# The User manual of RFID UHF reader demo V 1.0

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## 1.Selection of communication mode

Note: there are two communication modes for our conventional Reader: network port RJ45 and serial port (RS232 or USB).

#### 2. Network port communication

- 2.1 The default IP address of the reader device is 192.168.1.136;
- 2.2 Please modify the IP of the host (such as computer) to be in the same network

segment as the reader, as shown in the following "Figure 1".

禁用此网络设备 诊断这个连接 重命名此连接 查看此连接	的状态更改此连续的设置	
WLAN Solid326 Intel(R) Dual Band Wireless-AC_ 第述語 Bluetooth Device (Per	sonal Ar 比太网 来记我的问题 Realtek PCIe GBE	Family Contr
以太网 篇性 X	Internet 协议版本 4 (TCP/IPv4) 屋包	± ×
各 共享	業成	
·接时使用:	如果网络支持创功能、则可以获到	(自动描派的 IP 设置,否则,你要要从房
😨 Realtek PCIe GBE Family Controller	培系统管理员处获得适当的 IP 设	<b>n</b> .
配置(C)	○ 自动获得 IP 地址(O)	
(連接使用下列项目(O):	④使用下类的 IP 地址(S):	
✓ 型 Microsoft 网络督尸网 个 ✓ 型 Microsoft 网络的文件和打印机共享	IP 地址(I):	192.168.1.115
☑ ፵QoS 数据包计划程序	子网捷码(U):	255 . 255 . 255 . 0
✓ Internet 协议版本 4.(TCP/IPv8) □ Microsoft 网络适配器多路传送器协议	默认网关(D):	192.168.1.1
<ul> <li>✓ ▲ Microsoft LLDP 协议驱动程序</li> <li>☑ ▲ Internet 协议版本 6 (TCP/IPv6)</li> </ul>	○ 自动获得 DNS 服务器地址(6	8)
◇ ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ● ●	●使用下面的 DNS 服务器地站	±(E):
安装(N)	首选 DNS 服务器(P):	
描述	<b>餐</b> 用 DNS 服务器(A):	· · · · · · ·
传输控制协议/Internet 协议。该协议是默认的广域网络协议,用		

Figure 1

2.3 Open the reader demo "sreaderwpf", as shown in the following "Figure 2":

<b>^</b> 名称 ^	修改日期	类型	大小
SReaderAPI.dll	3/4/2020 4:57 PM	应用程序扩展	50 KB
SReaderWPF	3/5/2020 5:11 PM	应用程序	111 KB
<u></u>			
×			

2.4 The default communication mode selected in demo is network port RJ45 . Enter the IP and click "Connect", as shown in "Figure 3":

ader Informat	Read Tag	Write Tag	GPIO Control	IP Set/Get					
Connect									
Connection	method	TCF	лР		RS232				connect
<ul> <li>TCP/IF</li> </ul>	O RS232	IP	192.168.1.136		COM:	× 11!	5200 × Refr	resh	Conne
Parameter cette	a / aettina								
ReadPower	ig / gennig			Antenna Check			Region		
ReadPower	18	Set	Get	Open      Clo	se Set	Get	Region :	美标(902~928)	
DRM			WritePower	-				Buzzer :	
Open	Close Set	Get	Open	Close power	1 v	Set	Get	💿 Open 💿 C	lose Se
Antenna									
ANT1	ANT2 ANT3	ANT4 S	et Get						
SignalPortPo	wer								
ANITO1 . A	ANT02 : 3	ANT03 :	30 ANT04	: 30 -	Set	Get			

Figure 3

## 3. Serial communication (RS232 or USB):

3.1Connect the serial port cable or USB cable to the reader and check the generated

serial port number in the computer device manager, as shown in "Figure 4"::

