

Quick User Manual

# AL-510 RFID READER [Equipment/Software Control]





#### Federal Communication Commission Interference Statement

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.

#### FCC Caution (15.19 statement)

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.

#### **Non-modification Statement:**

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

#### FCC Radiation Exposure Statement:

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.

Welcome! This User Manual is to guide you through the steps of setting up your AL-510 RFID reader. You will find in below sections of how to connect your AL-510 to your devices, and how to use it to get the results you want in reading RFID tags.

|            | AL-510 has two methods available to develop your own           |  |  |  |
|------------|--|--|--|--|
| Software   | application/software:  |  |  |  |
|            | • AL-510 Software Development Kit (C#)                         |  |  |  |
|            | AL-510 Utility Read Tool Keyboard Read Mode                    |  |  |  |
|            | We provide various antenna patterns, such as near field, far   |  |  |  |
| Antenna    | field, and induction field, so as to meet the changeable field |  |  |  |
|            | environment.   |  |  |  |
|            | General Inlay  |  |  |  |
|            | Metal Inlay  |  |  |  |
|            | Customized Inlay   |  |  |  |
| RFID inlay | This RFID inlay has a wide frequency range from 860 to 960     |  |  |  |
|            | MHz; which means you can make your own choices to use          |  |  |  |
|            | NXP, Impinj, or Alien RFID chip, as all of them are            |  |  |  |
|            | compatible with this RFID inlay.                               |  |  |  |

**RFID Solutions** 

The product package should contain the following items:

- 1\*AL-510 RFID UHF Reader
- 1\* User Manual
- 1\*Power Supply
- 1\*Wi-Fi Antenna



## AL-510 RFID UHF INTERFACE

- 1. +12VDS Power supply
- 2. Ethernet
- 3. RS232 Serial port (DB15 to DB9)
- 4. USB type-B HID port
- 5. Wi-Fi 802.11 b/g/n, 2.4GHz
- 6. GPIO & RS485 Industrial Contact
- 7. Support 4 antennas

## **INDICATOR LIGHTS**

| Status             | Blink | When reading tags                         |  |  |
|--------------------|-------|---|--|--|
| Signal             | Blink | Reader is enabled / signal processing     |  |  |
| Signai             | On    | Reader is disabled, please restart        |  |  |
| Power              | On    | Reader is ready                           |  |  |
|                    | Off   | Reader Wi-Fi is not connected to Wi-Fi AP |  |  |
| Wi-Fi Blink Reader |       | Reader Wi-Fi is connected to AP           |  |  |
| On                 |       | Reader Wi-Fi is connected to the program  |  |  |

## Use AL-510 to Read Tags

## 1. To Connect Your AL-510 via Wired Network, with Default IP: 192.168.1.91

A. Securely insert the Ethernet cable into both the ports of AL-510 and your computer, and download DS Manager (<u>http://tibbo.com/support/downloads/tdst.html</u>). On DS Manager, search AL-510, and click on "Settings" to revise IP-address to 192.168.1.91.

| Ethernet   |  | Settings: DS {ds4.3           | )}            | -  |      | ×  |
|--|--|-------------------------------|---------------|----|------|----|
|  | <u> </u>   | General Ch1 All<br>Owner name |               |    |      |    |
|  |  | Device name                   |               |    |      |    |
| 🗞 Tibbo DS Manager - V5.11.00 (amd64)  | - 🗆 ×  | DHCP                          | 0- Disabled   |    |      | 1  |
| File Access mode Device Help   |  | IP-address                    | 192.168.1.91  |    |      |    |
| Auto-Discovery Address Book Serial Access  |  | Gateway IP-address            | 192.168.1.254 |    |      | 1  |
| Status MAC IP Owner/Device name  | Dofronk  | Subnet mask                   | 255.255.255.0 |    |      |    |
|  | Settings<br>Upgrade<br>Initialize<br>Routing Status<br>Buzzl<br>Change IP<br>Add<br>Find |                               |               |    |      |    |
| Devices on the local network segment. This list is created automatically by the DS Manager.<br>Click here to learn more about the auto-discovery access mode. <u>More info</u> | la la  | L Save Lo                     | ad Password   | ок | Canc | el |

