

# WEIGH-TRONIX

The Weighline Rail Scale system installs in just hours, offering accurate, dependable rail weighing at a fraction of the installation cost of other rail scale systems.



## Weighline Rail Scale for the Recycling Industry

# Revolutionary new track scale provides low cost method of avoiding overloads

**The problem** – There are weight limits on every rail car you load. The density per cubic yard of metals in recycling operations can vary dramatically making it hard to guess at whether you have a fully loaded car. Underloading means lost dollars. Overloads can result in rejection or fines by your servicing railroad.

## **The Solution – Weighline instrumented rail, track scales.**

Weighline is a new type of railroad track scale. Unlike conventional track scales, the Weighline installs in a few hours with a much lower installed cost than conventional track scales.



*Weighline section*

Weighline consists of a length of rail, specially prepared and instrumented with a series of strain gauges. Each section of rail has a built-in weighbridge. Another way of describing Weighline is as a wheel weighing transducer integrated into the rail. Most static applica-

tions use multiple Weighline sections so that there is a short weighbridge under each wheel of the vehicle being weighed.

Weighline's configuration eliminates the need for concrete foundations. Weighline sections install in line with existing rails. They are usually mounted on ballast using regular ties and tie plates.

Weighline installs in almost any location that has straight and level track for one car length. Weighline is customarily built on 115 lb/yd AREA rail. It may be connected to other common sizes of existing rail by using standard four-hole compromise rail joint bars.

Because a Weighline scale is effectively several short weigh bridges, it is necessary to spot the car within a few inches for static applications. Therefore, all cars to be full draft weighed should have the same or very similar truck centers. Odd sized cars may be weighed two draft by using the two draft mode of the weight indicator.

## **Weighline instrumentation**

Weighline is available with a Model WI-130 Scale Controller Display Unit. This programmable instrument is configured to facilitate either full draft or two draft weighing. The instrument will automatically store and display the car truck weights as required. It will provide for dual scale inputs in full draft weighing. The weight indicator is housed in a stainless steel wash down

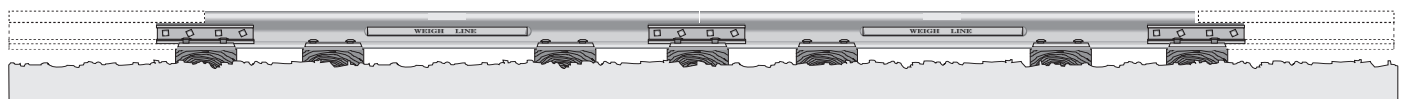
enclosure that provides protection in outdoor applications. Its vacuum fluorescent graphic display is easy to read. A comprehensive range of options is available to provide control inputs and outputs as necessary **Weighline for overload detection & prevention**

In the US the main application to date for Weighline has been for overload detection and prevention. One big advantage of track scales for overload monitoring is that they measure actual weight on rail. When mounted on ballast, Weighline has an accuracy of about +/- 0.25% (full draft arrangement). The low installed cost plus the very low downtime have made them particularly attractive for overload prevention applications.

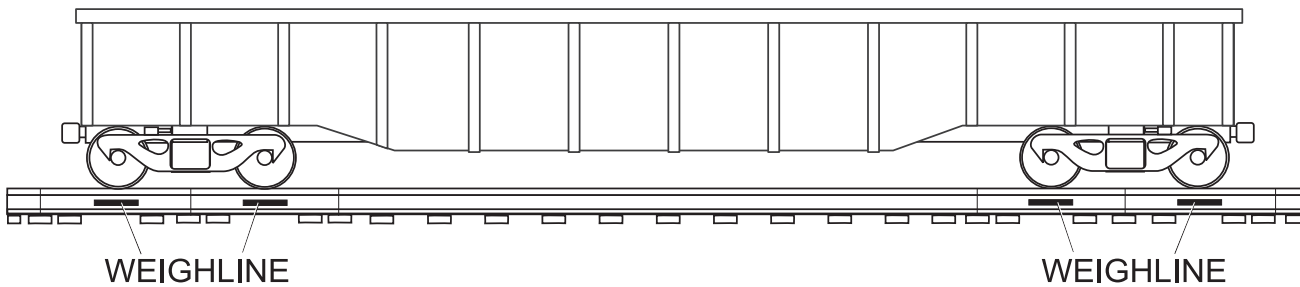
## **We get paid on received weight so why bother to weigh?**

In many recycling operations the received weight, as determined by the mill or processor, is the weight used for determining payment. The recycler therefore does not need a certified weight. However there are several benefits for a recycling operation in knowing the car weight when it is shipped. These include:

- Avoiding overload penalties or rejection by the servicing railroad.
- Maximizing car utilization.
- Having a means of checking the reported received weight.
- Minimizing severe imbalance in end to end loading as this can cause rejection by the servicing railroad.
- Monitoring productivity.

