

# TAMTRON

WEIGH TO KNOW




**WEIGHING, WHEEL IMPACT  
DETECTION AND INFORMATION  
MANAGEMENT SOLUTIONS  
FOR RAILWAYS**



# CUSTOMER-SPECIFIC SOLUTIONS

**WEIGHING AND MEASURING LOADS ON RAILWAYS HAVE DIFFERENT FUNCTIONS, FROM CONTROL WEIGHING FOR SAFETY REASONS TO COMMERCIAL WEIGHING TO ENSURE ACCURATE AND FAIR TRADE. TAMTRON SERVES ITS CUSTOMERS WITH A WIDE VARIETY OF WEIGHING, FORCE MEASURING AND INFORMATION MANAGEMENT SOLUTIONS FOR RAILWAY NEEDS.**



Our expertise covers everything from product development and manufacture of measuring instruments and software to installations, service and maintenance.

### **OPTIMISED FOR YOUR OPERATIONS**

Customers' needs are always customer-specific, and so are Tamtron's measuring solutions for them. The final configuration of a solution is affected by various factors, such as the individual characteristics of the customer's operations, train lengths and distances between bogies. The customer is always provided with a train scale system that is optimal in terms of technology, length, functions and price for an individual operational environment.

### **MEASURING ENSURES SAFETY**

Information obtained through weighing and wheel impact measuring can be used to ensure railway traffic safety. By checking the loads and weight distribution of wagons, wheels and bogies as well as the balance between bogies, train wagon safety can be ensured before dispatching wagons on the railway. The weighing also ensures that loads carried on the railways are within the allowed weight limits and the wagons have been loaded in a safe manner. The train identification function can be used to compare measuring results with the maximum load allowed for a wagon. The wagon identification and description function can be used to avoid erroneous information caused by issues such as incorrect train lists or wagons removed along the way.

The wheel impact measuring system improves safety, as equipment damage caused by dents and missing wheel pieces can be avoided. Cost management is improved as well, as the railway network stays in good condition by avoiding dented wheels.

### **EXPERIENCE FROM A THOUSAND DELIVERED SYSTEMS**

Tamtron is an experienced operator in the industry with experience from approximately a thousand delivered train weighing systems. Our expertise covers everything from product development and manufacture of measuring instruments and software to installations, service and maintenance, all of which are under our own control to ensure quality. Our experienced, international team of experts knows the international requirements for railways and has a wide range of experience with various railway conditions and environments.



## **TAMTRON SILVERPOINT+ WEIGHING SYSTEM**

The need to monitor and control wagon weights and loading increases together with growing traffic flows. Overweight and incorrectly loaded wagons are not only a safety risk, but they also cause premature wearing of the track, thus shortening the life and increasing the maintenance costs of railroads. SilverPoint+ is the solution for automatic railway traffic monitoring of wagon weights and loads.

SilverPoint+ weighs trains and wagons while they are in motion. The system weighs every wheel, axle, bogie and wagon and detects imbalances between bogies, making it also suitable for controlling loading errors.

Additionally, the system measures the total weight of the train as well as the speed at which it passes the weighing area. The scale is accurate and approved for commercial use in the EU. The SilverPoint+ weighing system can also be used for companies' internal production purposes, such as industrial process control.

# AUTOMATIC DYNAMIC CONTROL WEIGHING

- ▶ **Weighing system for measuring loads on moving trains**
- ▶ **Suitable for controlling loading errors on railways**
- ▶ **Excellent accuracy, type-approved in the EU**
- ▶ **Extremely easy to install, no traffic disruptions**
- ▶ **Also suitable for production purposes such as process control**
- ▶ **Competitive price**

## EASY TO INSTALL

SilverPoint+ can be installed quickly and easily with no foundation works or rail disconnection required. The load cells are installed on the existing track by one person, and no track work is required. There is no need to halt traffic at all during the installation. The scale instruments and measuring electronics containing the measuring software are placed indoors in a control centre or outdoors in a cabinet near the track, from which the information can be transferred wirelessly for business or monitoring use. The separate measurement instrument protects the software from viruses and other external risks.

