

Mettler Toledo WIM
Solutions

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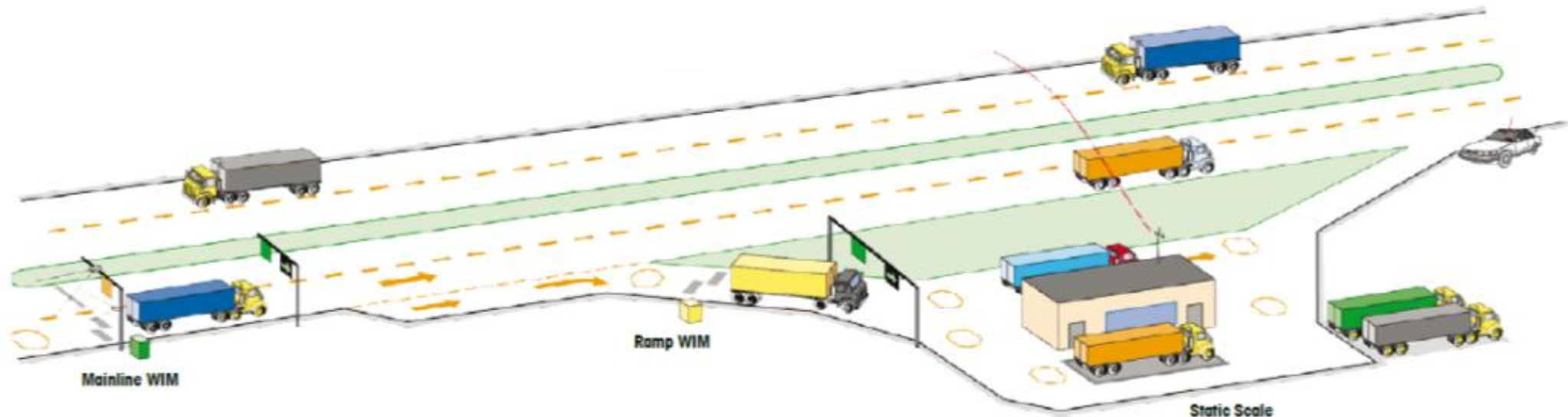
Weigh-In-Motion
METTLER TOLEDO

WIM for DOT and Enforcement Vehicle Weigh-in-Motion System

METTLER TOLEDO

Higher efficiency enforcement continues to be a requirement for weigh stations

- Mainline enforcement systems and automation can **sample more vehicles** while **limiting disruptions to traffic** by sorting the highest probable violators into the weigh station while keeping low probability violators moving.
- Mainline enforcement benefits are clear:
 - Minimal disruptions to traffic flow
 - Fingerprinting method which ensures tracking CMV through system at the highest rates
 - Higher sample rate
 - More time for thorough inspections of high potential offenders
 - Reduction of stress on existing scale infrastructure, contributing to lower maintenance costs
 - 95% Uptime if serviced at stated intervals



Virtual Weigh Station Solutions

Cost-effective and flexible, virtual weigh station solutions from METTLER TOLEDO provide a high-tech approach to curbing overweight vehicles that may take alternative routes (secondary roads and bypasses) to avoid weigh stations.

The METTLER TOLEDO unattended virtual weigh station solution includes a WIM and video capture system, which collects accurate, reliable weight and image data for vehicles travelling at speeds up to 80 mph. The system captures weight, speed, and vehicle class, and provides remote communication to a patrol vehicle, weigh station, or traffic control center.

