GTSYS

IR-U-POEv2/12

Quick Reference Guide

IR-U-POE (USA) **/ IR-E-POE** (European)
First Edition (May 2015)

Table of Contents

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 (August 2015)

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
- Star Systems International

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/IR-E-POE
Install the APToolUniversal software. The software program can be copied from the CD to your PC.

2 Installing the IR-U-POE/IR-E-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 Reader to your computer.

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

2. Start the **APToolUniversal.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.
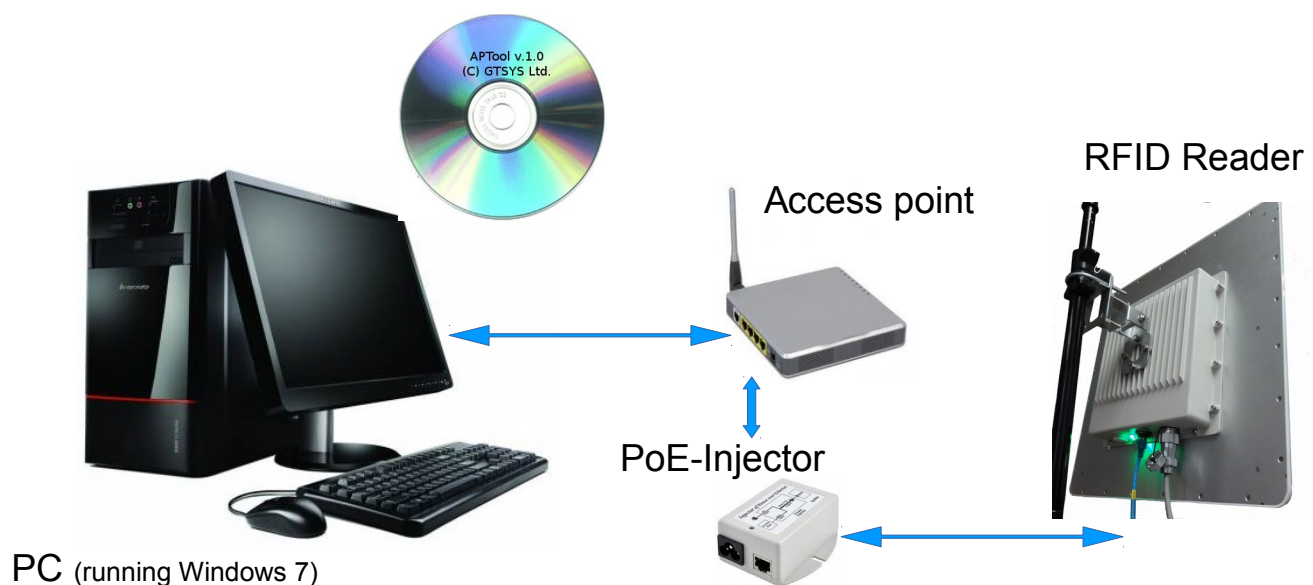
Next chapter: 3Start APToolUniversal

