UHF-RW-MP-232-2A

UHF Reader/writer with 1-2 antennas support

Instruction manual

Antenna Side view



Remarks :

Power off before plug in/out the antenna need connect ANT 1 and don't remove the ANT 2's loader if only one antenna is used

Connector

| | | | POW PF READ C RS2 | 32 0 R145 | |
|-------|------|-------|-------------------------|-----------|---|
| | | / | | | |
| Power | | RS23 | 2 | RJ45 |] |
| +9Vdc | Pin2 | Pin 3 | Pin 5 | TCP/IP | |
| | ТХ | RX | GND | | |

RS232 port

It is used to communicate with PC RS232 format : 8 data bits, 1 start bit , 1 stop bit , none-parity bit Baud rate : 9600,19200,38400,57600 and 115200

RJ45 port

It is used to communicate with PC and network system

- use patch Ethernet cable if connect the reader with Hub
- use crossover Ethernet cable if connect the reader with PC

Tag operation – ISO18000-6B

- multi-tag identification : search all the tags in the reading range to read the 8 byte UID
- multi-tag reading: search all the tag in the reading range to read the 8byte data from the beginning of the defined address
- single tag writing:
 write one byte data on the defined tag's address
- single tag Lock: lock up the data on the defined address to prevent over-written
- Query Single tag locking : Query the locking state of the defined address.

Tag operation - EPC GEN2 (ISO18000-6C)

• **multi-tag identification:** search all the tags in the reading range to read the EPC data (96 bits)

• **Single tag initialization:** Initial the EPC data length of the tag (normally 96 bits) (For a new EPC G2 tag, it must be initialized and pre-programmed to be read.)

- **Single tag writing:** read the EPC data of the tag, 16 bits for each time.
- Single tag locking: lock the EPC data of the tag to prevent data over-written.

Reader Parameter Configuration

- [1] connect the reader with PC through RS232 ,
- [2] connect external antenna with the reader
- [3] apply power and power on the reader
- [4] Run config program from path:\\CONFIG\config.exe
- [5] select the com port setting and click on "Connect"

| Config | | | | |
|--------------------|---|---|--|---------------|
| | WORK MODE C COMMAND C TIMING READ C TRIGGER READ | ANTENNA ANTI ANTZ ANT3 ANT4 | RF SETTING Power 28 dBm Freq AMERICA T | READ INDICATE |
| COMM SETTING | TIMING INTERVAL | TRIGGER Read Time 255 s | G EPC GEN2 | |
| Reader Addr defaul | OUTPUT FORT Port Wiegand y | WIEGAND SETTING Output Num | RS485 SETTING | Default |
| Connect Discon | Protocal Wiegand26 | Pulse Width 50 | C Passive Trans | Query Set |
| READER ADDR | Effect Time I s | Tuise rerious * | | Restart |
| Addr 240 - | Get Reader Paramete | rs Success! | | CLR |
| Product Infomation | | | | |

CONFIG MENU

WORK MODE C COMMAND C TIMING READ C TRIGGER READ Timing read & Tgigger read is not available for this model

COMMAND read: reader works under the control of PC or other controller through RS232

COMM Setting

Com port : support com 1- com 9

Reader Addr : valid address from 1 to 240 , **Default** is suitable for single reader **Baud Rate :** 9600,115200,19200,384000,576000

 $\textbf{connect:} \quad \text{click on to connect the reader with PC for communication}$

| COMM SETT | ING |
|------------|-------------|
| CommPort | COM1 💌 |
| Reader Ado | ir defaul 💌 |
| Baudrate | 3600br 👻 |
| Compact | Discon |

Reader address re-set

select a new address then click on the "set" button. The new address will be effective after reader reset

| Addr | 240 | - |
|------|-------|---|
| IJ | Query | |
| ļ | Set | |

RF SETTING - set the power & frequency



Power : (0-30dbm) – to adjust the reading range (max. 30dbm) **Freq.** : China (920-925Mhz)

- : America (902-928Mhz)
- : Europe / unknown can customize

Antenna setting

Antenna selection is suitable for the multi-antenna model only



Read indicator

User define - Buzzer and LED ON/OFF when tag is detected



Below setting is not available for this model

| TIMING INTERVAL | Read Time 10 s | |
|-----------------|---------------------|------------------|
| OUTPUT PORT | WIEGAND SETTING | |
| Port RS485 | Output Num 📔 💌 | RS485 SETTING |
| frotocal Common | Pulse Width 50 us | Active Trans |
| PRECMP | | C Passive Trans |
| PreCmp Enable | Pulse Periods 🗐 👘 🛤 | C Response Trans |
| Effect Time 🕕 s | | |

Remarks : This setting is for embedded antenna reader/writer model only

Configuration Completed

Click on "SET" after completed the configuration.

