



SWIM **WEIGH-IN-MOTION** **VEHICLE SCALES**

Slow-Speed In-Motion Vehicle Scales

www.WIMscales.com

SWIM Series

Slow-Speed In-Motion Vehicle Scales



Your Total Solution for Weigh-in-Motion

.....
Cardinal Scale's Versatile Product Line



Intelligent Transportation Systems

.....
Engineered & Customized For Your Needs

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Slow-Speed In-Motion Vehicle Scales



Major supplier of vehicle scales for over 50 years,
leading the industry with new technology and innovations



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The Cardinal SWIM series of Slow-Speed In-Motion Vehicle Scales offers an ideal combination of:

- Accuracy
- Speed
- Size
- Quality

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APPLICATIONS:

- Freight Terminals
- Commercial Fleet Axle Weight Monitoring
- Axle Compliance
- Ports

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Load Cell In-Motion Scales



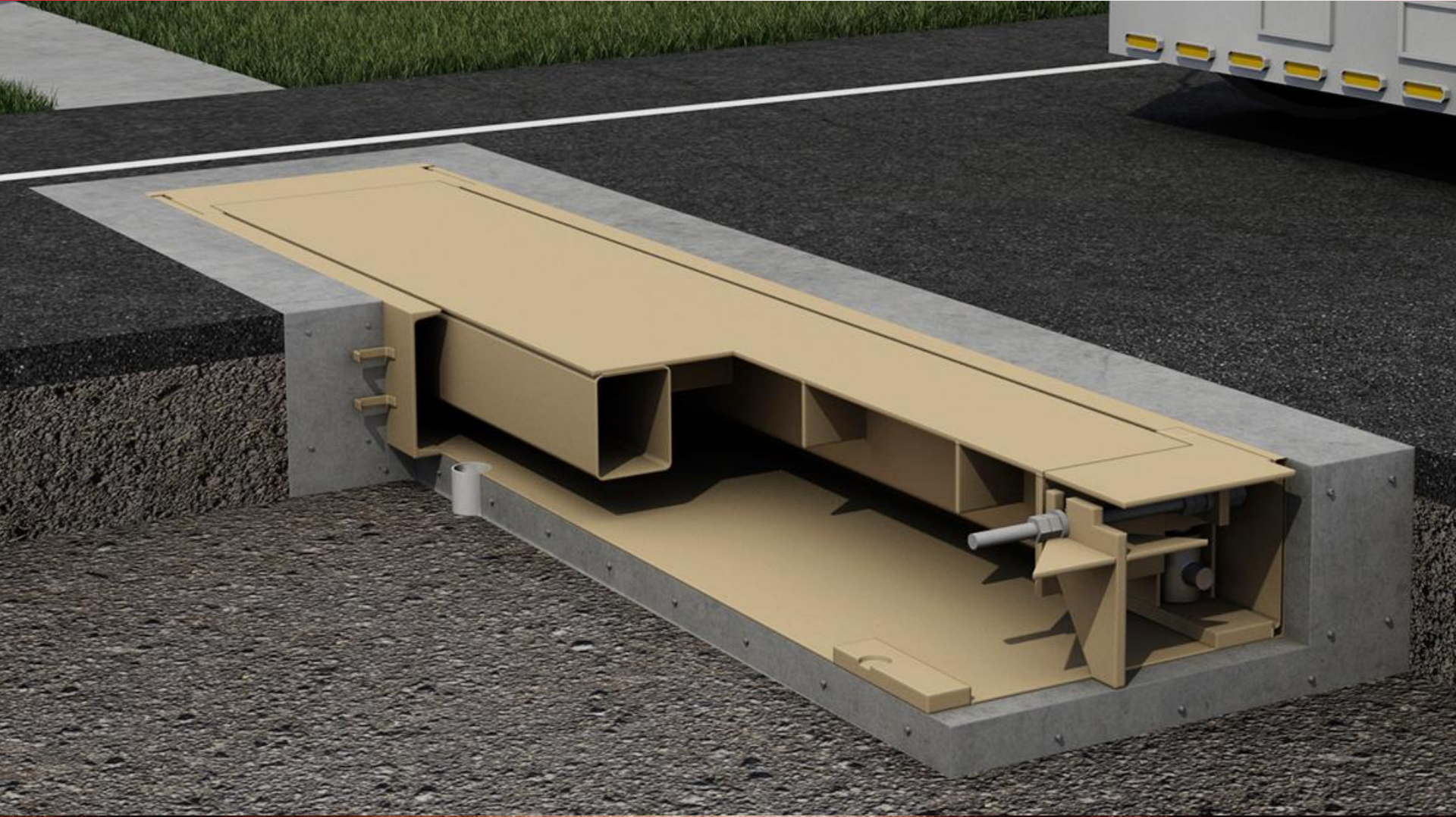
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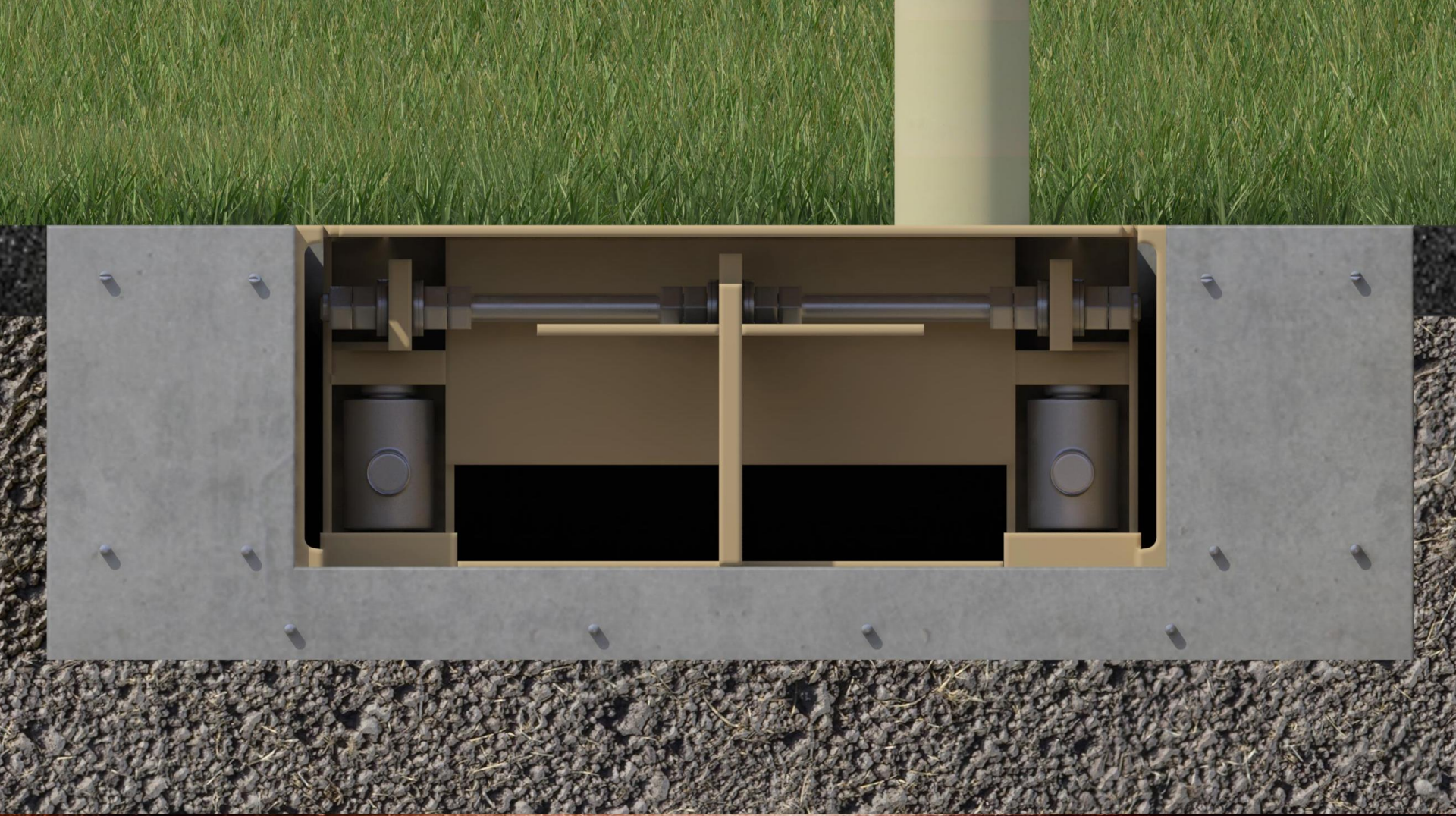
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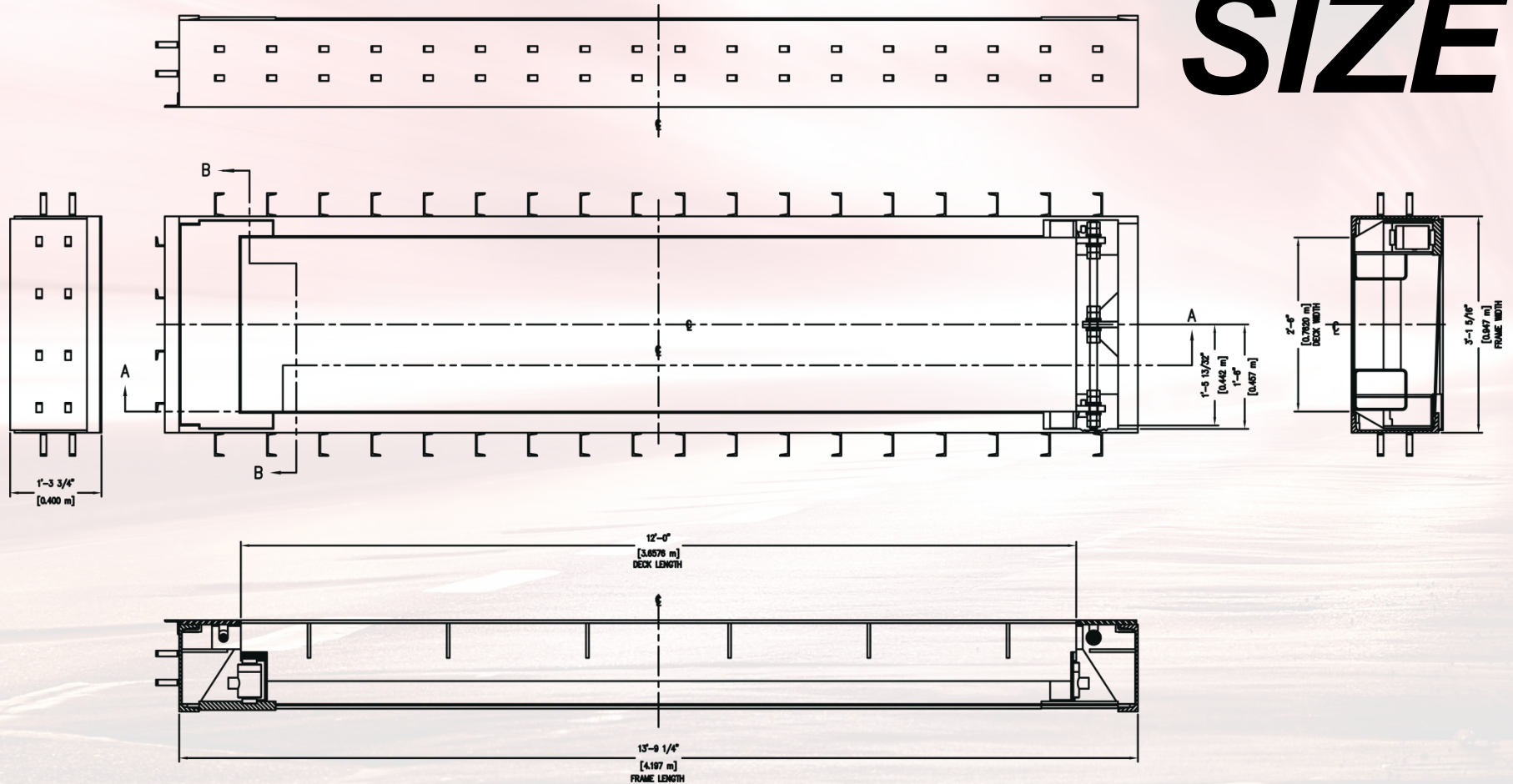


