



**TENZOVÁHY, s.r.o.**

Weighing Systems for Transport and Industry



**100%**

Mobility and  
precision

**365**

Year-round  
operation

## PW-10 Portable Scales for Weighing Road Trucks

[www.tenzovahy.com](http://www.tenzovahy.com)

## PW-10 Portable Scales for Weighing Road Trucks

The PW-10 Portable Weighing Systems are used both for weighing for law enforcement by state authorities and in the private sphere for occasional checks of vehicle loading in forwarding companies and industrial enterprises.

The PW-10 system has been designed for weighing axles, axle groups and total vehicle weight.

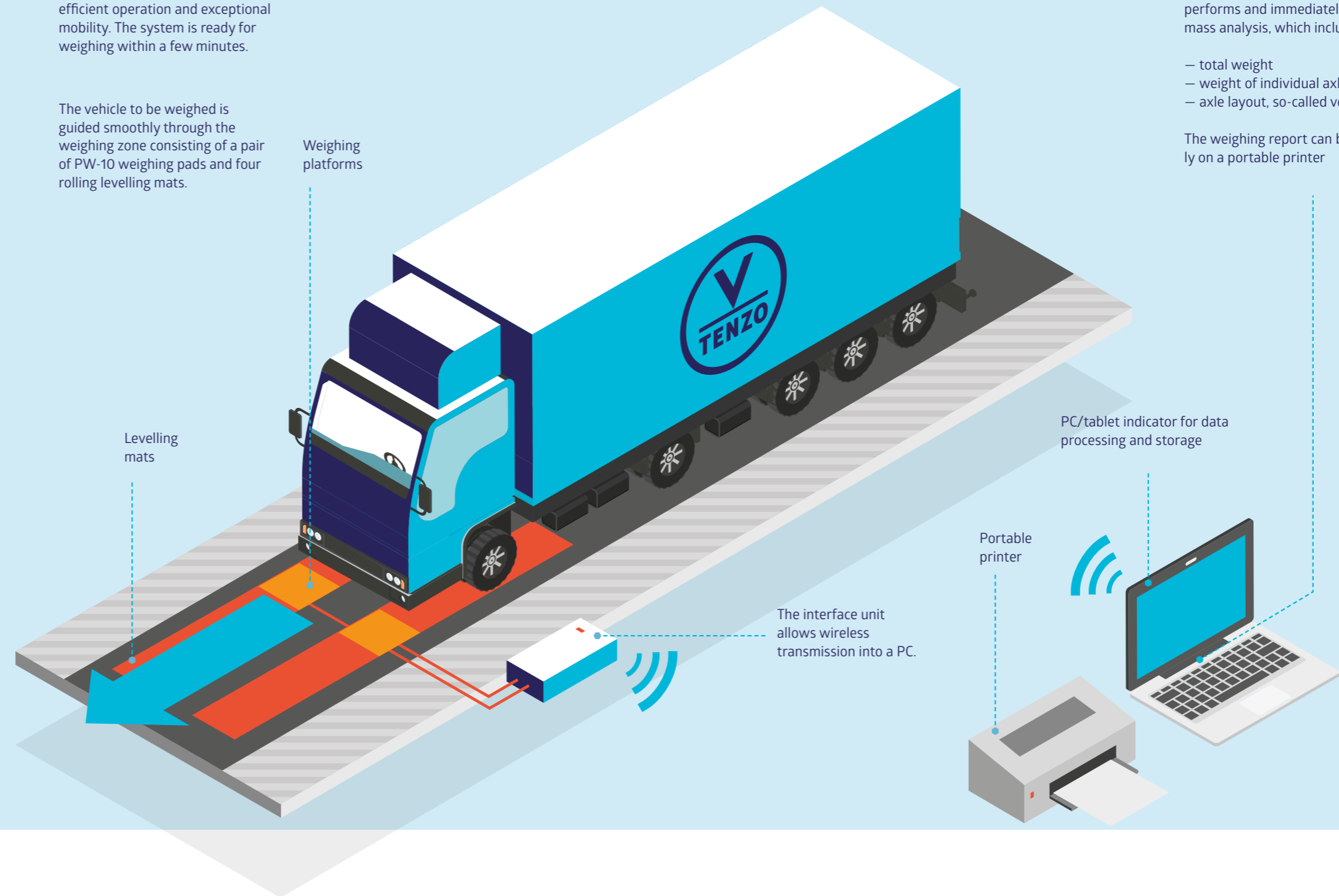
The thin and light PW-10 weighing device combines reliability with high mobility in everyday operation.

