Quick Reference Guide

IR-U-POE (USA) / IR-E-POE (European)
First Edition (May 2014)

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Document History

Author	Version	
C.R.	Pre 0.1	Initial Version
	Pre 0.2	Picture and program description Installer chapter
	Pre 0.3	Disclaimer
C.R.	Release 1.0	First Edition (May 2014)

1 Getting Acquainted

Congratulations on purchasing a GTSYS Integraded RFID Reader. The reader can be delivered for 860 - 960 MHz (subject to regulatory region). The supported protocols are EPC Class1Gen2 / ISO18000-6C.

It has been verified to work with tags from:

- Alien
- Avery Dennison
- Impinj
- Mikoh
- RSI/Sirit
- TI
- UPM Raflatac

The read range is up to 10m, depending on the tag used and power setting.

Use this guide for more information on setting up your RFID Reader and learning how it works.

Next Chapter: Installing the IR-U-POE

Install the APTool software. The software program can be copied from the CD to your PC.

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2 Installing the IR-U-POE

2.1 Installation pre-requirements

- PC with a minimum Pentium 4 class CPU
- Microsoft ® Windows 7, Linux or MAC
- 100 MB available hard drive space
- Ethernet TCP/IP network with DHCP service

2.2 Software installation

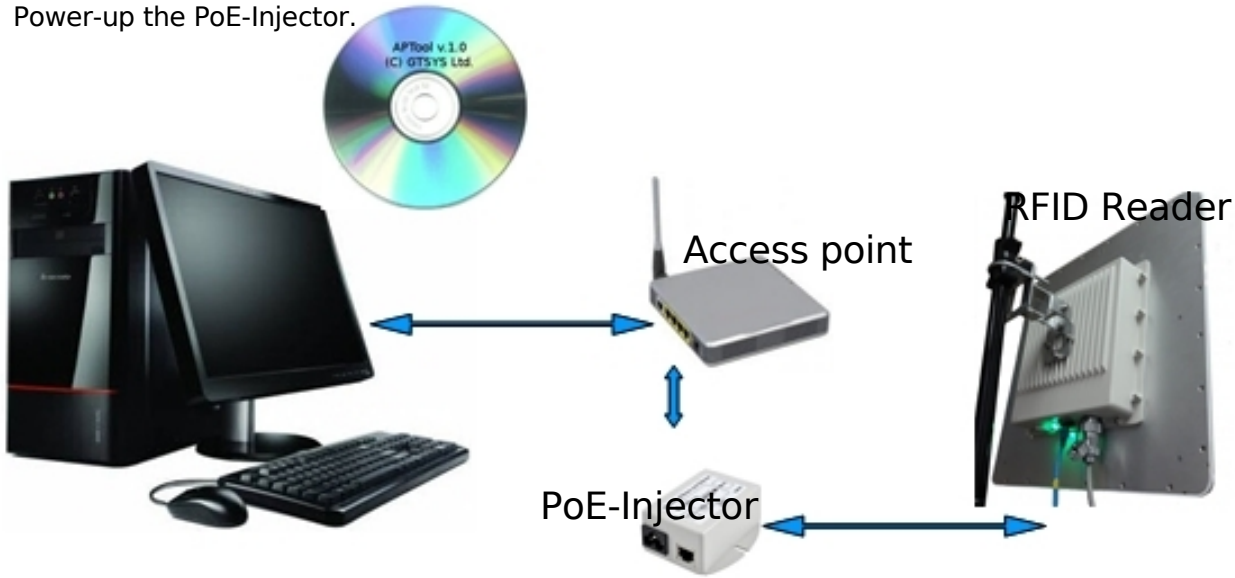
For the reader to work properly, install the programs on your computer before you connect your IR-U-POE to your computer.

1. Insert the accompanying CD into the CD tray of your computer.

2. Start the APTool.msi program from the CD and follow the instructions in the installation wizard.

3. Make sure your PC is connected to the same network as the Integrated RFID Reader.

4. Install the Integrated RFID Reader to a proper mounting pole and connect the Ethernet port with the
   PoE-Injector. The Injectors data port must connected to the network with DHCP service available.
   Power-up the PoE-Injector.



PC (running Windows 7)

Next chapter: 3Start APTool

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3 Start APTool

GTSYS provides a testtool: APTool. It is available from the Start menu after the installation
process has sucessfully finished. The path to the program is: Start -> Program -> APTool

APTool can't discover the IR-U-PoE reader automatically. After the reader had completely started the LED show a static green in combination with a heart-beat blue. At this stage the
reader had retrieved a IP address from the DHCP server, check the leases information from
the DHCP server to find the readers IP. The MAC address is written on a label next to the RJ45 Ethernet port. Connect the tool to the reader using the Settings menu tab and select "Set IP Address" see chapter 9 for details.

