18.7 Secure Series Tags

Sensor Transponder
CLIN: 0004FA, 0006FA

Installation & Operation Manual

Delivering Global Visibility. Unisys

UM 4903_Rev 1.1

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ATTENTION

• This Hi-G-Tek product is designed for commercial/industrial use only, and should only be handled by personnel authorized by Hi-G-Tek representatives.

• Installation must be performed according to this Guide.

• Using only certified antennas: It is the responsibility of the installer to ensure that when using the outdoor antenna kits in the United States (or where FCC rules apply), only those antennas certified with the product are used.

• The use of any antenna other than those certified with the product is expressly forbidden in accordance with FCC rules CFR47 part 15.204 and part 15.203.

The FCC Wants You to Know

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

a) Reorient or relocate the receiving antenna.

b) Increase the separation between the equipment and receiver.

c) Connect the equipment to an outlet on a circuit different from that to which the receiver is connected.

d) Consult the dealer or an experienced radio/TV technician.

FCC Warning

Modifications not expressly approved by the manufacturer could void the user authority to operate the equipment under FCC Rules.

Instructions concerning human exposure to radio frequency electromagnetic fields:

A distance of at least 20cm. between the equipment and all persons should be maintained during the operation of the equipment.

FCC ID: OB6-IGST51433
Sensor Transponder – IG-ST-51-433, CLIN # 0004FA

Spare Parts

Hi-G-Tek recommends that only original products, spare and replacement parts authorized by Hi-G-Tek Inc. be used for installation, service and repair.
Hi-G-Tek Inc. does not accept any responsibility and will not be liable for any consequences due to improper materials used.

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1 Introduction

The Secure Series 18000-7 Sensor Transponder CLIN#0004FA is an active RFID tag for monitoring goods either in yard locations or in transit.

Figure 1: Sensor Transponder

The transponder is designed to be magnetically attached to metallic surfaces or be mounted on a pole or similar posts.
The Sensor Transponder is equipped with environment control sensors for climate control of sensitive goods stored in container.

2 Functional description

The Sensor Transponder operates in the 433.92 MHz UHF band.

The Transponder has environmental sensors that include:

- Temperature sensor: Monitors Temperature inside container.
- Humidity sensor: Monitors humidity inside container.

All the sensors include indications for activation/deactivation and alarm status.
The indicators colors are:

- Green color designates all normal condition.
- Red color – indicates an alarm event.

Each sensor has threshold values – that may be configured by the control software.
A LED test button facilitates validation of sensor status.
The Transponder is battery powered, and responds to status requisitions from a nearby interrogator – located up 100m from the transponder.
Control of Transponder's features and parameters is facilitated by control software.
Access control may be achieved either via an interrogator unit or directly by USB connection to a control PC.

3 Installation

3.1 Preparing for deployment

Before deployment, open the Sensor Transponder battery cover by half rotating it counterclockwise.

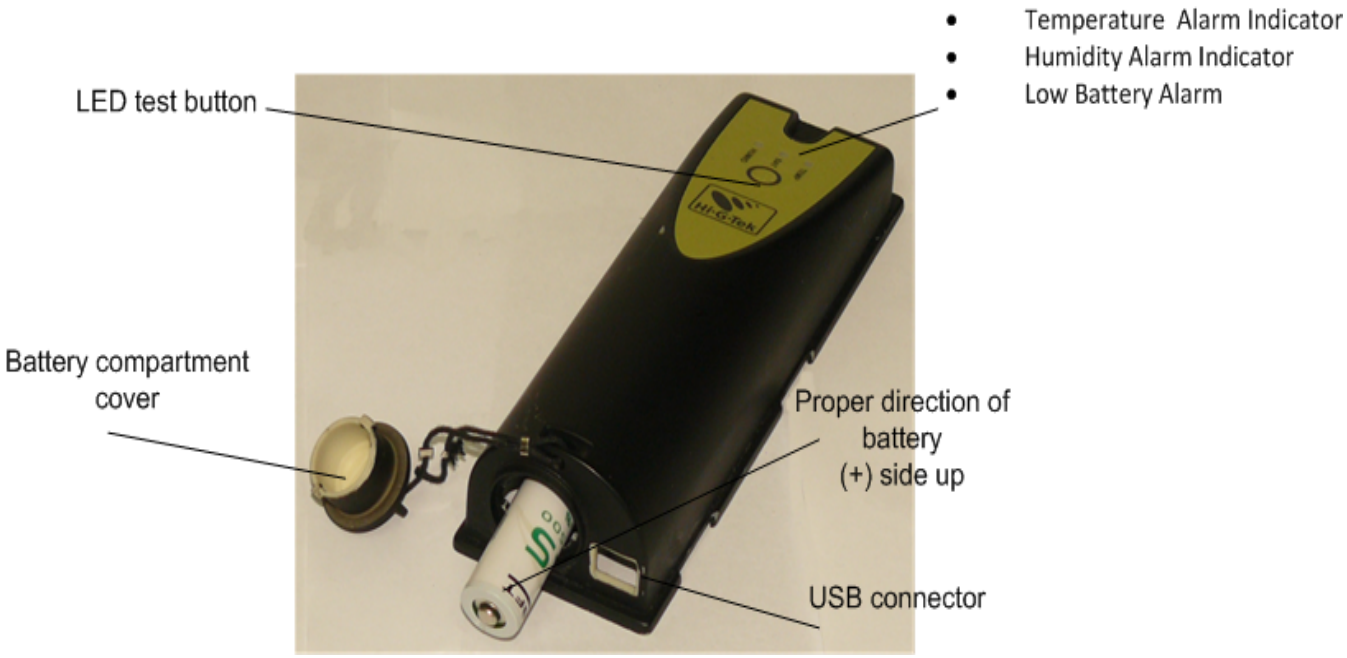

Figure 2: Installing the battery

Remove the battery and place it back with the poles reversed, (+) side should point out.
When you hear a short beep, the transponder is activated and ready for operation.
If no beep is heard, either the battery is not properly oriented or it needs to be replaced.

