. West (OH), J. Flanders (GA), S. Burtz Jr. (GA), P. Paulson (GA), G. Kennedy (GA), and C. Royal (GA) 97-074; J. Gibson (OH) 97-074A7

Type Evaluation Criteria Used: NIST, Handbook 44: Specifications, Tolerances and Other Technical Requirements for Weighing and Measuring Devices, 2002. NCWM, Publication 14: Weighing Devices, 2022.

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

Reviewed By: S. Patoray (NCWM) 97-074A3, 97-074A4, 97-074A5; L. Bernetich (NCWM) 97-074A4, 97-074A5; J. Truex (NCWM) 97-074A6, D. Flocken (NCWM) 97-074A7



Avery Weigh-Tronix, LLC
Weighing/Load Receiving Element / BMC and BMS Series

Example(s) of BMC 8014 100TJ:



Examples of Analog Load cell installs:



Example of a Digital Load Cell Install:



BLUE BLANKET- 5 YEAR TRUCK SCALE WARRANTY & SERVICE POLICY

Statement of Limited Warranty

Subject to the terms and conditions as stated herein: Avery Weigh-Tronix, LLC (hereafter referred to as "AWTX") warrants its equipment to be free from defects in material and factory workmanship for a period from the date of installation.

- » Five (5) years - Weigh Bars, Indicators, j-boxes, summing box, Digital J-boxes, suspension system, and cables inside structure.
Applies to all BridgeMont & SteelBridge XT models
- » Five (5) years - BridgeMont (BMS-SD) weighbridge structure
- » Ten (10) years - BridgeMont (BMS-HD, BMS-LP8, BMS-P, BMC) weighbridge structures
- » Fifteen (15) years - SteelBridge XT (IMXT, FCXT, IMXT-P) weighbridge structure

Weigh Bars, Indicators, j-boxes, Digital J-boxes and internal cabling are warranted against failures caused by lightning and moisture provided the scale has been properly installed, grounded and sealed as specified by AWTX and the indicator power is supplied through the AC suppression device which is supplied by AWTX.

Exclusions to the warranty include but are not limited to: corrosion, concrete & rebar or any other items supplied by others, excessive wear, cosmetic defects that do not affect performance, and damage caused by overloading or welding surges. Also excluded is normal wear of suspension components encountered during normal scale usage.

Warranty does not apply to the scale foundation, piers, end walls, approaches or any part of the scale site that is not supplied by AWTX.

Printers, scoreboards, non AWTX indicators or any other peripheral equipment, as well as any damages done to AWTX equipment as a result of these peripherals are not covered by this warranty. Warranty terms for printers, scoreboards and other peripheral equipment are covered under terms and conditions of sale for such equipment.

Terms and Conditions of Limited Warranty

This obligation is limited exclusively to defective original equipment manufactured or supplied by AWTX and is subject to the inspection and analysis by AWTX as to conclusively identify or confirm the nature and cause of the failure.

Installation must be performed by an authorized Avery Weigh-Tronix Distributor.

The original scale invoice must reflect that the Blue Blanket warranty option was included as part of the new scale purchase order and shipment. The Blue Blanket warranty cannot be ordered after the scale has shipped from the factory.

The Blue Blanket warranty should be registered with Avery Weigh-Tronix within 90 days after scale installation to begin warranty period. If not registered within that time frame the warranty period will be calculated from the equipment ship date. Registration is required before a Blue Blanket warranty claim can be processed and must be completed on the Avery Weigh-Tronix web site or by providing a member of the Inside Sales team with all required information as specified on the Truck Scale Registration (Blue Blanket) web page.

Defective components, mechanical or electrical, will be repaired or replaced free of any obligation to the owner within five (5) years after date of installation.

An inspection / preventive maintenance agreement with an authorized Avery Weigh-Tronix Distributor is required after completion of installation and the scale system has been commissioned and is active.

The additional level of service is to be determined at the time of sale with a site usage evaluation of conditions. The service plan will be a minimum of a semi-annual inspection / preventive maintenance service agreement, during the term of the warranty.

AWTX responsibility is confined to repair, replacement, or credit (at its option) of equipment or parts and includes labor and travel by the authorized AWTX Distributor. Reimbursement for travel and labor expenses are calculated based on the rates published in the Warranty Reimbursement Policy and Request forms. Records of the last two preventative maintenance visits must be submitted with any Blue Blanket warranty reimbursement request.

AWTX is not responsible and will not be held liable for losses, injury or damage caused to persons or property by reason of the installation of AWTX products or their failure.

This warranty is not applicable for expenses either direct or consequential that may arise from the use or inability to use these products.

AWTX reserves the right to incorporate improvements in material and design of the products without notice and is not obligated to incorporate the same improvements in equipment previously manufactured.

In certain cases, such as used equipment or peripheral equipment not manufactured by AWTX, a reduced warranty may apply. Specific details to these exceptions are provided separately or at the time of purchase.

AWTX shall not be obligated under any warranty different from its warranty as set forth herein. The AWTX warranty is limited to the initial customer and installation and is not transferable in the event of resale.

Conditions Which Void Limited Warranty

This warranty shall not apply to equipment which:

- A. Has had repairs and modifications not approved by the factory and/or not performed by an authorized AWTX Distributor, which in AWTX judgment has affected the performance or reliability.
- B. Does not have an active service or preventive maintenance agreement with an authorized AWTX Distributor.
- C. Has been subject to misuse "overloading", negligent handling, improper installation, accident, damage by fire, water, submersion or force of nature.
- D. Has had the serial number altered, defaced or removed.
- E. Has not followed AWTX recommendations for epoxy coatings, galvanizing, or stainless steel construction for installation in harsh environments.
- F. Has not been grounded according to AWTX recommended procedure.