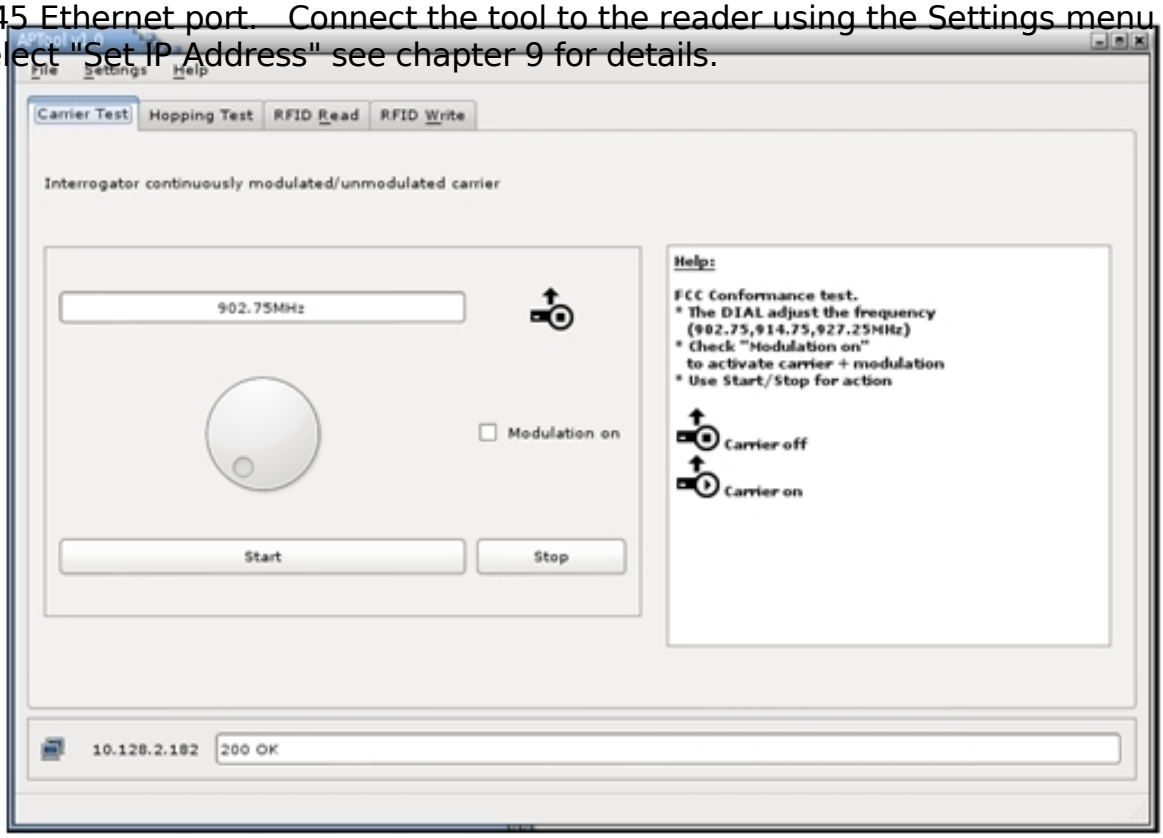

Illustration 1: APTool Start-up Screen (FCC Approval Version)

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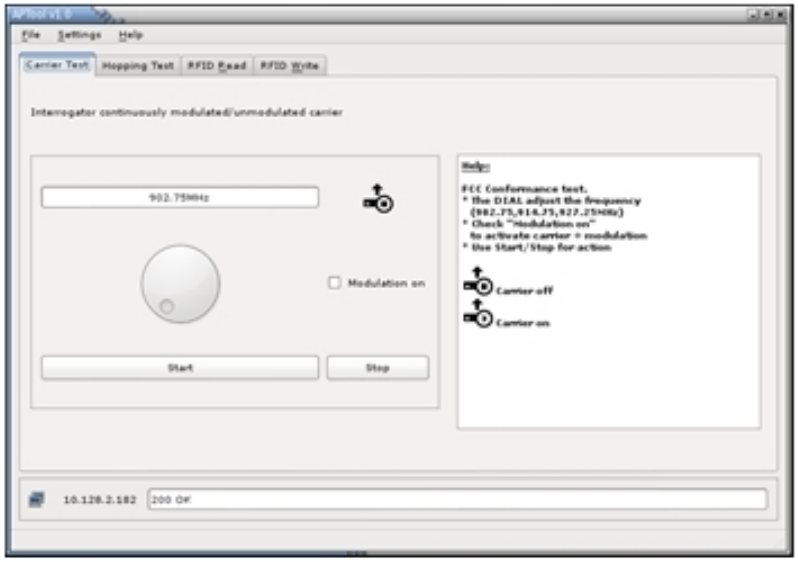
3.1 FCC Approval Carrier test