Then click on "Reset" to active the new configuration.

Demo Program Instruction

Run path:\\COM DEMO\demo.exe (MR915ApiV10.dll need in the same directory)

Select correct COM port , baud rate & address .

Click on "connect" to establish connection with the reader.

Below screen will be shown if the connection is successfully.

| | IS018000-6B | OPRATION INFO |
|--------------------|--|---|
| REID | IDENTIFY Times continur Interval 10ms Stop | Open Comm Port Failed! Connet Reader Success! Tothe Reader String Tothe Reader Resident Success! Get ANT Success! Get ANT Success! |
| | READ AND WRITE | The firmware version is VO3.04 Get Reader RF Parameters Success! Get ART Success! |
| CONNECTING | ByteAddr 0 Read Write | |
| omm Port COM1 💌 | ByteCnt 1 Lock Query | |
| audrate 9600bp: 🕶 | Tata (Kan) | |
| ddr Code Generic 🕶 | Data (nex) | |
| Connect Discon | EPC GEN2 | T |
| F SETTINGS | IDENTIFY | |
| owar 28 dBm | The Local The Air for | |
| | limes contint V Identify | |
| req iype AMERICA - | Interval 10ms - Stop | |
| Query Set | ACCESS | |
| tatic | MemBank EPC Road Write | |
| C ANTI C ANTO | WordPtr 0 - Read #Free | |
| EZ ANTES EZ ANTES | WordCnt 1 Lock Init | |
| Permito permits | | 1 |
| Query Set | Data (Hex) | TAG COUNT: Clear |

Read EPC G2 Tag

| Times | contin | v ↓ Ide | ntify |
|---------|--------|----------------|-------|
| Interva | 1 10ms | _ | top |
| CCESS | | 144 | |
| lemBank | EPC | Ξ | w |
| ordPtr | 0 - | Kead | nrite |
| | | | Tait |

Times : default "Continuous read" or (1,10,100,1000,10000)

Interval : default "10ms" - set interval time to read Tag (10,50,100,500,1000)ms
Identify : Read the initialized EPC Tag data and show on message windows
(If the EPC Tag is not initialized , the data will be shown on message windows)
Stop : stop identify

Access parameter

MemBank : EPC/TID/USER memory (pls refer to NXP EPC G2 datasheet in detail)
WprdPtr : define start word to read/write (0-7)
WordCnt : define number of the word to read/write (1-8)
Data(Hex) : input Hex data

Read : read data according to the access parameter **Write** : write data according to the access parameter **Lock** : Lock data according to the access parameter **Init** : to initial a new Blank EPC G2 tag

Instruction to Initial a New EPC G2 Tag

For a new EPC G2 tag , it must be initialized and pre-programmed to be read .

[1] connected the reader with PC through RS232

- [2] click on "connect" to make sure the communication is successfully
- [3] then place the new EPC TAG in front of the reader and will hear "beep" sound
- [4] click on the "Init"
- [5] after initialization, all the EPC data (6 word x 16 bits) will be 00 as follow .

| -Ini | tag as 9 | 6 bits S | uccess | | | - |
|------|------------|----------|--------|-------|----|----|
| 0.2: | 00 00 00 1 | 00 00 00 | 00 00 | 00 00 | 00 | 00 |

<u>Write</u>

After initialization, you need write your own data to the tag .

EPC data – 96 bit (6 word x 16 bit) – **PIs refer to the NXP EPC G2 datasheet in detail WordPtr** "0" & "1" is the factory ID , it can't re-written.

Therefore need start to write EPC data from WordPtr "2" .

