

# HEAVY DUTY RFID TAG SCREW TAG



## APPLICATIONS

- High Value Metal Applications
- Aerospace Applications
- Military Applications
- Chemical Areas

## FEATURES

- Passive RFID UHF Tag
- Up to 2 m Reading Range
- Proprietary High Temperature Plastic
- IP68 Protection Class
- ATEX Compliant

## RFID OPTIONS

- UHF: ISO 18000-6C
- HF: ISO 15963 | ISO 14443
- LF: ISO 18000-2
- ISO 17665
- ISO 11135

## PRODUCT DESCRIPTION

The Screw Tag from iDTRONIC provides automatic identification and tracking capabilities in a unique, tiny plastic screw designed for rugged or hazardous use-areas. It is compliant to the EU directives on explosion protection with ATEX. It covers equipment and protective systems intended for use in explosion-hazard atmospheres.

The Screw Tag consists of proprietary high temperature plastic and is particularly resistant against most acids, solvents and bases. It was designed for high temperatures from - 50 °C up to + 200 °C. Thanks to the IP68 Protection Class it has an excellent resistance against UV and sea water immersion.

The RFID UHF Tag works in UHF Frequencies of EU: 865 – 869 MHz and US: 902 – 928 MHz and has a reading range of up to 2 meters. The supported Standards are EPC Global Class1 Gen2; ISO 18000-6C, ISO 17665 and ISO 11135. Optionally, it is available as HF: 13.56 MHz or LF: 125 kHz Version.

The tag is designed to be mounted to any metallic surface by screwing the tag into a threaded hole on down-holes, road surfaces of all types, wood, fiberglass, composites, compression, injection and cast molds, and their associated processes material (cloth, canvas, synthetics, etc.).

## TECHNICAL DATA

\* *READING DISTANCE DEPENDS ON TAG TYPE AND ORIENTATION.*

### ELECTRICAL SPECIFICATIONS

	UHF	HF	LF
Operating Frequencies	865 – 869 MHz 902 – 928 MHz	13.56 MHz	125 kHz
Interface Protocol	EPC Global Class1Gen2		
Operating Mode	Passive		
Reading Range	<u>Real-world:</u> 1 – 2 meters* <u>Lab environment:</u> 7 meters*		
IC Types	<u>Standard:</u> Alien Higgs 3™ (128 Bytes) <u>Optional:</u> EM, Fujitsu, Impinj, NXP (Up to 240 Bytes)	<u>ISO 15693</u> 64 Bytes UID; 512 Bytes + 1024 Bytes  <u>ISO 14443 A</u> 7 Bytes UID; 512 Bytes + 1024 Bytes	<u>Standard</u> 512 Bytes 256 Bytes
Memory Content	Unique 96-bit number encoded		
Extended Memory	512 Bytes	–	–
TID	Factory-programmed, non-changeable, unique 64-bit ID	–	–

### MECHANICAL SPECIFICATIONS

Dimensions	30.48 × 10 mm   ø 36 mm
Weight	17 g
Housing Material	Proprietary high temperature plastic
Housing Colour	Black
Applicable Surfaces	Down holes, road surfaces of all types, wood, fiberglass, composites, compression, injection and cast molds, and their associated processes material (cloth, canvas, synthetics, etc.)
Mounting Options	Screwing the tag into a threaded hole

### ENVIRONMENTAL SPECIFICATIONS

Operating Temperature	- 50 °C to + 200 °C
Temperature Cycling Test	200 °C continuous, for 30 days
Protection Class	IP 68
Weather Resistance	Excellent, including UV-resistance and sea water immersion
Pressure Resistance	30,000 psi for 30 days
Chemical Resistance	<u>No physical or performance changes in:</u> - Salt water - NaOH - Sulfuric acid - Motor oil <u>Generally good against:</u> - Most solvents - Most acids and bases

### APPLICABLE STANDARDS

ISO 18000-6C	E.g.: Alien Higgs 2/3/4, Fujitsu Impinj Monza, NXP UCODE, etc.
ISO 15963	
ISO 14443	
ISO 18000-2	
ISO 17665	Sterilization of Health Care Products – Moist Steam
ISO 11135	Sterilization of Health Care Products – Ethylene Oxide
RoHS 2	2011/65/EU
ATEX Compliant	

### PERSONALIZATION OPTIONS

- Tag Pre-Encoding
- Laser Engraving

## APPLICATION EXAMPLES

### CHEMICAL AREAS



The Screw Tag of iDTRONIC is especially suitable for harsh environments at chemical areas with high temperatures.

The robust housing of the Tag is very resistant to chemicals like salt water, NaOH, sulfuric acid, motor oil and most solvents, acids and bases.

It can be securely screwed to pipes or other devices. Due to the direct fitting into the pipe the tag is extra protected against external influences.

### MILITARY AREAS



The Screw Tag can be used for military purposes within harsh environments under high pressures.

The RFID Tag is particularly resistant to the most common chemicals. The identification of containers with metallic surfaces can be secured with this Screw Tag. High pressures within bomb-hazards withstands the tag till 30,000 psi.

This ensures the high durability and functionality of the Screw Tag.

## INSTALLATION INSTRUCTIONS

### TAG PLACEMENT

The Screw Tag is designed to be screw-mounted flush with the metal surface. For the specific tag being mounted, use the correct end mill to drill the appropriate sized hole and then use the correct bottom tap to thread the hole to the appropriate thread and pitch size. The pictures, below, show a mounting block and a piece of thick-walled pipe that have been correctly drilled and tapped.

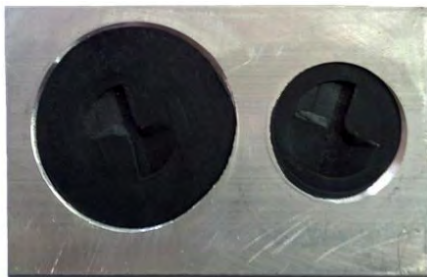


### TAG ATTACHING METHODS

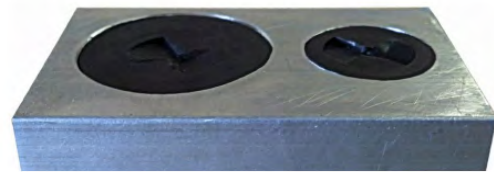
#### BOLTING

Once the hole has been correctly end-milled and bottom-tapped, it is recommended that a dab of high temperature silicone be placed on the threads, or at the base of the tag before the tag is screwed into the hole.

**NOTE:** The tag has been designed with an anti-tamper screw slot so that, once installed, it cannot be backed out.



*This perspective shows the STI-series tags anti-tamper screw-mount head construction.*



*This perspective shows the tags mounted flush with the surface of the block.*



*Close-up of an Screw Tag mounted into a pipe; notice that the tag is mounted flush to the surface of the pipe. Recessing the tag into the pipe deeper than shown may adversely affect the ability to interrogate the tag.*

## PRODUCT PICTURES

### BOTTOM VIEW



## MECHANICAL VIEWS



## ORDER CODES

VERSION	ORDER CODE
Alien Higgs 3™ (128 Bytes)	ST-UHF-TR-STI-1HT-ALIEN
EM (Up to 240 Bytes)	ST-UHF-TR-STI-1HT-EM
Fujitsu (Up to 240 Bytes)	ST-UHF-TR-STI-1HT-FU
Impinj (Up to 240 Bytes)	ST-UHF-TR-STI-1HT-IM
NXP (Up to 240 Bytes)	ST-UHF-TR-STI-1HT-NXP
Extended Memory: 512 Bytes	ST-UHF-TR-STI-1HT-EXM

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