Freight Carrier Damage

Claims for equipment damaged in transit must be referred to the freight carrier. Visible damage should be reported immediately. Concealed damage as soon as possible in any case, within fifteen (15) days of receipt of shipment, in accordance with freight carrier regulations.

THE FOREGOING IS IN LIEU OF ALL OTHER WARRANTIES, EXPRESS OR IMPLIED INCLUDING ANY WARRANTY THAT EXTEND BEYOND THE DESCRIPTION OF THE PRODUCT. This warranty statement sets forth the extent of our liability for breach of any warranty or deficiency in connection with the sale or use of the product. It is understood that we will not be liable for consequential damages of any nature, including but not limited to, loss of profit, delays or expenses, whether based on tort or contract.





SBL-6

The highly visible series of outdoor displays are designed for harsh commercial applications. The high intensity LED's are designed to last 100,000 hours and offer a wide viewing angle that can be read in direct sunlight and are maintenance-free. The ruggedly designed NEMA 4 case and the internal lightning protection circuitry ensure you many years of reliable operation.

6" Digit Height
NEMA 4 Case
2-Year Warranty

matko
ELECTRONIC DISPLAYS

1-800-814-4053
www.matko.com

SBL Specifications



Description:

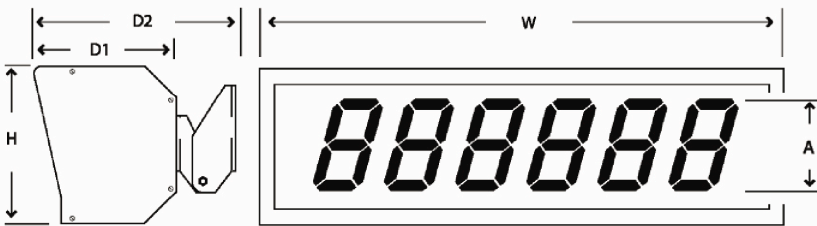
- Long life LED technology (100,000 hour) viewable in direct sunlight
- No moveable parts = no maintenance
- Internal lightning protection
- "Auto-Learn" feature automatically configures to any data stream
- Swivel mounting bracket (mounts to uneven surfaces and poles)
- Integrated hood
- Maximum decimal displayed .000
- Integrated Data repeater / converter
- Field selectable software options for custom applications
- 2-year warranty against manufacturing defects

Software Options:

- Decodes Toledo / Fairbanks Data Streams
- Fixed Decimal Points
- Leading Zero Suppression
- Display Alphanumeric Characters
- Mirror Display for Reverse Viewing
- Individually Addressable
- Minimum Number to Display
- Maximum Number to Display
- Display on Demand

Electrical Specs:

110 / 240 VAC @.22 Amp 50/60 Hz
12 or 24VDC @2 Amp



Data Inputs:

- RS232 (50' max)
- 20ma Current Loop (2000' max)
(Active or Passive)
- RS422 (4000' max)

Protocol:

- 8 Data Bits, no Parity
- 7 Data Bits, odd or even Parity

Baud Rates:

300 to 19200

Echo Data Outputs:

- 20 Ma Current Loop
- RS232
- RS422

Enclosure:

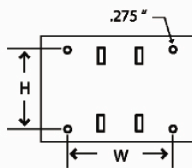
Aluminum Extruded Case
NEMA 4 / IP56

Options:

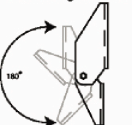
- 12 or 24 VDC
- UL Approved Version
- LB / KG Annunciators
- Red / Green Traffic Lights
- Stainless Steel Enclosure
- Polypropelene Enclosure
- Wireless Interface (up to 20 mile line-of-sight)
- 4-20 mA Input

MODEL	A	W	X	H	X	D1	D2	Shipping Weight
SBL-2	2"	12.25		4.75		5.625	8.375	8 lbs.
SBL-4	4"	25.5		7.375		6.625	9.375	20 lbs.
SBL4-SG	4"	30		7.375		6.625	9.375	22 lbs.
SBL-6	6"	34.25		10.25		6.625	9.375	31 lbs.
SBL-6SG	6"	38.75		10.25		6.625	9.375	33 lbs.

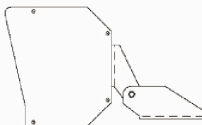
MODEL	Viewing Distances (Ft.)			Mounting Dimensions	
	Minimum	Optimum	Maximum	W	H
SBL-2	2'	5-25'	75'	4"	3"
SBL-4	10'	20-100'	150'	4"	3"
SBL4-SG	10'	20-100'	150'	4"	3"
SBL-6	15'	50-200'	250'	8"	3"
SBL-6SG	15'	50-200'	250'	8"	3"



Mounting Bracket



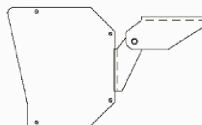
Roof Mount



Wall Mount



Under Mount





Recommended Spare Parts

- ZT Digital Load Cell
- ZT Digital Base Plate
- ZM615 Indicator Main Board
- ZT Digital Load Cell Cable
- ZT Digital Load Cell Homerun Cable

**While under warranty Michelli will keep all spare parts on hand.