## INDEPENDENT CONTROL STATION

Locomotive or wagon data does not need to be entered beforehand, as the system automatically recognises the passing trains. The system is easy to configure to work as a ready-to-use automatic control station via its user interface running on standard PC. SilverPoint+ functions as a fully automatic, unmanned traffic controller, issuing alerts for overweight or incorrectly loaded carriages in accordance with pre-set alarm limits.

## TECHNICAL DATA

- ▶ Maximum axle load 40t
- ▶ OIML R 106-1 classes Wagon 1 / 2  
Train 0,5 / 1 / 2
- ▶ Operating temperature -30°C ... +40°C
- ▶ Weighing speed 1–30 km/h
- ▶ Passing speed Unlimited

## INFORMATION AND ALERTS

SilverPoint+ reports the axle, bogie, and total weights of each locomotive and wagon, along with the total weights and speeds of the passing trains. In addition, the system recognizes unbalance between bogies and measures lateral loading of wagons.

Error alarms are launched in accordance with the customer's needs. The user may freely set alarm limits for axle, bogie, and total weights as well as providing either tonnage- or percentage- based threshold values for longitudinal and transverse imbalance. Alerts are automatically displayed on the screen and can be printed out, sent in e-mails or as SMS messages. Information about customer, product, maximum load and tare weight can be retrieved based on wagon numbers. Users can also print out customized reports.

