

# In-Motion Railroad Scale



## Coupled In-Motion Weighing

Quick and Accurate Weighing

Automated Data Management

Business System Integration



**Total Weighing Solution**  
Increase Productivity and Safety

**METTLER TOLEDO**

# Dynamic Weighing Solution

## Process Trains Quickly and Accurately

**A METTLER TOLEDO coupled in-motion (CIM) system weighs an entire train in a fraction of the time needed for static weighing. This dynamic weighing solution provides legal-for-trade weights for individual railroad cars quickly and safely. It offers an effective way to improve your facility's productivity.**

### Reduce Weighing Time



A CIM system weighs individual railroad cars accurately as a train travels across the scale at speeds of up to 6 miles (10 kilometers) per hour. It eliminates the need to stop the train repeatedly to uncouple and recouple cars. Even a long train can be weighed in minutes.

### Reduce Labor

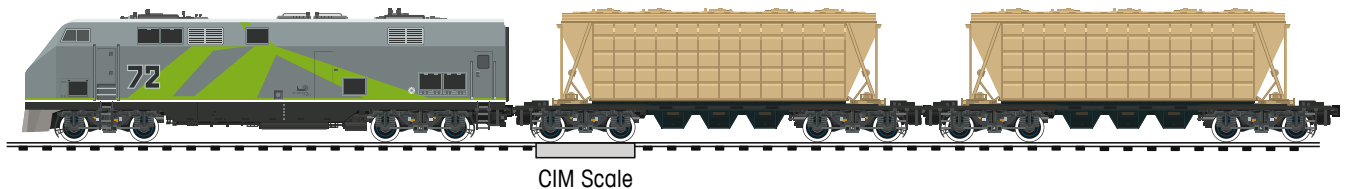


CIM weighing is so simple that the only labor required is driving the train across the scale. No workers are needed to uncouple railroad cars or position them on the scale. Using a CIM system in unattended mode also eliminates the need to have a scale operator on duty.

### Improve Safety

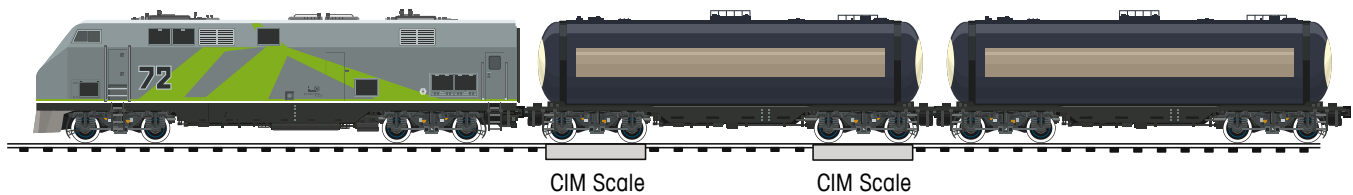


Coupling railroad cars is a dangerous job. It places workers between heavy cars that are being moved by a locomotive operator who is not in their line of sight. By eliminating the need to uncouple and recouple cars, a CIM system reduces the risk of serious injury to workers.



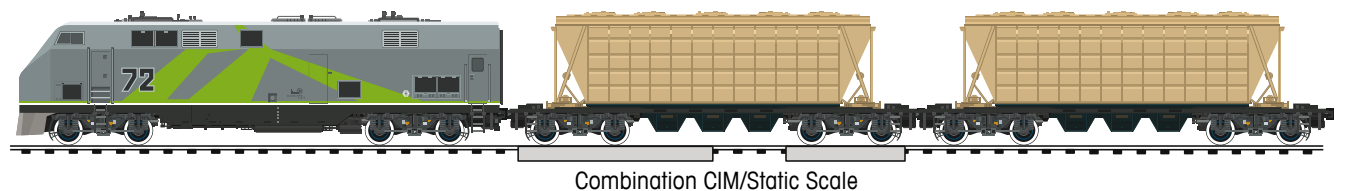
**CIM Dual-Draft Weighing**

Dual-draft weighing captures a weight reading for each wheel carriage and sums the readings to calculate the total weight of a car. It uses one scale platform that is slightly longer than an individual wheel carriage. This method works well for cars that carry stable loads.



**CIM Pseudo-Single-Draft Weighing**

This patented system is designed for weighing liquids, which shift weight while a car is in motion. Two scale platforms are spaced to match the distance between the average car's wheel carriages. Each platform captures a weight reading when a wheel carriage is centered on it and sums the readings to calculate the total weight of a car.



**Combination CIM/Static Weighing**

This type of scale can switch between dual-draft CIM weighing and single-draft static weighing. It uses two scale platforms of different lengths to make a combined platform that is longer than the longest car being weighed.

# Automate Data Flow

## Integrate with Business Systems

The data that you capture is an essential part of in-motion weighing. In addition to operating your scale, an IND9R86 CIM controller archives and transmits data about each railroad car that is weighed. It is the crucial link between the scale and your business systems.