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SIZE



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WEIGHBRIDGE

The **SWIM** Slow-Speed In-Motion Vehicle Scale uses a single 14 ft X 3 ft weighbridge

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FRAME

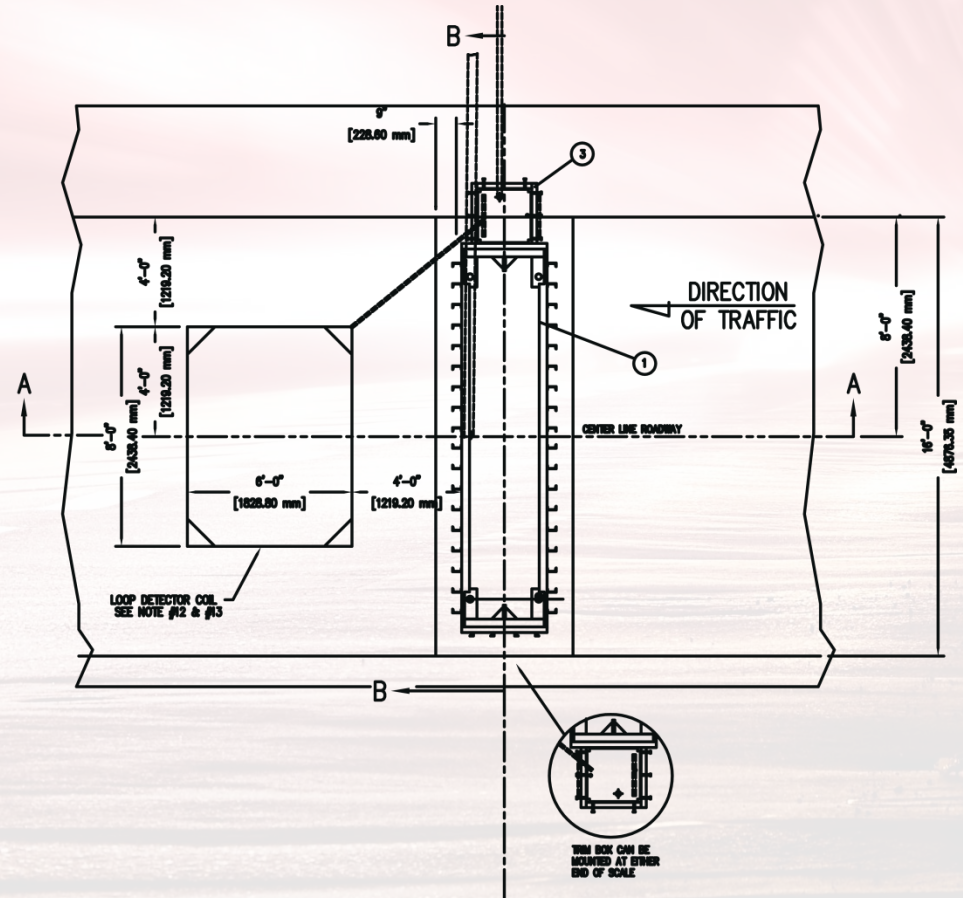
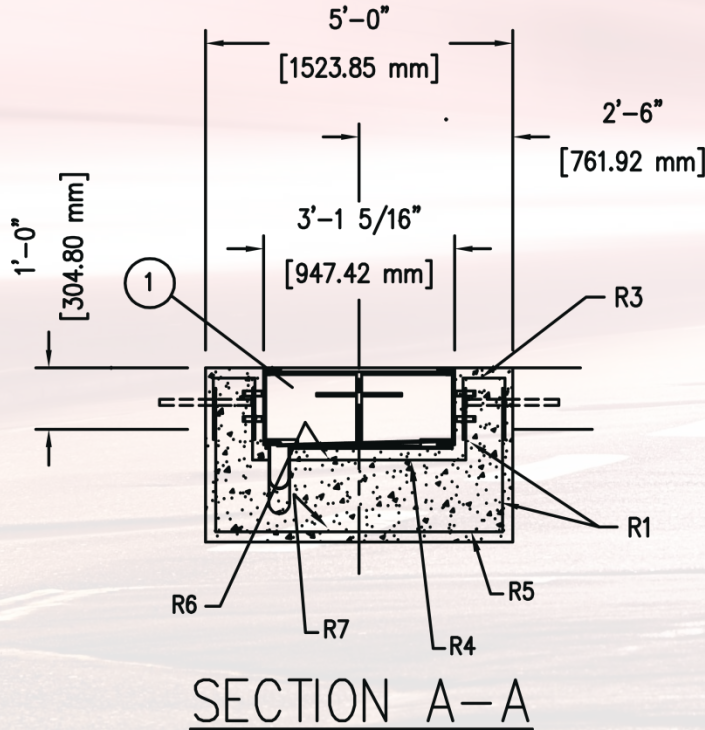
Weighbridge is mounted on a single welded framework set in a pit less than 1.5 ft deep