The PW-10 Weighing System is certified for commercial weighing and weighing for law enforcement. \*)

Note: \*) The type approval number of the weighing system PW-10 is TCM 128/04 – 4103, Revision 2.

PW-10 provides in weighing vehicles efficient operation and exceptional mobility. The system is ready for weighing within a few minutes.

The vehicle to be weighed is guided smoothly through the weighing zone consisting of a pair of PW-10 weighing pads and four rolling levelling mats.



After weighing the vehicle, the PW-10 system performs and immediately displays a complete mass analysis, which includes:

- total weight
- weight of individual axles and their groups
- axle layout, so-called vehicle silhouette

The weighing report can be printed immediately on a portable printer



The capacity of the PW-10 mobile Weighing System is not limited either by the length of the vehicle combination or its total weight. Only the weight of each axle must be less than 20 tons, which is sufficient by a large margin for weighing road vehicles and combinations of vehicles on the road.

It only takes a few minutes to prepare the station and the weighing can begin.

### Benefit from the key strengths of the portable PW-10 Weighing System



High mobility and operability



User-friendly software with printing and storage of weighing reports



High precision weighing of total vehicle weight and individual axles



Reliability even in harsh climatic conditions, year-round operation



Time-saving weigh-in-motion (WIM) mode for fast picking of vehicles

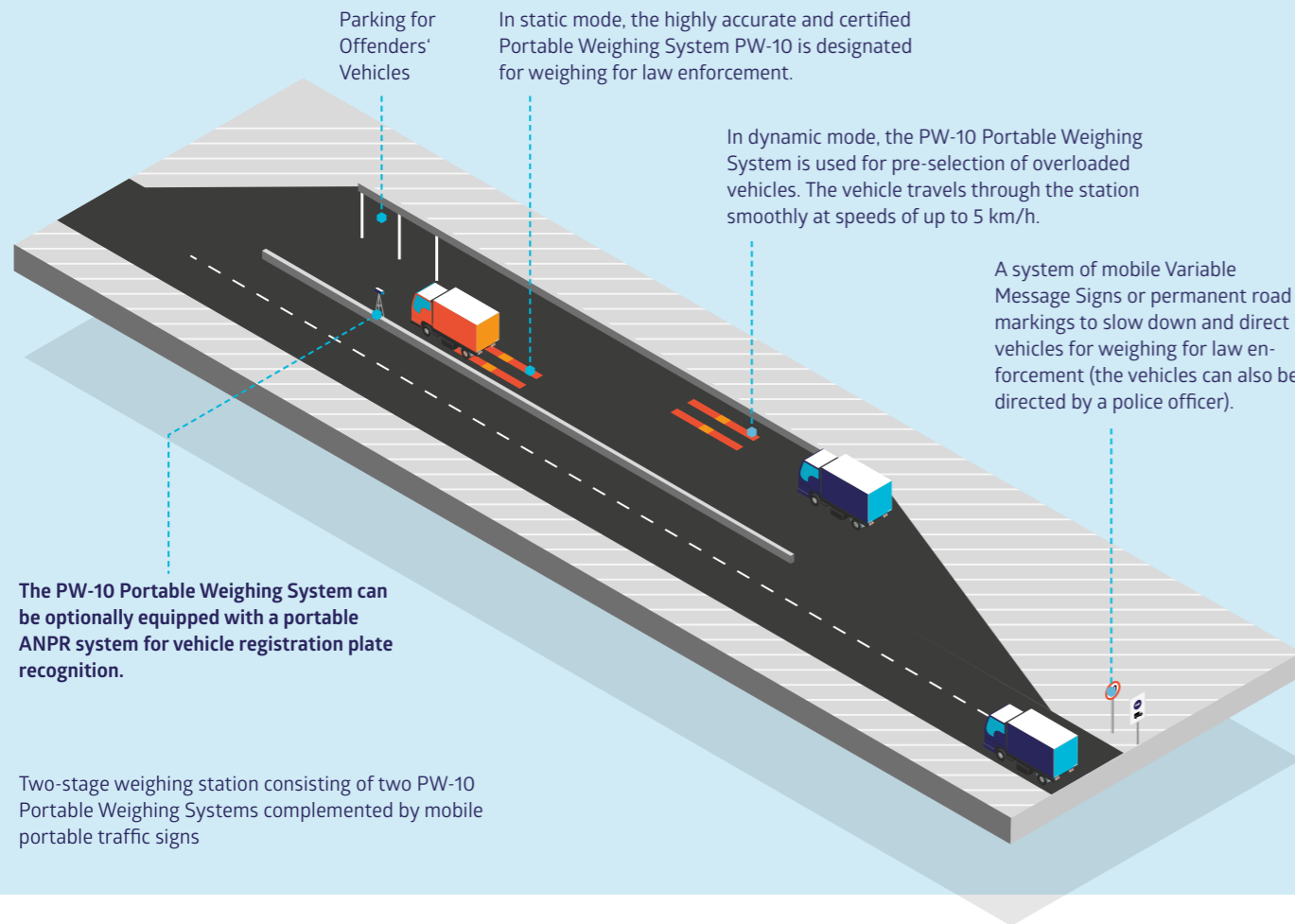


Official verification