CIM Railroad Scale

**Data input**  
from scales, wheel detectors, and tag readers

- Weight
- Speed
- Direction
- Railroad car identification
- Material identification



IND9R86

**Collect and Archive Train Data**

- ✓ IND9R86 controller handles both static and dynamic weighing
- ✓ Automatic train weighing without a scale operator
- ✓ Operator can switch to manual control of weighing process
- ✓ Overload detection and alarm prevents fines and equipment damage
- ✓ Rollback detection with recovery for load-out applications



CIM Controller

### Data output to PC, PLC, and business systems

- RS-232
- Ethernet
- Fiber optic
- Wireless



Computer Network

### Automate Data Flow to Eliminate Errors

- ✓ Computer-based system provides superior data storage
- ✓ Reports generated automatically as trains are weighed
- ✓ Export data in real time or scheduled batches
- ✓ Interface to programmable logic controller (PLC), enterprise resource planning (ERP), material requirements planning (MRP), manufacturing execution system (MES), or SAP system

# Monitor and Simulate Trains

## Control Your Weighing Operation

Our CIM software includes four programs designed to give you complete control of your weighing operation. They enable you to configure the system, test weighing scenarios, monitor weighing, and troubleshoot problems. The software manages weight data and interfaces with other business systems.

### Configurator

The configurator software sets parameters that define how the CIM system operates and interacts with external equipment. This flexible software can configure a weighing system to meet your specific requirements and allow for future changes.



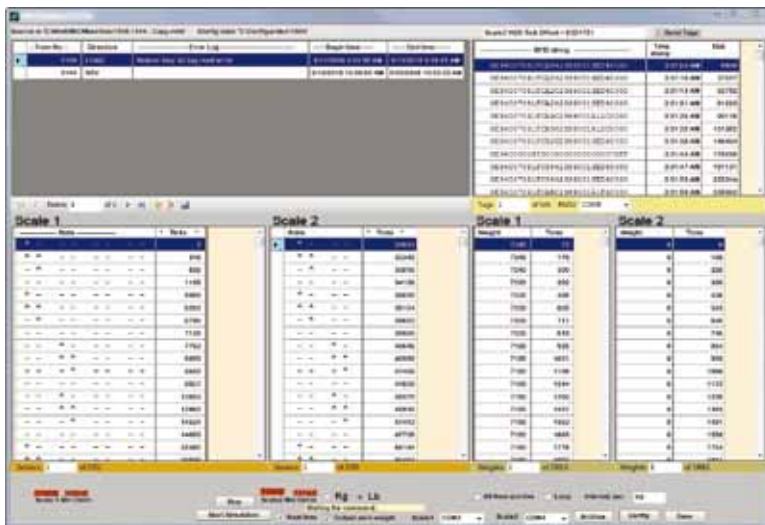
### Train Simulator

This graphical program enables system engineers to test weighing scenarios in a virtual environment. The train simulator eliminates trial-and-error testing with actual trains. Simulate sizes and types of railroad cars to test data flow and evaluate scenarios, such as overweight rail cars, variations in train speed, and reversing or parked trains.



### Operator Interface

Scale operators can monitor the weighing operation and switch from unattended weighing to manual control. The program displays data collected by the IND9R86 controller, such as train speed and direction, weights, and tag ID. The software allows remote viewing through a network connection.



### Data-Flow Simulator

Retrieve archived data for a specific train to evaluate and edit. This troubleshooting program helps you diagnose and correct data-flow issues to ensure that the CIM system supplies the accurate data that your operation requires. It also enables you to test software upgrades, using previously recorded raw data from the scale.

## IND9R86 Specifications

Enclosure Dimensions (H x W x D)	24 x 20 x 10 in (61 x 51 x 25.4 cm)
Shipping Weight	46 lb (21 kg)
Enclosure Construction	Stainless steel, wall mount, IP54
Display	Standard connection for VGA monitor. Optional monochrome 240 x 64 backlit LCD display.
Power	100-240 VAC, 49-61 Hz
Scale Types	Analog or POWERCELL® load cells
Weighing Terminals	METTLER TOLEDO IND570 or IND780
Number of Scales	Up to two platforms
External Function Keys	Five operator menu function keys (optional)
Standard Peripheral Equipment Interface	Wheel detectors, host PC, printer
Optional Peripheral Equipment Interface	AEI readers, speed-warning signal lights
Memory/Processor	8GB DRAM, 256G SSD, Atom dual-core processor
External Keyboard	Supports optional external USB keyboard/mouse
Communications	Four RS-232 serial ports, Four USB 2.0, Two TCP/IP 10Base-T Ethernet
Options	Up to eight wheel detectors, PLC interface, fiber optic converters, wireless Ethernet, dial-in Ethernet router, 1000VA on-line UPS
Operating Environment	14°F to 113°F (-10°C to 45°C), 10% to 95% relative humidity, noncondensing
Agency Approvals	NTEP COC 06-061 A3 OIML 0402-MID-495001 Measurement Canada AM-5937C

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For more information

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