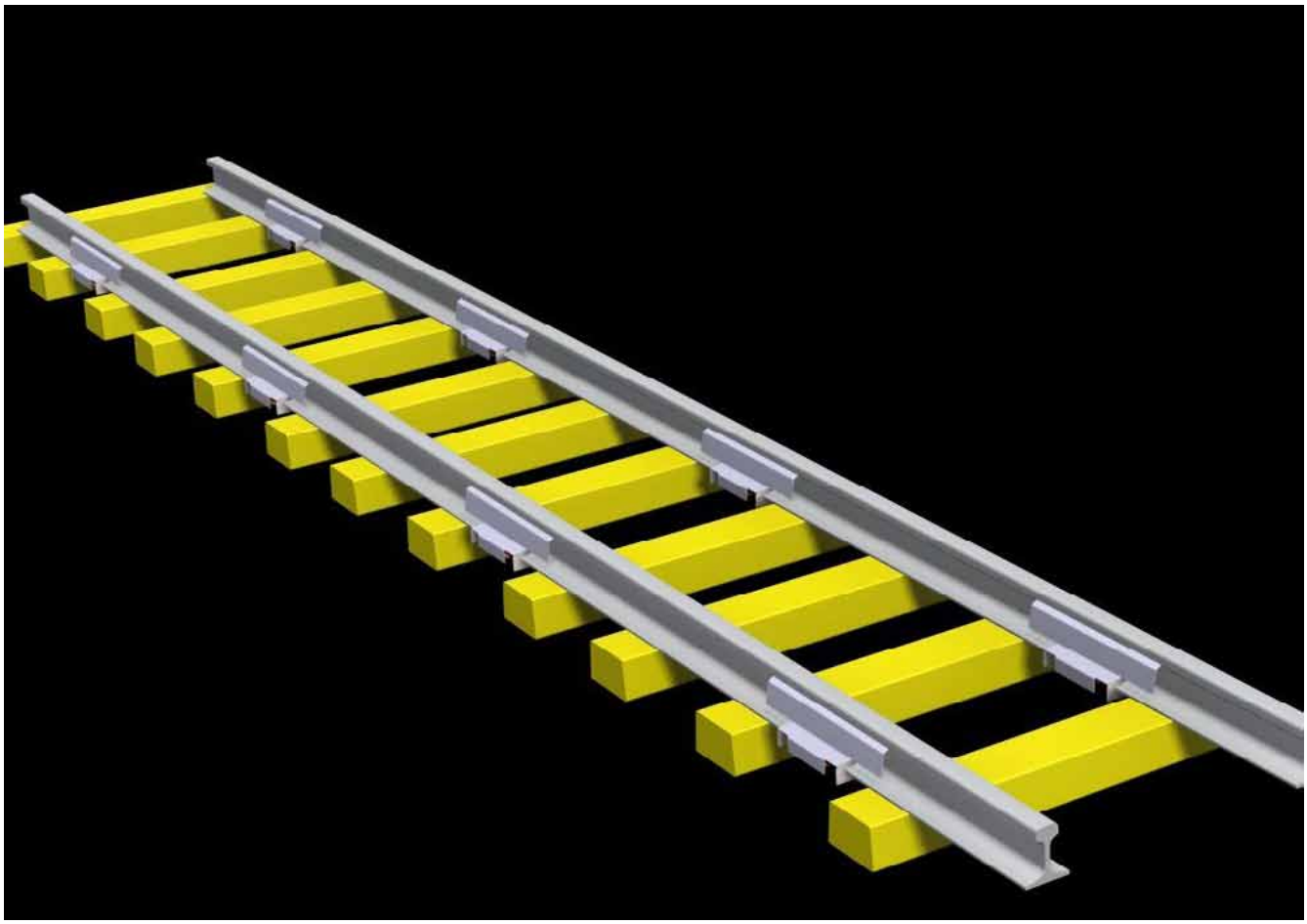
HMA
MATERIALS HANDLING

HIGH-PERFORMANCE IN-MOTION WEIGHING

High-Performance In-Motion Weighing



OVERVIEW

Massize In-Motion Weighbridges provide automatic, high-speed operation and Trade Metrologygrade accuracy. Various approved models are available, catering for speeds of up to 60km/hr.

