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360 Herndon Parkway
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Herndon, VA 20170
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Client: Identec Solutions Inc.
Model: i-CARD CF-350
Standards: FCC 15.249 & RSS-210
ID's: O2E-ILR-ICARD350/3538B-ICARD350
Report #:   2008094

Appendix J: Manual

Please refer to the following pages.

i-CARD CF-350

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Radio Frequency Compliance Statement

The user(s) of the product described within this document 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.

This device complies with Part 15 of the FCC Rules. 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 (i-CARD CF-350 / NA)

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 (i-CARD CF-350 / NA)

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.

To reduce potential radio interference to other users, the antenna type and its gain should be so chosen that the equivalent isotropically radiated power (EIRP) is not more than that required for successful communication.

This device has been designed to operate with the antennas listed below, and having a maximum gain of 0 dB. Antennas not included in this list or having a gain greater than 0 dB are strictly prohibited for use with this device. The required antenna impedance is 50 Ohm.

- Antenna: MDM-9000P, manufactured by MOBILE MARK (EUROPE), LTD.

Important Note

To comply with FCC radio frequency exposure compliance requirements, this device must be installed by an IDENTEC SOLUTIONS certified technician.

The installer of this radio equipment must ensure that the antenna is located or pointed such that it does not emit RF field in excess of Health Canada limits for the general population; consult Safety Code 6, obtainable from Health Canada.

Contents

1 Safety Instructions

The system described in this manual is for exclusive operation by trained employees. Only qualified personnel that know the potential dangers involved should perform the installation, settings, maintenance and repair of the units used.

Operational Safety
The correct and safe use of these systems assumes that operating and service personnel follow the safety measures described in the manual alongside the generally acceptable safety procedures.
If there is a possibility that safe operation cannot be guaranteed the system must be switched off and secured against accidental use. Then the service unit responsible must be informed.

Safety Documents
This ILR system was designed, tested and supplied in perfect condition according to document IEC348 Safety Requirements for Electronic Units of Class 1.

Condensate / Change of Temperature
Moving the systems from a cold to a warm environment could lead to dangerous situations due to condensation. Therefore it must be ensured that the system can adjust itself to the warmer temperature.

Do not open the housing
There is no need to open the housing in order to set any ILR unit. No unit has any internal setting elements or displays. All settings are performed using software via the Service Interface.

Spare Parts
We recommend that only personnel, original products, spare and replacement parts authorized by IDENTEC SOLUTIONS be used for installation, service and repair. Otherwise IDENTEC SOLUTIONS does not accept any responsibility for materials used, work carried out or possible consequences.

IDENTEC SOLUTIONS does not accept returns of products where the regulations concerning the ESD precautions and protective packaging materials were not followed.

ESD – Electrostatic Discharge

2   Introduction

2.1   General

2.1.1   Preparations

This installation manual must be read carefully prior to starting the installation. The described installation works assume that installation materials like cable, antenna and data tag holder etc are available

2.1.2   Scope of This Document

This guide explains how to install and operate the i-CARD CF-350 when using a laptop or desktop computer.

2.1.3   Responsibility

IDENTEC SOLUTIONS is not responsible for any errors occurring in this document.

2.1.4   Updates

Updates will be provided on request. The information in this document can be changed without prior notice and IDENTEC SOLUTIONS are under no obligation.

2.1.5   Scope of Delivery—Visual Inspection

Check delivery whether it is complete and for any damages. If the delivery is not complete or damaged immediately inform the carrier. The dispatch and service organization of IDENTEC SOLUTIONS should also be informed to facilitate the repair or exchange of the system.

2.2 Technical Overview

2.3 Functionality

The i-CARD CF-350 is IDENTEC SOLUTIONS' Intelligent Long Range (ILR$^®$) radio frequency mobile interrogator in a type II CF Card format. The i-CARD CF-350 is easily integrated into portable or laptop computers and is used in conjunction with ILR$^®$ software to read and write data to tags. The flexibility of an interrogator on a CF Card allows for easy integration of ILR$^®$ into enterprise systems and permits combination with other technologies such as bar code and wireless LAN.

The i-CARD CF-350 is available in a FCC compliant version (i-CARD CF/NA) and an European versions (i-CARD CF / EU) to communicate in a global market. The signal propagation characteristics of the UHF radio band used by ILR$^®$ technology provide long-range communication and high-speed transmission rates for reliable data exchange.

