



# TMT-300c

## Hi-Temp Boltable Tag

TECHNOLOGIES ROI, LLC



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### 1 PRODUCT DESCRIPTION

The patent-pending **TROI TMT-300c Hi-Temp Boltable Tag** provides identification and tracking capabilities never-before available in such a tiny plastic package designed for rugged or hazardous use-areas. Not only can the tag be mounted to any metallic surface by either gluing or bolting the tag, but it can withstand unprecedented temperature (consistent temperatures of 300 degrees Centigrade), pressure and environmental conditions.

#### 1.1 SPECIFICATIONS

<b>Device type</b> Passive RFID tag	<b>Standard:</b> UHF (Ultra High Frequency band) <b>Optional:</b> HF (High Frequency band) <b>Optional:</b> LF ( Low Frequency band)
<b>Air interface protocol</b>	UHF: EPCGlobal Class1Gen2 / ISO/IEC 18000-6C HF: ISO/IEC 15963, ISO/IEC 14443 LF: ISO/IEC 18000-2
<b>Operational frequency</b>	<b>Standard:</b> UHF 865-869 MHz (EU), 902-928 MHz (US) <b>Optional:</b> LF 125 KHz <b>Optional:</b> HF 13.56 MHz
<b>IC options - UHF</b>	<b>Standard:</b> Alien Higgs 3 (others on request) <b>Optional:</b> EM, Fujitsu, Impinj, NXP (others on request)
<b>EPC memory - UHF</b>	<b>Standard:</b> 128 bit <b>Optional:</b> Up to 240 bit
<b>EPC memory content</b>	Unique 96-bit number encoded
<b>Extended memory - UHF</b>	<b>Standard:</b> 512 bit
<b>HF EEPROM</b>	ISO/IEC 15693, 64 Bit UID; 512 bit & 1024 bit ISO/IEC 14443 A, 7 Byte UID; 512 bit & 1024 bit
<b>LF EEPROM</b>	<b>Standard:</b> 512 bit & 256 bit
<b>TID - UHF</b>	Factory-programmed, non-changeable, unique 64-bit ID.
<b>Read range - UHF</b>	Real-world: 1 – 2 meters, depending on attachment Lab environment: 7 meters
<b>Applicable surfaces</b>	Any material, including sub-surface (back-filled with epoxy [non-metallic materials]). Surface mounting on metal surfaces, both ferrous and non-ferrous.
<b>Material</b>	High temperature polymer - PPO
<b>Weight</b>	0.5 oz 14 grams
<b>Standards compliancy</b>	ISO 17665 – Sterilization of Health Care Products – Moist Steam ISO 11135 - Sterilization of Health Care Products – Ethylene Oxide ATEX-compliant
<b>Product RoHS compliant?</b>	Yes