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FOOTPRINT



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CONCRETE PIT

The entire concrete pit
only requires an area

16 feet x 5 feet

and is less than

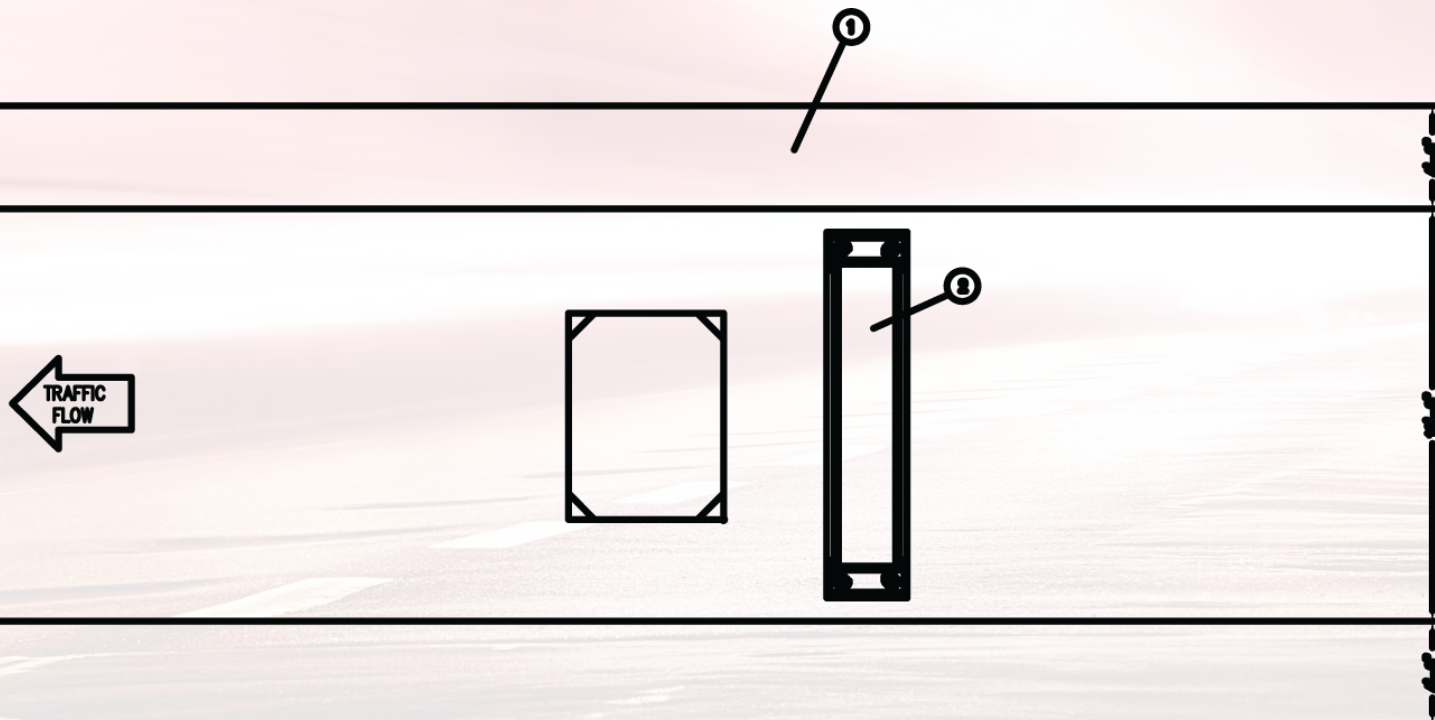
3 feet deep

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GENERAL ARRANGEMENT

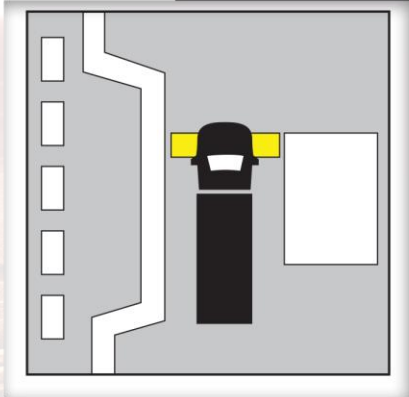


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SWIM LAYOUT



SLOW-SPEED WIM

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SPEED

The SWIM scale is effective at weighing vehicles without the need for the driver to stop.

This saves time and congestion at the scale site.

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SPEED

The SWIM scale will provide gross vehicle weights at speeds up to 20 mph.

* Note: As speeds go up, accuracy will go down. 7-10 mph should be the target speed.

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ACCURACY

Provides Gross Vehicle Weights within

1%

At speeds less than 10 mph

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ACCURACY

Speed	Accuracy
Static	
(Static) 0 km/h (0 mph)	Gross wt. $\pm 0.1\%$ of applied
Dynamic	
0-5 km/h (0-3 mph)	Gross wt. $\pm 0.5\%$ of applied
5-10 km/h (3-6 mph)	Gross wt. $\pm 1.0\%$ of applied
10-20 km/h (6-12 mph)	Gross wt. $\pm 1.5\%$ of applied
20-24 km/h (12-15 mph)	Gross wt. $\pm 2.0\%$ of applied

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EXTRA BENEFITS

SWIM scale will capture and provide individual axle weights.

Axle	Weight	Counts
1	8004	
2	9227	
3	11144	
4	10938	Axles overwt
5	9730	12
		Trucks overwt
		1
TOT	49043	14
Loop OFF	-20 BZ	ESC) MENU

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STATIC WEIGHTS

Cardinal's SWIM scale can also be used as a Static Scale to weigh single axles for an even more accurate measurement.