Computers with an i-CARD CF-350 can communicate to tags at a distance of up to 100 meters (300 feet). The i-CARD CF-350 communicates with the all series i-Q 350 and series i-B 350 active tags.

2.4 Components

The i-CARD CF resembles a standard CF card with one addition: an external antenna. On the exposed end of the i-CARD CF, there are an MMCX antenna connector and a bi-color status LED indicating Transmit, Receive and Host Communication. The exact meaning of the color depends on the firmware version installed on the card.

Note

The current version only supports a quarter wavelength antenna available under P/N 887124 from IDENTEC SOLUTIONS and equivalent internal antennas for hand-helds.
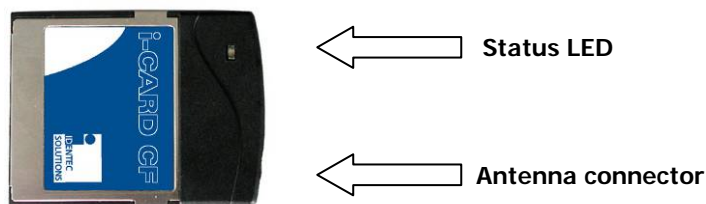

Figure 1: i-CARD CF Components

3   Installation

The i-CARD CF-350 is easy to install—simply attach the antenna, insert the i-CARD CF-350 into the desired computer (if necessary use a standard PCMCIA-CF adapter) and install the necessary hardware driver for the specific operating system. The following sections describe each of these steps in detail.

Note

The hardware driver only needs to be installed the first time an i-CARD CF is inserted into a computer or when performing an upgrade to the driver.

3.1   Mechanical Installation

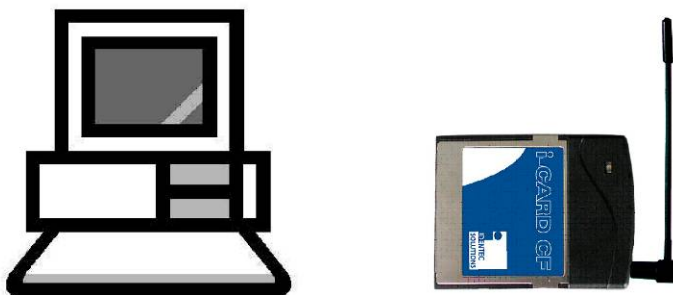To install the external antenna, grasp its base and insert it into the antenna connector until it locks into place.

Figure 2: Antenna Installation

To remove the antenna, grasp the base firmly and remove carefully to avoid damage.

3.2   Driver Installation

The computer being used for i-CARD CF-350 operations must be running one of the following operating systems: Windows 2000/XP.

To install the i-CARD CF-350, perform the following steps:

1.   Insert the ILR$^®$ Installation Disk (either floppy disk or CD) into the computer that will operate the i-CARD CF-350.

2.   Insert the i-CARD CF-350 into the CF card slot of the desktop or laptop computer.
     An installation wizard will start immediately after the i-CARD CF-350 is inserted.

3.   Complete the wizard instructions

Note

A readme.txt file is available for each operating system on the ILR$^®$ Installation Disk and contains the same instructions that are described in the following sections.

3.2.1 Windows 2000/Windows XP

The following section describes how to install the device driver on Windows 2000 and Windows XP. When the i-CARD CF-350 is inserted into the CF slot, an installation wizard begins automatically.

Select the "Search for a suitable driver for my device" option and click "Next".

Selecting a search location depends on the type of ILR$^®$ Technical CD you received.

For a search location, select the "Floppy Disk Drives" option, and click "Next". Click the "Browse" button to copy drivers from your ILR$^®$ Technical CD:

Using the "Browse" dialog box, select the \ILR_Support_Kit\iCARD CF\Drivers\Win_2000_XP folder. Select the iCARD-CF.inf file, then click OK.

The hardware driver is loaded and a confirmation screen appears. This screen verifies that the installation has completed successfully. Click Next to complete the installation.

The hardware driver installation is now complete.

Note

There is no special driver on the CD. Supplied .inf file instructs Windows to use the standard serial driver contained in the system.

Note

If you have problems installing the driver under Windows 2000 please make sure you have the latest Service Pack installed. Please refer to Article 281505 in Microsoft Knowledge Base.

4 Usage

After completing the i-CARD CF-350 installation, please refer to the user's guide of the applicable software to continue with the system implementation.