	面板 > 所有控制面板项 > 系统		A 设备管理器
控制面板主页	查看有关计算机的基本	本信息	文件(F) 操作(A) 查看(V) 帮助(H) ◆ ● 〒 2011 9月 9月
设备管理器	Windows 版本	r	- 📲 LAPTOP-OBA1A6MO
远程设置 系统保护 高级系统设置	Windows 10 家庭中文題 © Microsoft Corporati 系統	t on。保i	<ul> <li>■ IDE ATA/ATAPI 控制器</li> <li>■ 处理器</li> <li>■ 磁盘驱动器</li> <li>■ 磁盘驱动器</li> <li>■ 存储控制器</li> <li>□ 「打印机」</li> </ul>
	制造商:	Ace	> 🤪 电池
	型号:	Trav	~ 員 端口 (COM 和 LPT) 員 Prolific PL2303GT USB Serial COM Port (COM5)
	处理: · · · · · · · · · · · · · · · · · · ·	8.00	> 置 固件
	系统类型:	64 (	> 🛄 监视器
	笔和触控:	没有	》 🛄 键盘 》 👔 蓝牙
	Acer 支持		> 🛄 内存技术设备
	网站:	联机	<ul> <li>         ·</li></ul>
	计算机名、域和工作组设置		<ul> <li></li></ul>
	计算机名:	LAP	🛯 🔲 鼠标和其他指针设备
	计算机全名:	LAP	◎ ● 通用串行总线控制器
	计算机描述:		> 🕎 网络道配器

Figure 4

3.2 Open the reader demo "sreaderwpf" and select serial communication, as shown in "Figure 5":

Connection mode: select RS232, select the generated serial port number and baud rateselect 115200, and click Connect.

Method         TCP/IP           IP:         192.168.1.1           g / getting         IP:	136	RS232 COM: Prolific PL23C ×	115200 • Refr	connect (Connect
a / getting			57600	Contra
		L	115200	
	Antenna Check		Region	
18 Set Get	Open Open Close	Set Get	Region :	美标(902~928)
Close Set Get Op	wer en 💿 Close power :	~ Set	Get	Buzzer : Open OClose
ANT2 ANT3 ANT4 Set Get				
apr.				
ANT02: 30 - ANT03: 30 - AN	VT04: 30 V	Set Get		
		107518 I I I I I I I I I I I I I I I I I I I		



#### 4. Power setting of the reader

4.1 Unified setting: this setting will uniformly set the power of all ports of the reader, as shown in "Figure 6" below. Select the value to be set in the power drop-down box and click Set. Click "get" to obtain the current power of all ports.

onnect				
Connection meth	hod	TCP/IP		-RS232
TCP/IP	RS232	IP: 1	192.168.1.136	COM
arameter setting / g	getting			
ReadPower			Antenna Chec	:k
ReadPower :	30 🗸	Set	Get 💿 Open 🔿	) Close
	18 ^			
DRM	19		WritePower	
⊖ Open ⊖ C	20 Set	Get	🔿 Open 🔿 Close p	ower:
	21			
Antenna	22			
	23 NT3	ANT4 Set	Get	
	24		001	
SignalPortPower	25			
	26			
ANTOT . 30	27 . 30	V ANT03 - 3	0 V ANT04 · 30 V	Se
	28			
	29			



4.2 Set the power of each port of the reader separately: each port of the device can set the power separately, as shown in "Figure 7", select the value to be set in the power drop-down box of each antenna port, and click Set. Click "get" to obtain the current power of each port.

ANT01 : 19 18 19 20 21 22 23 24 25	<b>&gt;</b> <	ANT02 : 2	) v AN	ITO3:19	<ul><li>✓ ANT</li></ul>	04:26	v		Set	Get	
18 19 20 21 22 23 24 25				Lances							
19 20 21 22 23 24 25								-			
20 21 22 23 24 25											
21 22 23 24 25											
22 23 24 25											
23 24 25											
24 25											
25											
26											
27											
28											

Figure 7

#### 5.Set the frequency of the reader

Note: select the working frequency band of the reader in the frequency drop-down box

and click settings, as shown in "Figure 8".

Click "get" to get the current working frequency of the reader.

Tip: the reader, tag and antenna are in the same frequency band, and the reading effect is the best.

30 ~ 1	15200 Y Refr	esh	Connect	Disconnec
Get	Region Region :	美标(902~928) ¥	Set	Get
		中标2(920~925) 美标(902~928)		Version :
et 🗌	Get	欧标(865~868) 中标1(840~845) 韩标(917~924) US3	Set	1.18.1.2 Get

Figure 8

## 6.Antenna detection

Note: the antenna detection function is enabled by default. It is recommended to enable it. After opening, the reader will automatically identify the closed-circuit antenna connected to the reader, as shown in the following "Figure 9":

ag	Write Tag	GPIO Control	IP Set/Get	-		
32	TCF	2/IP 192.168.1.136	1	RS232 COM: Pro	lific PL23C \vee	115200 V Ref
•	Set	Get An	tenna Check ) Open () Clos	se Set	Get	Region Region :
Se	t Get	Open (	) Close power	•	Set	Get
] ANT3	ANT4 S	et Get				
T02 :	20 v ANT03 :	19 × ANT04 :	26 ¥	Set	Get	