3 Start APToolUniversal

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

APToolUniversal can't discover the 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 or use the Discovery-tool comes with the software installation. 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 8 for details.
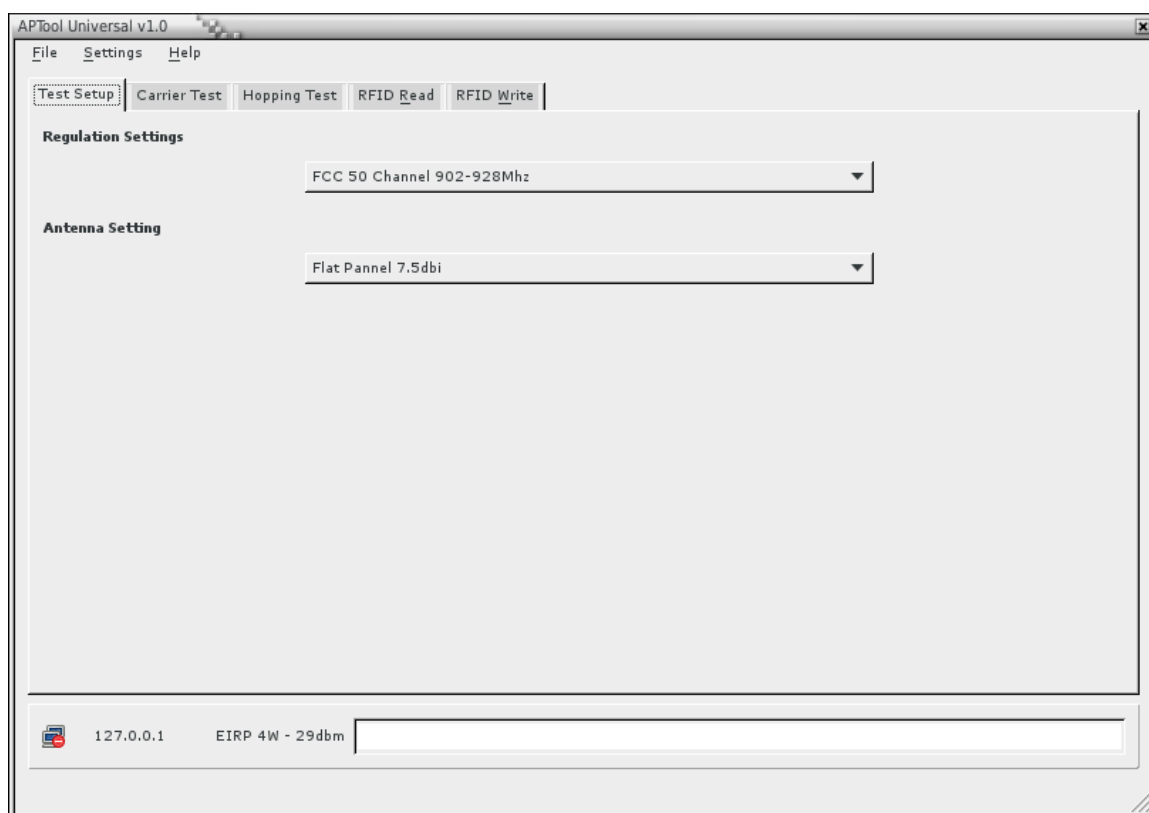

Illustration 1: APToolUniversal Start-up Screen
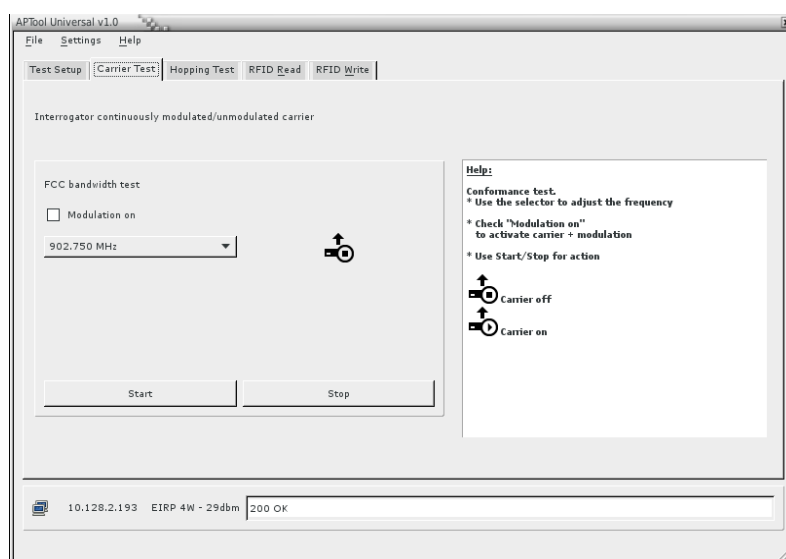

Illustration 2: Reader Discovery

3.1 Test Setup

The first steps to start with:
- Enter the IP address shown in the Discovery-tool see page 8 - chapter 4.1 for details.
- Set the Test to run. (FCC,ETSI,India...)
- Set the antenna type used (7.5dbi,12dbi)

The power level will be set automatically for the test region depending on the selected antenna.