Our retrofit technology means that the weighbridge is built into the existing track and no rail cutting or sleeper replacement is required. This technology also provides scalability, allowing for increased accuracy and operational speed. Installation is rapid and can be carried out safely between trains, i.e. no full occupation is required.

The new T-Series weighbridges are microprocessor-based systems are highly stable and operate fully automatically, without the need for user input. Multiple output options are available, including emailed reports or local printouts. Various communication options are also available, including Ethernet, GPRS/3G/LTE and serial (RS-232). The T-Series models are also capable of direct process integration via Ethernet and serial interfaces, via an API.

The low-power microprocessor-based systems represent the next generation of In-Motion weighbridge, providing identical performance on a much smaller, more efficient footprint. The microprocessor runs dedicated firmware, meaning that an Operating System is not required. Also, the industrial design provides a much wider operating temperature range, doing away with the need for air-conditioned enclosures. Finally, being solid state, the T-Series system has no moving parts such as hard drives or fans, thus reducing maintenance requirement and increasing reliability. MTBF and MTTR are class leading, with figures exceeding 36 months and less than four hours respectively. Spares are small and easy to transport to remote locations.

Automatic Vehicle Identification (AVI) is supported and compatible with ATA, AAR and Gen-II type tags. AVI integration permits automatic payload calculation via vehicle ID matching.

In addition to the AVI support, Dynamass weighbridges have options for 4 digital inputs and 4 digital outputs to interface to any peripheral trackside equipment that may be necessary.

High-Performance In-Motion Weighing

FEATURES / BENEFITS – T SERIES WEIGHBRIDGES

- Trade Metrology-grade accuracy. Approval number SA-1350, OIML compliant.
- Retrofit technology requires no cutting of rail or replacement of sleepers – this means installation and repair procedures are safe and fast.
- Various models are available to cater for differing accuracy and speed requirements.
- Direct process integration or reporting to PC. Email distribution available.
- Support for Automatic Vehicle Identification (ATA, AAR, Gen-II).
- Fully automatic operation.
- Excellent for harsh and/or remote environments.
- Extremely compact.
- Simple Trackside Box houses Entire Installation (No Hut / Building Required)
- Stoppage and Rollback Compliant.
- Optional solar powering.

THE T-SERIES FAMILY

High-Performance In-Motion Weighing

HMA MATERIALS HANDLING

Massize-T4 – Compact Installation, including AVI

Massize-T4 – Solar powered, 3G with dual AVI

Massize-16, with AVI

High-Performance In-Motion Weighing

DATA PRODUCED

Massize systems produce the following fields for each weighed train:

- Date and time of Weighing
- Direction of travel
- Total train mass
- Total locomotive mass
- Total wagon mass

For each vehicle, the following fields are produced:

- Vehicle number in train
- Vehicle type (locomotive, wagon)
- Speed
- Vehicle identification number (from RFID tag)
- Vehicle mass
- Mass distribution (Left / Right and Front / Back)
- Individual axle masses
- Individual wheel masses

An automatic tare calculation function utilises either RFID information or rules based on train movements to produce:

- Vehicle tare mass
- Vehicle net mass
- Train tare mass
- Train net mass

High-Performance In-Motion Weighing

REPORTING OPTIONS

The Massize-T series weighbridge functions as a completely independent unit, as it is able to function without an active PC connection. Measured train data is stored locally before being uploaded to the reporting system of choice.

Three primary options are available for data reporting, which are:

1. Email Reporting. This option has the smallest local hardware requirement. Here, data is automatically uploaded by the weighbridge to a back-office server and re-distributed via email in Excel-compatible or PDF format. Therefore, recipients make use their existing PC with email access. A modem and SIM card are utilised for communications and the weighbridge manages the entire interface without need for user intervention.
2. PC Reporting. In this case, a local PC is used for reporting. Data is automatically transferred from the weighbridge to the PC, where it is stored in a local database and made available for viewing, printing and reporting. A modern graphical interface displays all measured parameters, as well as highlighting any undesirable conditions such as overloads, underloads or excessive mass distribution imbalances. Bolt-on modules provide additional functionality such as release note creation and automatic emailing.
3. Direct Process Integration. This consists of a dedicated "real-time" interface, which allows a control process to communicate directly with the weighbridge. In this scenario, the controlling process interrogates the weighbridge, requesting vehicle data, as well as information such as number of vehicles in consist, system status, etc. Vehicle data is made available on the weighbridge as the last axle of each vehicle clears the weighbridge. This real-time availability of information allows effective implementation of closed-loop control of an automated loading or off-loading process. The interface is available via RS-232 or Ethernet and is available as a comprehensive, well-documented protocol, or API, which can be made available on request. A license of the real-time interface is provided with every weighbridge, meaning no additional costs are incurred. Please note that integration on the control-system side is not included.

In summary, the email option requires no local PC footprint, although it provides a "static" Excel or PDF report. The PC reporting option allows greater local display and reporting functionality, although a local, dedicated PC is required, along with a communications link to the weighbridge.

ALARMS

Alarm limits may be set up through the reporting software to flag certain out-of-tolerance or conditions on individual wagons, including:

- Vehicle overload (tons)
- Mass distribution: lateral out-of-balance (tons or percentage).
- Mass distribution: lateral out-of-balance (tons or percentage).

These limits are configurable per weighbridge. Please see the Massize Software and Reporting document for more information.

COMMUNICATION OPTIONS

The following communications options are available for PC integration and real-time interface options.

1. **Ethernet.** Data is transferred to the local reporting PC or control system via standard TCP/IP connectivity. This option provides the flexibility associated with TCP/IP networks and allows for piggy-backing on existing infrastructure.
2. **Serial (Wired or Wireless).** Data is transferred to the local reporting PC or control system via wired or wireless serial connectivity. This is an older, but robust and well-proven option. Wireless integration does away with the need for cabling and provides an additional layer of electrical isolation. The wireless option can be used reliably for distances of up to 1 km.

3. **GPRS/3G/LTE**. Where cellular networks are available, this option presents an attractive, inexpensive communications solution. Measured data is automatically uploaded to a hosting server/ computer, where it is processes and distributed via email.

High-Performance In-Motion Weighing

SPECIFICATIONS

Family	T-Series			Traditional PC-Based	
Model	**Massize-T4**	**Massize-T8i**	**Massize-T12i**	**Massize-08**	**Massize-16**
Performance					
Speed of Operation	≤ 20 km/h	≤ 35 km/h	≤ 60 km/h	≤ 35 km/h	≤ 60 km/h
Accuracy	±0.5%	±0.5%	±0.5%	±0.5%	±0.5%
Ambient Temperature	-20° – 55° C			-20° – 50° C	
Features					
Trade Metrology Approval	SA 1350 AA2	Pending	Pending	SA 1350 AA1	SA 1350 AA3
No. of Weighing Sensors	4	8	12	8	16
Stoppage/Rollback Compliant	Yes			No	Yes
Permanent Presence	Yes			Yes	
Process Integration	Yes			No	
Automatic Operation	Yes			Yes	
AVI					
Readers	Single / Dual Reader				
Supported Standards	ATA / AAR / Gen-II				
Communications					
Options	GPRS/3G/LTE, RS232, Ethernet				
Power Requirements					
Power Consumption	< 3W	< 5W	< 8W	500W	
Power Supply	12 – 24 VDC or 110/220VAC			110/220VAC	
Enclosures					
Equipment Enclosure	500 x 400 x 250mm Powder-Coated / Galvanised / Stainless			Air-Conditioned Trackside Building / Shipping Container	
Cover Plates	3mm Galvanised Steel Plate			3mm Galvanised Steel Plate	

MATERIALS HANDLING

Email: materials@hmagrp.com

AUSTRALIA **Tel:** +61 (0)2 4389 6191
Fax: +61 (0)2 4389 6199

NEW ZEALAND +64 (0)7 850 2610

INDONESIA +62 21 2278 3377

SOUTH AFRICA +27 13 650 9800

HMA GROUP

MATERIALS HANDLING | WEAR SOLUTIONS | FLOW & INDUSTRIAL
INSTRUMENTATION | POWER GENERATION | GEOTECHNICAL

MAT-DS-0035 - AUG 2019