Figure 9

# 7.Buzzer setting

Note: if the reader has this function, this function can be turned off or on through this

setting, as shown in the following "Figure 10".

olific PL230 V 1152	200 Y Ref	resh Connect	Disconnec
Get	Region Region :	美标(902~928) > Set	Get
Set	Get	Buzzer : O Open O Close Set	Version : Get
Get			

Figure 10

#### 8.Read Tag

SReaderDemo V	1	0

ead Bank	-								Antenna
EPC     TID	Num	nber: 24	Time: 2450	ms To	otal: 3	1	Clear	Read	ANT1 1 ANT2 1
) Embedded .	#	EPC		Ant	RSSI	Count			ANT3 1
ok: coc -	1	E200001B10	1502591320EA2D	11	91	11	1		ANT4
EPG	2	E200001B10	1502442030DA7A	1	85	1	-		
sword : 00000000	3	E200001B10	1301732600993E	1	79	1			-
(word) 1 0002	4	E200001B57	13005306001A22	1	88	1	-		-
gth(word) : 02	5	E280116060	000208D832624E	1	97	2	-		-
am	6	E200001B10	014016719608F73	1	88	2	-		
4 *	7	E200001B10	01102040670B6AA	1	76	1			-
ssion: +	8	E200001B10	011003312100984	1	85	1			-
	9	E200001B10	014010823404C46	1	79	2			
in time. 10*100r *	10	E200001B10	01302170370BF94	1	82	2			
get A v	11	E200001B57	13018003509DC2	1	70	1			
	12	E200001C90	00A0022195002F7	1	89	2			
Enable	13	E200001C90	00E016307208D81	1	78	1			
ki menul	14	E200001B10	1402372230D8EE	1	73	1			
EPt. V	15	E200001B10	011009027103B31	1	74	1			
dr(bits) = 00000000	16	E200001C90	00A006615302619	1	72	1		-	
ngth(word): 0002	17	E200001B10	15003521601041	1	72	2			
ta(Hex): 02	18	E200001C90	0A017220809252	1	77	1			1



#### 8.1 Antenna:

Demo check the antenna number actually connected to the reader, which must be consistent with the physical connection. Select the correct port number, otherwise the reader may be damaged. For example, only antenna 1 and antenna 2 are actually connected. We check antenna 1 and antenna 2.

- 8.2 Other settings can be the default configuration. Click "Read".
- 8.3 Read Bank: Set the read data area, which defaults to EPC.
  - 8.3.1 EPC query is used to query the EPC area of the tag;
  - 8.3.2 TID query is used to query the TID area of the tag;
  - 8.3.3 Embedded query can query EPC + reserved area,or EPC + TID or EPC + user area at the same time.

#### 8.4 Embedded:

You can query the data of a specified starting address and a specified length of a

specified area;

Password: access password, hexadecimal string;

Add: Specifies the address from which to start reading data, in "word";

Length: Specifies the length of read data, in "word".

8.5 Param:

- 8.5.1: Q: The general Q value is 4 by default. The closer the number of tags is to the Q power of 2, the better.
- 8.5.2: Session: The session value used when querying the EPC of the tag.Recommended settings: a small number of labels S0 and multiple labels S1.
- 8.5.3: Scan time: Set the maximum single query time of all antenna ports globallyIf it is necessary to set the single maximum interrogation time of an antenna port separately, see "Figure 12":
- 8.5.4: Target: AB is the tag status value.

					A	Intenna	
ms To	stal. 3	1	Clear	Read		ANT1	10*100r ~
1115 10		•			] [	ANT2	10*100ms
Ant	RSSI	Count			[	ANT3	11*100ms 12*100ms
11	01	1	1		A [	ANT4	13*100ms
1	91	1	_		_		14*100ms
-	00						15*100ms
1	19	1					16*100ms
1	88	1					17*100ms
1	97	2					18*100ms
1	88	2					19*100ms
1	76	1					20*100ms
1	85	1			-		22*100ms
1	79	2			-		23*100ms
1	82	2					24*100ms
1	70	1	_				25*100ms 🗸
1	80	2					

Figure 12

8.6 Filter:

- 8.6.1:Bank: read a certain type of tag according to the data of EPC, reserved and user areas;
- 8.6.2:Addr:Address of filtered data in memory, unit "bits";
- 8.6.3:Length:(length of filtered data) unit "bits", which must match the filtered data;
- 8.6.4:Data:(Filter data)Hexadecimal string, the data must match the length of the filtered data.
- 8.7 Data display area:
  - 8.7.1: Display area:
    - 1. Number number of the tags;
    - 2.Time reading time;
    - 3. Total Total number of reads of all tags.
  - 8.7.2: Each tag data will display data, antenna number (which antenna port the tag is currently recognized by), RSSI, number of times (the total number of times a single tag is read), as shown in the following"figure 13".

