TrainWatch™

Railcar Identification Systems

Systems Associates, Inc.

Model 1250 pole mounted antenna

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Railcar Identification Systems

Railcar Weighing and Identification Systems

- **Easy to install and integrate into your current systems**
- **Reliable, accurate, easy to use and maintain**
- **Save time and money**
- **Improve employee safety**

Reliable, accurate railcar tracking

In 1986 Systems Associates installed the industry's first RF railcar identification system and has developed TrainWatch™ to track every railcar movement into, out of and throughout your yard. North American Railcars have been equipped with two RF tags, as required by the Association of American Railroads. TrainWatch™ reads these RF transponder tags, which are located on each side of all railcars.

Our railcar identification systems combine rugged and precise instrumentation using the latest technology to assure reliability and accuracy. TrainWatch™ tracks railcars to determine the exact time they cross the threshold of your property, their speeds within the yard, any stops, forward movements and/or reverse movements. The system records every railcar each time it passes the TrainWatch™ site.

Easy to install and integrate

Systems Associates TrainWatch™ railcar identification systems are easy to integrate into your current systems. We handle every step of the installation process, from site plan, installation and training to system operation.

Saves time and money

Our railcar identification systems save time and money. With accurate tracking, you can verify consist lists, monitor railcar traffic on and off your property, 24/7 in any type of weather, and avoid demurrage charges.

Remote site utilizing solar power and RF communications

Track all railcar activity on and off your property

There are RF transponder tags located on both sides of all railcars that provide the car owner and car number information. The TrainWatch™ system uses antennas placed on both sides of the track to read the railcar tags as the cars pass. By reading the tags on both sides of each car, data loss can be prevented if a tag on one side is missing or damaged.

Components

Included in the TrainWatch™ system are two trackside antennas, wheel sensors and a data processor. The antennas read the railcar tags to capture car owner and number information, while the rail mounted wheel sensors determine vehicle position, axle count and wheel patterns.

Tracking Process

As a train approaches the site, the rail mounted wheel sensors select the recording direction and apply power to the antennas. The wheels are tracked as the train moves past the site, matching tag information to the correct car by sequence number. The system is tolerant of the normal train handling within plants and at yards, which includes stopping and reversing.

The train speed is monitored and recorded for each car passing the site at yard speeds up to 20 miles per hour. The speed of each car is recorded within the system and included with each railcar record. The TrainWatch™ system tracks all railcar activity entering and exiting the property and adjusts for complex switch movements with extreme accuracy. Reverse sensing is part of each system so that train stoppage and rollbacks are accommodated without losing railcar synchronization. Zero speed presence sensors monitor trains stopped for extended periods, preventing split consist reporting. Turnout sensors can identify traffic being placed on two tracks.

Reports

Real-time and clean NETLIST reports are standard with TrainWatch™. The data processor outputs a clean NETLIST showing cars passing the identification site. Consist data can be transmitted to central computer systems through phone modems, direct data connections, radio modems, network connections or cellular links.

Weather Protection

A trackside environmental enclosure adds the required protection against adverse weather for sites without equipment shelters.

Employee Safety

Keeping employees off the ground and out of the yard reduces the risk of injury. TrainWatch™ stands guard to monitor railcar traffic and needs no assistance from employees.

Capabilities

- **Verifies consist lists**
- **Monitors railcar traffic entering and exiting the property**
- **Yard management information integrates with major yard management systems**
- **Operates 24/7 under any weather conditions**
- **Automatic identification of cars weighed in-motion or static**
- **2.0% overload detection**
- **Helps track stragglers and no shows**

Identify railcars as they leave the main line

TrainWatch™ Antenna Systems

Model	Application	Type of Readers	Power Level	Minimum Track Center Clearance in Most States	Maximum Antenna to TrainWatch™ Processor
1200	Triple track	Ground mounted	High	15 ft - 22 ft	100 ft
1225	Single or double track	Stand up/ground mount combination	Low	15 ft - 22 ft	50 ft
1250H	Single track	Stand up only	High	>18 ft	500 ft
1250	Single track	Stand up only	Low	>18 ft	500 ft