3.2 Approval Carrier test

Depending on your selection FCC/ETSI or India you are able to select the dedicated Frequencies:
- FCC: 902.75 Mhz 914.75 Mhz 927.25 Mhz
- ETSI: 865.70 Mhz 866.30 Mhz 866.90 Mhz 867.50 Mhz
- INDIA: 866.00 Mhz 866.50 Mhz 867.00 Mhz

with or without a modulated carrier.

To proceed with the carrier test:
- Select the tab 'Carrier Test'
- Use the Combox to select the frequency.
- Select 'Modulation on' for a modulated carrier.
- If needed adjust the powerlevel (see page 10 - 6.1To set the power level)
- Click the 'Start' button to make the IR-x-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'

3.3 Approval Frequency Hopping
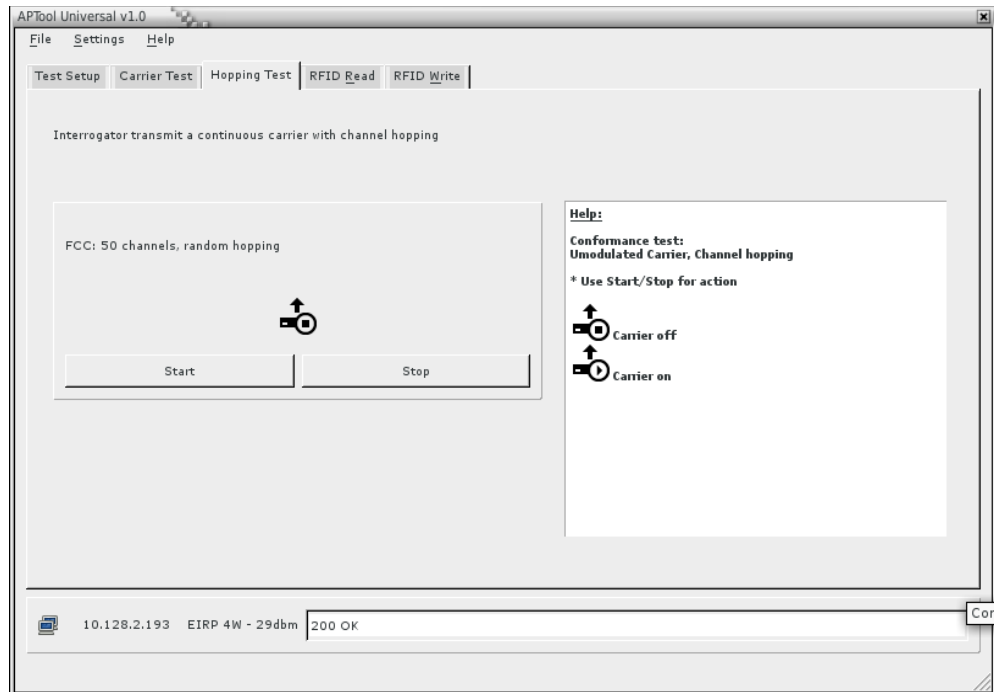
Test the frequency hopping behavour of the RFID reader. In this mode the reader change the frequency and hopping over the channels defined per selected region.
FCC: 50 channels, ETSI: 4 channels, India: 3 channels

To proceed with the frequency hopping test:
- Select the tab 'Hopping Test'
- Set the power if needed (see page 10 - 6.1To set the power level)
- Click the 'Start' button to make the RFID reader 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'

