DI-050 RFID Reader Operation Manual

Version 1.0

Dynamic Intelligences Co., Ltd.

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Contents

Revision History

| Version Number	Description	Revision Date
1.0	第一版	2024/3/19
1.1	補 packet type 說明	2024/3/20

1   Introduction

This document provide the DI-050 RFID Reader General introduction、parameter setting、data protocol and operation manual. The Reader can comply all the Iso 18000-6C Tag.

2   System Architecture

2.1   DI-050 Architecture

DI-050 can read the ISO 18000-6C (EPC Class 1 Generation 2) RFID tags, there data include EPC code、TID code、RSSI and Time stamp of the reader.   In the meantime, it also can send those data to cloud server (system bankend platform)by internet.
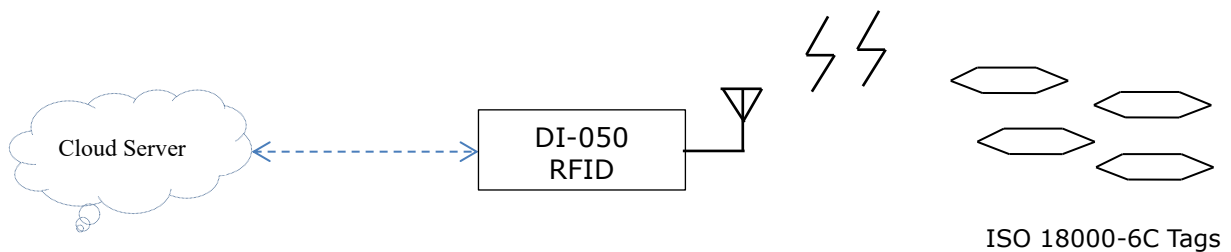
2.2   Front Panel

a) **Remote Download** : push the button 5 sec, can do the download the setting of the DI-050 reader from cloud server.
b) **Control Mode** : Local / Remote control
c) **Port1/Port2/Port3/Port4** : RPTNC Female connecter for RF signal output.

2.3   Back Panel

a) HDMI: HDMI connecter, can connect with screen. provide the system debug and setting by keyboard.
b) Default Reset: Defaults reset, push and hold 10 seccan reset to machine default.
c) Internet 1 : RJ45　，Default IP 192.168.1.22
d) Internet 2 : RJ45　，Default IP 192.168.2.22
e) Read Indicated: Reader read the tag; the light will flash.
f) Status Indicated: The light flash one time each sec. it means the read is normal. When the light 3 time each sec. It means the reader out of order,
g) RS232/485: UART interface for future function.
h) Error Status Indicated : Error status。
i) USB : USB 2.0 x 2，Standard USB Interface.
j) DIP: DIP switch
k) Power System: Power
l) Red Button: Power switch
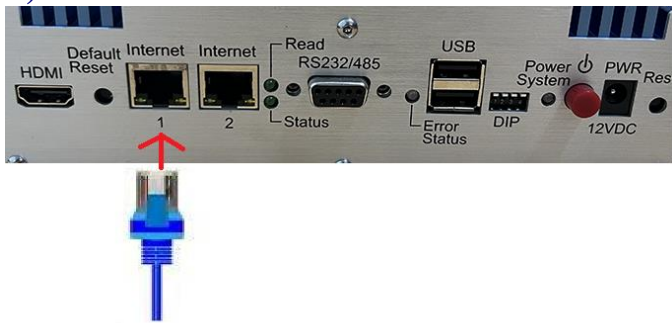m) PWR 12VDC: DC 12V
n) Reset: Power reset