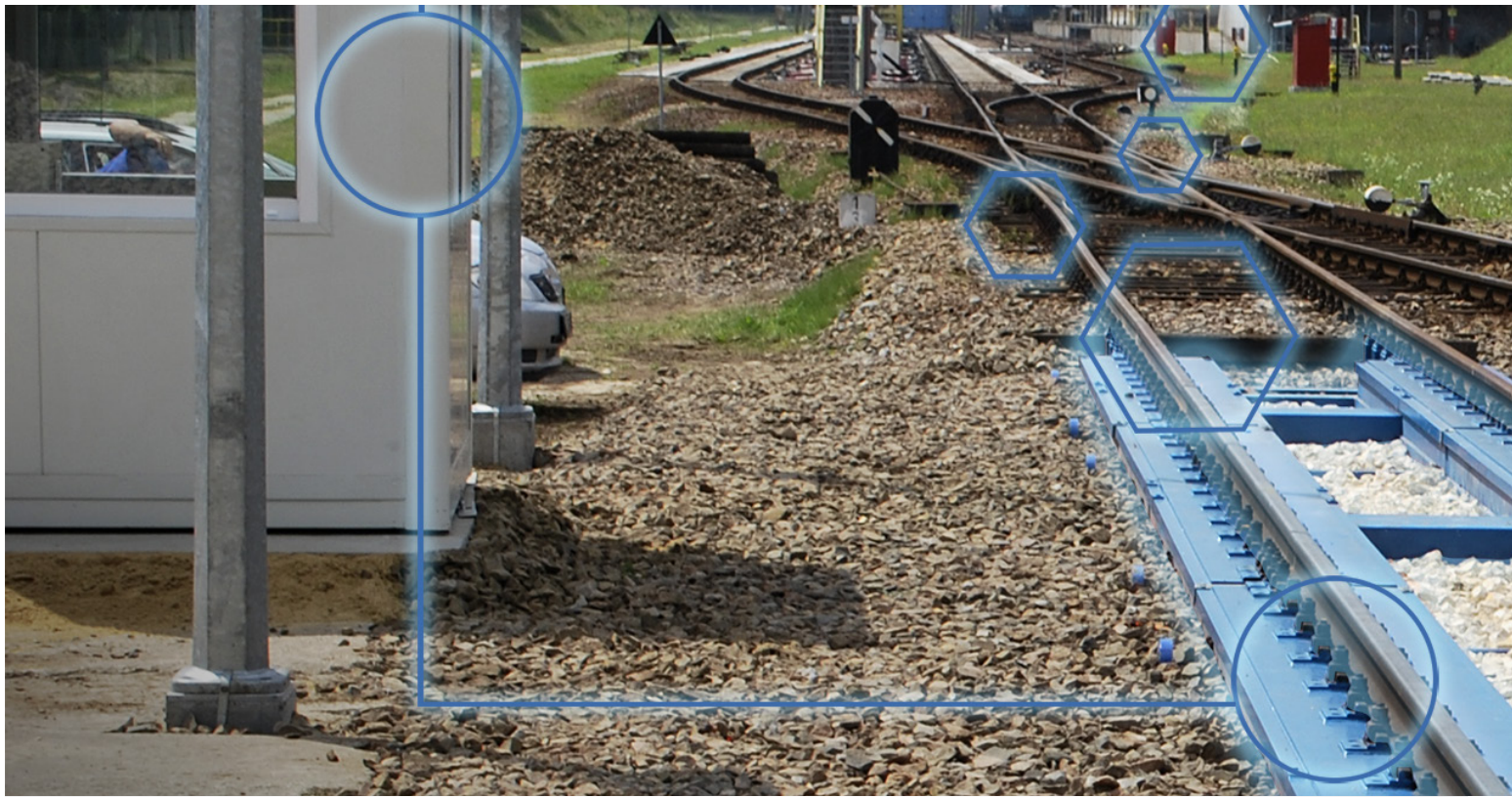
## IMPROVED RAILWAY SAFETY

Reliability and safety can be increased with add-on functions to the SilverPoint+ control weighing system, such as the wagon identification and description functions. When wagon numbers and weighing results can be combined reliably, erroneous information caused by issues such as incorrect train lists or wagons removed along the way can be avoided. The train identification function can be used to compare measuring results with the maximum load allowed for a wagon, for example.

## WEIGHING INFORMATION MANAGEMENT

Information regarding measuring results is collected in an easy-to-utilise format on a train report. The report includes the train number, the number of wagons and their weights, axle weights and any other measured information.





# TAMTRON TRAPPER RAILWAY WEIGHING SYSTEM

The Tamtron Trapper railway weighing system is the weighing system approved for commercial use. Large steel mills, national transport operators and oil refineries across the globe rely on Trapper's excellent accuracy. When the scale's results are used as a basis for payments when buying and selling valuable materials or products, only a solution in the highest accuracy class can be relied on. The system is always tailored and designed on case-specific basis.

- ▶ **Type-approved in the highest accuracy class in accordance with the MID directive**
- ▶ **Both dynamic and stationary weighing**
- ▶ **Suitable for in-motion weighing of liquid cargo wagons**
- ▶ **Quick installation, no need for track work**
- ▶ **More than 500 deliveries worldwide in 30 years**

The system consists of one or more weighing bridges and a central processing unit which controls the functions. Trapper is suitable for both stationary and in-motion weighing, train-specific and wagon-specific weighing. The weighing system is also suitable for in-motion weighing of liquid cargo wagons.

The Trapper railway weighing system includes features that improve safety, such as an overload alarm and loading error alarms that can be triggered by loading errors related to individual bogies or load positioning. When the set alarm limits are exceeded, an error alarm is launched in accordance with the customer's needs, e.g. with a text message.

## **QUICK INSTALLATION, UNINTERRUPTED PRODUCTION**

Thanks to its method of installation, Trapper is an excellent option when the construction of a scales bed would be difficult (high groundwater levels) or expensive (challenging soil requiring pile-

driving and drainage). Large-scale track work can also be avoided, which makes the installation quick and facilitates almost uninterrupted production. The Trapper weighing system is installed directly onto a gravel bed, making the scale platform as elastic as the rest of the track. The scale bridges behave in the same way as the track around them and no discontinuity areas which would affect weighing are created on the line, resulting in highly accurate weighing. This solution also allows for the system to be moved more easily from one place to another.

The load cells are protected inside the scale structure. Thanks to its structure, the Trapper weighing system works reliably in challenging weather conditions, from -40°C to +70°C.