How Virtual WIM Systems Work

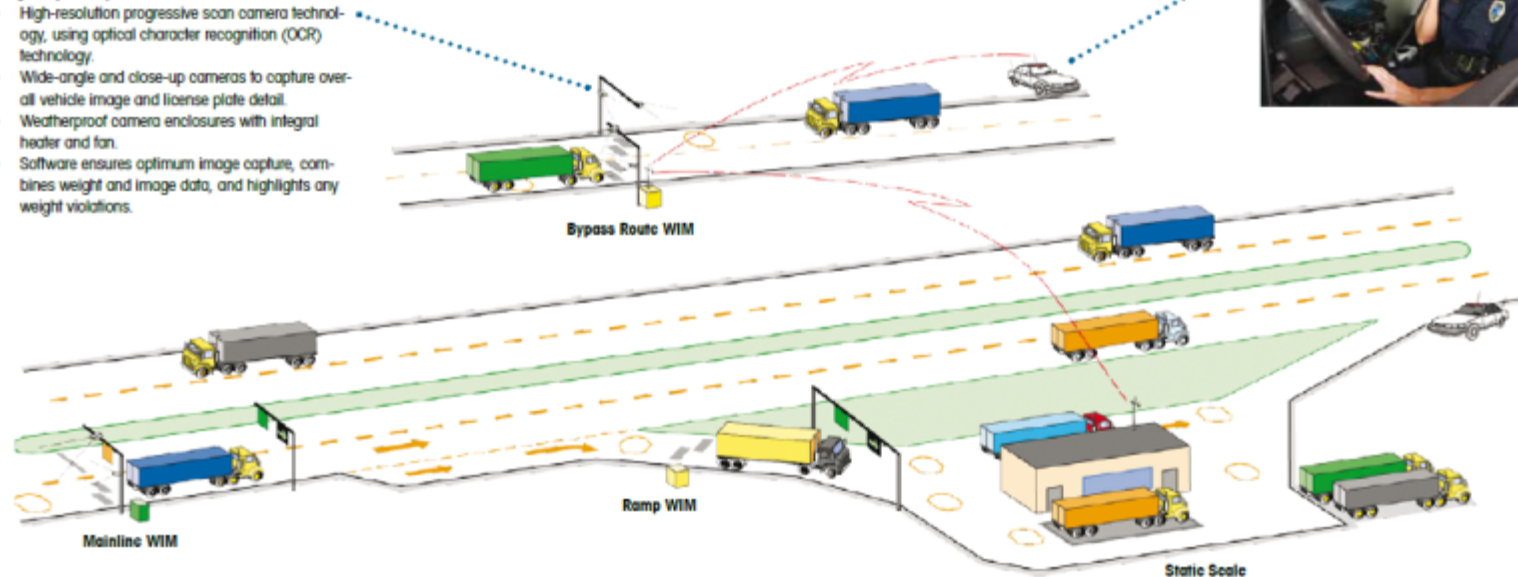
As vehicles cross the WIM scale, a photo overview image of the vehicle is captured. If the vehicle is overweight, the image, weight data, and speed data are stored for remote retrieval, or are instantly transmitted via a modem or wireless connection to a laptop computer in a nearby, hidden, patrol car. An enforcement officer can connect to the WIM system and observe the weights of passing vehicles on the computer screen in order to pull over likely violators.

Virtual WIM System Benefits:

- Accurate, reliable, and efficient weight enforcement at a fraction of the cost of a fixed facility weigh station.
- Provides instant information for mobile enforcement officers to stop vehicles most likely to be in violation of weight limits.
- Continuous image capture and storage can be used to monitor for repeat weight or speed violators. Data is downloaded remotely via a modem or Ethernet link.
- System can store vehicle traffic data for use in traffic and enforcement planning.