NETLIST Report

```
DATA SEND MODE: ASCII
SYSTEM RECORDING INBOUND
CUSTOMER
PLANT OR YARD
PLANT OR YARD LOCATION
SITE ID: 01
MAXIMUM TRAIN SPEED 20 MPH
BEGIN 12:25 P 10/28/05
SEQ  ID    NUMBER  TYPE SPD  FROM    TO     LGTH   BRG  COMMENT
001  SAIX  3214    ENG  06   OUT     IN     0176   4
002  SAIX  405347  CAR  06   OUT     IN     0162   4
003  SAIX  405874  CAR  06   OUT     IN     0162   4    LEFT ONLY
004  SAIX  65734   CAR  06   OUT     IN     0145   4
005  SAIX  66745   CAR  06   OUT     IN     0145   4
006  SAIX  67444   CAR  06   OUT     IN     0149   4
007  SAIX  67231   CAR  06   OUT     IN     0154   4
008                CAR  06   OUT     IN            4    NO TAGS
009  SAIX  452132  CAR  06   OUT     IN     0162   4
SYSTEM IN STANDBY MODE
ENDING .12:27 P 10/28/05
* WHEEL COUNT       CL1   CL2
*                   0036  0036
```

Model 1210 Processor

Equipment List

Model 1210 Data Processor

- Motorola microcomputer
- Real-time processing
- Industrial dust-tight cabinet
- Two antenna inputs for tag readers
- Two serial outputs - selectable baud rates
- Internal diagnostic
- 117 Volt, 1 Amp, 60Hz power requirements

Environmental Equipment Enclosure

- Rain-tight trackside design

Series 1200/1225/1250 Antenna

- Trackside antennas with mounts

Rail Mounted Wheel Sensors

- Impact-resistant design
- Phase lock loop type amplifiers

Railcar Weighing Systems

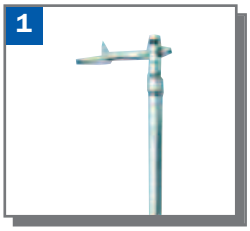
- 0.2% Legal for trade
  - In-motion scales
  - In-motion/static combination scales
  - Static weighing systems
- NEW 2.0% overload scales
  - Not legal for trade

TrainWatch™

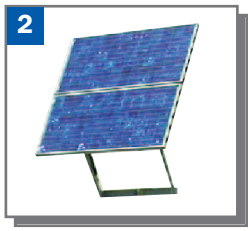
Components

Trackside Reader

Model 1210
Processor System



Radio Modem
Antenna



Solar Panel

Wheel Detection
System

WeighRail Overload Detection
(not shown installed)

Systems Associates, Inc.

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Application Information

Please complete this form and fax to Quoting Department at 847-367-6960.
We'll develop a quote for your specific TrainWatch™ System.

Name _____ Title _____

Phone _____ Fax_____ Email _____

Company Name_____

Type of railcar/product(s) shipped _____

Number of railcars processed weekly _____

Number of locations where railcar activity should be monitored

Entrances _____ Exits _____ Other _____

Equipment Selection

❑ TrainWatch™ 1210 Processor

Reader systems:

❑ Model 1200
(Use where clearance is limited on both sides)

❑ Model 1225
(Use when one side of ID site has limited clearance)

❑ Model 1250
(Use with clearance on both sides)

❑ Environmental Enclosure
(Where no equipment shelter is available)

❑ WeighRail Overload Detection
(2.0% overload scale)

❑ Solar Power

Connection with:

❑ Cable or Fiber Optic

❑ Radio Modem

❑ Phone Modem

❑ Cellular

❑ PC Computer with Capture™ Software

❑ Uninterruptible Power Supply

❑ Zero Speed

❑ Turnout Sensor

Please draw a track diagram, note distance between tracks

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