## **WEIGHING INFORMATION MANAGEMENT**

The customer can decide which file format is used for the weighing information in the Tamtron Trapper railway weighing system. The information can be transferred via an Internet connection as an .xml or a text file, for example. If necessary, the information transfer can also be integrated to the customer's ERP or other system.

Reliability and safety can be increased with add-on functions to the Trapper railway weighing system, such as the wagon identification and description functions. When wagon numbers and weighing results are combined reliably, erroneous information caused by issues such as incorrect train lists or wagons removed along the way can be avoided.



## SOLUTION TAILORED TO THE CUSTOMER'S NEEDS

The Tamtron Trapper railway weighing system is suitable for all kinds of train weighing needs, as it can be tailored to meet the customer's exact needs. Trapper deliveries are always designed customer-specifically. The final configuration of the scale system is affected by various factors such as wagon lengths, distances between bogies and the materials usually transported on the trains. The customer is always provided with a railway weighing system that is optimal in terms of technology, length, functions and price for an individual operational environment.



## TECHNICAL DATA

### TRAPPER DRS

- ▶ Maximum bogie load: 75t
- ▶ OIML R 106-1 classes: Wagon 0,2 / 0,5 / 1 / 2  
Train 0,2 / 0,5 / 1 / 2
- ▶ Operating temperature: -40°C ... +70°C
- ▶ Weighing speed: 0,5–25 km/h
- ▶ Passing speed: 35 km/h

### TRAPPER SRS

- ▶ Maximum bogie load: 75t
- ▶ OIML III approved Wagon 0,2 / 0,5 / 1 / 2  
Train 0,2 / 0,5 / 1 / 2
- ▶ Operating temperature: -40°C ... +70°C
- ▶ Weighing speed: 0 km/h
- ▶ Passing speed: 35 km/h

### SCALEX 2200 WEIGHING UNIT

- ▶ Operation control

### SCALEX RAILPRO II SOFTWARE

- ▶ Reporting
- ▶ Integration into ERP or other information management systems

**THE TAMTRON SCALEX WILD** wheel impact load detector is used for detecting issues such as wheel flats caused by blocked brakes, as well as wheel damage caused by material defects or steel fatigue that can compromise railway safety. Scalex Wild also acts as an extremely accurate train scale that weighs each axle, bogie and wagon and detects loading errors as well. This railway weighing system has been approved for commercial use according to the European directive.



- ▶ Legal for trade
- ▶ Accurate results
- ▶ Measuring possible at line speeds, with a train speed of 10–250 km/h
- ▶ Dynamic weighing of wagons and trains for commercial use with train speeds of 10–120 km/h

## HIGHLY ACCURATE MEASURING RESULTS

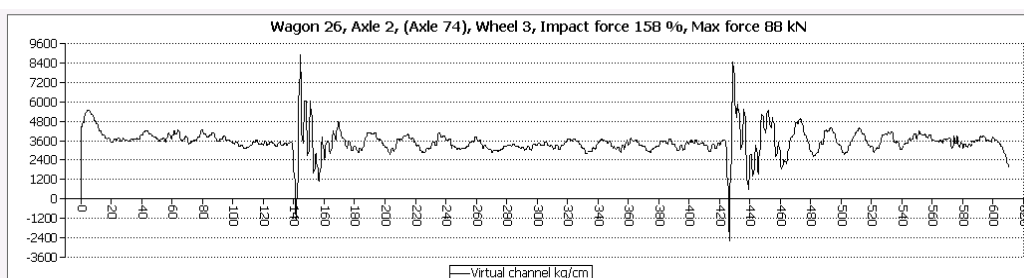
Scalex Wild has a high measuring frequency. The system measures each wagon wheel for two complete revolutions, ensuring that the measuring result is reliable. This is necessary, as lateral movement of railway equipment affecting the measuring results cannot be avoided. Any alarms are launched based on the highest measured value.

## INFORMATION MANAGEMENT

Scalex Wild weighing and wheel condition monitoring system for railways can be integrated to the customer's own information system to ensure fluent information transfer, or it can be used in real time via the Internet through Tamtron's service.

