

Rhein Tech Laboratories, Inc.  
360 Herndon Parkway  
Suite 1400  
Herndon, VA 20170  
<http://www.rheintech.com>

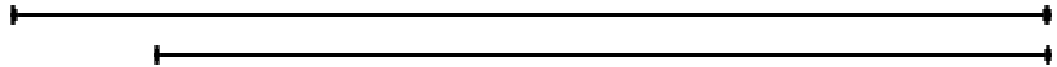
Client: Identec Solutions, Inc.  
Model: i-Q8C  
Report No: 2003095  
Standards: FCC 15.249/IC RSS-210  
Date: June 14, 2003

## **APPENDIX H: MANUAL**

Please see the following pages.



# i-Q8C ILR Tag User's Manual



IDENTEC SOLUTIONS, Inc.  
Suite 102, 1860 Dayton Street  
Kelowna, British Columbia  
Canada V1Y 7W6

Tel: (250) 860-6567  
Fax: (250) 860-6541  
[www.identecsolutions.com](http://www.identecsolutions.com)

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# Radio Frequency Compliance Statement

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

MODEL:	i-Q8C
FCC ID:	O2E-ILR-IQ8C
CANADA:	3538B-IQ8C

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 B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B 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<sup>®</sup> (Intelligent Long Range<sup>®</sup>) 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-Q8C active tag.

## 1.3 Operational Description

The i-Q8C 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. It is available in a durable, shock resistant housing for use in harsh environments.

The operation range is 30 meters (100 feet) in open air, with a typical operation life of three years.

The primary feature of this tag is its ability to connect to an ancillary device and record its hours of operation. This device may include a vehicle engine, or other device with a switch such as a lawnmower or portable generator.

## 2.0 Configuration

The i-Q8C tag interfaces to the device through a standard eight pin automotive connector. Only two of the eight pins are used in any installation.

The following diagram provides the pin number and functionality:

Pin Number	Function
2	System ground
3	IN-N terminal – This is used is a switch to ground application when the device does not have a battery or alternator signal.
4	IN-P terminal – This is used to record operating hours when connecting the tag to a battery or alternating signal.

**NOTE:** In each installation, you will make a connection to either one of pins 3 or 4, and system ground.

## 3.0 Mounting the Tag

The tag is designed with two mounting holes so it can firmly mount onto virtually any surface. It can mount 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.

When mounting the tag, consideration should be placed on where the connector is located. Avoid placement of the tag in a manner that will put stress on the connector from the wiring harness. Although operation may not be effected, it may cause premature failure of the wiring harness.

A key element in positioning the tag is also its location relative to the interrogation antennas. Do not place the tag in a metallic cavity, as this will reduce the ability to retrieve the hour meter log information from the tag and also reduce the effective communication range of the tag. For best performance, position the tag on a non-metallic backing with visibility to the interrogation antennas.

## 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	< 150 ms (single tag)
Multiple tag handling	Up to 2,000 tags in the read zone

### Communication

Read/write range to i-PORTIII	Up to 30 m (100 ft) (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	3 Years @ 600 times 128 bit readings/day
Battery monitoring	Yes

### Data

Data retention	> 10 years without power
Write cycles	100,000 writes to a tag
Memory size	8k bytes
Identification code	48 bit fixed ID (one in one trillion)

### Environmental

Operating temperature	-20°C to +70°C (-4°F to +158°F)
Storage temperature	-20°C to +70°C (-4°F to +158°F)

## 5.0 Technical Contacts

### In North America:

#### IDENTEC SOLUTIONS Inc.

#102 – 1860 Dayton Street  
Kelowna, BC  
Canada  
V1Y 7W6

Tel: (250) 860-6567  
Fax: (250) 860-6541

### In Europe:

#### IDENTEC SOLUTIONS AG

Millennium Park 2  
A-6890 Lustenau  
Austria

Tel: +43 (0) 5577 87387-0  
Fax: +43 (0) 5577 87387-15