3   Web Browser

Use the Chrome or Edge to setting the Reader Status
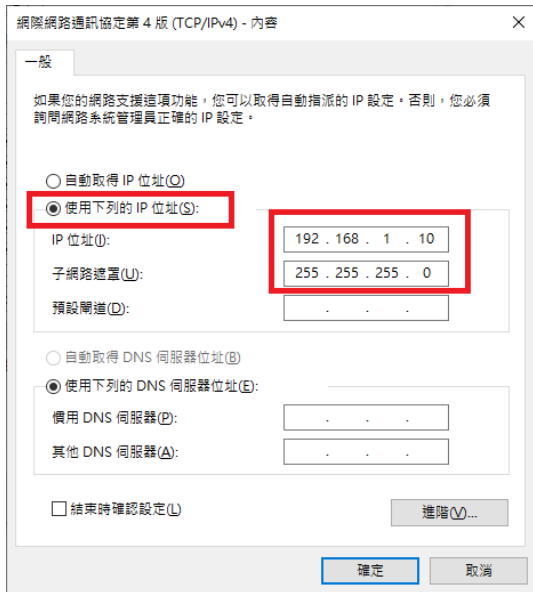
3.1   PC/NB setting

a) Use the internet cable to connect the reader (Internet 1 RJ45) and PC/NB
b)

b) Setting the PC/NB to fix IP : 192.168.1.10:

c) open the Browser : Chrome   input the website as following:

http://192.168.1.22:8000
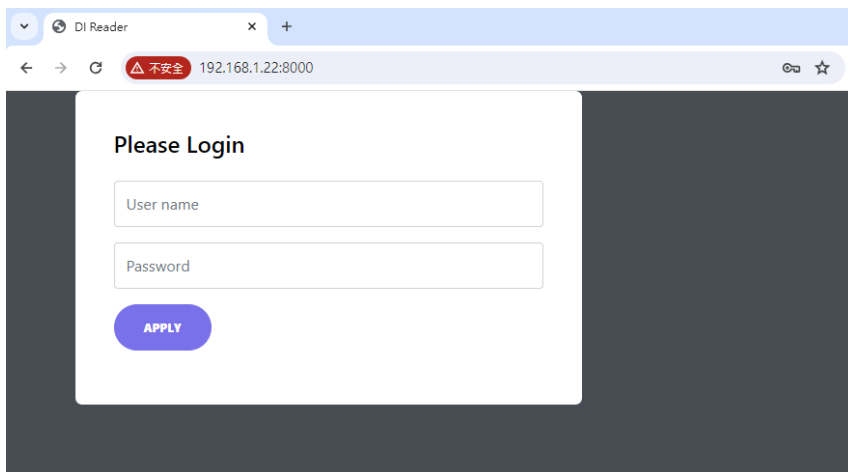
c)   User name: di   Password : 123456

   push   APPLY and enter to the operation website

3.2   Reader IP setting

Server   eTag   IP   NTP   Reboot   Firmware Upgrade   Status   Display Tags   2nd Lan Config   Clean All Tag Data