Image Capture System

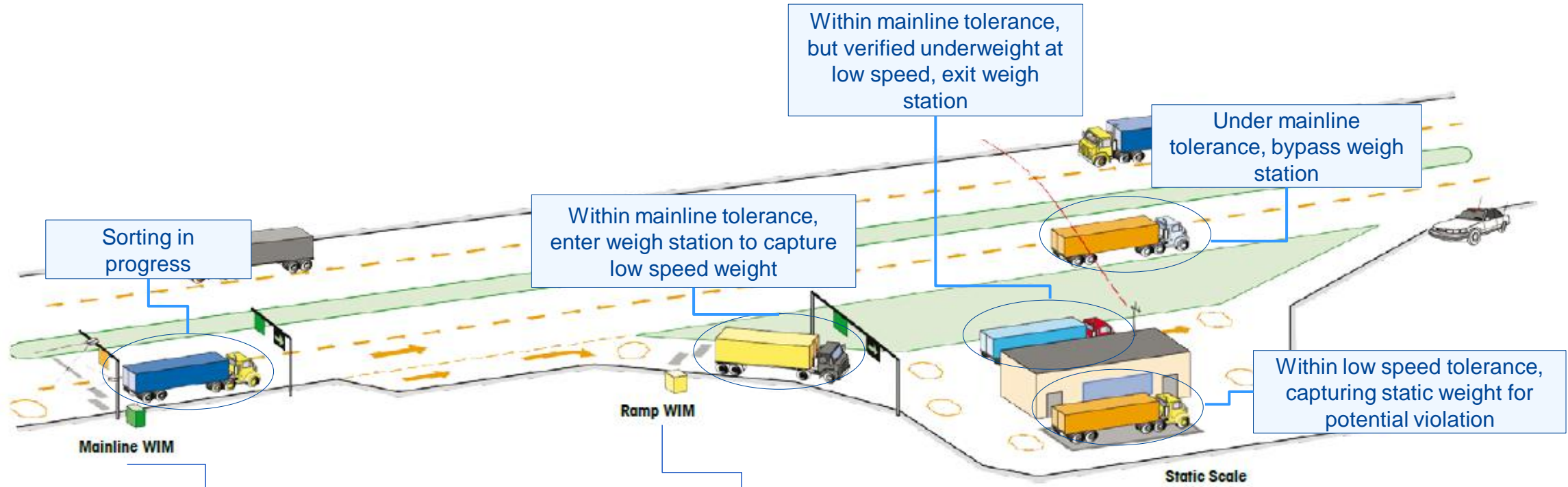
- High-resolution progressive scan camera technology, using optical character recognition (OCR) technology.
- Wide-angle and close-up cameras to capture overall vehicle image and license plate detail.
- Weatherproof camera enclosures with integral heater and fan.
- Software ensures optimum image capture, combines weight and image data, and highlights any weight violations.



Screening Options

- Weight
- Height
- Tire
- Credentialing (LPR , DOT , Driver Compliance)
- HAZMAT
- Dimensioning





Mainline Measurements

- GVW at $\pm 6\%$ accuracy up to 80 mph
- Vehicle height
- Tire Issue Detection
- Vehicle identification (LPR, DOT, Driver Compliance)
- Hazmat signage

Ramp Measurements

- Vehicle weight at 6% up to 50 mph

Static System

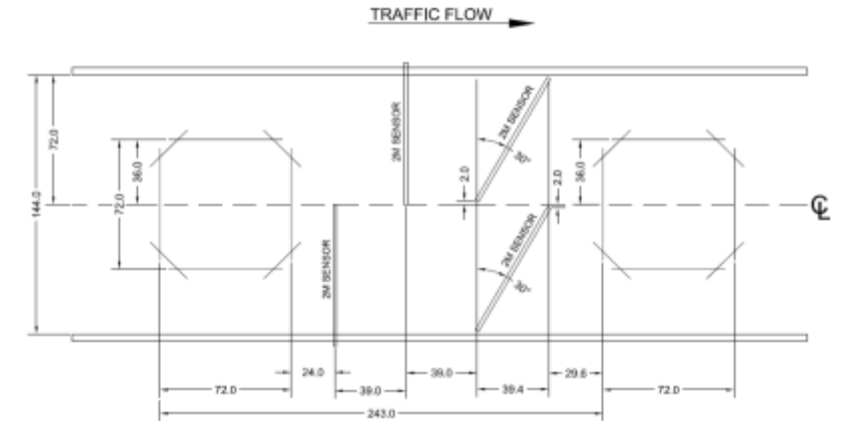
- Vehicle weight at .1%

Automated Tire Screening (ATS) reliably identifies missing, flat, or underinflated tires in real time