The APTool allow you to test the frequency spectrum on the following frequencies:

- (a) 902.75 Mhz
- (b) 914.75 Mhz
- (c) 927.25 Mhz

with or without a modulated carrier.

To proceed with the carrier test:

- Select the tab 'Carrier Test'
- Use the round dial to select the frequency to (a) , (b) or (c).
- Select 'Modulation on' for a modulated carrier.
- Set the power to the maximum (0.24 W)
- Click the 'Start' button to make the IR-U-POE running in the test mode.
  The carrier indication Icon change from 'Carrier off' to 'Carrier on'
- Click the 'Stop' to stop the test.
  The carrier indication Icon change from 'Carrier on' to 'Carrier off'

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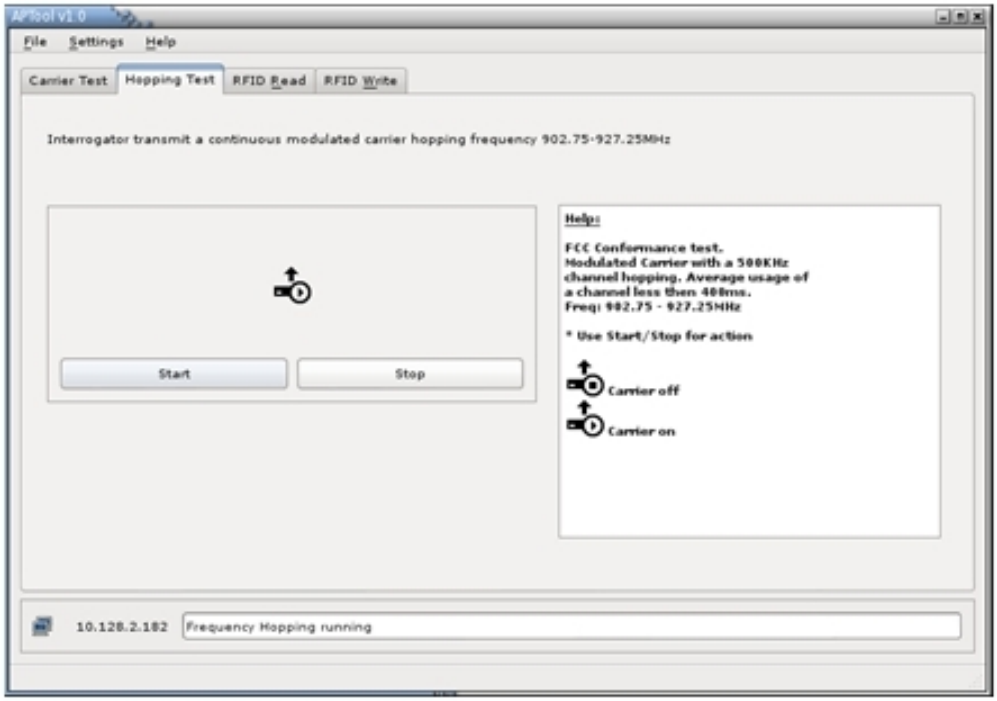
3.2 FCC Approval Frequency Hopping



The APTool allows you test the frequency hopping behavour of the IR-U-POE required for FCC. In this mode the IR-U-POE change the frequency every >400ms in a range from 902.75 to 927.25Mhz (channel bandwidth 500Khz) for 50 channels

To proceed with the frequency hopping test:

- Select the tab 'Hopping Test'
- Set the power to the maximum (0.24 W)
- Click the 'Start' button to make the IR-U-POE run the test mode.
  The carrier indication Icon change from 'Carrier off' to 'Carrier on'
- Click the 'Stop' to stop the test.
  The carrier indication Icon change from 'Carrier on' to 'Carrier off'

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3.3 Reading Tags

The APTool allows you to read information from a RFID tag.

To proceed with reading:

- Put a RFID tag in front of the the reader.
- In APTool select the "RFID Read" tab.
- Set the reading option (see below)
- Click the "Read" button to read selected informations from the RFID tag.

