TRACIENT
TECHNOLOGIES
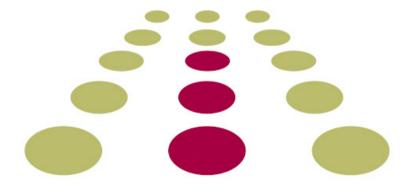
RFID Reader
User Manual

Explore-R HF
RFID Reader User Manual

Quick Start Guide

Thank you for choosing the RFID Reader from Tracient. Before you start using your RFID Reader please read the following instructions:

- Install the software provided on the CD-ROM, before connecting your RFID Reader to the PC.
- To install the software you need a PC that runs Microsoft Windows XP and is compatible with the provided USB cable.
- The RFID Reader will need charging for at least 2 hours before use. After installing the software, charge the RFID Reader by connecting it to the PC using the provided USB cable.
- After installation of the software, user manuals for the RFID Reader and TraceConnect software are available in electronic format on the PC or CD-ROM.
- AN09 – Virtual COM Port Connections on Bluetooth Enabled Laptops and Desktop Computers

Important Notice!

Install the software supplied with the Reader before connecting the Reader to the PC. Failure to do so may cause problems when using the Reader with the PC.

Overview of Features

Hardware

The Explore-R RFID Reader has the following features:

- Battery powered.
- Status LED's.
- Bluetooth Enabled.
- USB Connection for battery charging, data downloads and configuration.

Software

The TraceConnect software supplied with the Reader gives you everything you need to evaluate your RFID reader. The software supplied has the following features:

- *Control Panel Applet* for configuration of the Reader for both the PC and PDA.
- *RFID Wedge* for capturing Tags for PC and PDA applications.
- *RFID Sync* log download application for the PC.

Software Developers Kit (SDK)

If you have purchased the SDK version, software will be provided that gives you the tools to begin developing your own applications. The SDK includes:

- The SDK, a programming interface for Tracient RFID products.
- Example software (including source code) for PC.
- Documentation.

Using the Explore-R HF

Using the Button

The push button is used to operate the Explore-R. This provides a means of turning the Reader On, OFF and initiating a tag read.

Single button press – Press the button, then remove your finger

Long Press – Hold your finger on the button until the reader responds and then remove your finger from the button

Charging the Explore-R Battery

The Explore-R is powered by a Lithium-Ion battery. The battery is charged via the USB port on a PC or via one of the other charging accessories that can be purchased separately. Whenever the Explore-R is connected to a PC the battery will be charged. When charging, the Amber LED will be on.

Charging times vary depending on the state of the battery. It is recommended that the battery is charged when not in use. Doing so ensures the battery is kept in working order. A full charge takes approx 2 Hrs.

Low Battery Indication

The Explore-R indicates a low battery condition by continuously flashing the Amber LED. If this happens it is recommended that you give the Padl-R a full charge.

Turning the Explore-R ON

Press the button. The Blue LED flashes 3.

If the battery is flat the Explore-R will turn straight off again. This will be seen as the Blue LED flashing 6 times in quick succession.

Turning the Explore-R OFF

Press and hold the button. The Blue LED flashes 3 times. The Explore-R is also equipped with an auto shutdown feature. The factory default for this feature is to shutdown after 20 minutes of inactivity.

If the Explore-R is plugged into a USB connection, the auto power OFF will not operate.

Reading a Tag

To read a Tag, present a compatible Tag to the Reader's antenna area. Press and release the button.

- In Single Read Mode the Reader will flash Green to indicate a successful read and Red to indicate a failed read attempt.

Explore-R Use and Maintenance

Firmware Upgrades

Your Reader has the ability to have its firmware upgraded in the field via the USB interface. These upgrades will be available for download from the Tracient website (www.tracient.com).

Accessories

A full range of accessories are available for the Explore-R. These include:

- Various charging options, such as mains and car chargers
- Protective boots, to provide additional weather and mechanical protection
- Key fobs and chains
- Other RFID Tags

For a complete list of available accessories or requests for other RFID products or services, please contact Tracient or visit the website (www.tracient.com).

Battery Handling and Care

This RFID Reader contains a Lithium-Ion battery. To get maximum performance from the Reader follow the instructions relating to charging in the supplied manual.

Battery charging is controlled by the device when connected either to a PC via a USB cable, or to other Tracient specified chargers.

The battery should not be removed, unless done so by an authorized Tracient service engineer.

Charging the Battery

Charge the battery for at least 10 hours before use.

Be sure to follow the warnings listed below while charging the battery. Failure to do so may cause the battery to become hot, explode, or ignite and cause serious injury.

- When charging the battery, use a specified battery charger.
- Do not continue charging the battery if it does not recharge within the specified charging time. Doing so may cause the battery to become hot, explode, or ignite.

The temperature range over which the battery can be charged is 0℃ to 45℃.

Charging the battery at temperatures outside this range may cause severe damage to the battery or reduce battery life.