Note:
Replacement of depleted Battery:
When required, use only size 3.6V Lithium Li-SOCl2 Non rechargeable batteries Type LS 17500, manufactured by Saft Batteries.

3.2 Mounting the Transponder

- **Option 1**: Magnetic Mountings located on transponder base – no attachments needed.

For locations with metal surfaces, the transponder by itself can be magnetically attached to the surface.

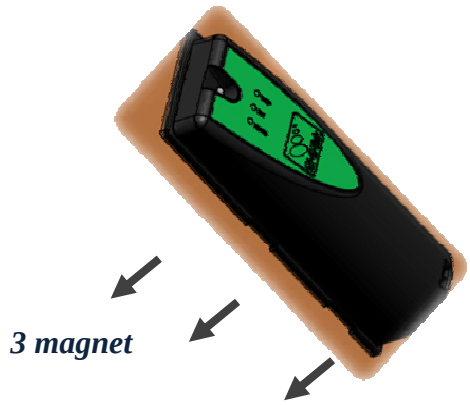

Figure 3: Magnetic mounting of transponder

- **Option 2:** Mounting transponder with Mounting Bracket

The transponder can utilize a mounting bracket, which allows for easy removal and replacement of transponder.
Attach the mounting bracket to the required surface using zip ties / or screws if permitted – see Figure 4.
Slide the transponder into the bracket and press top of bracket down until the transponder is securely situated.

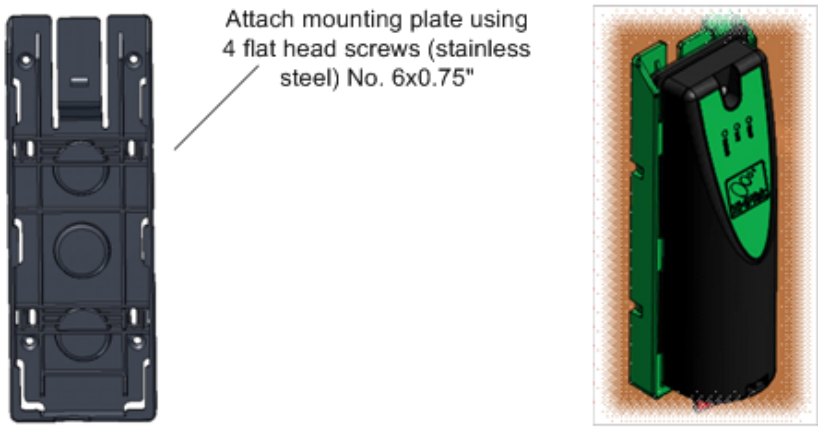

Figure 4: Using a mounting attachment

4 Operation

The Transponder operates only upon a request from the interrogator or when operated by a control PC connected to it via USB.

4.1 Lamp Test

- press the LED test button – see Figure 2.
- All the LEDS blink red once then blink once green and then blink 3 times and show sensor status as follows:
  - Green: sensor is active
  - Red : sensor has detected an alarm (the detected signal was above the defined threshold level)
  - No light: sensor is disabled

5 Technical Specifications

Communications	
• Operating frequency • Omni Directional read/write range	433.92 MHZ Up to 300 feet (100 meters) open space
Memory	
Memory size	128 Kbytes of available database table memory
Sensor data logging	32 Kbytes of memory for sensor data logging
Data retention	Data is stored for a minimum of five years
Power Requirements	
Battery	• Replaceable batteries, meet the requirements of the DoD transponder battery guidelines. • Can be replaced without the need for a tool • Supports reverse battery insertion for battery storage
Battery type	3.8V Lithium Li-SOCl2 batteries
Battery life	3 year minimum
Serial Communication	USB: for local access and configuration
Environmental	
Operating temperature	-30 ºC to +70ºC
Storage temperature	-40 ºC to +70ºC
Humidity	90% non-condensing
Vibration and shock	Complies with MIL-STD-810D for mobile
Hardened weatherproof	Complies with the IEC 60529 IP 64 rating
Physical Dimensions	
Size	185x60x50mm
Weight	250gr
Mounting bracket Weight	185x68x17mm 160gr
Antenna	Internal
Attachment methods:	• Bracket with magnetic mount grade N28 or higher • Mounting bracket with 4 holes on bracket for tie wrap attachment
Sensors	
	• Temperature • Humidity

Indicators
• Audible beep indicator for power on.
• Each sensor has its indication for activation/deactivation and alarm status
• Battery has an indication for battery OK and under voltage indication
Standards
• FCC part 15 sub part B class B, sub part C section 15.231
• Compliant with ISO 18000-7:2008 standards and the DoD interoperability guidelines
• Hazardous environment: Certified as Non-Incendive (NI) for operation in environment where flammable and explosive gases and vapors may be present
• Compliant with HERO environment testing at 1-inch separation
• Complies with applicable DoD, national and international spectrum management policies and regulations to include spectrum certifications in accordance with DoD Directive 4650.1 "Management and use of the Radio Frequency Spectrum" and DoD Directive 5000.1