Advanced options   Traffic options   Reset To Default   Statistics

IP Setting

☐ Enable DHCP

Static IP: 192.168.1.22

Static Netmask: 255.255.255.0

Static Gateway: 192.168.1.1

APPLY
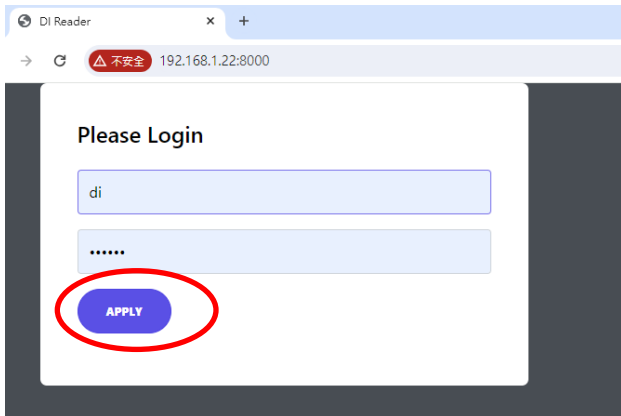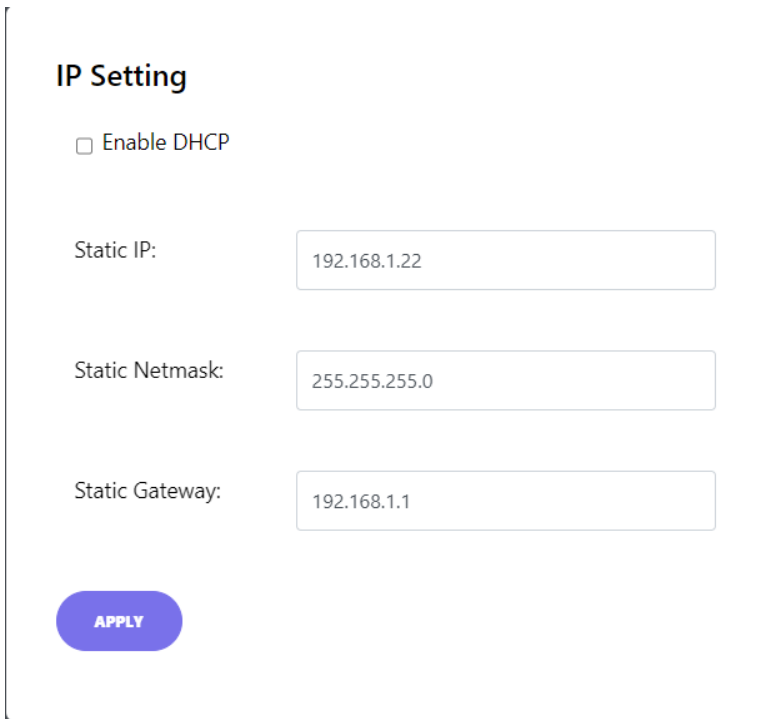
3.3   eTag parameter setting

The page focus on etag parmeter setting

a) eTag send period(ms) : setting the period of each tag upload to cloud.
b) Frequency: Frequency setting, fix Reader mode or auto mode.
c) Power(dBm): Reader output power 1~30 dBm
d) Antenna 1~4: Connect to the Antenna. The maximum antenna number is 4.

Status

```
rx= 1156/5
tx=
temp=49.1'C
Frequency= 900 MHz
Reader : OK
```

☑ Antenna 1 ——→ Antenna 1: OK　　天線正常

☑ Antenna 2 ——→ Antenna 2: OK　　天線正常

　　　　　　　　Antenna 3: Disconnect　天線故障

☑ Antenna 3 ——→ Antenna 4:　　　未安裝天線

```
Upload client : Disconnect
Upload server :
Send-By-Date server :
Upload client for Lan 2:
NTP: Failed at 2024/03/19 18:40:41
info= M: 0, H: 0
```

☐ Antenna 4

e) Heartbeat period(seconds): heartrate setting.
f) Same Tag filter period(seconds): Same tag filter period setting.
g) Packet type(0:75B,1:67B): Depend on the cloud requirement, setting the upload protocol.
h) EPC only : upload the EPC code only.
i) Antenna working time(ms) : Antenna switch time.

3.4　Cloud server setting

Server　eTag　IP　NTP　Reboot　Firmware Upgrade　Status　Display Tags　2nd Lan Config　Clean All Tag Data

　　　　　　　　　　　Advanced options　Traffic options　Reset To Default　Statistics

a) Device ID: Device ID setting
b) Enable Upload Client : enable upload function
c) Upload Server Remote IP/Port : Client modecloud service IP and Port (local active)
d) Upload Server Local Port : Server mode local service port (cloud active)
e) Send-By-Date Server Local Port: Server mode local service port (cloud active) cloud will send thedata to local.
f) Reboot Server Local Port : Server mode remote reboot service

3.5   Network Time Protocol (NTP)
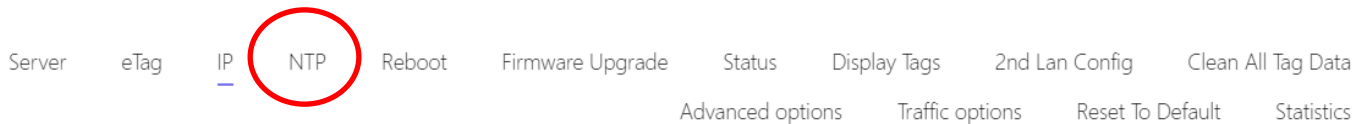
NTP Setting

- ☑ NTP Server 1

    IP: `10.1.1.108`   Port: `123`

- ☐ NTP Server 2

    IP: `10.150.103.1`   Port: `123`

- ○ NTP Synchronize time in every day (HH:MM)