- **Proper tire enforcement further protects infrastructure and improves motorist safety**

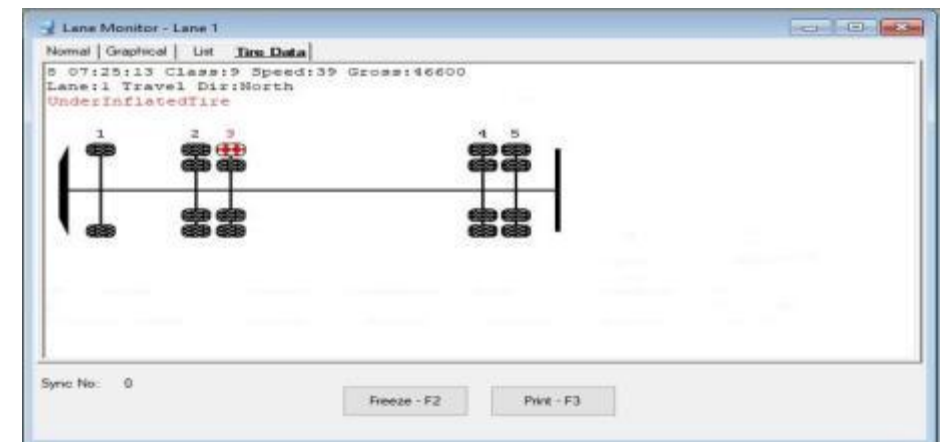
- 90% of tire failures can be attributed to underinflation
- 50% of all emergency service road calls are tire related
- Flat , underinflated , mismatched

Sensor Layout
Automated Tire
Screening



- **Automated Tire Screening (ATS) is easily integrated with existing WIM Solutions:**

- Utilization of existing weigh stations for tire enforcement without the need for new enforcement sites or independent road checks
- Enhanced real time monitoring, alarms, and alerts through integration with existing WIM software
- More comprehensive vehicle records, with ATS violation type & tire location stored alongside existing vehicle data records



Real-time monitoring graphic of tire violation

Virtual weigh stations provide value when full weigh stations are not possible

Flexible Monitoring of Alternative Routes

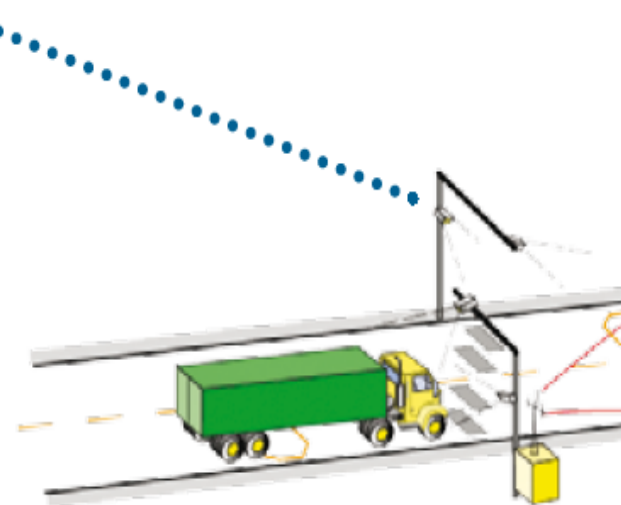
- Bypass roads and parallel routes provide drivers an opportunity to bypass weigh stations to avoid fines.
- VWIM monitors these locations without the need for a physical weigh station
- Internet Based User Interface

Cost-Effective Solution with a Reduced Footprint

- VWIM systems can be installed for less than a complete weigh station, offering enforcement when budget is limited
- In areas where space is a limited, VWIM systems provide vehicle monitoring in a small footprint

Image Capture System

- High-resolution progressive scan camera technology, using optical character recognition (OCR) technology.
- Wide-angle and close-up cameras to capture over-all vehicle image and license plate detail.
- Weatherproof camera enclosures with integral heater and fan.
- Software ensures optimum image capture, combines weight and image data, and highlights any weight violations.



