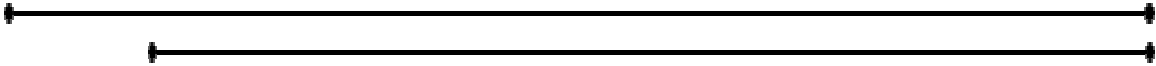# i-CARD III User's Guide

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Radio Frequency Compliance Statement

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

MODEL:	i-CARD III
FCC ID:	O2E-ILR-ICARDIII
CANADA:	3538B-ICARDIII
EUROPE:	CE 0678(!)

The user(s) of these products are cautioned to only use accessories and peripherals approved, in advance, by IDENTEC SOLUTIONS. The use of accessories and peripherals, other than those approved by IDENTEC SOLUTIONS, 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 (i-CARD III / 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.

FCC External Label Requirements (i-CARD III/NA)

In accordance with FCC requirements, when this equipment is installed inside another device, such that the product label is no longer visible, the device must bear the following label referring to the enclosed module:

Contains FCC ID:
O2E-ILR-ICARDIII

The installer of this device is responsible to ensure this label is applied in accordance with these requirements.

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Industry Canada Compliance (i-CARD III / 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.

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.

European Notification according R&TTE Directive (i-CARD III / EU)

This equipment complies to Art. 6.4 of R&TTE Directive (1999/5/EC) and can be used in the following European countries:

Belgium, Denmark, Finland, France, Germany, Ireland, Luxembourg, Netherlands , Austria, Portugal, Sweden, Spain, United Kingdom, Norway, Switzerland.

European Notification according R&TTE Directive (i-CARD III / EU / I)

This equipment complies to Art. 6.4 of R&TTE Directive (1999/5/EC) including national restrictions in Italy according ERC/REC 70-03 Annex 1 Band I and can be used in above noted European countries and Italy.

Antenna Installation Notes

To comply with FCC RF exposure limits, patch and YAGI antennas must be professionally installed with a minimum distance of 20cm or more from the body of all persons.

When installing the YAGI antenna, the output power of the device must not exceed 21dBm. The device will be factory configured so not to exceed this value. The output power may only be decreased below this value.

Table of Contents

1.0   Overview

This guide explains how to install and operate the PC version of the i-CARD III when using a laptop or desktop computer.

1.1 Functionality

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

The i-CARD III is available in a FCC compliant version (i-CARD III/NA) and two European versions (i-CARD III / EU and i-CARD III / EU / I) 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.
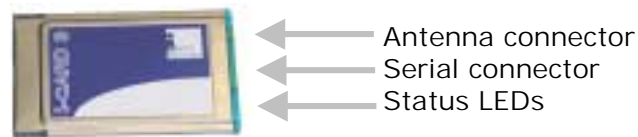
Computers with an i-CARD III can communicate to tags at a distance of up to 10 meters (33 feet). The i-CARD III communicates with the entire i-Q and i-D active tag product line.

The installation and usage instructions for the i-CARD III are identical for all versions.

1.2 Components

The i-CARD III resembles a standard PC card. On the exposed end of the i-CARD III are: a MMCX antenna connector, a 15-pin serial connector (not used in the PC version of the i-CARD III) and 3 status LEDs indicating *Transmit*, *Receive* and *RF Carrier Detect.* These LEDs are operational after appropriate ILR® software is installed.

Figure 1: i-CARD III Components

Antenna connector
Serial connector
Status LEDs

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2.0 Installation

To install the i-CARD III, attach the antenna, insert the i-CARD III into the desired computer 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 III is inserted into a computer or when performing an upgrade to the driver.

2.1 Hardware

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

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

2.2 Software

The computer being used for i-CARD III operations must be running one of the following operating systems: Windows XP/NT/98/ME/2000/CE.

To install the i-CARD III, perform the following steps:

1. Insert the **ILR® Installation Disk** (either floppy disk or CD) into the computer that will operate the i-CARD III.

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

3. Complete the wizard instructions and refer to the following sections for additional instructions specific to each operating system:

For O/S:	Go to section:
2000/XP	2.2.1
98/ME	2.2.1
NT	2.2.2
CE	2.2.3

> 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.
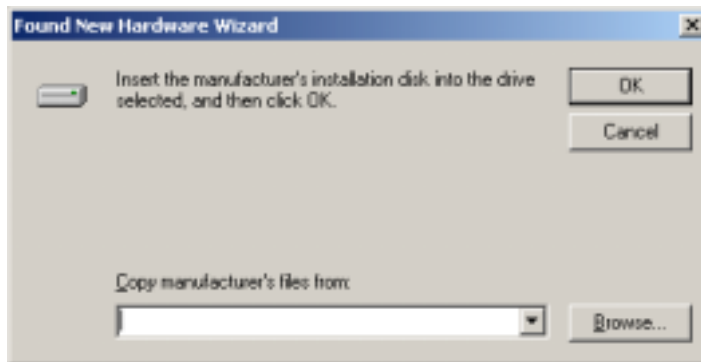
2.2.1 Windows 98/ME/2000/XP

The following section describes how to install the device driver on Windows 98/ME/2000 and XP. When the i-CARD III is inserted into the PC slot, an installation wizard begins automatically and the following screen appears:

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

Selecting a search location depends on the type of **ILR® Installation Disk** 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® Installation Disk**:

Using the *Browse* dialog box, select the *\drivers\Windows 98* folder. Select the *i-CARD III.inf* file, then click *OK*.