    HH: `0`   MM: `10`

- ◉ Synchronize time each hour

    2024-03-11 21:48:38

    SYNCHRONIZE PC TIME NOW   **APPLY**

a) NTP Server 1: select NTP service IP1
b) NTP Server 2: elect NTP service IP2
c) NTP Synchroniz time en every day (HH:MM) : Everyday NTP Service
d) Synchronize time each hour : NTP service each hours
e) SYNCHRONIZE PC TIME NOW: synchronize with PC time

3.6   Reboot setting

Server   eTag   IP   NTP   Reboot   Firmware Upgrade   Status   Display Tags   2nd Lan Config   Clean All Tag Data

Advanced options   Traffic options   Reset To Default   Statistics

a) Password: passwd : "reboot" ， Reboot directly

b) Enable Reboot in every day (HH:MM) : system reboot on fix time everyday

3.7   Firmware (Firmware Upgrade)

a) Select the upgrade firmware(*.bin)，push the "UPGRADE" bottom，firmware upgrade directly.

1

2

3.8   Reader Status (Status)

Server   eTag   IP   NTP   Reboot   Firmware Upgrade   **Status**   Display Tags   2nd Lan Config   Clean All Tag Data

Advanced options   Traffic options   Reset To Default   Statistics

RETURN

Status

rx=
tx=
temp=50.6'C
Frequency= 1500 MHz
Reader : OK
Antenna 1: Disconnect
Antenna 2: Disconnect
Antenna 3: Disconnect
Antenna 4: OK
Upload client : Disconnect
Upload server :
Send-By-Date server :
Upload client for Lan 2:
NTP: Failed at 2024/03/11 21:00:08
info= M: 4, H: 0

a) rx: Reader eTags numbers
b) tx: upgrade sTag numbers
c) temp: Reader CPU Temp.
d) Frequency: CPU operation frequency
e) Reader : Reader Read ststus
f) Antenna 1/2/3/4 : Antenna status
   . Disconnect : Antenna Failure
   . OK : Antenna Ready
g) Upload client: Client mode and cloud connect successful or not.
h) Upload server : Cloud Server connect
i) Send-By-Date server : cloud data connect
j) Upload client for Lan 2 : Lan 2 connect
k) NTP: NTP service
l) info: debug information

3.9   Reader data   (Display Tags)

Server   eTag   IP   NTP   Reboot   Firmware Upgrade   Status   Display Tags   2nd Lan Config   Clean All Tag Data

Advanced options   Traffic options   Reset To Default   Statistics

RETURN

Tag List

EPC	TID	RSSI	Antenna	Count	Date
918E3C90E9D9FDB902BA8DD2	E2801100200037141C83004B	-53	4	7	20240311215119173
8DD3E980577A651011F7F3E6	E2801100200038541C9D004B	-47	4	7	20240311215119172
FEED6F80978610F72F374566	E2801100200033141C68004B	-42	4	3	20240311215119171
113D94B89108084271B5ABE6	E2801100200032D41C68004B	-33	4	8	20240311215119169
2FB5EEB8F4F1BE2AA86F0C46	E2801100200036541C83004B	-52	4	7	20240311215119158
94080F4883D07CBB9AB8CEC6	E2801100200035141C83004B	-43	4	6	20240311215118901
C4366D700C12075FF7E23956	E2801100200036941C83004B	-47	4	4	20240311215118626
003A9F18ABD814B5320A5412	E2801100200035941C83004B	-42	4	5	20240311215118625
42792B78C81690660188BE76	E2801100200037541C83004B	-46	4	1	20240311215117180

a) EPC: EPC code
b) TID: TID code
c) RSSI: RSSI data
d) Antenna: Data from which Antenna
e) Count: the number of the Tag
f) Date: The last tag data time