5 Application program rules

Due to national restrictions not all parameter values are valid in each version of the i-CARD CF-350. Programmers of application software are strongly recommended to read the documentation which comes with the development package.

Note

When trying to set an operation mode or output power which is not allowed in the national version the i-CARD CF returns with an error code. Please refer to the library manual.

According to ERC/REC70-03 a maximum duty cycle of 1 % (i-Q350 tags) is allowed in Europe. Due to the protocol used on the RF link this means no restrictions for interactive operation. However in continuously running applications the application programmer must ensure observance of these rules. For details please see the documentation which comes with the development package.

To minimize spurious radiation consecutive scans must be separated by pauses with a length of at least 0.2 seconds. Again this is no restriction for interactive application as a scan is typically followed by manual selection of a tag in a list which normally lasts longer than this required time.

6 Maintenance

6.1 General

In principle, the ILR system is maintenance-free. When correctly installed it operates for many years without any problems.

6.2 Precautionary Maintenance

Regular checking of all ports and cables belonging to the system is recommended. Unstable connections could lead to damage and malfunctions of the system and therefore should be repaired as soon as possible.

A Brief Checklist

- Are all casing intact?
- Are all cables intact?
- Are all connectors intact?
- Are all connectors securely fastened?
- Are all screws still tight?
- Is there suddenly a malfunction at a specific unit?

6.3 Spare Parts

6.3.1 Recommended spare parts stock

In order to keep the down time of the system during malfunctions as short as possible it is recommended to have certain spare parts in stock. At least one central unit, one antenna and one antenna cable should be available. With larger systems with more than approx. 15 interrogators (i-CARD, i-PORT) the doubling of the recommended stock quantity should be considered. Furthermore, it is recommended to have several spare tags in stock, corresponding to approx. 0.5 – 1 % of the total number of tags.

6.3.2 Preparing the spare parts

In general all spare parts can be used immediately after delivery from IDENTEC SOLUTIONS. However, for the compact communicator there are various settings of the communication parameters. In order to keep the down times short it is recommended to set these parameters before the component is entered into the spare part stock system. In most cases all units within an identification system are used in the same way so that only one setting is required.

6.3.3 Examination and repair of exchanged parts

The data tags and compact communicators are complex electronic power units on which the customer can carry out only very limited repairs. Normally the repairs are carried out at IDENTEC SOLUTIONS or possibly at a distributor.
Before a part is sent in for repair a short examination should be carried out.

6.4 Returns

Parts or main components returned for repair or exchange must be handled with great care. PC cards must be returned in the appropriate ESD-protecting packaging material.
All returns should include a completed returns form (see appendix) and be sent to the local distributor or to:

IDENTEC SOLUTIONS AG
Service Department
Millenium Park 2
6890 Lustenau
AUSTRIA / AUTRICHE

7 Technical Specifications

Tag Compatibility

i-CARD CF-350/EU	all of series i-Q350/EU (e.g. i-Q350 GPS/EU)
	all of series i-B350/EU (e.g. i-B350T/EU)
i-CARD CF-350/NA	all of series i-Q350/NA (e.g. i-Q350 WAM/NA,
	i-Q350 GPS/NA, i-Q350T HH/NA)
	all of series i-B350/NA (e.g. i-B350T HH/NA)

Performance

Read/write range (adjustable)	100 m (300 ft)
Read rate (ID only) *	100 tags/s
Read rate *	35 tags/s @ 128 bit data reading
Multiple tag handling *	Up to 2,000 tags in the read zone

* Applies only when using series i-Q350 tags

Communication

Frequency	850 – 928 MHz (depending on national regulations)
Certification	Pending FCC, IC and CE
Number of antennas	1
Output power	Up to 10 mW (depending on national regulations)
Sensitivity	–105 dBm (depending on data rate)

CPU

Hardware drivers for different O/S	Windows 2000/Windows XP
Program memory	64 kBytes Flash

User Interfaces

Parallel interface	CF standard
Number of status indications	1 LED (bi-color)

Electrical

Input power	3.3 V DC or 5 V DC ±5 %
Power consumption	< 50 mA (operating)
Standards/Safety	CE

Environmental

Operating temperature	–20°C to +60°C (–4°F to +140°F)
Storage temperature	–40°C to +80°C (–40°F to +176°F)
Humidity	max. 90 % non-condensing

Physical

Dimensions	Standard Type II CF Card
Enclosure	Metal/ABS
Mass	15 grams (0.53 oz)