* When used statically the SWIM meets NIST Class III tolerances.

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QUALITY

The welded steel structure is designed with performance and longevity in mind.

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WEIGHBRIDGE PLATFORM

Weighbridge platform is constructed of a single, 1/2" thick, smooth steel plate.

Nominal Capacity of 60,000 pounds

(far more than you would ever need for any single axle)

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WEIGHBRIDGE

The weighbridge is supported by four 50,000-lb capacity Cardinal SCA series stainless steel load cells.

These are the same load cells used in many of Cardinal's legendary static vehicle scales.

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50K-SCA Load Cell



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50K-SCA Load Cell

- Hermetically sealed
- Stainless steel
- NTEP and OIML certified
- Compression style cell with low deflection and resonant frequency
- Highly accurate



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Coating

The frame and weighbridge are protected by a baked-on epoxide polyester powder coat.

- Long lasting
- Low maintenance
- Prevents corrosion

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The extremely stiff and rigidly checked weighbridge, coupled with four 50,000-lb capacity strain gauge load cells, results in a...

1. Long-lasting, low-maintenance product
2. Higher resonant frequency allowing more efficient filtering of spurious weight signals
3. Happy customer

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Load Cell In-Motion Scales

Advantages:

- High Accuracy
- Saves Time
- Small Footprint
- Low Maintenance
- Easy to Work On

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1000%



USA
MANUFACTURER

IN Webb City, MO

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Additional Components

- Includes Cardinal's USA-made model 825 stainless steel weight indicator
- Cardinal's USA-made SB500 remote display with traffic control

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825 Spectrum Indicator



- 640 x 480 Pixel Full-Color LCD with Interactive Touchscreen
- Navigation Keys and QWERTY Keyboard
- IP66 Enclosure Rating
- Versatile and Extensive Truck/ID Storage Reports
- Complete Ticket Configurability
- Loaded with Applications Out of the Box
- Intuitive Setup and Configuration Menus
- 4 Bi-Directional RS232 Serial Ports
- 110/100 Base-T Ethernet Ports
- 2 USB-A Host Ports, 1 USB-B Device Port

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825 Spectrum Indicator

Weight-In-Motion		
Axle	Weight	Counts
1	23780	
2	17076	
3	13117	
4	12817	Axles overwt
5	17564	1
		Trucks overwt
		1
TOT	84354	0
-860 BZ		ESC) MENU

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825 Spectrum Indicator

Weight-In-Motion		
Axle	Weight	Counts
1	24040	
2	29910	
3	29228	
		Axles overwt 0
		Trucks overwt 0
TOT	83178	0

ESC) MENU

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SB500 Series 5-in-high LED



- Easy-to-see weight readouts for your truck drivers
- Giant 5-inch-high, double-row LED digits
- Easily read up to 250 feet away
- Weatherproof steel enclosure with rain hood
- Traffic directional arrows and red/green stop/go light

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Slow-Speed In-Motion Vehicle Scales