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### 1.2 DIMENSIONS

**Length:** 35 mm

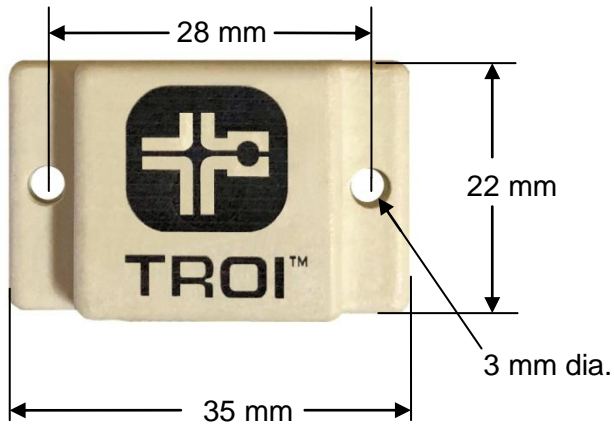
**Width:** 22 mm

**Height:** 7 mm

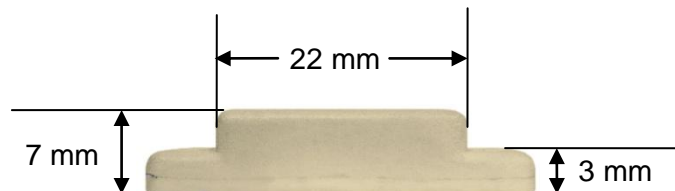
**Mounting hole diameter:** 3 mm

**Distance between mounting holes:** 28 mm

#### PLAN VIEW



#### PROFILE VIEW





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### 1.3 READ RANGE

	UHF Max read range on metal with 4W EIRP
<b>TMT-300c</b> (915 MHz)	660.4 cm / 260 inches (6.63 m / 21.75 feet)

The read range listed above was obtained from a lab test environment. Actual test results may be different. Testing in actual use environments is strongly recommended.

### 1.4 ENVIRONMENTAL SPECIFICATIONS

<b>Operating temperature</b>	-50°C to +300°C* -50°F to +572°F*
<b>Temperature Cycling Test</b>	300 deg C continuous, for 30-days
<b>IP classification</b>	IP68: - Complete protection against dust - Protection against continuous immersion in water (Tested for 5 hours in 1 m [3.3 ft] depth)
<b>Weather ability</b>	Excellent, including UV-resistance and sea water immersion
<b>Pressure resistance</b>	Embedded RFID tag tested to 30,000 PSI for 30 days
<b>Chemical resistance</b>	No physical or performance changes in: - Salt water - NaOH (depending on concentration) - Sulfuric acid (depending on concentration) - Motor oil (tested in 168 hour exposure) Generally good against: - Most solvents - Most acids and bases

**\* NOTE:**

The RFID tag will not be functional if it is left at the maximum indicated temperatures such that the internal soak temperature exceeds +80 deg C. The RFID tag itself will function between -50 deg C and +80 deg C.

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### 1.5 SUPPORTING COMPONENTS

#### 1.5.1 TMT-300c Bolting or Banding

See Section 2 Installation Instructions for further details

<b>Purpose</b>	Bolts or bands used to attach <b>TMT-300c</b> to metal surface
<b>Advantages</b>	<b>Bolt:</b> Secure attachment that is easier to remove than gluing (adhesive_paint). <b>Band:</b> Rugged - easy-on, easy-off.

### 1.6 SUPPORTED SERVICES

Several options are available:

- Tag pre-encoding
- Laser engraving on tags surface

For further details, please contact TROI LLC.

### 1.7 POSSIBLE APPLICATIONS

<b>Metal surfaces</b>	Metal returnable containers, metal canisters, metal pallets, high value metal items, aerospace applications, military applications, etc.
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## 2 INSTALLATION INSTRUCTIONS

### 2.1 TAG PLACEMENT

The **TMT-300c** tag must be mounted to the metal surface with the metal “cup” pointed up and with no metal covering the tag.

When selecting the mounting location, ensure the following:

- Select an even metal surface so that the entire base of the **TMT-300c** is in contact with the mounting surface.
- Place the tag in the middle of the largest metal mounting surface available.
- It is recommended that the tag be taped to the metal surface before bolting the tag, to check orientation and performance.

The **TMT-300c**'s performance depends on the shape of the metal object and the tags placement on that surface. The above recommendations are valid for flat surfaces. Testing is recommended to verify performance in each use-case.

### 2.2 TAG ATTACHING METHODS

The tag can be either bolted or banded to the metal surface.

#### 2.2.1 Bolting the tag to the metal surface

Bolting achieves effective mounting and retention in various use conditions.

The **TMT-300c** can be mechanically attached using;

- Screws (size M4)
- Pop rivets (size 4 mm)

#### 2.2.2 Banding the tag to the metal surface

Banding is an effective mounting and retention method.

**TROI LLC** offers a number of banding options: Contact us for more details / options.

## 3 CONTACTING TROI LLC

For additional information and technical support contact:

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