



i-CARD CF User's Guide Version 1.2

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Radio Frequency Compliance Statement

IDENDEC SOLUTIONS AG. is the responsible party for the compliance of the following devices:

MODEL:	i-PORT	i-CARD CF	i-D TAGS	i-Qxx TAGS
FCC ID:	O2E-ILR-IPORT	OO4-ILR-ICARDCF	OO4-ILR-ID2	OO4-ILR-IQ8T or OO4-ILR-IQR
CANADA:	35381032062A	Pending	3538A 12112	35381021756A or 35381021825
EUROPE:	CE 0678(!)	CE	CE 0678(!)	CE 0682(!)

The user(s) of these products are cautioned to only use accessories and peripherals approved, in advance, by IDENDEC SOLUTIONS. The use of accessories and peripherals, other than those approved by IDENDEC 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 CF / 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 / 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 CF / EU)

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

Austria, Belgium, Denmark, Finland, France, Germany, Greece, Iceland, Italy, Ireland, Luxembourg, Netherlands, Norway, Portugal, Switzerland, Sweden, Spain, United Kingdom, Czech Republic, Cyprus, Estonia, Hungary, Lithuania, Latvia, Malta, Poland, Slovenia.

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1.0 Overview

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

1.1 Functionality

The i-CARD CF is IDEN TEC SOLUTIONS' Intelligent Long Range (ILR[®]) radio frequency mobile interrogator in a type II CF Card format. The i-CARD CF is easily 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 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 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 can communicate to tags at a distance of up to 10 meters (33 feet). The i-CARD CF communicates with the entire i-Q active tag product line including i-Q8, i-Q8T, i-Q32, and i-Q32T tags and in a second version with the i-B tag family.

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

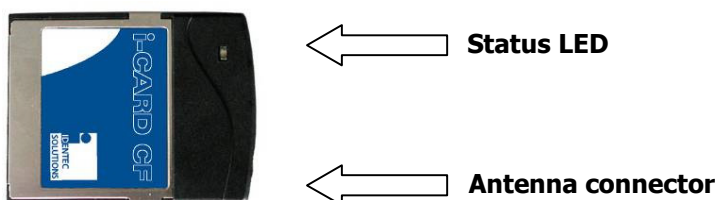
1.2 Components

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 IDEN TEC SOLUTIONS and equivalent internal antennas for hand helds.

Figure 1: i-CARD CF Components



2.0 Installation

The i-CARD CF is easy to install—simply attach the antenna, insert the i-CARD CF 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.

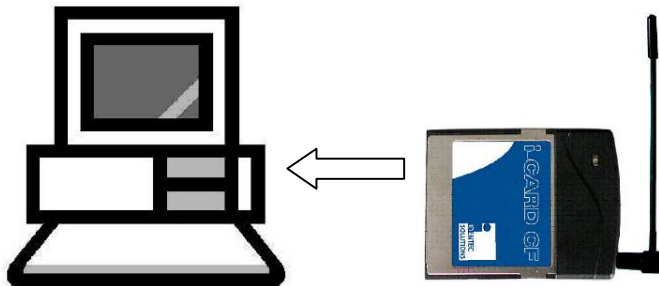


Note: The hardware driver only needs to be installed the first time an i-CARD CF is inserted into a computer or when performing an upgrade to the driver.

2.1 Hardware

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.

2.2 Software

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

To install the i-CARD CF, 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.
2. Insert the i-CARD CF into the CF card slot of the desktop or laptop computer. An installation wizard will start immediately after the i-CARD CF 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.

2.2.1 Windows 98/2000/Windows XP

The following section describes how to install the device driver on Windows 98, Windows 2000 and Windows XP. When the i-CARD CF 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|Win98_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.

3.0 Usage

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

The i-CARD CF can be used in conjunction with a variety of software applications, such as i-DEMO, TempDemo and other ILR® custom applications.

4.0 Application program rules

Due to national restrictions not all parameter values are valid in each version of the i-CARD CF. 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-Q- 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.

Appendix A: Technical Specifications

Type II i-CARD CF

Compatibility

ILR [®] tags	i-Q xx /EU	(i-CARD CF Q/EU)
	i-Q xx /NA	(i-CARD CF Q/NA)
	i-B xx /EU	(i-CARD CF B/EU)
	i-B xx /NA	(i-CARD CF B/NA)

Performance

Read range (adjustable)	10 m (33 ft)
Write range (adjustable) * ¹	10 m (33 ft)
Read rate (ID only) * ¹	100 tags/s
Read rate * ¹	35 tags/s @ 128 bit data reading
Multiple tag handling * ¹	Up to 2,000 tags in the read zone

Communication

Frequency Downlink	868.350 MHz (i-CARD CF Q/EU)
	916.500 MHz (i-CARD CF Q/NA)
Frequency Uplink	868.350 MHz (i-CARD CF x/EU)
	916.500 MHz (i-CARD CF x/NA)
Certification	EN 330 220 (EU); FCC part 15 (US); Industry Canada
Number of antennas	1
Output power	Up to 0 dBm (i-CARD CF Q/xx)
Sensitivity	-85 dBm (high sens.), -45 dBm (low sens.)

CPU

Hardware drivers for different O/S	Windows 98/2000/XP
Program memory	64 kB Flash

User Interfaces

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

Electrical

Input power	3.3 V DC or 5 V DC \pm 5%
Power consumption	< 50 mA (operating)
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 CF Card
Enclosure	Metal
Mass	15 grams (0.53 oz)

Remark: *¹ Applies only to versions compatible with i-Q tag family (i-CARD CF Q/xx)