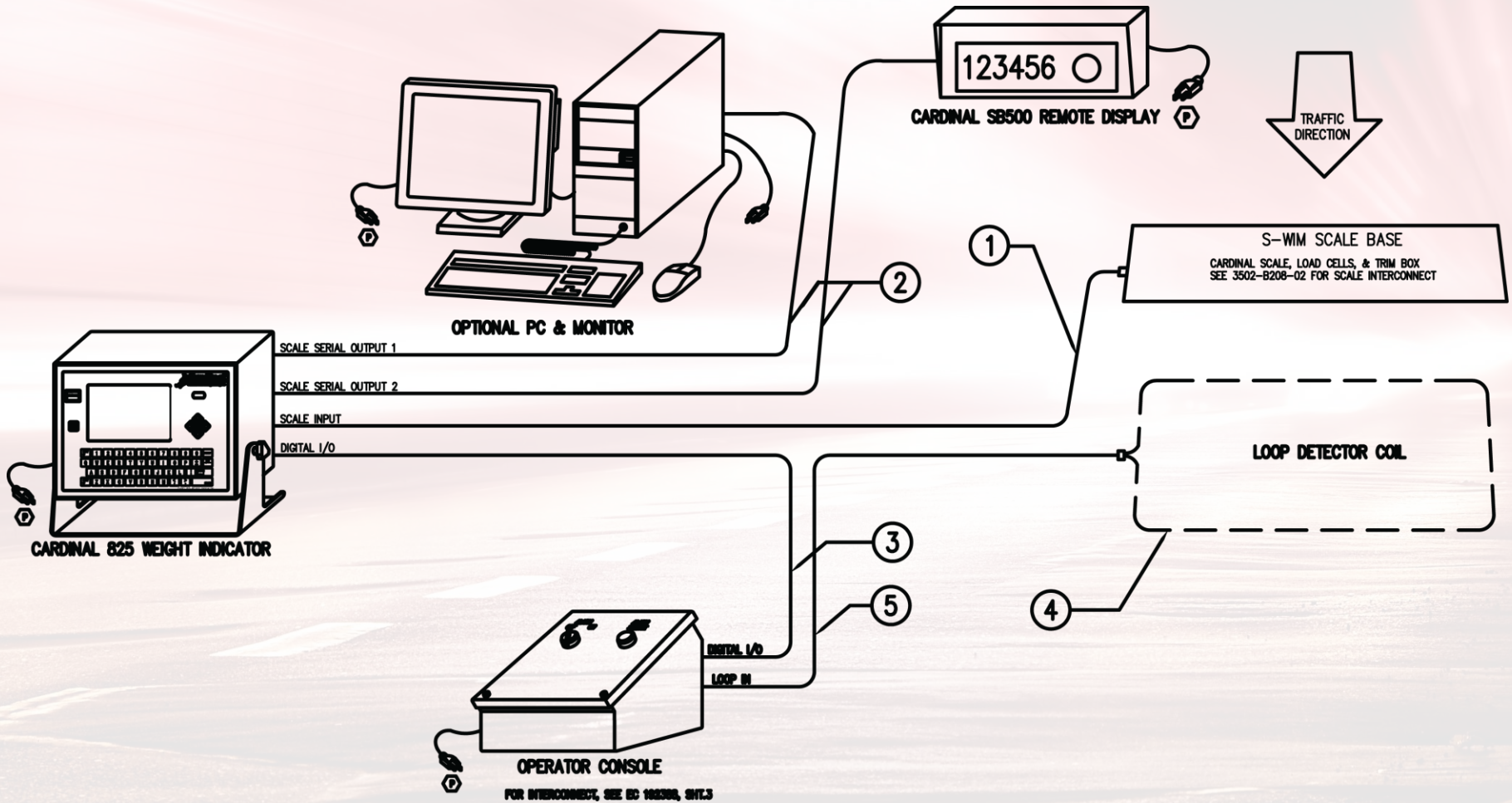


SB500 Series – 5" LED



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PERIPHERAL WORKFLOW



TRAFFIC LIGHT UNIT



SB500

REMOTE DISPLAY



P600

PRINTER

RS-232



825

LOAD CELL SIGNAL TO INDICATOR



AXLE

SCALE
(LOAD CELL)

3/1/2016
4:37:00 PM

Port of WIM - Webb City
Chronological S-WIM Screening Log
All Transactions

WinVRS Industries Report

<u>Seq</u>	<u>Vehicle Class</u>	<u>Vehicle ID</u>	<u>Material</u>	<u>Date</u>	<u>Time</u>	<u>Scale</u>	<u>Axle #</u>	<u>Axle Weight</u>	<u>Gross</u>	<u>Net</u>	<u>Over Weight Gross</u>	<u>Over Weight Axle</u>	<u>Tandem Over weight</u>
1	6	29	Aggregate	3/1/2016	6:13:19 AM	1	1	11533	45110	UNK	0	0	0
							2	16823					
							3	16754					
2	10	103	Beverage	3/1/2016	8:18:55 AM	1	1	13825	90767	UNK	1	0	1
							2	15433					
							3	15344					
							4	13989					
							5	15288					
							6	16888					
3	5	229	Equipment	3/1/2016	9:03:05 AM	1	1	13093	29014	UNK	0	0	0
							2	15921					
4	8	91	Livestock	3/1/2016	11:54:03 AM	1	1	15000	58329	UNK	0	0	0
							2	20102					
							3	12004					
							4	11223					
5	9	37	Mulch	3/1/2016	2:33:43 PM	1	1	15444	75629	UNK	0	0	1
							2	15889					
							3	18371					
							4	13002					
							5	12923					
Grand Total:	5						20		298849 lb.	0 lb.	1	1	2

3/1/2016
4:37:00 PM

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Optional Equipment



Q45BB6LL Series – Laser Diode Retroreflective Sensors†

Very-Long-Range Retroreflective Sensors for 10 to 30V dc

Features



- High power and small effective beam for retroreflective sensing applications
- Class II laser diode light source; operates from 10 to 30V dc
- 40 m (130') range for polarized models and 70 m (225') range for non-polarized models, using supplied BRT-2x2 target
- Bipolar NPN (sinking) and PNP (sourcing) solid-state outputs, switchable light and dark operate; 250 mA maximum load
- Top mounted Power, Signal (AID™ System), and Output indicator LEDs
- Optional plug-in Pulse or Delay timing logic and display modules
- Designed to withstand 1200 psi washdown; exceeds its NEMA 6P and IEC IP67 rating

† U.S. Patent(s) issued or pending



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Low Life Cycle Cost

The Cardinal SWIM provides a low-cost alternative to traditional static weigh scales. The Cardinal SWIM is designed specifically for Weigh-in-Motion and provides axle weighing capabilities at a fraction of the cost of a traditional static scale. Maintenance costs are low and life cycle costs are attractive. A Cardinal SWIM can typically be installed and maintained for less than the regular maintenance of a traditional static scale.