### Components

- ▶ Pre-assembled and tested rail element including rails, sleepers, sensors and inductive wheel sensors
- ▶ Measuring unit, industrial PC and analysis software
- ▶ Cloud-based user interface and reporting



Wagon wheel condition monitoring system provides force diagram of each wheel along two wheel circumference enabling visual illustration of the wheel condition.



# TAMTRON SCALEX WILD

## DYNAMIC WEIGHING SYSTEM FOR RAILWAYS

Scalex Wild dynamic railway weighing system enables commercial weighing up to 120 km/h.

### TECHNICAL DATA

Max axle load:	40 t
OIML R 106-1 classes:	Train 0,2 / 0,5 / 1 / 2 Wagon 0,5 / 1 / 2
Temperature range:	-30...+70 °C
Weighing speed:	10–120 km/h
Passing speed:	Unlimited

## WAGON WHEEL CONDITION MONITORING SYSTEM

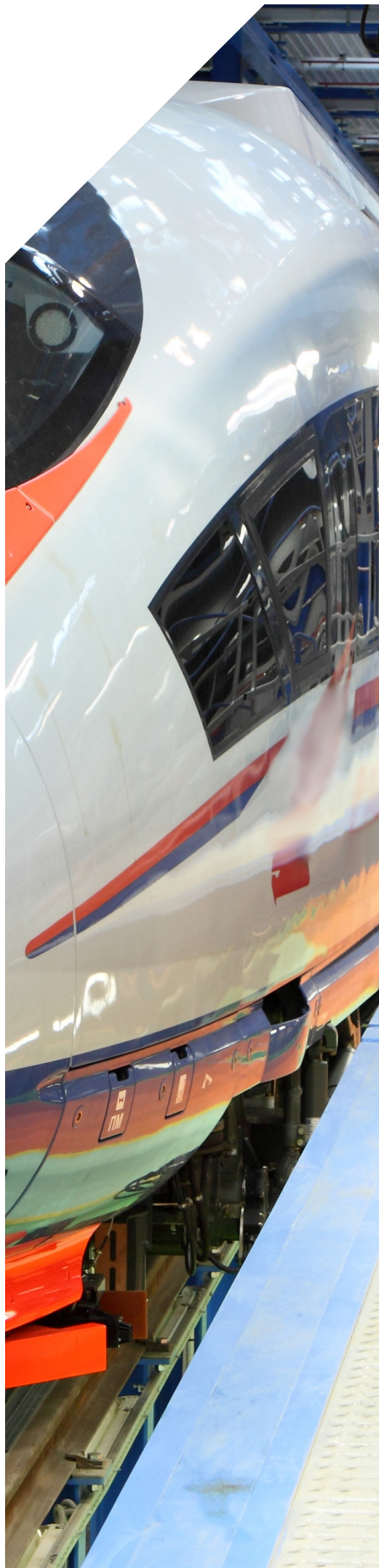
Scalex Wild detects wheel defects that can damage railway equipment or rails by monitoring the forces between rails and wheels. The measuring system improves safety, as equipment damage caused by dents and missing pieces can be avoided by stopping defective wagons before damage occurs. The railway network will stay in good condition as defective wheels can be prevented from damaging it, which also improves cost management.

Wheel defects detected by Scalex Wild trigger an automatic alarm when pre-set alarm limits are exceeded. The measuring system indicates which wagon houses the wheel(s) that triggered the alarm. Error alarms are launched in accordance with the customer's needs. After the alarm, the traffic controller can take necessary measures to stop the train or reduce its speed in order to minimize the risks and damage. Different warning levels enable the traffic controller to react to each alarm appropriately.

### TECHNICAL DATA

Max axle load:	40 t
Temperature range:	-30...+70 °C
Measuring speed:	10–250 km/h
Passing speed:	Unlimited





# TAMTRON SCALEX RDW CONTROL SCALE

The Tamtron Scalex RDW is an accurate control scale for stationary weighing of wheel, axle and bogie loads of locomotives and rail cars. Scalex RDW is stationed indoors in facilities such as workshop halls, train depots and train wagon manufacturing operations, often placed in a repair pit on a low concrete foundation. The weighbridge consists of weighbridge modules that are integrated into rails, which are arranged as a pair under each rail.