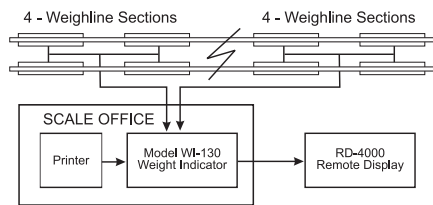


*Typical Weighline arrangement*



### Weighline for the recycling industry

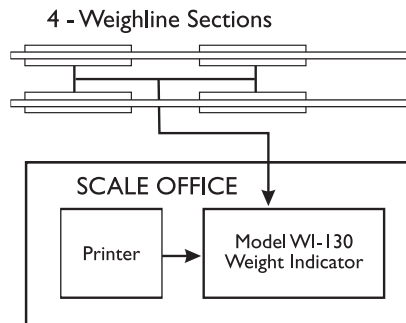
The recycling industry employs two



configurations of Weighline track scales.

**Full Draft** - The full draft system pictured above illustrates the use of eight Weighline rail sections. A rail section supports each wheel of the car. However, only cars with essentially the same car truck spacing can be weighed full draft. Other sized cars have to be weighed two draft.

Weigh-Tronix generally recommends this arrangement where most of the cars have the same or very similar truck centers. It is the most accurate and



gives the shortest weighing time.

**Two Draft** - The two draft system above illustrates the use of four Weighline sections. This system weighs first one end of the car and then the other. The indicator adds the two weights together to give the total car weight. This is the lowest cost approach. It is suitable for all car sizes that use standard trucks. It is slightly less accurate than a full draft system.

### Typical Weighline Installation

Assuming that the existing track is in good condition and the existing rail is the same size as the Weighline rails (normally 115 RE), you will follow these steps to install a full draft Weighline system.

- ❶ Determine where the Weighline sections are to go, then cut and remove four sections (approx. 11' 8" long) from the existing rail.
- ❷ Place the Weighline rails in the four gaps in the rail.



### Installing Weighline rails

- ❸ Mount standard 4-hole joint bars to the Weighline rails.
- ❹ Drill joint bar mounting holes in the existing rails for the joint bars. Bolt the joint bars to the existing rails.

- ❺ Adjust the tie spacing according to the Weighline drawing.



### Adjusting tie spacing

- ❻ Check for correct gage and alignment of the Weighline rails, intermediate track and track for 25 feet either side. Then fix Weighline rails to the repositioned ties.
- ❼ Install conduit, cabling and instrument.
- ❽ Calibrate system using a car of known weight.

Rail installation can be completed within a day and total installation within two days.

If existing rail is not 115 lb, then compromise bars are used to go from the existing rail to the 115 lb Weighline rails.

View of a Weighline installed



# Weighline Rail Scale

The Weighline Rail system is a simple, practical method of achieving static rail weighing. Standard static configuration uses groups of 5'10" (1.78 m) long sections of rail fitted

with strain gauges that fit into the existing rail. They become a convenient, accurate rail car weighing system that installs in hours rather than weeks.

## Features and benefits

**Fast payback**—Accurate rail car weighing saves you from costly under loading of cars and overload fines.

**Safety**—Use wheel weights to assure safe, balanced loading.

**Low-cost installation**—No pits or foundations to construct. No concrete to pour. Just replace existing rail with matching Weighline sections.

**Versatile instrumentation**—Full draft or two draft weighing. Wheel, axle, and car weights are instantly available.

**Gapless weighbridge**—Weighline sections welded into existing track form a stable weighbridge eliminating the impact associated with conventional scales. And trains not being weighed can move across the scale at normal line speed without damage to the scale.

## Specifications (Standard static configuration)

**Rail type:** 115 lb AREA (consult factory for other sizes)

**Rail length:** 70" (1.78 m)

**Active weighing length per section :** 8 inches (20 cm)

**Mounting:** Standard tie plates direct to ties

**Type of weighing:** Two draft or full draft

**Number of Weighline sections:**

Two draft - four, Full draft - eight

**Maximum axle load:** 80,000 lb (40,000 kg)

**Maximum car weight:** 300,000 lb (150,000 kg)

**Scale division size:**

100 lb (50 kg), switchable to 20 lb (10 kg) for calibration

**Static accuracy\*:**

Full draft:  $\pm 0.25\%$  or  $\pm 200$  lb (100 kg), whichever is greater

Two draft:  $\pm 0.4\%$  or  $\pm 300$  lb (150 kg), whichever is greater

**Instrumentation:** Weigh-Tronix WI-130 Indicator with Weighline program

**Operating temperature range:**

-20°F to 120°F (-28°C to 49°C)

**Weight:** 230 lb (105 kg) per rail assembly

*NOTE: Weighline is not currently approved for certified weighing and cannot be used for custody transfer .*

## Other Weighline Systems Available

### Static Options for special applications

**Non standard rail sizes:** 20 lb/yd - 175 lb/yd

**Weighline section capacities :** 5,000 lb to 125,000 lb

**Scale capacities :** 20,000 lb to 1,000,000 lb

**Multiple Weighline sections:**

For different sized and special cars

Consult factory for specifications

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\* Accuracy is dependent on foundation stability.

Weighline is manufactured under licence from the Coventry Partnership by Weigh-Tronix Inc

Weighline is patented and has patents pending.

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