Read options:

- Read EPC (default)
- Read TID (optional)
- Read Bank 3 (optional)
  in Text or Hex view

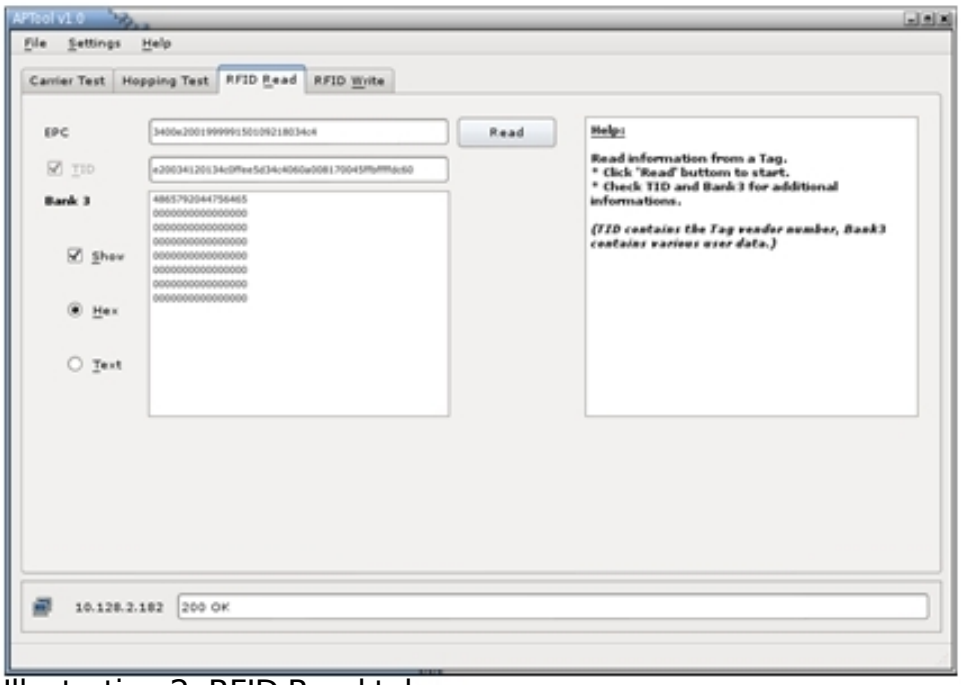

Illustration 2: RFID Read tab

Problem cannot read TID or Bank3

- The RFID tag may be password protected.
  Please refer to page 10 - Set Password Dialogue
- RFID tag may be out of read range - reposition the tag.

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3.4 Writing Tags

The APTool allows you to write information to the Bank3 user memory of a RFID tag. To proceed with writing onto the tag:

- Put a RFID tag onto the reader
- Read the tag (see Reading Tags)
- Select the "RFID Write" tab and write information in the input line
- Click the "Write" button

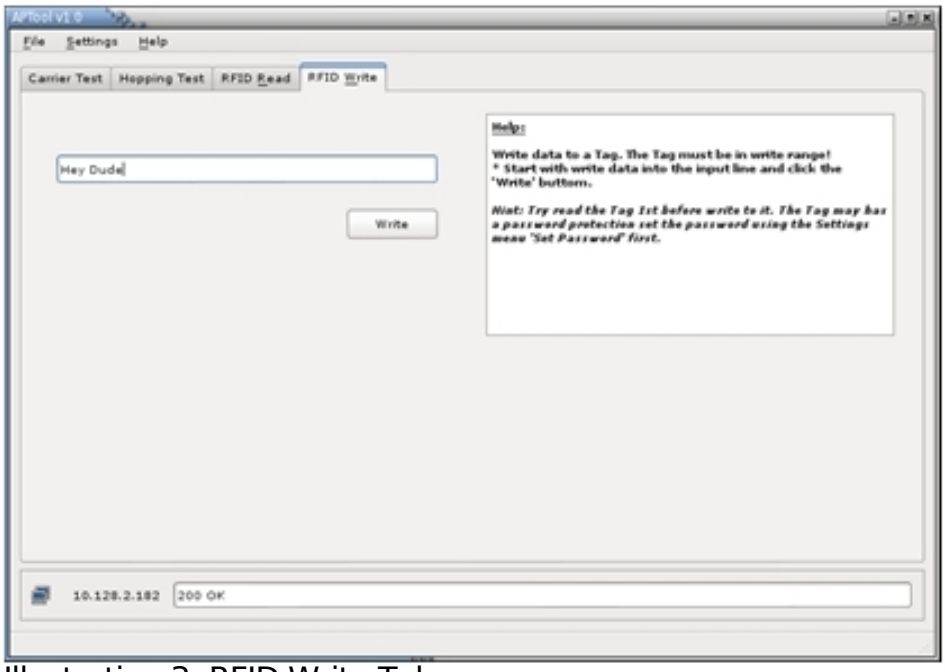

Illustration 3: RFID Write Tab

The RFID tag might be password protected. Problem write failed!

