

# i-Q350T ILR Tag Users Guide



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## Radio Frequency Compliance Statement

IDENTEC SOLUTIONS, Inc. is the responsible party for the compliance of the following device:

MODEL: i-Q350T / i-B350T

TYPE: HH/NA

FCC ID: O2E-ILR-IQ350THH

CANADA: 3538B-IQ350THH

The user(s) of these products are cautioned to only use accessories and peripherals approved, in advance, by IDENTEC SOLUTIONS, Inc. The use of accessories and peripherals, other than those approved by IDENTEC SOLUTIONS, Inc., or unauthorized changes to approved products, may void the compliance of these products and may result in the loss of the user(s) authority to operate the equipment.

Operation is subject to the following conditions: (1) these devices may not cause harmful interference, and (2) these devices must accept any interference, including interference that may cause undesired operation of the device.

## FCC Compliance

This equipment has been tested and found to comply with the limits for a Class A digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference when the equipment is operated in a commercial environment. This equipment generates, uses, and can radiate radio frequency energy and, if not installed and used in accordance with the instruction manual, may cause harmful interference to radio communication. Operation of this equipment in a residential area is likely to cause harmful interference in which case the user will be required to correct the interference at his/her own expense.

Warning: Changes or modifications to this unit not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

## Industry Canada Compliance

This Class A digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe A respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

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## 1.0 Introduction

### 1.1 Fundamentals

IDENTEC SOLUTIONS' ILR® (Intelligent Long Range®) technology is the next generation of long range RFID (Radio Frequency Identification). The objective is wireless and automated data collection over large distances.

### 1.2 System Overview

IDENTEC SOLUTIONS' ILR-System consists of four main components:

- Active tags (also called transponders) with internal power supply, which are used to identify goods or to store data and histories
- Interrogator (i-PORT; fixed-mounted) and handheld devices (mobile), which exchange information with the tags and host computer systems
- Antennas for definition of read zone
- A central computer system as basis for control and monitoring

This manual only describes the operations of the i-Q32T active tag.

### 1.3 Operational Description

The i-DQ32T tag is a high performance active RFID tag suitable for a wide variety of applications. The tag response to an activation telegram from the interrogator is to transmit its unique identification number.

The tag has a low current FSK receiver in the UHF band for a data rate up to 115 Kbps. The PLL stabilized FSK transmitter has a data rate up to 115.2 Kbps. The operation range is 350 meters in open air, with a typical operation life of six years.

### 1.4 Features

|                                      |   |
|--------------------------------------|---|
| Low cost                             | Tracks large quantities of assets economically using high speed active technology.                        |
| 2000-tag simultaneous identification | Provides high-speed data collection to facilitate warehousing and inventory-based applications.           |
| Wireless triangulation               | Allows fast, precise location of assets in a warehouse or an inventory yard.                              |
| 64-byte data memory                  | Stores process information onto the tag to provide real-time tracking and tracing.                        |
| 100-tags/sec. identification rate    | Provides reliable identification of fast moving objects.  |
| 350-meter read/write range           | Allows identification, tracking and tracing of personnel and assets without human intervention.           |
| LED (option)                         | Provides visual identification of an addressed tag ( <i>pick-to-light</i> ).                              |
| 6-year battery life time             | Delivers long time maintenance-free operation, without battery replacement.                               |
| On-demand communication              | Eliminates RF flooding by using application-driven read/write operations.                                 |
| UHF operating frequencies            | Operates on standard North American ISM band frequency so that no radio license is required for operation |
| Non-line-of-sight data transmission  | Allows tags to be buried while transmitting for improved tracking/locating efficiency.                    |

## 2.0 Configuration

The i-Q350T tag requires no special configuration. Options are configured at the factory. It is controlled by commands from the ILR Interrogation device.

## 3.0 Mounting the Tag.

The tag is designed with two mounting holes so it can be firmly mounted onto virtually any surface. It can be mounted using various methods dependent on the particular application. Among the common types of mounting are:

- Screws
- Rivets
- Double sided tape

Note: Mounting hardware is not supplied with the tag.

## 4.0 Technical Specifications

### Performance

Read rate Up to 100 tags/s (Identification Code only)  
 Up to 35 tags/s @ 128 bit data reading  
 Max. response time < 10 ms (single tag)  
 Multiple tag handling Up to 2,000 tags in the read zone

### Communication

Read/write range: Up to 350 m (free air)  
 Operating frequency 868 MHz (EC) or 915 MHz (NA) ISM band  
 Data rate (download to tag) 115.2 kbits/s  
 Data rate (upload to reader) 115.2 kbits/s  
 Maximum transmission power 0.75 mW ERP  
 Certification EN 300 220 (EC), FCC Part 15 (US), Industry Canada

### Electrical

Power source Lithium battery (not replaceable)  
 Expected battery life > 2.5 Years @ 600 times 64 bit readings/day  
 Battery monitoring: Yes

### Data

Data retention >10 years without power  
 Write cycles 100,000 writes to a tag  
 Memory size 32Kbytes  
 Identification code 48 bit fixed ID (one in one trillion)

### Environmental

Operating temperature  $-20^{\circ}\text{C}$  to  $+70^{\circ}\text{C}$  ( $-4^{\circ}\text{F}$  to  $+158^{\circ}\text{F}$ )  
 Shock 50 G; 3 times DIN IEC 68-2-27  
 1-meter multiple drops to concrete  
 Vibration 3 G; 20 sine wave cycles; 5 Hz to 150 Hz,  
 DIN IEC 6  
 5 G; noise 5 Hz to 1000 Hz; 30 minutes  
 DIN IEC 68-2-64

### Package rating

Personnel tag IP69 — Totally sealed against moisture and dust

### Physical

Dimensions: personnel tag 55 mm x 28 mm x 6 mm  
 Case material: Macromelt OM 652  
 Mass: 27 grams

## 5.0 Technical contacts:

### In North America:

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