3.4 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)
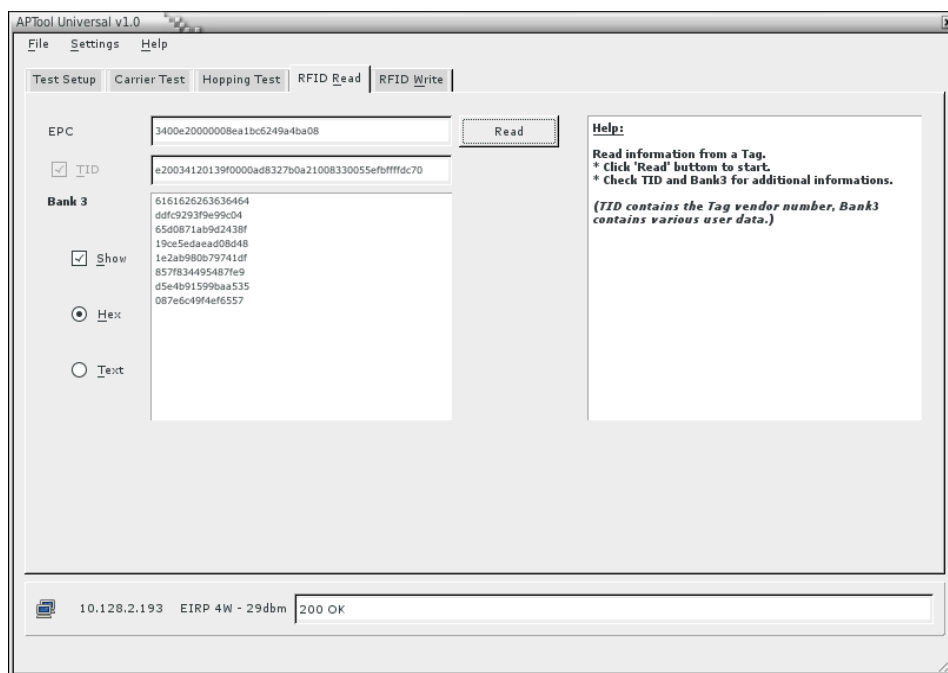 in Text or Hex view

Illustration 3: RFID Read tab

✗ Problem cannot read TID or Bank3
- The RFID tag may be password protected.
  Please refer to page 9 – Set Password Dialogue
- RFID tag may be out of read range – reposition the tag.

3.5 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
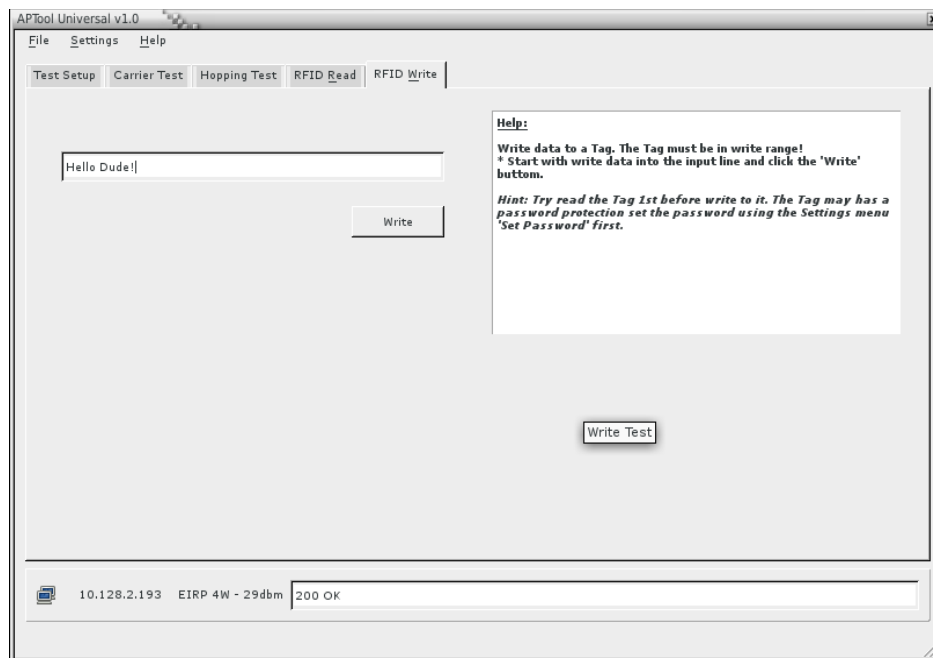- Click the "Write" button