> Note: The driver used for Windows ME is the same as Windows 98 and is stored in the subfolder *Windows 98* on the **ILR® Installation Disk***.*
>
> Note: The driver used for Windows XP is the same as Windows 2000 and is stored in the subfolder *Windows 2000* on the **ILR® Installation Disk***.*
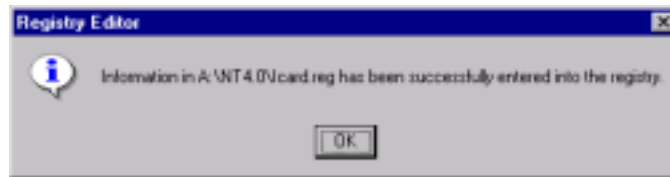
The hardware driver is loaded and a confirmation screen appears. This screen verifies that the installation has completed successfully. Click *Next* to complete the installation.

The hardware driver installation is now complete.

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2.2.2 Windows NT

To perform the following steps, administrator rights are required because you will need to modify your machine's registry.
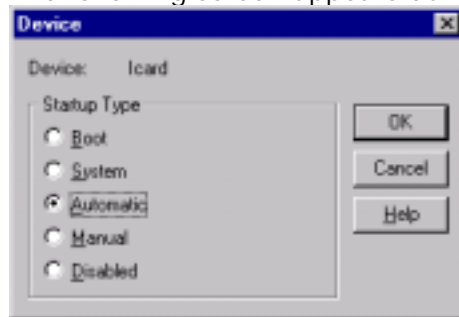
Step 1. On the *ILR installation disk*, go to the *\drivers\WindowsNT* folder, and double click on the *icard III.reg*. The following dialogue box appears:
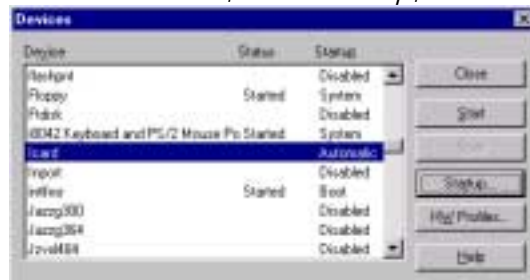

Click *OK*

Step 2. Copy the *icard.sys* file from *\drivers\WindowsNT* folder to the *\Winnt\system32\Drivers* folder on the computer operating the i-CARD.

Step 3. Remove the floppy disk and reboot the computer.
The following screen appears during startup:

Select the *Startup Type* of the i-CARD device. The *Startup Type* will vary from user to user depending on the type of PCMCIA software installed. By default, Windows NT does not support plug and play devices, therefore the *Startup Type* should be set to *Automatic*. If you have additional software that permits plug and play devices, then the *Startup Type* should be set to *Manual*.

If the above screen does not appear, go to Control Panel→Devices and select the *Icard* device, click *Startup*, then click *Close*.

The hardware driver installation is now complete.

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2.2.3   Windows CE

Step1: Be sure you have your Handheld device in its Cradle and that you have an Active Sync session established between your PC and the Handheld. Consult your Handheld user's manual if you require assistance in establishing an Active Sync session.
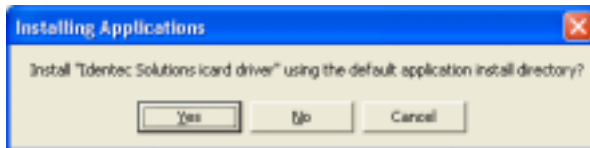
Step2: Confirm your handheld device has the StrongArm Processor.

Step3: Execute the setup.exe
icard_arm_setup.exe

Step4: Double click on the setup.exe and an installation wizard begins with the following screen:

Select next and follow the installation instructions. When the default directory dialogue box appears, select 'Yes' and continue the installation process.

Finally, you will be prompted to check your Handheld device for additional installation steps. These steps will vary depending on the Handheld device used.

When the install is finished you must power off your handheld and power it back on to complete the driver initialization.

The hardware driver installation is now complete.

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3.0   Usage

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

The i-CARD III can be used in conjunction with software applications, such as i-LINKS or other ILR® custom applications.

4.0   Application program rules

Due to national restrictions not all parameter values are valid in every version of the i-CARD III.

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

For further information on these requirements, please contact IDENTEC SOLUTIONS.

Appendix A: Technical Specifications

Type II PC i-CARD III

Compatibility

ILR® tags	i-Q xx /EU (i-CARD III/EU, i-CARD III/EU/I)
	i-Q xx /NA (i-CARD III/NA)
	i-D (i-CARD III/EU, i-CARD III/EU/I, i-CARD III/NA)

Performance

Read range (adjustable)	10 m (33 ft)
Write range (adjustable)	10 m (33 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

Communication

Frequency Downlink	868.350 MHz (i-CARD III/EU, i-CARD III/EU/I)
	869.525 MHz (i-CARD III/EU, i-CARD III/EU/I)
	905-918 MHz (i-CARD III/NA)
Frequency Uplink	868.350 MHz (i-CARD III/EU, i-CARD III/EU/I)
	916.500 MHz (i-CARD III/NA)
Certification	EN 330 220 (EU); FCC part 15 (US); Industry Canada
Number of antennas	1
Output power	Up to 24 dBm (i-CARD III/EU, i-CARD III/NA)
	Up to 14 dBm (i-CARD III/EU/I)
Sensitivity	−85 dBm (high sens.), -45 dBm (low sens.)

CPU

Hardware drivers for different O/S	Windows NT/98/ME/2000/XP/CE, PALM OS
Program memory	2 MB Flash

User Interfaces

Parallel interface	PCMCIA
Serial interface	RS-232
Number of status indications	3 LEDs

Electrical

Input power	5 V DC ± 5%
Power consumption	100 mA
Standards / Safety	CE

Environmental

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

Physical

Dimensions	Standard Type II PC Card
Enclosure	Metal
Mass	32 grams (1.13 oz)

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