# Use of PW 10 Portable Axle Weighing System for Weighing for Law Enforcement

## Mobile one- or two-stage portable weighing station

Weighing operations with the PW-10 Portable Weighing System are possible in either single-stage or two-stage mode. The advantage of both methods is the high flexibility in installing the weighing assembly.



## Single-Stage Weighing Operated in Static Mode

- Vehicles are picked from the traffic stream and stopped by a person authorized to stop the vehicle under the Road Traffic Act.
- The selection is usually based on visual assessment or information from stationary high-speed WIM weighing systems located in the main lane of the road.
- Stopped vehicles are weighed in the static mode, i.e. by the axles in the start-stop system.
- Particularly suitable for random weighing and thus as prevention or as a campaign complement to the network of stationary weighing stations.

## Two-Stage Weighing in Static Mode with Dynamic Pre-Selection

- For up to fourfold efficiency increases of the use of portable weighing systems, these can be used with pre-selection. This is relevant particularly for temporary locations where setting up stationary weighing stations is not possible or economically viable.
- The weighing system in the first weighing stage is operated in the sc. dynamic mode. The vehicle passes over it at speeds of up to 5 km/h.
- The portable weighing system in the second weighing stage is then operated in static mode, i.e., as a fully certified weighing system designed for accurate weighing with the possibility of generating a weighing ticket.

