Hi-G-Tek

I.S Micro-Reader

User Manual

UM47xx
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Rev: 1.0

1. Introduction

The Hi-G-Tek I.S Micro Reader is a component of Hi-G-Tek's wireless monitoring system designed to withstand hazardous locations such as fuel-atmosphere interactions and other harsh outdoor applications.

The Micro Reader is an ergonomic handheld sized RFID reader (Radio Frequency Identification) used for short-range wireless communication (up to 10cm)

The Micro Reader communicates over the low-frequency channel (125 KHz) with the Hi-G-Tek's RFID sensors (electronic lock/seal/ tag that provides automatic processing and real-time monitoring of secured cargoes/assets in transit and in storage)

It contains two command buttons and two-colored LED as well as a beeper for status indication.

2. Safety Precautions

- The only maintenance required, is to replace the battery when necessary.

To replace the battery, open the battery compartment using medium size screwdriver
Take out the old battery and put a new one (Note polarity)

NOTE: Use 3V Lithium type CR2032 battery only.

- Close properly cover after installing the fresh bat

ATTENTION

- Hi-G-Tek's IS Micro Reader is distributed to a commercial/industrial use only, and should only be handled by personnel authorized by Hi-G-Tek representatives.
- Installation must be performed according to this User 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.

3. Using the Micro Reader

The Micro Reader performs two basic functions (depending on the application):

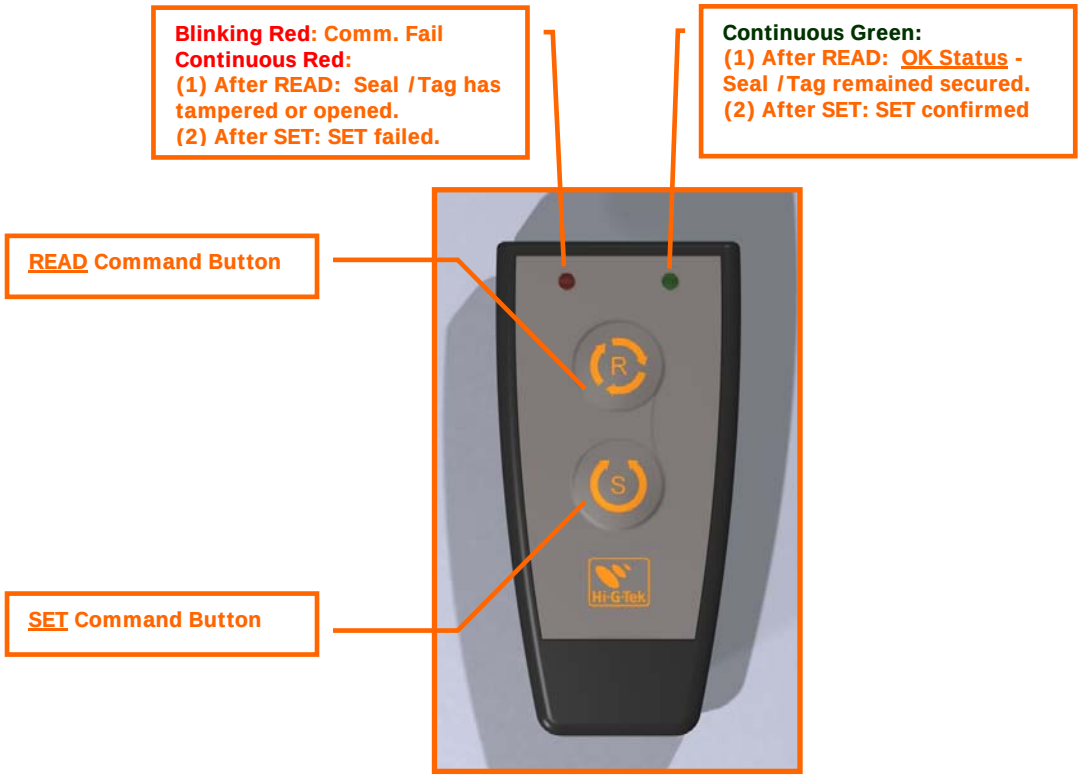
1) It verifies the lock/seal/tag status and provides the user with an indication as to whether the device has been tampered with since being set.

2) It can also reset the lock/seal/tag for a new use. It also leaves a "footprint" in the lock/seal/tag memory with the Micro Reader's ID, identifying the specific Micro Reader that performed a command or interrogation.

3.1 Read Command

- Approach the Data Seal / Tag as to a distance of 3-8cm and press the **R** button.
  - In the event that the seal status is OK, Green LED will turn on and a corresponding "beep" will sound
  - In the event that the seal status has changed (opened or tampered) the Red LED will turn on and a corresponding "beep" will sound.

NOTE: In the event that the communication between the Micro Reader and the Data Seal/Tag failed, the Micro Reader will pause for two seconds and the Red LED will flash three times with corresponding three fast "beeps". Make sure to keep a distance up to 8cm!



3.2 SET Command

- Approach the Data Seal / Tag as to a distance of 3-8cm and press the **S** button.
    - In the event that the seal / Tag is properly secured, Green LED will turn on and a corresponding “beep” will sound indicating the SET command has been succeeded.

NOTE: In the event that the SET command failed, the Micro Reader will pause for two seconds and the Red LED will turn on with a corresponding beep sound, make sure that the seal /tag is properly closed and locked.

SET modes

Depending on the application, you can choose* to perform either "soft set" or normal set:

- “SOFT SET”: Setting the seal without erasing the events logged in seal’s memory.
- "SET": Setting the seal and erasing the events logged in seal’s memory (refreshed start)

* This feature can be programmed in advance before use. For detailed information please contact Hi-G-Tek's applications tech. support.

4. Technical spec.

RF Characteristics

LF Tx/Rx Channel	125KHz
Modulation	Amplitude Modulation (OOK)
Range	Up to 10cm
Data rate	4KHz data rate

Power

Power supply type:	3V Replaceable battery powered

Physical Characteristics

Dimensions	90x40x25mm
Weight	150gr

Environmental

Operating Temperature	-10°C to +50°C
Storage Temperature	-20°C to +60°C
Protection Class	IP 54 (with product's pouch)