

AT5831 Location Transponder

Features

- ▶ Compatible with AI1831 Location Interrogator and AP4431 Programmer/Tester
- ▶ Approved for use in underground environments
- ▶ Manufactured to established quality control and transponder sensitivity criteria and ISO 9001-compliant specifications
- ▶ Weatherproof, safety-yellow case for harsh and fire-sensitive environments
- ▶ Battery-free operation



The AT5831 Location Transponder is a trackbed-mounted location device. The customer-specified fixed data stored in the transponder is provided to the trainborne absolute position reference (APR) system when the transponder is externally interrogated.

An AT5831 transponder receives frequencies of 2450 MHz, 15 MHz, and 125 kHz. Battery-free operation of the AT5831 transponder circuits is provided by inductive coupling to the 125 kHz field generated by the A11831 Location Interrogator. Transponders are inactive until sufficient energy is coupled to provide operating voltages. The 2450 MHz signal is encoded and then reflected back (backscattered) to the interrogator for data decoding.

The AT5831 transponder circuitry is enclosed in a weatherproof Xenoy UV-stabilized case. The Xenoy case is designed to operate in harsh and fire-sensitive environments. The transponder case meets London Underground Limited (LUL) flammability and nontoxic smoke emissions requirements and is approved for appropriate use in underground environments.

Each AT5831 is manufactured to high quality ISO 9001-compliant specifications and must pass a uniformity test according to established quality control and transponder sensitivity criteria. The AT5831 transponder meets the appropriate design requirements sections of British Railways Board/Railway Industry Association specifications RIA13 and RIA20. The transponder also meets International Protections of Enclosures Specification IP67.

AT5831 Location Transponder

COMMUNICATIONS

Frequency Range

2445 to 2455 MHz

15 MHz, 125 kHz

POWER REQUIREMENTS

Power Source

Battery-free

Inductive (125 kHz)

PHYSICAL ATTRIBUTES

Size

32 x 15 x 6 cm

(12.6 x 5.9 x 2.4 in.)

Weight

1.5 kg (3.4 lbs)

Case Material

Weatherproof Xenoy

UV stabilized

Meets LUL flammability requirements

Mounting Bolts

M12 x 30 mm

(0.47 x 1.18 in.)

Mounting Surface

Nonmetallic or metallic

The AT5831 transponder is mounted directly to any flat trackbed surface using M12 x 30 mm or equivalent bolts. Specify if the transponder is to be mounted on a metallic or nonmetallic surface.

ENVIRONMENTAL

Operating Temperature

-30°C to +70°C (-22°F to +158°F)

Shock and Vibration

Designed for trackbed environment

Humidity

95% condensing

Polarization

Length parallel to sleeper (perpendicular to rail)

OPTIONS

Factory or Field Programmable. The AT5831 transponder stores up to 768 bits that can be programmed to customer specifications at the factory or in the field with the AP4431 Programmer/Tester (using a 15 MHz signal).

Custom Colors

The AT5831 transponders may be custom ordered in a range of colors. Special conditions may apply. Contact your TransCore representative for information.

Laser Etch

Customer part number, date of manufacture, and other customer specified data can be laser etched into the case of the transponder.

ACCESSORIES

AP4431 Programmer/Tester

The AT5831 transponder can be programmed in the field using the AP4431 programmer. The AP4431 programmer contains serial interface logic for connection to a host PC. The AP4431 programs, tests, and verifies transponder operation.

AP4431 Programmer Package

The AP4431 programmer package is a turnkey field programming package that combines a laptop PC with the AP4431 programmer and TransCore's APR transponder programming software.

DOCUMENTATION

Global Absolute Positioning System Reference Guide

Global Absolute Positioning System (High Voltage) Reference Guide

TRANSPONDER APPLICATIONS

The AT5831 transponder can be used as a component of subsystems such as:

- ▶ Automatic train control
- ▶ Emergency braking systems
- ▶ Positive train control
- ▶ Moving block train control

For more information:

Call **800.923.4824** (Sales Support) **505.856.8007** (Technical Support)

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