## Technical specifications

Platform dimensions	490 x 760 x 20 mm (l x w x h)
Weighing platform weight	17 kg
Weighing capacity per axle	400 to 20,000 kg
Weighing resolution	20 kg per wheel; 50 kg per axle
Accuracy class	III
Metrological approval	TCM 128/04-4103
Weighing modes	static / dynamic
Weighing in motion	yes – indicative; at 1 to 5 km/h
Water resistance (electric cover)	IP67
Operating / approved temperature range	-20°C up to 60°C / -10°C up to 40°C
Dimensions of the levelling pad	4.000 x 760 x 20 mm (l x w x h *)
Levelling pad weight	26kg *)

Note: \*) 1 set of scales contains 2 pieces of weighing platforms and 4 pieces of levelling mats

## Optional Accessories

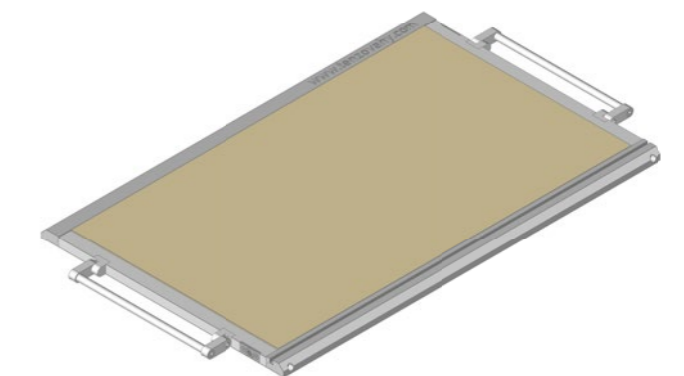
	PC/tablet according to customer requirements outside the standard configuration
	Printer according to customer requirements outside the standard configuration
	Spare/additional levelling pads in lengths of 4 / 2 / 1 m
	Outdoor display according to customer requirements
	Portable ANPR for monitoring vehicles and reading vehicle registration plates
	Software for weighing for law enforcement in traffic
	Software for shipment weighing in industry

## Type Approval Certificate



The PW-10 Weighing System has been certified under number TCM 128/04 – 4103, Revision 2.

## Mechanical construction of the weighing platform of the PW-10 system



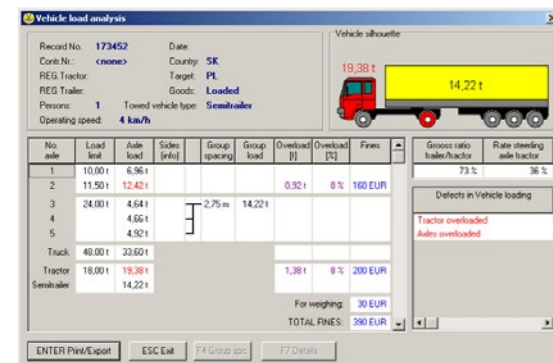
The thin and light weighing platform ensures comfortable driving over with the vehicle, but also easy carrying

## Indicator and Software for the PW 10 Weighing System

The notebook/tablet with weighing software is an intelligent weighing indicator that provides the user with a "Weighing Proof" immediately after the vehicle has driven over the weighbridge, in accordance with applicable national legislation. The document can be immediately printed for further use.



## Software for weighing in law enforcement



Software for law enforcement from which it is possible directly print so-called weighing protocols

The software

- meets the needs of national road operators and state technical supervision bodies
- provides automatic analysis of the vehicle load (axles, axle groups and total weight, including a view of the vehicle's silhouette, i.e., axle layout) according to national load limits
- compares the actual load on the vehicle with national limits and automatically sets penalties for overloading
- includes extensive data management, export and reporting.



The weighing report from the PW-10 system is used as a basis for imposing a penalty on the driver of an overloaded vehicle.

