

IT2231 Multi-Purpose Switchable Tag (T21/SeGo)

Features

- ▶ Dual protocol - Title 21 and Super eGo® (SeGo), including read/write capability in SeGo protocol
- ▶ Switch transitions from one tag configuration to another
- ▶ High speed, high performance suitable for high occupancy toll/high occupancy vehicle (HOT/HOV) and traffic management applications
- ▶ Light emitting diodes (LEDs) and audible buzzer provide driver feedback
- ▶ Built-in feature indicates the current switch setting as well as the settings from the previous three valid reader transactions
- ▶ Impact resistant, molded plastic case
- ▶ Non-replaceable internal battery with an 8-year design life, based on typical usage
- ▶ Easy installation and removal with hook and loop or Dual Lock™ fasteners



Many RFID technologies are in use today for tolling and traffic management systems, creating the necessity for drivers to have multiple tags in their vehicle. Attaching more than one tag to a windshield can create technical problems. TransCore addresses these issues with the IT2231 Multi-Purpose Switchable Tag (MPST). This high speed, high performance radio frequency identification tag offers the flexibility of switching between three selectable tag configurations.

This tag can be customized to fit the customer's needs. For High Occupancy Toll (HOT) applications, the tag can be configured for the driver to declare the number of vehicle occupants (one, two, or three-or-more). It can also be configured to identify three different tolling configurations, such as personal account, business account, or secure facility access. In typical road tolling applications, the LEDs and buzzer are used for driver feedback, such as valid tag, low balance, invalid tag, and lost or stolen tag. A built-in feature allows review of the switch settings selected for the previous three valid reader transactions.

If portability is needed, it is easy to install or remove the IT2231 MPST. It is designed for mounting to a vehicle's interior windshield surface using hook-and-loop or Dual Lock mounting strips.

The IT2231 MPST complies with the specifications for automatic vehicle identification (AVI) in the California State Code of Regulations, Title 21, Chapter 16.

The IT2231 MPST, in conjunction with TransCore readers, enables advanced security techniques that ensure tag authentication while preventing data corruption and/or alteration. In addition, tag cloning, spoofing, copying, or duplicating is prevented. All IT2231 MPSTs support factory programming of fixed data fields that are locked at the factory and cannot be reprogrammed. Agency-programmed fixed data fields optionally can be locked by the customer using TransCore's AP4600 Multifunction Tag Programmer.

IT2231 Multi-Purpose Switchable Tag

COMMUNICATIONS

Frequency Range

902-928 MHz

Polarization

Linear, horizontal

SOFTWARE FEATURES

Data Memory

Title 21 Protocol: 968 bits (2 general data pages, 256 bits, are customer programmable)

SeGo Protocol: 2048 bits

All programmable using wireless link

Downlink Data Rate

Title 21 Protocol Encoded: 300 kHz Manchester

Title 21 Protocol Decoded: 300 kbps

Super eGo Protocol: 80 kb/s Manchester

Data Format

Super eGo Protocol: Downlink - Manchester keyed carrier; Uplink - FM0

Uplink Data Rate

Title 21 Protocol Encoded: 600/1200 kHz FSK

Title 21 Protocol Decoded: 300 kbps

POWER

Power Source

Lithium battery (non-replaceable, internal)

LIFE EXPECTANCY

Service Life

8-year design life

PHYSICAL CHARACTERISTICS

Weight

3.5 oz. (99.2 g)

Dimensions

4.3 x 2.9 x 0.8 in. (10.9 x 7.4 x 2.0 cm)

Color

Light gray

Case

The plastic case is highly durable, impact resistant, UV stable, and not affected by temperature extremes or severe conditions typical of this operating environment. The IT2231 MPST is shock and vibration resistant.

Mounting Surface

Interior: Non-metallic windshield

Mounting Method

Hook and loop or Dual Lock™

ENVIRONMENTAL

Operating Temperature

-40°F to +185°F (-40°C to +85°C)

Storage Temperature

-40°F to +212°F (-40°C to +100°C)

Thermal Shock

-40°F to +185°F (-40°C to +85°C), 30 minutes per cycle, ±30° per minute rate, 100 cycles

Humidity

0% to 95% RH, +77°F to +185°F (+25°C to +85°C), 24 hours per cycle, 10 cycles

Vibration Tolerance

Sinusoidal: 10 G peak, 10 to 500 Hz, logarithmic sweep, 30 minutes per sweep, 3 hours per axis (X, Y, and Z)

Random: 1.5 G_{rms}, 15 to 1000 Hz, 12 hours per axis (X, Y, and Z)

Shock Tolerance

30 G peak, 10-ms duration, 1/2 sine wave pulse, 3 positive and 3 negative pluses (6 total) for each axis (X, Y, and Z)

COMPATIBILITY

Title 21 Protocol

California State Code of Regulations, Title 21, Chapter 16

Super eGo Protocol

SeGo

FEATURES

Audio/Visual (A/V) Indicators

The IT2231 MPST provides up to three light emitting diodes (LEDs) and/or an audible buzzer.

When used in different state applications, the A/V indicators provide driver feedback denoting switch settings.

When used in typical road tolling applications, the A/V indicators provide driver feedback regarding account status.

Built-in Playback

Built-in feature indicates current switch setting and the settings from the previous three valid reader transactions.

OPTIONS

Labeling

- ▶ Customer specific tag programming information; check digit optional
- ▶ Barcode; check digit optional
- ▶ Custom molded case for agency logo

Model Part Number

13-2231-001 Generic NURB

For more information:

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

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