Num	ber: 24 Time: 2450		otal: 3	1	Clear	Read
#	EPC	Ant	RSSI	Count		
1	E200001B101502591320EA2D	1	91	1		
2	E200001B101502442030DA7A	1	85	1		
3	E200001B101301732600993E	1	79	1		
i i	E200001B5713005306001A22	1	88	1		
5	E280116060000208D832624E	1	97	2		
ò	E200001B1014016719608F73	1	88	2		
7	E200001B101102040670B6AA	1	76	1		
3	E200001B1011003312100984	1	85	1		
)	E200001B1014010823404C46	1	79	2		
0	E200001B101302170370BF94	1	82	2		
11	E200001B5713018003509DC2	1	70	1		
12	E200001C900A0022195002F7	1	89	2		
3	E200001C900E016307208D81	1	78	1		
14	E200001B101402372230D8EE	1	73	1		
15	E200001B1011009027103B31	1	74	1		
16	E200001C900A006615302619	1	72	1		
17	E200001B1015003521601041	1	72	2		
18	E200001C900A017220809252	1	77	1		
	E000001010100100010001000100000	1.	100	10		

Figure 13

## 9.Write Tag

	Read Tag	Write Tag	GPIO Control	IP Set/Get		
Mask Mode						
	● EPC	Mas	k			
EPC						
EPC (Hex) :				Read EPC		
Mack						
Mark Dark	EPC		00000000			
Mask Bank	ero v	Addr(bits) -	0000000			
Length(bits)	0000000	Data(Hex):				
Write Tag						
Bank: EPC	*	Addr(words) : 000	2	Length(words): 2	Access Password(H	Hex) 00000000
New Data/Hey)			- PC: 0000		Write Tag	
New Data(Hex)	*				white rag	
Write EPC(Keep	a tag in the ante	enna field)				
	2011/08 01 00 00 00 00 00 00 00 00 00 00 00 00		000000	00	500	
EPC :		Access Passe	UNTR(LAV) 000000	~~ In////C		

Figure 14

9.1Operates on a specified tag

Note:

Complete EPC data can be used as filtering conditions (EPC) or partial data can be used as filtering conditions (mask);

This function can be used to read data, write data and set protection on this page;

9.1.1 Complete EPC, as shown in "Figure 15".

-00	• EPC	() Ma	ask		
EPC (Hex)	E28011606000	021140ADF864		Read EPC	
Mask	EPC		0000000	]	
Mask Bank: Length(bits)	00000000	Data(Hex):			
Vrite Tag Bank: EPC	Ŷ	Addr(words): 00	002	Length(words	.): <b>2</b>
New Data(He	<b>x</b> ):		PC: 00	00	·
Vrite EPC(Kee	ep a tag in the ant	enna field)			
EPC ·			101	000000	MALTE F

Figure 15

9.2 Writing data and reading data

Reader Informat	Read Tag	Write Tag	GPIO C	ontrol IP Set/	Get			
Mask Mode	O EPC		Mark					
	. EPC	0	Mask					
EPC								
EPC (Hex) :	E280116060	00021140ADF864		Read EPC				
Mask								
Mask Bank:	EPC v	Addr(bits)	: 00000000					
Length(bits)	00000000	Data(Hex	():					
Write Tag			Contraction and					
Bank: EPC	*	Addr(words) :	0002	Length(wor	rds): 2	Access Pass	word(Hex) 00	000000
New Data(Hex	):		PC:	0000		Write Tag		
Write EPC(Keep	a tag in the a	intenna field)						
EPC :		Access P	assword(Hex)	0000000	Write EF	°C		
Lock Tag								
Kill Passwork	d 🔿 Access	Password () EPC	User Rea	d/Write Protect:	nloci - Acces	ss PassWord(Hex	): 00000000	Set

Figure 16

9.2.1

Bank:writable areas are: EPC, Reserved, USER;

The readable areas are: EPC, Reserved, USER, TID;

Addr(words): the unit is "word". You can specify the start address of data reading or writing.

Length(words): the unit is "word". You can specify the length of data to be read or written.