3.10   Lan2 setting (2ⁿᵈ Lan Config)
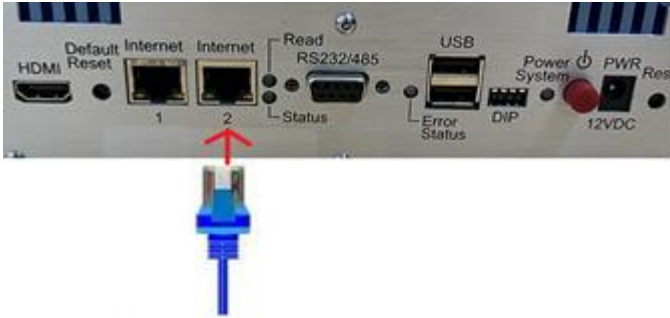
2nd Lan Config

Lan2 :   IS READY

☐ Lan2 enable DHCP

Lan 2 Static IP:

192.168.2.22

Lan 2 Static Netmask:

255.255.255.0

☐ Enable Lan2 filter function

Upload Server Remote Ip for Lan 2:

192.168.2.111

Upload Server Remote Port for Lan 2:

8889

Antenna options for Lan 1

1 ☑ 2 ☑ 3 ☑ 4 ☑

Antenna options for Lan 2

1 ☐ 2 ☐ 3 ☐ 4 ☐

RETURN   APPLY

a) Lan2 enable DHCP : Enable Lan2 DHCP
b) Lan 2 Static IP : Lan2 IP setting
c) Lan2 Static Netmask : Lan2 mask setting
d) Enable Lan2 filter function : Enable Lan2 fillter
e) Upload Server Remote Ip/Port for Lan2 : Lan2 upload cloud Server IP/Port
f) Antenna options for Lan1/Lan2: Antenna data send to Lan1 or Lan2

3.11   Clean All Tag Data

Server   eTag   IP   NTP   Reboot   Firmware Upgrade   Status   Display Tags   2nd Lan Config   ~~Clean All Tag Data~~

Advanced options   Traffic options   Reset To Default   Statistics

Warning: Really remove all tag data ?

CANCEL   REMOVE

a)   CANCEL: Cancel
b)   REMOVE: confirm and clean all tag data

3.12   Advance options

Server   eTag   IP   NTP   Reboot   Firmware Upgrade   Status   Display Tags   2nd Lan Config   Clean All Tag Data

~~Advanced options~~   Traffic options   Reset To Default   Statistics

Dynamic Intelligences

Advanced Options

☑ Enable CPU temperature monitor

  Upper Limit: [80] C degree

  Lower Limit: [75] C degree

☑ Remove out-date data

  Before [15] days

Modify Login Password

  New Password [   ]

  Confirm Password [   ]

☐ Enable USB export

  Tag Field [CHK10K1] [CHK10K2] [CHK10K3]

              [CHK10K4] [CHK10K5]

(RETURN) (APPLY)

a) Enable CPU temperature monitor : Enable CPU high Temperature protection.
b) Upper Limit: High temperature will reduce CPU efficiency.
c) Lower Limit: After the hight temperature CPU protection, when the temperature under this value, the CPU will become normal operation.
d) Remove out-date data : Data storage days.
e) 修改登入時的密碼: Change the login password.
f) Enable USB export : The tag data storage to USB directly.

3.13   Reset To Default

Server   eTag   IP   NTP   Reboot   Firmware Upgrade   Status   Display Tags   2nd Lan Config   Clean All Tag Data

Advanced options   Traffic options   Reset To Default   Statistics

Warning: Really reset to default ?

