

COUNTING SCALES

BENCH SCALES

FORKLIFT SCALES

CHECKWEIGHERS

CONVEYOR SCALES

RAILROAD SCALES

FLOOR SCALES

TRUCK SCALES

INDICATORS

SOFTWARE

JUNCTION BOXES

SIGNAL PROCESSING

MONORAIL SCALES

PRINTERS

REMOTE DISPLAYS

Avery Weigh-Tronix

Avery Weigh-Tronix
Railroad Scales



Automatic rail weighing instrumentation

TSR4000

The TSR4000 is a digital weight indicator specifically designed for dynamic rail weighing. It can be used in conjunction with conventional load cell weighbridges or with Weighline and Streamline transducers.



Automatic train weighing instrumentation

PRINCIPAL FEATURES

- Automatic Operation
- 16 independent weight processing channels
- Weighing speeds from 0 to 50mph
- Simple user interface comprising liquid crystal display and a 25 way membrane keypad
- Printer and communications ports
- Simple to maintain and service
- Highly configurable
- Extensive diagnostics



SPECIFICATIONS

Weighing Characteristics

Modes:

- Automatic
- Semi-Automatic
- Manual

Control:

- Local
- Remote

Direction:

- Uni-directional
- Bi-directional

Speed:

- 0 to 50mph
- (depending on application, transducer and desired accuracy class)

Train consist size:

- 999 vehicles maximum

Accuracy Classes (OIML R106):

- 0.2, 0.5, 1 & 2 Wagon
- 0.2, 0.5, 1 & 2 Train

Alarms:

- Overspeed (programmed to suit application)
- Overcapacity (programmed to suit application)

Units:

- | | |
|----------|------|
| Tons | (T) |
| Tonne | (t) |
| Kilogram | (kg) |
| Pounds | (lb) |

Weighing Functions

Direction of travel:

- Automatically selected, displayed and printed

Speed of weighing:

- Individual wagons,
- Max and Min train speed

Wagon sequential number:

- Displayed and printed

Wagon weight: Displayed and printed

Total train weight: Printed

Wheel weight: Printed (optional)

Axle weight: Printed (optional)

Truck weight: Printed (optional)

Overspeed indicator:

- Displayed and printed

Overload indicator: Printed (optional)

Imbalance indicator:

- Side to side - printed (optional)
- End to end - printed (optional)

Data Display

Type: Liquid Crystal (Backlight)

Viewing area: 4 1/2" x 3 1/2"

Character Sizes:

- Control characters - 1/8"
- Weight data - 1/2"

Keypad

Type:

- Embossed and with tactile feedback

No of Switches: 25

Functions:

- | | |
|-------------|-------------------|
| Numeric | 0 to 9 |
| Function | F1 to F5 |
| StartWeigh | Enter (E) |
| EndWeigh | Shift |
| AbortWeigh | Print |
| Mode Select | Alarm Acknowledge |
| Display | Test Cancel (C) |

Physical Characteristics

Desk Mounted Unit:

- Width 20 1/2"

Dimensions:

- Depth 20"
- Height 14 1/4"

Net Dimensions:

- Width 19"
- Depth 18 1/4"
- Height 14 1/4"

Weight:

- Gross 10.5 kg (23.2 lb)

Enclosure Types:

- Desk
- Rack

Mountings:

- Slide Runners



Site Configurability

Parameters configurable:

- Transducer channel allocating
- Transducer excitation voltage
- A - D sampling rate
- Memory space
- Printer port
- Communications port
- Data transmission characteristics
- Vehicle type data
- Wheel sensor position data
- Speed measurement sensors
- Overspeed limit
- Overcapacity limit
- Overload limit

Calibration

Mode: By front panel keyboard

Functions:

- Transducer/weighbridge static calibration
- Dynamic calibration IN-direction
- Dynamic calibration OUT-direction

Diagnostics

Modes:

- Automatic at programmable intervals
- On demand

Functions:

- Memory check
- Analog power supplies
- Transducer voltage
- Analog span check
- Transducer shunt calibration
- Zero drift
- Wheel sensors

Printouts:

- Diagnostic configuration
- 90 day event diary
- 90 day diagnostic check diary
- Wheel sensor & Transducer Operations Report
- Wheel sensor Trace

Analog

No. of Channels: 4 standard, 16 maximum

Transducer types: Weighline, Streamline, load cells

Amplification: Pre amplifier with variable gain to suit transducer

Filtering: Amplifier input single pole RC
Amplifier output 3 pole active

Analog-digital conversion:
Successive approximation

Aggregate sampling rate:
200,000 samples/second

Transducer excitation: 24 Vol

Temperature Sensing

No of channels: 2

Type of sensing: Linear voltage

Sensing Sensitivity: 10 mV/°C (338 mV/°F)

Sensing Range:
-50°C to +100°C (-58°F to +212°F)

Digital Input - Output

(optically isolated)

Wheel sensor inputs: 16

Control function inputs: 4

Status function outputs: 4

Isolation potential: 3kV

Wheel Sensor

Types: Mechanical treadle, Inductive proximity, Photo electric

Excitation supply: 15 volts, 0.2 amperes

Connectivity

No of Serial Ports: 2

No of Parallel Ports: 1

Serial Port Type: RS232 or RS422
Jumper Selectable

Parallel Port Type: Printer (Centronics)

Computer Interface

Interface type: RS232C or RS422

Data protocols:

- Enquiry (standard)
- Asis (optional)
- Eureka (optional)

Protocol messages: Transducer weight

- Wheel weight
- Vehicle weight
- Train weight
- Status
- Train start
- Train end

Power Requirements

Voltage: 115 or 230 +10%Vac

Frequency: 50 - 60 Hz

Power: 40 VA

Environmental

Operating Temperature:

-10°C to +40°C (14°F to +104°F)

Storage Temperature:

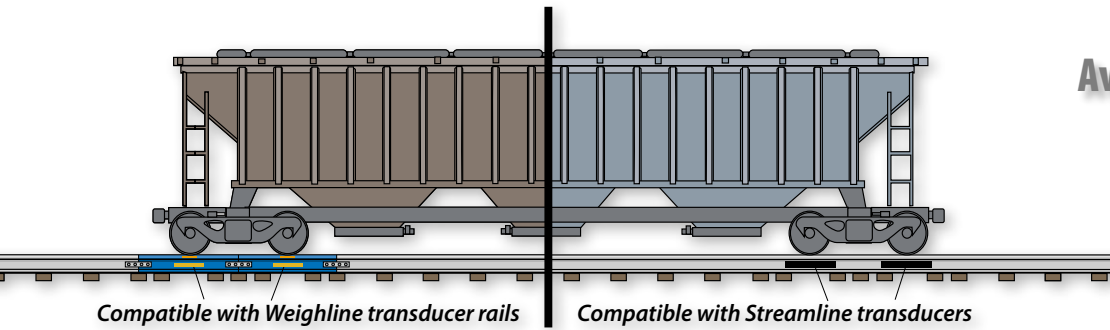
0°C to + 80°C (32°F to +176°F)

Humidity Operating: 10 to 90%

Humidity Storage: 10 to 90%

IP Rating: 20

Avery Weigh-Tronix Railroad Scales



The TSR4000 works in conjunction with Avery Weigh-Tronix Weighline and Streamline train weighing systems.

WEIGHLINE

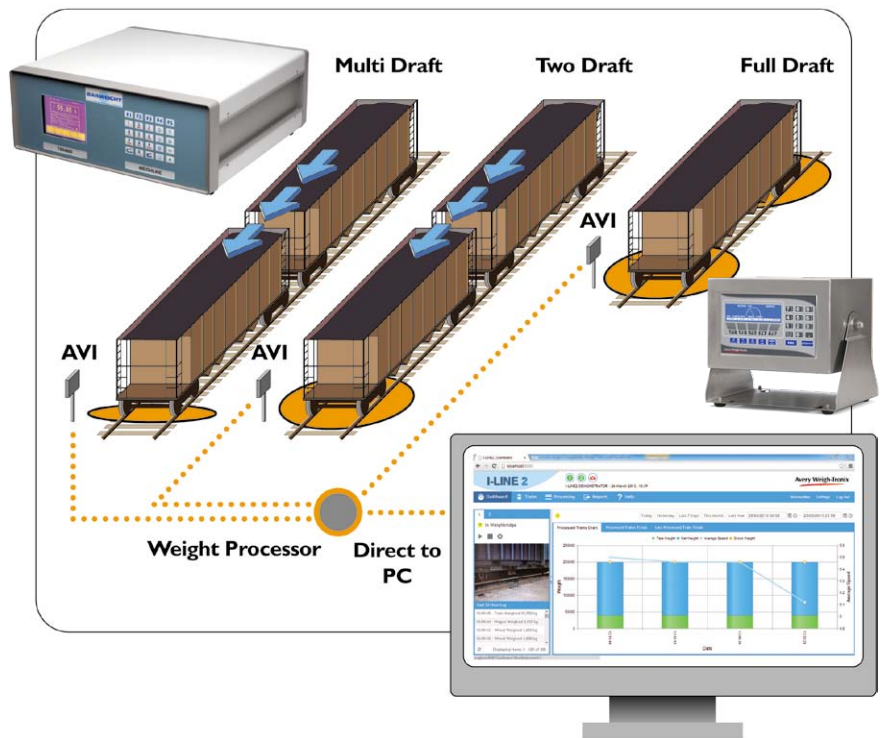
The Weighline rail scale is designed to ensure accurate rail car weights; quickly, safely and affordably. It eliminates uncertainties associated with volumetric control methods and variable tare weights.

Weighline is a rugged and reliable railroad track scale that consists of a series of 5'10" rail sections and is designed to weigh trains statically or in motion and in full draft, two draft or multi draft configurations - see diagram (right).

STREAMLINE

Weighing static or in-motion, full or two draft trains, Streamline is the new technological approach to train weighing.

The Streamline transducer's unique design is internationally patented and is key to a solution providing an affordable and reliable product, ensuring trains are weighed accurately again and again.



More online

www.averyweigh-tronix.com



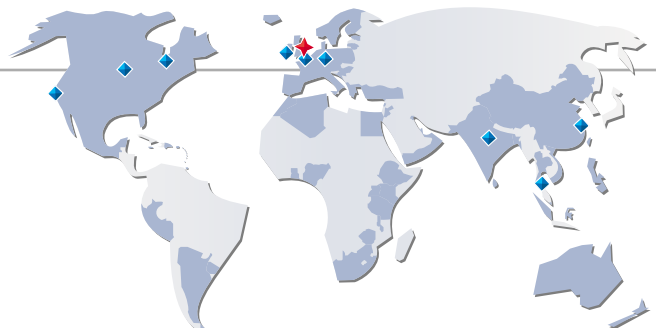
Avery Weigh-Tronix

Avery Weigh-Tronix - USA

1000 Armstrong Drive,
Fairmont, MN 56031-1439 USA
usinfo@awtxglobal.com
Toll-Free: (800) 533-0456
Phone: (507) 238-4461

Avery Weigh-Tronix - UK

Foundry Lane, Smethwick,
West Midlands B66 2LP UK
info@awtxglobal.com
Phone: +44 (0) 845 246 6714
Fax: +44 (0) 845 246 6715



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