B. Securely insert the Ethernet cable into both the ports of AL-510 and your computer, and revise IP-address to 192.168.1.X. Your AL-510 should be ready by now.

| Internet Protocol Version 4 (TCP/IPv4) -  | 內容                  | × | 連線方式         |
|---|---------------------|---|--------------|
| 一般  |                     |   | TCP/IP       |
| 如果您的網路支援這項功能,您可以取得<br>詢問網路系統管理員正確的 IP 設定。 | 月自動指派的 IP 設定。否則,您必須 |   | 192.168.1.91 |
| ○ 自動取得 IP 位址(O)                           |                     |   | Connect      |
| ● 使用下列的 IP 位址(S):                         |                     |   |              |
| IP 位址(I):                                 | 192.168.1.2         |   |              |
| 子網路遮罩(U):                                 | 255 . 255 . 255 . 0 |   |              |
| 預設閘道(D):                                  | · · ·               |   |              |
| ◯ 自動取得 DNS 伺服器位址(B)                       |                     |   |              |
| ● 使用下列的 DNS 伺服器位址(E):                     |                     |   |              |
| 慣用 DNS 伺服器(P):                            |                     |   |              |
| 其他 DNS 伺服器(A):                            | · · ·               |   |              |
| □ 結束時確認設定(L)                              | 進階(V)               |   |              |
|   | 確定 取消               |   |              |

### 2. To Connect Your AL-510 via Wireless Network

- Step 1: Use the Ethernet cable (Wired Network) to connect AL-510 to your computer.
- Step 2: Set up a wireless network for AL-510 on Utility Demo Menu (as shown below).
  - > In the section of "Wi-Fi AP", type in a name and a password for this wireless network.
  - In the section of "Settings for Wi-Fi Fixed IP" Click on "DHCP Turnoff", and type in accordingly, ReaderIP (10.35.2.53), ReaderPort (1001), Mask (255.255.255.0), and Gateway (10.35.2.254).
  - > After completing these steps, click "Setting".

| Wi-Fi AP    | ~                          |                 |    | Reader Wi-Fi 資訊   | ·<br>連線成功  |
|-------------|----------------------------|-----------------|----|---|--|
| 無線網路名稱 Dra  | yTek5G-Arizc 密码            | § YEONTRAINING1 | 設定 | 取得  | 設定WIFI成功<br>設定WIFI靜態IP成功                                 |
| 設定Wi-Fi固定IP |                            |                 |    | GettP="192.168.1.92"  | 1. STATE OF BOARD AND AND AND AND AND AND AND AND AND AN |
| ○ DHCP開啓    | <ul> <li>DHCP開閉</li> </ul> |                 | 設定 | WIFIAP="DrayTek5G-  |  |
|             | ReaderIP [                 | 10.35.2.53      |    | Arizon", "YEONTRAINING1"<br>WIEIStaticIP="10.35.2.53" "10.35.2.254" |  |
|             | ReaderPort [               | 1001            |    | "255.255.255.0"WIFILocalPort=1001                                   |  |
|             | 子網路這罩                      | 255.255.255.0   |    | WIFIServer="192.168.1.92",1001                                      |  |
|             | 預設徑道                       | 10.35.2.254     |    |   |  |
| 連線目標IP      |                            |                 |    |   |  |
|             | 1.02 ElifePort             | 1001            | 粉学 |   |  |

## 3. Use AL-510 Utility Demo Menu to Read Tags

- Step 1: Connect an antenna to the first port on AL-510 Reader.
- Step 2: Open up AL-510 Utility Demo Menu.
  - > Type in IP (192.168.1.91 as default) and click "Connect" to connect to AL-510 Reader.
  - Place the RFID tags within the reading range of the antenna, then click "Start" in the section of Inventory, you will see the read tags shown on the list below.