- ▶ Excellent accuracy
- ▶ For stationary weighing carried out indoors
- ▶ Also available in versions with several track widths side by side

## WHEEL, AXLE AND BOGIE WEIGHING

The Tamtron Scalex RDW weighing system can be used to ensure train wagon safety before dispatching wagons on the railway after manufacturing or repairs. The RDW scale delivers the weights of each wheel, axle and the entire bogie as well as the load deviations in kilograms and percents. The scale also provides information regarding how well bogies are balanced in relation to one another. The wagon is placed on the scale so that each wheel of one bogie stands on a weighbridge module. The procedure is then repeated for the second bogie. The scale can be used for all 2- and 4-axle wagons. The user operates the system with a standard PC.

## SOLUTION TAILORED TO THE CUSTOMER'S NEEDS

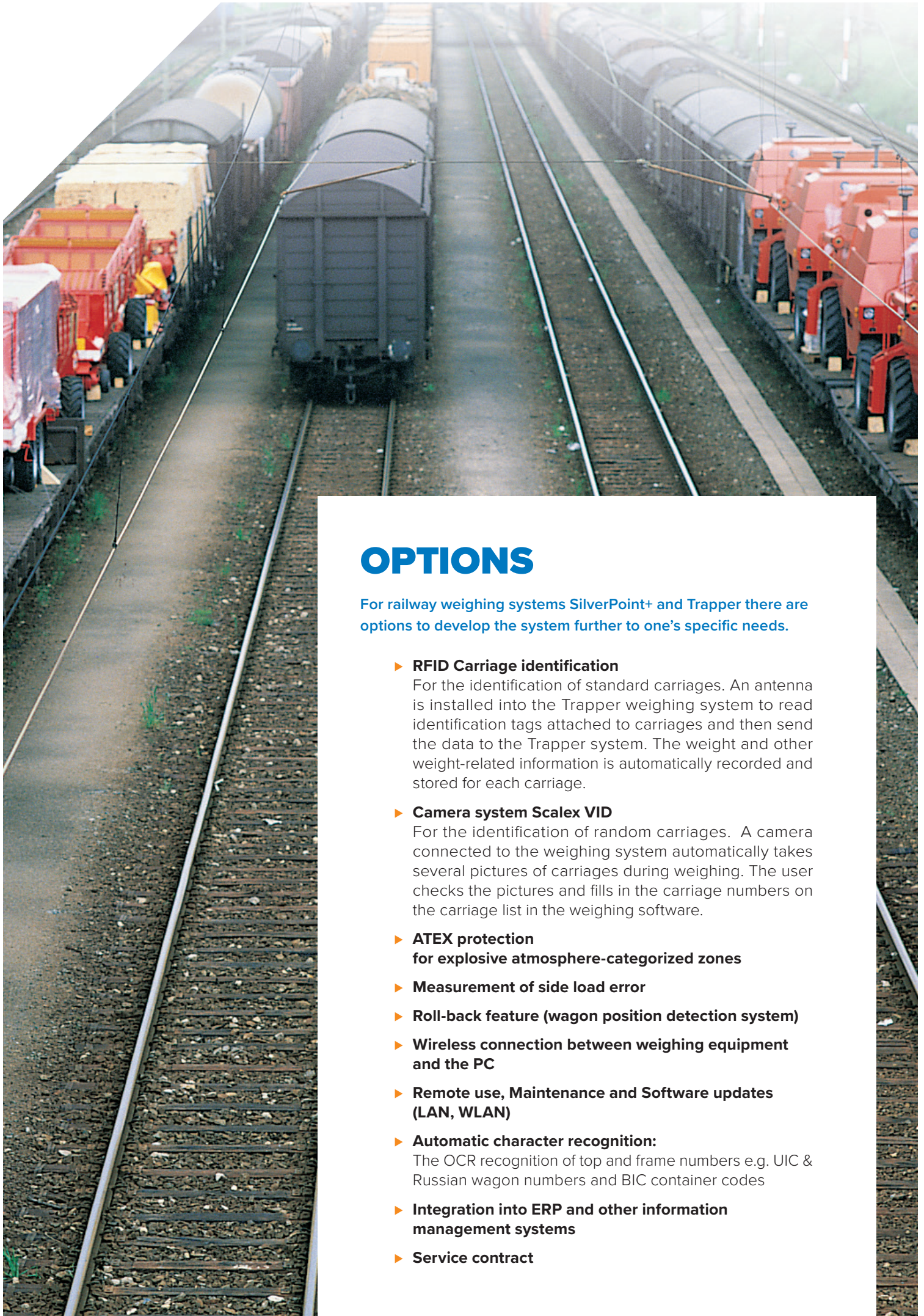
The Tamtron Scalex RDW weighing system is tailored for each customer with the customer's operational environment and needs in mind. Additional weighbridge modules can be added to the system for weighing wagons of varying lengths and their loads, in case locomotives or rail cars with more than four axles should be weighed. The solution can also be made into versions with several track widths side by side, making it possible to use the same scale for weighing the loads of wagons manufactured for different geographical areas.