Using the Battery

Battery packs may get hot, explode, or ignite and cause serious injury if exposed to abuse conditions. Be sure to follow the safety warnings listed below:

- Do not place the battery in fire or near a heat source. Doing so may cause the battery to explode, ignite, or result in a loss of performance.
- Do not install the battery backwards.
- Do not short circuit the battery.
- Do not puncture the battery, deform or subject it to strong impacts or shocks.

- Do not allow the battery to get wet.
- Do not disassemble or modify the battery. The battery contains safety and protection devices, which, if damaged may cause the battery to generate heat, explode, or ignite.
- Immediately discontinue use of the device if during use or charging, the battery emits an unusual smell, feels hot, changes colour or shape, or appears abnormal in any other way.
- Do not place the battery in microwave ovens, high-pressure containers, or on induction cookware.
- In the event the battery leaks and the fluid gets into one's eye, do not rub. Rinse well with water and immediately seek medical care. If left untreated, the battery fluid could cause damage to the eye.

Discharging the Battery

Do not discharge or use the battery in devices other than the RFID Reader. Doing so may reduce the battery's life or cause abnormal battery conditions which may result in the battery becoming hot, exploding, or causing serious injury.

The temperature range over which the battery can be discharged is -20℃ to 60℃. Use of the battery outside this temperature range may reduce the performance of the battery.

For Your Safety

Read these guidelines before using your Reader. Failure to comply with these guidelines may be dangerous or illegal.

Road Safety

Do not operate a vehicle while using the Reader.

Interference

Device performance may be affected by interference.

Hospitals and Pacemakers

Do not operate the Reader near medical equipment or pacemakers.

Aircraft

It is illegal to use wireless devices on aircraft.

Refueling

Do not use the Reader when refueling or near chemicals.

Use Qualified Service

This Reader has no user-serviceable parts. Only qualified personnel may repair or service this equipment.

Accessories

Use only approved accessories. Do not connect incompatible products.

Batteries

This Reader is equipped with a Lithium Ion Battery. Do not incinerate.

Troubleshooting Guide

Problem	Possible Cause / Suggested Action
Power Problems	
The Explore-R will not turn ON.	The battery is flat. Plug the Explore-R into a PC (The PC must be ON) for charging.
Reader switches OFF very frequently.	Check the Auto Power OFF setting using the Control Panel Applet.
Amber LED flashing continuously.	The battery needs charging.
Bluetooth Problems	
Cannot connect to the Explore-R via Bluetooth.	Check the following: ■ Connect to the Reader from a PC via USB using the *Control Panel Applet* and ensure the *Enable Bluetooth* feature under the *Settings* tab is enabled. ■ Disconnect the Explore-R USB cable. ■ Turn on the Explore-R. ■ Charge the battery.
I cannot find the Padl-R when searching using Bluetooth.	■ The Explore-R is OFF. ■ The Explore-R is connected to a PC via the USB cable. ■ Connect to the Reader from a PC via USB using the *Control Panel Applet* and ensure the *Enable Bluetooth* feature under the *Settings* tab is enabled. ■ There is a problem with your PC or PDA.
When ever I lose the Bluetooth Connection the Explore-R turns off.	Select the Unplug and Stay ON feature under the Settings tab in the Control Panel Applet.
I still cannot get the Bluetooth working.	Check the *Bluetooth address* on the *Main* tab of the *Control Panel Applet*. If this is blank, contact Tracient for assistance.
USB Problems	

I cannot find the Explore-R when searching using USB.	■ The Explore-R is OFF. ■ The Explore-R is not connected to the PC via the USB cable. ■ There is a problem with your PC.
I cannot connect to the Explore-R using USB.	■ The Explore-R is OFF. ■ The Explore-R is not connected to the PC via the USB cable.
The Explore-R is not recognised when Connected via USB.	The USB Driver for the Explore-R may not be installed correctly. ■ Open Control Panel and select the System program ■ Select the System Tab and click on the Device Manager button ■ With the Explore-R connected to the PC, check for an Unknown Tracient device in the list. ■ Uninstall this device ■ Re connect the Explore-R, The device should install correctly as long as the RFID connect software has been installed fully.

Tag Reading Problems	
Explore-R fails to read the Tag.	Check: ■ The Explore-R is set up to read that particular Tag. Check the *Tag type* settings in the *Control Panel Applet*. ■ The Tag is not too far from the Explore-R's antenna.
Every time I read a Tag the Explore-R turns off.	The battery is low. Recharge the Explore -R.
Every time I read a Tag the Explore -R loses the Bluetooth connection.	The battery is low. Recharge the Explore -R.
PDA Problems	
I cannot find the applications on the PDA.	Synchronies the PDA to the PC. The applications and necessary software will be installed automatically.

LED Flash Indications

Condition	Duration	Sequence	Colour
Power On	Temporary	3 Short Flashes	Blue
On	Continuous	1 Short Flash	Blue
Power Down	Temporary	3 Short Flashes	Blue
Battery Low	Continuous	1 Short Flash	Amber
Battery Charging	Continuous	On	Amber
Battery Charged	Continuous	Off	Amber
Fault	Continuous	1 Short Flash	Red
Read Tag Modes			
Continuous Read Mode	Continuous	1 Long Flash + 1 Short Flash	Blue
Good Read	Temporary	2 Short Flashes	Blue

Audio Beep Indications

The Explore-R does not support audio functions.