Illustration 4: RFID Write Tab

ⓘ The RFID tag might be password protected.

✗ Problem write failed!
- Reason: Power setting may be too low.
  Please refer to page 10 – Set Power Dialogue to adjust the power settings.
- Reason: Tag may be password protected.
  Please refer to page 9 – Set Password Dialogue

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

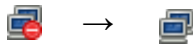## *4.1 To set the reader IP-Address*

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

Illustration 5: 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.

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
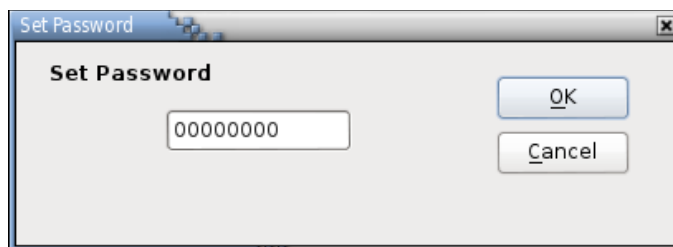- Type "00000000" into the input line
- Click on "OK"

Illustration 6: Password Dialogue

GTSYS

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 – it is recommend to start from low (min) to high (max) power values in small steps to find the optimal setting.

6.1 To set the power level
- Select "Settings->Set Power" from the top menu bar
- Use the slide bar to set the power level
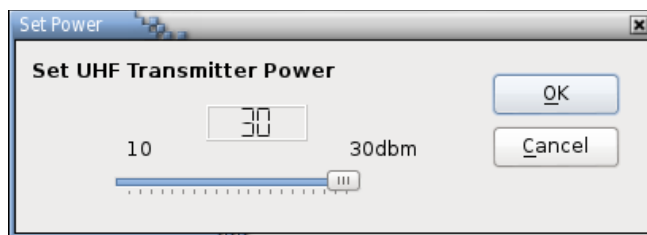- Click on "OK"

Illustration 7: Set Power Dialogue

Output power range:
    Min = 10 dbm
    Max = 30 dbm
    Stepping = 1 dbm

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

8 About

The copyright information.

Illustration 8: Copyright notice

9 Disclaimer

GTSYS and the **GTSYS logo** are trademarks of **GTSYS Ltd**. in Hong Kong and other countries.

Microsoft, **Windows**, the Windows logo are trademarks of Microsoft Corporation in the U.S. and other countries. All other products names mentioned herein may be trademarks of their respective companies.

GTSYS Ltd. shall not be liable for technical or editorial errors or omissions contained herein of for incidental or consequential damages in connection with the furnishing, performance, or use of this material. The information in this document is provided "as is" without warranty of any kind, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose, and is subject to change without notice. The warranties for GTSYS products are set forth in the express limited warranty statements accompanying such products. Nothing herein should be construed as constituting an additional warranty.

This document contains proprietary information that is protected by copyright. No part of this document may be photocopied, reproduced, or translated to another language without the prior written consent of GTSYS Ltd.

FCC Caution.

§ 15.19 Labelling requirements.
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.

§ 15.21 Changes or modification warning
Any Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

§ 15.105 Information to the user.
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 thee quipment 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.

* RF warning :
This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment.
This equipment should be installed and operated with minimum distance 20cm between the radiator & your body.