WordCnt : max . 6 word can be written

Below is the example to write 4 word "0123456789ABCDEF" data to the tag. Set the data as follow, put the tag in front of the reader and Click on "Write"

| MemBank | EPC | - | | |
|-----------|--------|----------|--------|-------|
| | - | | Read | Write |
| WordPtr | 2 | - | | 3 |
| | 123 | 1000 | Lock | Init |
| WordUnt | 1 | _ | | |
| | launa. | | | |
| Data(Hex) | 01234 | 4567891 | ABCDEF | |

| OPRATION INFO | |
|--------------------|--|
| OLIVITON THEO | |
| Write tag success! | |

<u>Read</u>

click on "Read" to read the EPC data

Below example to read the EPC data from WordPtr "2" and WordCnt "4"

| ACCESS - | | | | | |
|------------|--------|--------|--------|--------|-------------|
| MemBank | EPC | - | [] | Warita | |
| WordPtr | 2 | • | [| arre | OPRATION IN |
| WordCnt | 4 | - | Lock | Init | D 1 7 |
| | La can | | | | Kead lag |
| Data (Hex) | 01234 | 156789 | ABCDEF | | 01 23 45 6 |

| D 1 T - | - Commence | TL . 3 | en prove Diana | |
|---------|------------|--------|----------------|--|
|---------|------------|--------|----------------|--|

"01 23 45 67 89 AB CD EF" is 4 word data – successfully read from the tag

After initialization and data writing, you can read the multi-tags by "Identify" command. click on "Identify", full 96 bit data will be shown as follow:



"01 23 45 67 89 AB CD EF" is 4 word data "00 00 00 00 " is the last two word data

IP Address Setting

[1] connect the reader with PC through RS232 ,

[2] connect the reader with Hub through RJ45 port using patch Ethernet cable or

connect the reader with PC through RJ45 using crossover $\ensuremath{\mathsf{E}}\xspace$ thernet cable

- [3] connect external antenna with the reader
- [4] apply power to turn on the reader
- [5] Run TCP config program from path: \\TCP CONFIG\TCP CONFIG.exe

Check IP address

Click on "Serial Port" and "CONNECT", the reader's IP setting will be shown as follow:

| CommPort | 1 | | |
|-----------------|--------------|-----------------|---|
| Fort C TCP/IP | IP Adress 1 | 92.168.123.200 | 1 |
| | SubNetMask 2 | 55. 255. 255. 0 | 1 |
| CommPort COM1 - | Gateway IP | 92. 168. 123. 1 | |
| IP | Port 1 | 00 | |
| PORT | | | |
| CONNECT | SET | | |

change IP address

Changed IP Address, SubnetMask, Gateway IP & Port depend on your Network setup Port : 100 (recommend)

Click on "SET" to save new setting , "Set success" will be shown as follow :

| CommPort | TR 11 192 158 123 200 |
|-----------------|------------------------------|
| C TCP/IP | IT Adress TS2. 100. 123. 200 |
| CommPort COM1 🔫 | SubNetMask 255.255.255.0 |
| | Gateway IP 192.100.123. 2 |
| IP | TCP CONFIG |
| PORT | Set Success! |
| CONNECT | SET T |

Set IP address by TCP/IP

If you know your reader's IP address , you can set the IP setting by TCP/IP . Click on "TCP/IP" , enter the correct IP & Port ,then click on "CONNECT"

| IP Adress SubNetMask Gateway IP Port 0 SET |
|--|
| SET |
| |

If IP address is correct, the reader's IP setting will be shown as follow.

Changed IP Address , SubnetMask , Gateway IP & Port depend on your Network setup Port : 100 (recommend)

Click on "SET" to save new setting . "Set success" message will be shown.

| ommPort | |
|---|---------------------------|
| Serial Port TCP/IP | IP Adress 192.168.123.200 |
| | SubNetMask 255.255.255.0 |
| CommPort COM1 | Gateway IP 192.168.123. 1 |
| P | Port 100 |
| IP 192.168.123.200 | TCP CONFIG |
| PORT 100 | Set Success! |
| CONNECT | |

If IP address is incorrect, the error message will be shown as follow :

| Commfort | |
|----------------------------|------------------------|
| TCP/IP | IP Adress |
| | SubNetMask |
| CommPort COM1 | Gateway IP |
| тр 192, 168, 123, 100 | Port 0 |
| PORT 100 | TCP CONFIG |
| 1 | Open Comm Port Failed! |



Adjust the reader to get the best detection performance



When measuring or testing the reader's read range, make sure that the tag is properly oriented to the reader antenna, and for optimum performance, be sure the operator's finger is not within three inches of the tag's antenna surface.

Environment Interference will affect the reading distance.