## Industrial weighing software

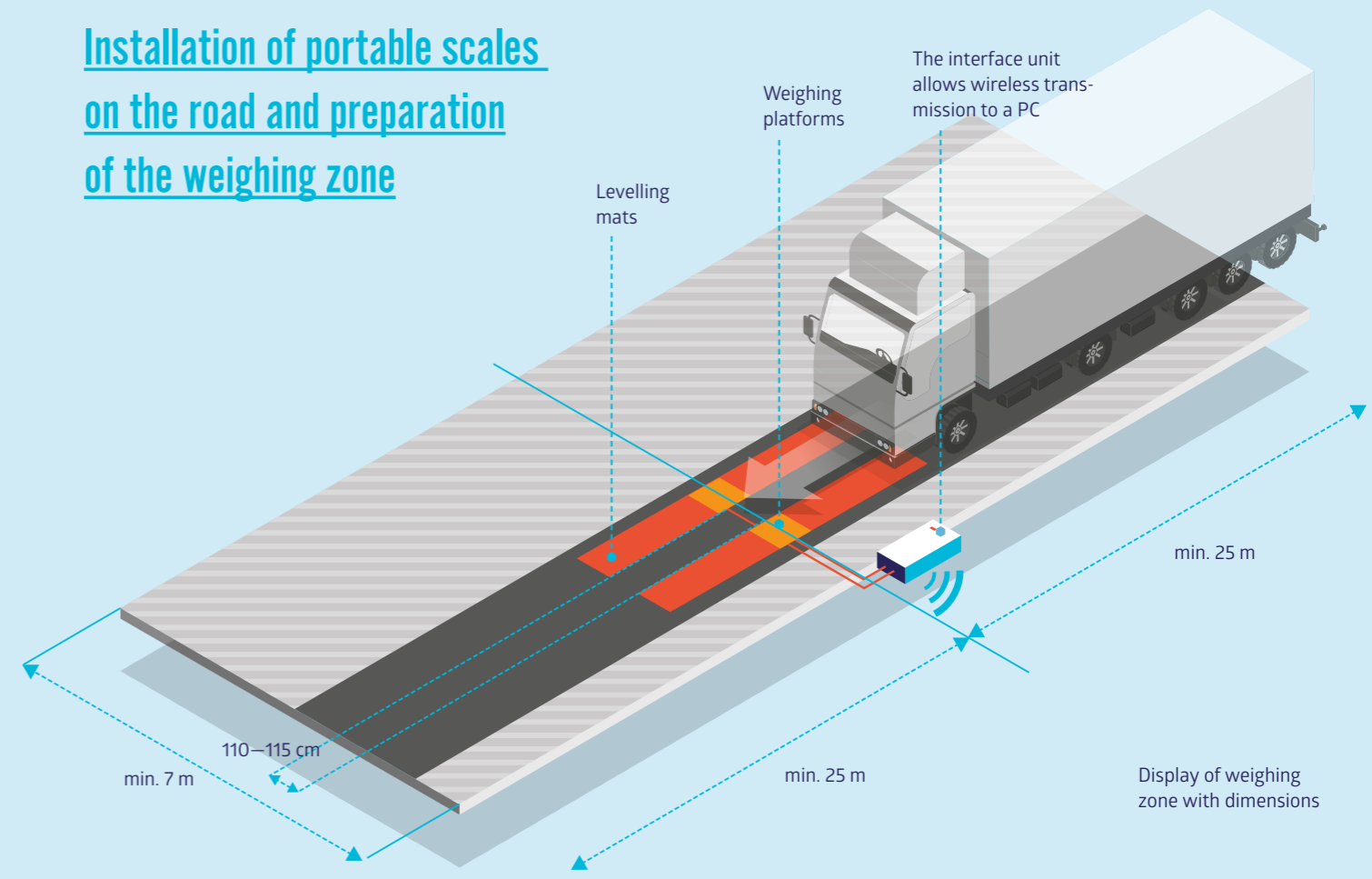


Industrial weighing software

The software

- weighs vehicles to determine the weight of imported and removed cargo
- automatically matches the Gross and Tare of vehicles according to their registration plate and calculates the Net load
- keeps accurate records of traffic over the scale - books of materials, vehicles, carriers, customers
- prints weighing slips, as well as tax documents for cash or invoices
- calculates materials shipped to individual events and monitors the limits of materials that are allocated to events
- generates balances of weighed materials, overview of customers, carriers, events and issued tax documents from weighing records
- exports weighing data to files or can export it to the company's information system

## Installation of portable scales on the road and preparation of the weighing zone



Portable scales can be recommended for operations where flatness and cleanliness of the weighing zone can be ensured. The flatness and cleanliness of the road on which mobile scales are used has a major impact on the accuracy and reliability of weighing.