CANCEL   RESET

a)   CANCEL : Cancel
b)   RESET : Confirm to reset to Default

3.14   Statistics

Server   eTag   IP   NTP   Reboot   Firmware Upgrade   Status   Display Tags   2nd Lan Config   Clean All Tag Data

Advanced options   Traffic options   Reset To Default   Statistics

Statistics

◉ Search by Date

Date [年 /月/日]

○ Search by Month

Year [　　　] Month [　　　]

○ Search by Date/Time

From [年 /月/日 -- --:--] To [年 /月/日 -- --:--]

RETURN **SEARCH**

Search Result

Date /　Count /　Not yet uploaded /　Upload complete

a) Search by Date : Search by Date

Statistics

◉ Search by Date

Date [年 /月/日]

2024年03月 ▾　↑　↓

日	一	二	三	四	五	六
25	26	27	28	29	1	2
3	4	5	6	7	8	9
10	11	12	13	14	15	16
17	18	19	20	21	22	23
24	25	26	27	28	29	30
31	1	2	3	4	5	6

清除　　今天

To [年 /月/日 -- --:--]

RETURN **SEARCH**

Search Result

Date /　Count /　Not yet uploaded /　Upload complete

Statistics

○ Search by Date

Date [年/月/日]

⦿ Search by Month

Year [2024]   Month [03]

○ Search by Date/Time

From [2024/03/12 下午 09:5]   To [年/月/日 -- --:--]

RETURN   **SEARCH**

Search Result

Date /	Count /	Not yet uploaded /	Upload complete
2024/03/11	9	9	0

b) Search by Month : Search Tag by Month
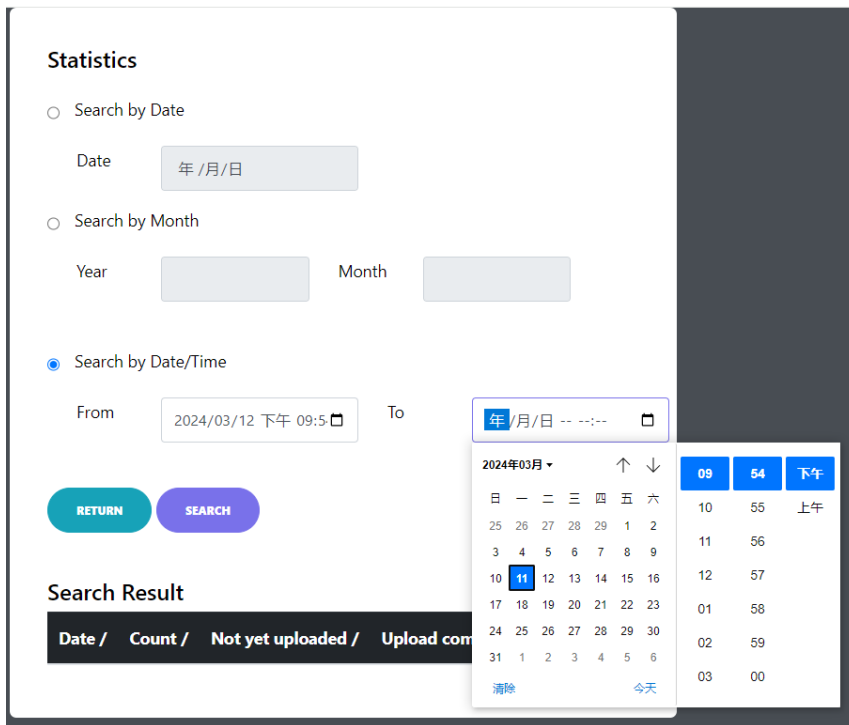
c) Search by Date/Time : Search the tag by Date/Time

4. Warning

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 communications. 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 own expense.

Any changes or modifications not expressly approved by the grantee of this device could void the user's authority to operate the equipment.

RF Exposure warning

This equipment must be installed and operated in accordance with provided instructions and the antenna(s) used for this transmitter must be installed to provide a separation distance of at least 20 cm from all persons and must not be co-located or operating in conjunction with any other antenna or transmitter. End-users and installers must be provide with antenna installation instructions and transmitter operating conditions for satisfying RF exposure compliance.