### Specifications

- ▶ Max wheel load: 15t
- ▶ Division: 5kg
- ▶ Accuracy: OIML III
- ▶ Operating temperature: -40°C ... +80 °C
- ▶ Length of module: 0,9 ... 1,5 m
- ▶ Number of modules tailored to customer needs

### Options

- ▶ External displays
- ▶ Integration into ERP and other information management systems
- ▶ Service contract



## OPTIONS

For railway weighing systems SilverPoint+ and Trapper there are options to develop the system further to one's specific needs.

- ▶ **RFID Carriage identification**  
For the identification of standard carriages. An antenna is installed into the Trapper weighing system to read identification tags attached to carriages and then send the data to the Trapper system. The weight and other weight-related information is automatically recorded and stored for each carriage.
- ▶ **Camera system Scalex VID**  
For the identification of random carriages. A camera connected to the weighing system automatically takes several pictures of carriages during weighing. The user checks the pictures and fills in the carriage numbers on the carriage list in the weighing software.
- ▶ **ATEX protection for explosive atmosphere-categorized zones**
- ▶ **Measurement of side load error**
- ▶ **Roll-back feature (wagon position detection system)**
- ▶ **Wireless connection between weighing equipment and the PC**
- ▶ **Remote use, Maintenance and Software updates (LAN, WLAN)**
- ▶ **Automatic character recognition:**  
The OCR recognition of top and frame numbers e.g. UIC & Russian wagon numbers and BIC container codes
- ▶ **Integration into ERP and other information management systems**
- ▶ **Service contract**

# INTERNATIONAL WEIGHING INDUSTRY PROFESSIONAL

Tamtron is an advanced product manufacturer and service provider in the weighing industry that is committed to high-quality and responsible service. The company's success is based on the ability to produce some of the most innovative and competitive weighing solutions in the industry. The weighing solutions provided by Tamtron make customers' everyday operations easier and more efficient not only in transport and logistics but in industries such as construction and mining industry, manufacturing, seaports, forestry and timber as well as recycling and waste management. ISO 9001:2015 Quality Management System certified competence guarantees the premium quality of deliveries.

Tamtron operates internationally and employs 140 professionals. The company headquarters is located in Finland and it has subsidiaries in Sweden, Poland, Germany, the Czech Republic and Slovakia. In addition to strong domestic trade, Tamtron exports globally to more than 60 countries. The company has a turnover of EUR 22 million. Tamtron is a reliable partner in weighing solutions with expertise and know-how of over 40 years, since 1972.

## TAMTRON

P.O. Box 15 (Vestonkatu 11)  
FI-33561 Tampere  
Finland

Tel. +358 3 3143 5000  
weighing@tamtron.fi

[WWW.TAMTRONGROUP.COM](http://WWW.TAMTRONGROUP.COM)