| AL-510 Demo Menu  |      |   | and senter on  |           | X                       |
|---|------|---|--|-----------|-------------------------|
| 基本設定         Wi-Fi設定           連線方式         請取           ● TCP/IP         EPC         TID         EPC+TID         EPC+USE         USER字数 32           192.168.1.91         指定區塊         > Pwd         起始         字数         指定區塊環           bisconnect         寫入             指定區塊環           軟體分位:VD407         寫入 |      | 讀取<br>指定區塊寫入<br>SER)[32]                | 連線成功<br>設定WIFI成功<br>設定WIFI静態IP成功<br>Inventory 正常啓動<br>停止 Inventory |           |                         |
| 標籤資料<br>清除 筆數: 3  | 3    |   |  |           |                         |
| SN 天線   | 次數   | EPC                                     | TID  | USER DATA | 時間                      |
| 1 1   | 1112 | 300833B2DDD901400000000                 |  |           | 2019/01/11 18:04:07.673 |
| 2 1   | 158  | 000000000000000000000000000000000000000 |  |           | 2019/01/11 18:04:04.044 |
| 3 1   | 26   | 20180125000000000000008                 |  |           | 2019/01/11 18:03:59.946 |
| ¢   |      |   |  |           | >                       |

#### 4. Use USB Keyboard Mode to Read Tags

- Step 1: Use the Ethernet cable (Wired Network) to connect AL-510 to your computer.
- Step 2: Click "Keyboard" on AL-510 Utility Demo Menu, and you can configure the reading method in Keyboard Mode.
- Step 3: Connect an antenna to the first port on AL-510 Reader.
- Step 4: Place the RFID tags on the antenna, then the list of read tags will appear wherever you have your cursor at. Below uses Notebook to demo the testing results. If you would like to stop using Keyboard Mode, please click "HID" in the section of USD Output Format.

Note: When you use Keyboard Mode to read tags, the antenna will automatically change to PORT 1.

| H AL-510 Demo Menu   |    | <u> (11)</u>  |        | ×                                  |
|--|----|---------------|--------|------------------------------------|
| 基本操作 基本設定 Wi-Fi設定  |    |               |        | 事件檢視器                              |
| 單一天線<br>設定 ● No Hub V O Hub  | 請取 | b事<br>IP定 ID主 | 語的     | 連線成功<br>設定WIFI成功<br>時空MFI 新新ID #Th |
| 輸借天線   |    | 4张時間          | 999.94 | Inventory 正常啓動<br>停止 Inventory     |
| Ant1-1 Ant2-1 Ant3-1 Ant4-1  | 讀取 | 設定 毫秒         | 請取     | 一鍵設定成功                             |
| □ Ant1-2 □ Ant2-2 □ Ant3-2 □ Ant4-2  | 1  | <b>責取務時間</b>  |        | 1反定HID模式成初                         |
| Ant1-3 Ant2-3 Ant3-3 Ant4-3  |    | 設定            | 讀取     |                                    |
| Ant1-4 Ant2-4 Ant3-4 Ant4-4  |    | 20.8440.85.85 |        |                                    |
| Anti-S Anti-S Anti-S Anti-S  |    | BO-SP         | 80.00  |                                    |
| Anti-6 Anti-6 Anti-6 Anti-6  |    | 収化 イ          | 041543 |                                    |
| Dant1-8 Dant2-8 Dant3-8 Dant4-8  | 股定 | 50 WED1610    |        |                                    |
|  |    | Keyboad       | HID    |                                    |
| ■ 未会名・記事本<br>響應(F) 編輯(E) 檜式(O) 絵視(V) 説明(H)<br>2018012500000000000008<br>234FF4C575A31383038303312341234<br>2018012500000000000008<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>2018012500000000000008<br>234FF4C575A31383038303312341234<br>2018012500000000000008<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>2018012500000000000008<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383038303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A31383088303312341234<br>234FF4C575A545<br>234FF4C575A3138508808<br>234FF4C575A31385<br>234FF4 |    |               |        | - o x                              |