Virtual WIM enforcement covers a large footprint with less staffing


Automated capture of weight, speed, and vehicle class sent directly to police, weigh stations, or traffic control centers

- Catch violators intentionally bypassing a weigh station
- Ensure compliance in remote areas
- Capture and store data the same as traditional weigh stations
- Auto Calibration Application – continuous data entry to ensure highest accuracy

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HOME SORT CRITERIA BULLETINS HISTORY SETTINGS ADMINISTRATION ABOUT

Site Location




11/1/2016 12:53:08 PM
Direction: North

Plate: N4308N
Jurisdiction: FL
USDOT: 1388686

```

Class:7 Speed:37 Gross:74000 Plate:N4308N ST:FL USDOT:1388686
Lane:1 Travel Dir:North
AxleOverWt TndmOverWt GrossOverWt
Axle 1 2 3 4
RGHT 8100 4100 16800 14500
LEFT 8100 4400 10100 7900
TOTL 16200 8500 26900 22400
Tndm: 35400 49300
Tri : 2-4 57800
InBr: 1-4 74000
            
```



10/30/2023 1:17:30 PM
Direction: West

```

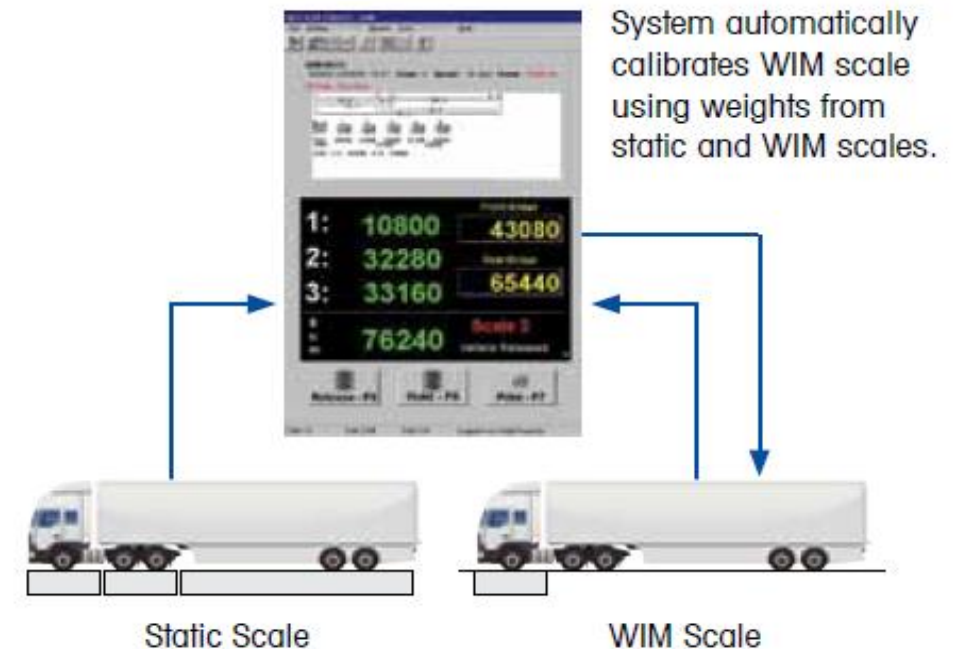
Class:9 Speed:66 Gross:83200
Lane:1 Travel Dir:West
AxleOverWt BridgeOverWt GrossOverWt TireIssue
S-----D---D-----D-----D
Axle 1 2 3 4 5
RGHT 6900 8900 7900 9500 9400
LEFT 5900 8400 8700 8700 8900
TOTL 12800 17300 16600 18200 18300
Tndm: 33900
InBr: 1-3 46700 2-4 52100 4-5 36500
            
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Automatic calibration of mainline sensors maintains system accuracy

- A patented algorithm compares static scale weights to mainline sensor weights and automatically calibrates mainline sensors if needed
- Auto Calibration is proven to keep sensors performing well within ASTM III standards
- Benefits of Auto Calibration over other methods:
 - Sustained accuracy on the mainline
 - No disruption to traffic to calibrate sensors
 - Limited investment through utilization of existing equipment

Axles	ASTM III	Auto Calibration Feature
Gross	6%	3.5%
Drive Tandem	10%	4.5%
Trailer Tandem	10%	6.5%
Steering	15%	7%



Static Full-Length Scales Provide the Most Accurate Measurements for Enforcement

PDX Load Cells provide ultimate accuracy for weighing enforcement

- Verified .1% accuracy
- Precise, repeatable measurements from evenly distributed loads and a fixed center of gravity
- Dynamic filtering limits the impact of wind and vibration
- Embedded microchips adjust for temperature changes and extended weighing times

PDX reduces maintenance spend through the scale's installed life

- Lightning protection up to 80k amps limits failure
- Replaceable cables provide quick and easy serviceability without replacing load cells
- Alerts and alarms prevent failures before they occur
- 10-year warranty eliminates unplanned spend, including the cost of travel, recalibration, and labor



Boost productivity by 3x from in-motion weighing on full length truck scales



- **Accuracy Class:**
 - NIST HB44 10K III L
 - Legal-for-trade approved in the US
- **Speed Range:**
 - 1 to 5 mph
- **Scale Type:**
 - Existing METTLER TOLEDO full-length scales