New Data(Hex):

1. When writing the tag, the length of the written data must be consistent with the specified length, and the data length must be an even number of bytes. When writing EPC data, if you need to overwrite the original EPC data, you need to check the automatic calculation of PC value. If Auto calculate PC value is checked, data will be written from start address 1 by default.

2. When reading the tag, the length of the read data cannot exceed the length of the data actually stored in the tag.

Access Password(Hex): hexadecimal string. The default is "00000000". It is generally used when the label is protected or locked. It can only be operated with a correct password.

9.3 Write EPC

Note: 1. Only one tag must be reserved in the antenna field (it can be adjusted with the reader power);

2. The EPC data written must be a hexadecimal string with an even number of bytes in length.

ader Informati Read Tag Write Tag GPIO Control IP Set/Get
flask Mode
EPC     OMask
PC
EPC (Hex) : E28011606000021140ADF864 Read EPC
nask
Mask Bank: EPC v Addr(bits): 00000000
Length(bits) 00000000 Data(Hex):
Vrite Tag
Bank: EPC v Addr(words): 0002 Length(words): 2 Access Password(Hex) 00000000
New Data(Hex): PC: 0000 Write Tag
Vrite EPC(Keep a tag in the antenna field)
EPC : Access Password(Hex) 00000000 Write EPC
uck Tau
© Kill Password ◯ Access Password ◯ EPC ◯ User Read/Write Protect: Unlocl ∨ Access PassWord(Hex): 000000000 Set

Figure 17

9.4 Lock Tag

Note: this function is used for EPC write protection, access password area read-write protection, destruction password area read-write protection and user area read-write protection. Before this function is operated, the access password must be set in advance

		White Er o	
ag Recoverd O Acco	Deerd Mille Deete at UD		0000000
	Read/write Protect:	Access Password(Hex):	Set

Figure 18

## 10.GPIO

#### 10.1 GPO output

This function can control the status of the GPO ports of the reader, and the output time unit is seconds.

#### 10.2 GPI input

Start monitoring can monitor the status of the GPI ports of the reader in real time.

When starting is triggered, the level is "0" and the default is "1".

#### 10.3 TriggerReading

After the TriggerReading is started, if the GPI status information changes, the reading can be started, and the reading time is 5 seconds (the reading time can be set).

Reader Informati	Read Tag	Write Tag	GPIO	Control	IP Set/Get	
GPO GPIO: GF	201 🗌 GPO2 [	GPO3	Numb	er: 0		Time: (
Level: Hig Time: 0 Note: When the level, if the time continuously of 0, it will mainta corresponding the reader auto	h C Low Set e reader outputs a e is 0, the reader utputs a high level in the high level fo time; when the tim omatically Switch t	high ; if it is not ir the ne ends, o low	#	EPC		
GPI GPI1: 1 GPI2 Note: 1:High,	2: 1 GPI3: 1 0:Low	StartLister				

Figure 19

## 11. Set the IP address of the reader

Get: click get to get the current IP information of the reader Setting: in the dialog box, enter a new IP address and click set. After the prompt is set successfully, the new IP address will take effect after the reader is powered off and restarted.

P Information IP : 192 . 168 . 1 . 136 Mask : 255 . 255 . 255 . 0 Gate : 192 . 168 . 1 . 1 Get Set	IP Information IP : 192 . 168 . 1 . 136 Mask : 255 . 255 . 255 . 0 Gate : 192 . 168 . 1 . 1 Get Set	Reader I	nformati	Rea	d Tag		Wri	te Tag	GPIO Control	IP Set/Get
IP : 192 . 168 . 1 . 136 Mask : 255 . 255 . 255 . 0 Gate : 192 . 168 . 1 . 1 Get Set	IP : 192 . 168 . 1 . 136 Mask : 255 . 255 . 255 . 0 Gate : 192 . 168 . 1 . 1 Get Set	IP Inform	nation							
Mask : 255 . 255 . 0 Gate : 192 . 168 . 1 . 1 Get Set	Mask : 255 . 255 . 0 Gate : 192 . 168 . 1 . 1 Get Set	IP :	192	. 168		1		136		
Gate : 192 . 168 . 1 . 1 Get Set	Gate : 192 . 168 . 1 . 1 Get Set	Mask :	255	. 255	1.	255	٦.	0	1	
Get Set	Get	Gate :	192	. 168	<b>.</b>	1	Ϊ.	1	4	
			:	Get				Set		
			[							

Figure 20