Explore-R HF Specifications

Power Supply	
Power Supply (Internal)	3.7V / 160 mAh Li-Ion battery
Power Supply (External)	+5V DC @ 100mA Max
Battery Charging	Via USB Mini-B Connector

Wireless Interface	
Bluetooth	Bluetooth Standard V1.1
Pairing with other devices	Can be discovered and paired by a PDA or Bluetooth enabled device.
Profile	Serial Port Profile (SPP)

RF	
Operating Frequency	13.56MHz Region - Worldwide
Read Range	Approx 10 cm's
Air Interface Standards	ISO 14443 Mifare Type A Philips ICODE I ISO15693 Tag-IT ISO18000-3 Data Rates 26 kbps (ISO 15693)
	106 kbps (ISO14443)
Tag Type	Passive
Antenna	Internal

User Interface	
Visual	Coloured LEDs
Operation	Single button

Mechanical	
Dimensions (L x W x D)	53x82x17 mm
Weight	49 grams
Material and Finish	PMMA, Black

Environment	
Water and Dust Ingress	IEC 529 IP54
Shock	Can withstand a drop of 1.2m to plywood on all faces and corners.
Vibration	Random 1.9grms (non operational), 1hour all axis. Random 0.95grms (operational), 1hour all axis.
Operating Temperature	-10 – 55 deg C
Humidity	10 - 90% non condensing

Limitations and Recommendations

Tracient accepts no liability for damage to devices connected to, or operated with the RFID Reader. The examples, code and SDK are provided for end users and are to be used at the end user's own risk.

In order to avoid or minimise potential risk of ergonomic injury follow the recommendations below:

- Reduce or eliminate repetitive motion
- Maintain a natural position
- Keep device within easy reach
- Improve work procedures

All Tracient devices are designed to be compliant with rules and regulations applicable for the locations they are sold into. Any changes or modifications made to the device without Tracient's approval could void the user's authority to operate the device.

Warranty Statement

Tracient manufactures its hardware products in accordance with industry standard practices. Tracient warrants that for a period of twelve (12) months from date of shipment, products will be free from defects in materials and workmanship. This warranty is provided to the original owner only and is not transferable to any third party. It shall not apply to any product (i) which has been repaired or altered unless done or approved by Tracient, (ii) which has not been maintained in accordance with any operating or handling instructions supplied by Tracient, (iii) which has been

subjected to unusual physical or electrical stress, misuse, abuse, power shortage, negligence or accident, or (iv) which has been used other than in accordance with the product operating and handling instructions. The Customer must notify Tracient in writing within 7 days of the alleged defect first coming to the Customer's notice, and the Customer must at this time also state the date and place of the purchase. Preventive maintenance is the responsibility of the customer and is not covered under this warranty. Tracient shall not be responsible for any defect in products arising as a result of defects in any third party software or hardware.

Items and accessories having a Tracient serial number will carry a 90-day limited warranty. Non-serialized items will carry a 30-day limited warranty.

Warranty coverage and procedure

During the warranty period, Tracient will repair or replace defective products returned to Tracient's headquarters in Christchurch, New Zealand or an authorized service agent. Products must be shipped in the original or comparable packaging, shipping and insurance charges prepaid. Tracient will ship the repaired or replacement product freight and insurance prepaid within New Zealand only. The removal of the defective equipment and the installation of any repaired or replacement parts shall be performed by the Customer at its own expense.

Subject to any service contract between the Customer and Tracient and with respect to products not capable of removal and return to Tracient, in such cases Tracient will use its best endeavors to remedy any defect by remote repair, advice or upgrade. In the event that such defect is not able to be repaired in the manner provided above,

Tracient will, at the Customer's request, undertake repairs at the cost of the Customer.

Tracient will use new or refurbished parts at its discretion and will own all parts removed from repaired products. The customer will pay for the replacement product in case it does not return the replaced product to Tracient within 3 days of receipt of the replacement product. The process for return and Customer's charges will be in accordance with Tracient's Exchange Policy in effect at the time of the exchange.

The customer accepts full responsibility for its software and data including the appropriate backup thereof. Repair or replacement of a product during warranty will not extend the original warranty term.

General

Except for the warranties stated above,

Tracient disclaims all warranties, express or implied, on products furnished hereunder, including without limitation implied warranties of merchantability and fitness for a particular purpose. The stated express warranties are in lieu of all obligations or liabilities on part of Tracient for damages, including without limitation, special, indirect, or consequential damages arising out of or in connection with the use or performance of the product.

Tracient's liability for damages to buyer or others resulting from the use

of any product shall in no way exceed the purchase price of said product, except in instances of injury to persons or property. Some states (or jurisdictions) do not allow the exclusion or limitation of incidental or consequential damages, so the proceeding exclusion or limitation may not apply to you.