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Slow-Speed In-Motion Vehicle Scales



System Operation

The Cardinal SWIM can be adapted to various applications through systems that incorporate the scale, in road sensors, a processor unit, traffic control devices, a driver display and/or printer.

The system operates in both slow speed WIM and static scale modes. In the WIM mode, the operator directs the truck to the scale where it rolls over the scale at a low speed. In static mode, the truck must stop with each set of axles on the scale so individual axle weights can be calculated. When the weighing operation is complete, the user can view results on a display or print a ticket for weight verification. When used for enforcement actual weights can be compared to the legal limit and citations can be printed. This data can also be stored in a database if further analysis is desired.

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Warranty and Pricing

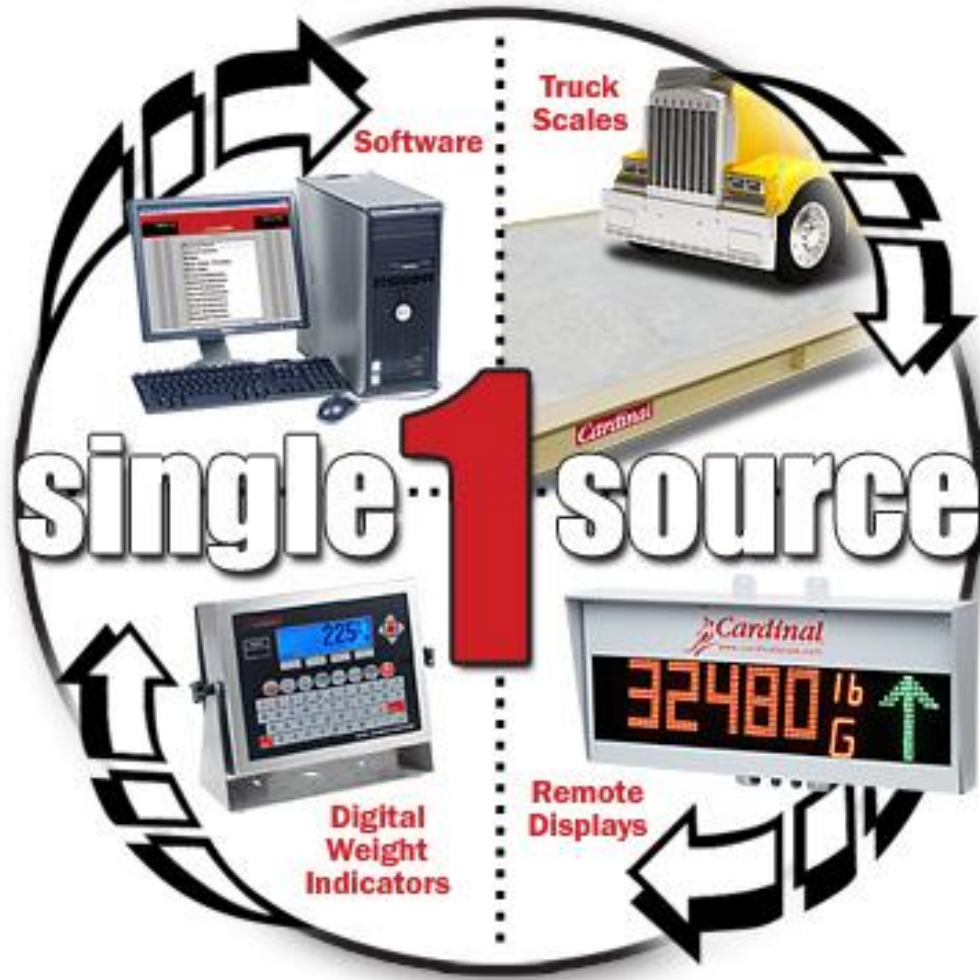
This equipment is covered under Cardinal's standard one-year warranty against defects in materials or workmanship.

At Cardinal Scale, we stand by our products.

Service technicians and customer support staff standby for rapid response if the need arises.

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