The place for weighing and handling vehicles must be at least 50 m long and at least 7 m wide so that there is enough space to handle the vehicles being weighed and then the vehicles being dealt with.

The weighing zone must have a reinforced concrete or asphalt surface without potholes or unevenness. The panel road is not suitable for weighing due to bounces between the panels.

The weighing zone in the center of which the weighing platforms are located must meet the following parameters:

- the longitudinal slope must be less than 2 %
- the transverse slope must be less than 3 %
- width min. 3.5 m
- a smooth surface free from coarse protruding dirt which could not be removed before weighing \*)

In addition, if accurate determination of the load on the individual wheels on the vehicle axle is required, we recommend selecting a location with a transverse slope of less than 0.5 % and a longitudinal slope of up to 1 %.

The weighing zone consists of a pair of platforms and a set of four leveling mats that balance the height of the platforms and thus prevent the transfer of load between the axles of the vehicle.

The gap between the platforms is usually 110–115 cm for trucks. In the case of a different vehicle track, the spacing of the platforms and mats must be adjusted so that the wheels pass through the center of the platforms if possible.

Note: \*) Before placing the scales on the road, the road must first be swept and sand and stones removed, as the stone under the weighing platform pressed around the vehicle can cause point overloading and consequent damage to the weighing equipment. The maximum contact pressure must be less than 1.2 MPa (12 kg / cm<sup>2</sup>).

## Example of unsuitable surface for placing scales



The longitudinal unevenness is greater than the permitted 2% and thus more than 2 cm / 1 m



The transverse unevenness is greater than the permitted 2% and thus more than 2 cm / 1 m

## Safety instructions

Weighing pads are sensitive measuring devices that can be damaged by improper use.

The user must not test and operate the PW-10 in a manner that is inconsistent with the instructions in the manufacturer's user manual and subject to this quote, or would result in mechanical or other damage to the balance, taking into account the following recommendations:

- **Never let them fall to the ground** - place them carefully. Shock can cause damage!
- **Do not use weighing pads on uneven or dirty surfaces.** The weighing point must be cleaned before inserting the balance pads. A small stone under the loaded weight can cause their local overload and serious damage.
- **Do not overload the washers above their rated capacity.**
- **Carefully move the vehicle over the weighing platforms.** Do not allow the vehicle to run over their edges or even over cables.
- **The weighing pads should not be used in damp conditions for a long time.** After such use, turn them from the bottom up, allow the remaining water to fall out and allow the balance pads to dry in a warm place overnight.

## Calibration and official verification

Regular verification of the scales is performed on calibration devices at the headquarters of the manufacturer or an authorized partner under the supervision of experts from the metrological institute of the specific country.

The scales are serviced immediately and, in the event of a deeper repair, in an exchangeable manner, where a replacement set of scales is lent to the user on request during the repair and replaced after the repair.

During calibration and verification after the first and subsequent years of operation, the manufacturer may provide the following service work:

- **System inspection and diagnostics**
- **Disassembly and cleaning of scales**
- **Check the repair of the internal parts of the weighing platforms**
- **Reassembly of weighing platforms**
- **Revision and repair of cabling and interconnects**
- **Interface unit revision and repair**
- **Inspection and maintenance of the indicator - evaluation unit and user program**
- **Calibration test and adjustment on a standard calibration device**

Regular service and maintenance of the equipment during the warranty period is paid by the customer. In the event that an authorized partner purchases its own calibration equipment, the manufacturer recommends performing the same service work to ensure proper and reliable operation of the equipment.