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- Reason: Power setting may be too low.
  Please refer to page 11 - Set Power Dialogue to adjust the power settings.
- Reason: Tag may be password protected.
  Please refer to page 10 - Set Password Dialogue

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4 Set IP-Address Dialogue

To connect the APTool with the integrated RFID reader via TCP/IP you must know the readers IP-Address. This can be determined from the leases table of the DHCP server. The readers MAC address is written on a label close to the RJ45 Ethernet connector

4.1 To set the reader IP-Address

- Select “Settings->Set IP-Address” from the top menu bar
- Type a IPv4 dotted decimal address to the input field
- Click on “OK”

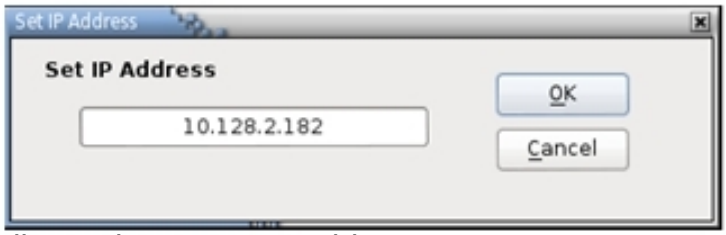

Illustration 4: Set IP-Address

Notice:
If a connection had been established, the network icon in the status bar changed
from →

and the current IP address is show.

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5 Set Password Dialogue

The EPC/Gen2 RFID tags have a feature to protect information with a password this dialogue allows you set a password while reading or writing onto a RFID tag.

Password input in hexadecimal charters (0-9,a-f) with a length of 8, the default value is 00000000

5.1 To set a password

- Select “Settings->Set Password” from the top menu bar
- Type a 8 charter hexadecimal password
- Click on “OK”

5.2 To reset the password (to default)

- Select “Settings->Set Password” from the top menu bar
- Type “00000000” into the input line
- Click on “OK”

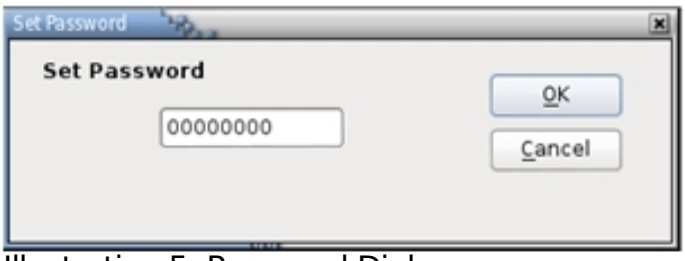

Illustration 5: Password Dialogue

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6 Set Power Dialogue

Depending on the environment and the RFID tag in use, you need to adjust the power setting of the reader's amplifier to read and write successfully.

Notice: High power values can have a negative effect to the read/write results

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7 Menu

APTool menu and shortcuts.

7.1 Main menu

APTool comes with 3 menu items:

- File
  * Exit application
- Settings
  * Set IP-Address
  * Set Power
  * Set Password
- Help
  * About

7.2 Application short-cuts

APTool Software	Functions
Alt-F	File Menu
Alt-S	Settings Menu
Alt-H	Help / About
Alt-R	Activate Read Tab
Alt-W	Activate Write Tab
Alt-T	Set/unset TID read
Alt-S	Set/unset Bank3 read
Ctrl-X	Exit program
Ctrl-H	About
Ctrl-I	Set IP-Address
Ctrl-P	Power Dialogue
Ctrl-A	Password Dialogue

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8 About

The copyright information.

Illustration 7: Copyright notice

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This device complies with part 15 of the FCC rules. Operation is subject to the following two conditions: (1) this device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

NOTE: The manufacturer is not responsible for any radio or TV interference caused by unauthorized changes and modifications to this equipment. Such changes and modifications could void the user's authority to operate the equipment.

NOTE: This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation.

If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the receiving antenna.
- Increase the separation between the equipment and receiver.
-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.
-Consult the dealer or an experienced radio/TV technician for help.