

# AT5133 High-Temperature Transportation Tag

## Features

- ▶ Harsh-environment durability
- ▶ Heat-resistant coating
- ▶ Factory-programmed or field-programmable
- ▶ Factory-sealed case
- ▶ 1088-bit data storage
- ▶ Data encryption and authentication
- ▶ Beam-powered for unlimited service life
- ▶ Compatible with multiple Amtech®-brand readers
- ▶ Fully compliant with Association of American Railroads (AAR), American Trucking Association (ATA), and TransCore Super eGo® (SeGo) protocols



The AT5133 High-Temperature Transportation Tag is a beam-powered, field disturbance device used in 915 MHz radio frequency (RF) band applications. It is packaged in a factory-sealed case, which makes this tag ideal for mounting on railcars, vehicle chassis, intermodal containers, or in any environment requiring a durable, weatherproof tag. The tag's reflective outer coating improves its resistance to heat, making it ideal for use in environments subject to occasional high temperatures such as those found in railroad thaw sheds.

The tag's mutual authentication feature uses hardware-based protection that is more difficult to compromise than software-only protection. Mutual authentication prevents unwanted data from being written to the tag's protected memory space.

The tag can be factory-programmed, as specified by the customer, or user-programmed in the field using the AP4118 Rail Tag Programmer. The tag has extended data capacity of 1088 bits, including the 20 six-bit alphanumeric characters of data (120 bits) compatible with previous ATA/AAR read-only readers.

The AT5133 High-Temperature Transportation Tag is beam-powered (a small portion of the RF signal continually energizes the tag's circuitry) so no internal battery is required. In addition to giving the tag an unlimited service life, this feature limits the tag's range and reduces the possibility of cross-reads from nearby tags. System discretion is enhanced to within a 5- to 10-foot (1.5- to 3-meter) diameter reading area.

The tag contains electronically programmable circuitry activated by the RF beam, which is broadcast by a system antenna. The tag encodes the signal received from an Amtech-brand reader system with an identification number or a data message. The encoded signal reflects back (backscatters) to the Amtech® reader system. TransCore's Amtech-brand readers — series AI1200, AI1300, AI1400, AI1600, eGo® 2000, 3000, and 4000, and the new Encompass® family of multiprotocol readers — can read the AT5133 High-Temperature Transportation Tag.

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## COMMUNICATIONS

### Frequency Range

902 to 928 MHz

### Typical Working Range

5 to 10 ft (1.5 to 3 m)

Range depends on system parameters

### Polarization

Parallel with longer side

## MEMORY

### Super eGo Mode

**Total:** 32 pages, 256 bytes, 2,048 bits

**Unique ID:** 1 page, 8 bytes, 64 bits

**User data, general use:** 20 pages, 168 bytes, 1,344 bits

**User data, AAR:** 17 pages, 136 bytes, 1,088 bits

**Reserved for security authentication:** 11 pages, 88 bytes, 704 bits

### eGo Mode

**Total:** 128 bytes, 1,024 bits

**Unique ID:** 8 bytes, 64 bits

**User data:** 110 bytes, 880 bits

### ATA Mode

Up to 20 six-bit alphanumeric characters (120 available bits)

### Security

The AT5133 High-Temperature Transportation Tag provides data encryption and authentication.

## POWER REQUIREMENTS

### Power Source

Beam powered

## LIFE EXPECTANCY

### Service Life

Unlimited

## PHYSICAL

### Dimensions

**Size:** 9.3 x 2.39 x 0.69 in. (23.6 x 6.07 x 1.75 cm)

**Weight:** 6.2 oz (176 g)

### Case Material

Weatherproof, sealed case, which is painted with heat- and chemical-resistant silver paint.

Tag case material will survive 45-minute exposure at 350°F (+177°C). Tag electronics may not, and are not warranted to, survive this temperature.

### Mounting Surface

Any smooth metal surface

Where mounting surface is non-metallic or irregular, the AT5133 High-Temperature Transportation Tag may be mounted to a metal backplate attached to the surface of the vehicle or object to be tagged.

### Mounting Method

**Rivet Mounting:** The AT5133 High-Temperature Transportation Tag can be mounted directly to any smooth metal surface using blind rivets or TIR-approved fasteners.

### Impact Resistance

168 in-lb

## ENVIRONMENTAL

### Operating Temperature

-40°F to +185°F (-40°C to +85°C)

### Storage Temperature

-67°F to +212°F (-55°C to +100°C)

### Humidity

100% relative humidity, condensing

### Vibration

2 G<sub>rms</sub>, 10-200 Hz

### Shock, Normal Environment

100 G, half-sine pulse, 6 ms duration, 3 axes

## STANDARDS

The AT5133 High-Temperature Transportation Tag meets the standards for automatic equipment identification (AEI) set by AAR. Fully protocol-compliant with ISO 10374 and ATA standards.

## OPTIONS

### Factory Programming

AT5133 High-Temperature Transportation Tags can be programmed by TransCore to your specifications at the factory.

## ACCESSORIES

### AP4118 Rail Tag Programmer

The AT5133 High-Temperature Transportation Tag can be programmed in the field using the AP4118 Rail Tag Programmer. The AP4118 Rail Tag Programmer contains serial interface logic for connection to a PC host.

For more information:

Call **214.461.6443** (Sales Support) • **505.856.8007** (Technical Support)

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