## Warranty and service conditions

- The warranty for defects is 24 months from the date of shipment from the manufacturer to the customer.
- The warranty is only provided if the system is used in accordance with the PW-10 system guide book and if regular service inspections and an annual recalibration cycle are followed.
- The warranty does not cover any mechanical damage caused by operator misconduct or defects caused by operating the balance contrary to the producer's instructions defined in the PW-10 system manual or defects obviously caused by external influences (eg lightning strike, overvoltage, etc.) or other defects caused by customer.
- The manufacturer provides initial calibration and official verification before sending the weighing system to the customer.
- In the event that any defects and damage occur during the warranty period, the manufacturer will, at its own expense, repair the defect or replace the defective scales with new ones if it recognizes the defect as warranty.
- The customer informs the manufacturer of any defects found during the warranty period through the manufacturer's service department.
- Defects and their manifestations will be described in each complaint report. The customer can specify his requirements regarding the required corrective action.
- Before repairing defective scales, the manufacturer shall propose a method and deadline for eliminating the defect within 5 working days of reporting the defect. The manufacturer will start work to eliminate the defect within 3 working days after receiving a written notification from the customer with a detailed description of the complaint and a corresponding non-compliance with the quality of the product.
- As part of the repair of defective equipment, the manufacturer decides on the justification of the complaint and informs the customer about the recognition / non-acceptance of the complaint under the warranty.
- Elimination of the claimed defect, which is recognized by the manufacturer as unjustifiably claimed, will be resolved by a regular customer order placed with the manufacturer.
- If the repair (service) cannot be provided remotely (software reconfiguration), the repair is performed at the manufacturer's premises. The customer transports defective scales to the manufacturer's headquarters and back at his own expense.

## Suitable installation of scales



Use of Portable Scales PW-10 by members of the Police of the Czech Republic



Storage of portable scales in a police car



Map of the use of weighing systems from the company TENZOVÁHY

## Optional ANPR for PW-10 Portable Scales



The PW-10 Portable Weighing System can be optionally equipped with a portable ANPR system for vehicle registration plate recognition.

This feature automatically adds license plate numbers to the weighing slip. In addition, before communicating with the driver of the vehicle, this data can be sent to a data center, which is designed to monitor traffic violations.

In this way, the weighing process can be protected from illegal communication between the weighing worker and the driver.

## Introduction of the company TENZOVÁHY, s.r.o.

Weighing systems from TENZOVÁHY have been operating reliably for more than 25 years both in the Czech Republic and in other countries in Europe, Asia and Africa. In the Czech Republic, we supply turnkey weighing technologies. Abroad, we support technically local companies that implement the construction and installation of weighing technologies, including the provision of regular maintenance. The common goal of such cooperation is to ensure the permanent operability of the systems we supply and thus the satisfaction of the users of these devices.

TENZOVÁHY products have been meeting for a long time national and international standards valid in the EU, including strict international recommendation OIML R. 134 et seq standards.

Therefore, our clients have the certainty that the scales we supply and installed will help them not only with the correct registration of loaded raw materials, but that they will also reliably protect them from possible sanctions for overloaded vehicles.

Our stable business partners in the country include both private companies and state supervision institutions dealing with weighing for law enforcement in transport - Police of the Czech Republic, Customs Administration of the Ministry of Finance, Road Maintenance Administration, a number of regional authorities of the Czech Republic and other state institutions such as the Administration of state material reserves. We implement similar cooperation through the network business partners abroad.

## Services for System Partners

- **Selection of the fitting product** including extensive documentation and sample project documentation for planning, installation and operation of weighing systems
- **Production and supply of standard weighing systems**
- **Product customization** as may be needed according to client or project requirements
- **Software** for installation and diagnostics
- **Online or on-site training, including support** with first-time installation of weighing systems
- **Warranty and post-warranty service** including technical support with official verification
- **Helpdesk**
- **Remote diagnostics** of supplied equipment
- **On-call service, including on a 24/7 basis**

## In which countries do our systems work?



## Contact address

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**Don't wait,**  
**start weighing!**