 - Deck must be +10 ft longer than vehicle wheelbase
- **Connectivity:**
 - To driver displays for guidance (“slow down”, stop for static weight”, etc.)
 - To SmartPass RFID Reader

TruckPass™ works with most common truck types, including...



DataMaster

Scale Management Software to Empower your Operations

Remote Access & Monitoring

Real-time scale monitoring provides operating status and alert information assisting device maintenance through remote terminal operation and load detection

Performance Alerts

Generate reports for individual scales to analyze weighing times, throughput, and maintenance concerns by day, week, month, or year, to make better operational decisions.

Asset Management

Manage assets through intuitive dashboards that provide live data while storing backup parameters and prior scale configurations

One-Click Service

Report errors and incidents with one click, immediately notifying the service provider of issues with attached diagnostic information to increase uptime

METTLER TOLEDO Truck Scales



DataMaster



DataMaster

Users Scales Data Settings Extensions About Language

Scales

- MTCT_VadScale
- MO Demo
- IND880_4Scales
 - Terminal 1
 - Scale 1
 - Scale 2
 - Scale 3
 - Scale 4

Detailed Dashboard



- Mettler Toledo offer Seaport WIM solutions to assist with Port Compliance for SOLAS coupled with Gate Solution
- Reduced need for multiple static scales at port points of weighments
- Increased through put
- Serviced and Supported through remote helpdesk services and on sites services when deemed necessary



Warranty Coverage

All warranties are not created equal. Coverage can vary greatly from one supplier to the next. It is critical to ask about parts, labor, travel, calibration, environmental protection, stipulations, and more when exploring various warranty offerings.



Performance Upgrades

Load cells, indicators, peripherals, and software upgrades enhance the accuracy, reliability, and functionality of your truck scale beyond its current capabilities. With POWERCELL® upgrade and conversion kits, you can protect profitability and extend the life of your asset, all at a fraction of the cost of a new scale.



Professional Installation

Establish full confidence in your equipment from day one. Our expert technicians execute installation and testing, full system setup and calibration, setup of standard operating parameters, and user and maintenance familiarization. Simplify compliance with site, regulatory, and quality requirements.



Asset Maintenance

Regular maintenance enables reliable performance, compliance, and budget control. With insight into asset performance, you can minimize unplanned downtime and maintenance costs. Extend asset life with calibration, powerwashing, replacement of worn parts, and lubricating of the load cells and receivers.



Care Packages

Care Packages keep your operation running like clockwork. Crafted to cater to your specific needs, our packages provide preventive maintenance, replacement parts, and flexible support options.