

# ClarIDy UHF USB Reader Demo Program User's Manual for Win32

Product Name: UHF USB Reader Module

Model No.: UEE006

Applicant: ClarIDy Solutions, Inc.

Version: A.2-02

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Change Log

Revision	Date	Author	Description
A.1	2008.09.02.	Hoe Huang	Create the ClarIDy UHF Demo Program User's Manual.
A.2	2008.11.07	Hoe Huang	Modified Demo Program User's Manual, and added
			examples.
A.2-01	2008.12.09	Jun-Rong Chang	Added the application of Lock Tag and Kill Tag
A.2-02	2009.01.05	Jun-Rong Chang	Added the application of enable password function and
			write password.



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# 1. Introduction

This document describes the demo program (ClarIDy\_UHF\_Demo\_Setup.exe) for ClarIDy UHF RFID Reader. The demo program provides "Setting", "Algorithm", "Inventory", "Read/Write", "Filter Inventory", "Filter Read/Write" and "Lock/Kill" functions. Users can use this application to control the ClarIDy UHF RFID Reader to communicate with EPC RFID tags. The operational procedures are described as the following chapters.



# 2. Installation

Before Installing the USB Driver and ClarIDy UHF Demo program, please see prerequisites first.

# 2.1 Prerequisites to Installation

In order to run ClarIDy UHF Demo program as smoothly as possible, we recommend some conditions as following.

## 2.1.1 Hardware Platform Requirements

The following hardware Platforms are supported by ClarIDy UHF RFID Reader.

- CPU: Intel<sup>®</sup> Pentium<sup>®</sup> 4 or AMD Athlon<sup>™</sup> processor, 1.4 GHz or above
- RAM: 512MB or above

## 2.1.2 Operating System Requirements

The following host operating systems are supported by ClarIDy UHF RFID Reader:

 Microsoft<sup>®,</sup> Windows Vista<sup>®</sup>, Windows XP<sup>®</sup> with Service Pack 2 or Service Pack 3 on an IA-32 platform; USB Host Controller – OHCI, UHCI or EHCI

### 2.1.3 Other Software Requirements

The following other systems are supported by ClarIDy UHF RFID Reader:

- Microsoft<sup>®</sup> .Net Framework<sup>®</sup> Release 2.0
- Microsoft<sup>®</sup> Visual C++ Libraries 2008

## 2.2 Setup the USB Driver

First time using the ClarIDy's UHF RFID Reader (USB Interface), you must install the driver. (The Driver programs are located in the "drivers" folder of the disc.)

Please directly connect the ClarIDy UHF RFID Reader to the USB port of the computer. The Windows system will detect the ClarIDy UHF RFID Reader as a new device and popup the device driver setup dialog, as figure 1.

Install ClarIDy UHF RFID driver step by step as the following instructions:

- 1. Select "Install from a list or specific location (Advanced)", as figure 2.
- 2. Click "Next" while the wizard searches, as figure 3.
- 3. System show out figure 4.
- 4. Select "No, do not connect to the internet now", as figure 5.
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- 5. Click "Next" while the installation option dialog is shown, as figure 6.
- 6. When "Hardware Installation" dialog is shown, please click "Continue Anyway" to continue the installation, as figure 8 and figure 9.
- 7. Click "Finish" to finalize the installation of the RFID USB device driver, as figure 10.

Found New Hardware Wizard		
	Welcome to the Found New Hardware Wizard	
	This wizard helps you install software for:	
the state of the s	HARVEMAC	
	If your hardware came with an installation CD or floppy disk, insert it now.	
ALL	What do you want the wizard to do?	
A DECEMBER OF THE OWNER OF	<ul> <li>Install the software automatically (Recommended)</li> </ul>	
	Install from a list or specific location (Advanced)	
	Click Next to continue.	
	< Back Next > Cancel	

Figure 1



Found New Hardware Wizard		
	Welcome to the Found New Hardware Wizard	
	This wizard helps you install software for:	
	HARVEMAC	
	If your hardware came with an installation CD or floppy disk, insert it now.	
and the second second	What do you want the wizard to do?	
	Install the software automatically (Recommended)	
	Install from a list or specific location (Advanced)	
	Click Next to continue.	
	<back next=""> Cancel</back>	

Figure 2



Figure 3

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Found New Hardware Wizard		
The wizard could not find the software on your computer for		
It is recommended that you connect to the Internet so that the wizard can search online and look the appropriate software.	cfor	
Yes, connect and search for the software on the Internet		
No, do not connect to the Internet now		
If you know another place where the software might be located, click Back and select the Advanced option.		
< Back Next > Cance	∍I	

Figure 4

Found New Hardware Wizard
The wizard could not find the software on your computer for
HARVEMAC
It is recommended that you connect to the Internet so that the wizard can search online and look for the appropriate software.
Yes, connect and search for the software on the Internet
No, do not connect to the Internet now
If you know another place where the software might be located, click Back and select the Advanced option.
< Back Next > Cancel



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Found New Hardware Wizard			
Please choose your search and installation options.			
<ul> <li>Search for the best driver in these locations.</li> <li>Use the check boxes below to limit or expand the default search, which includes local paths and removable media. The best driver found will be installed.</li> <li>Search removable media (floppy, CD-ROM)</li> <li>Include this location in the search:</li> </ul>			
Don't search. I will choose the driver to install. Choose this option to select the device driver from a list. Windows does not guarantee that the driver you choose will be the best match for your hardware.			
< Back Next > Cancel			

Figure 6



Figure 7



Found New Hardware Wizard				
Please	Hardware Installation			
Ŷ	The software you are installing for this hardware:         UsbHarve.Sys for Intel Harve RFID MAC         has not passed Windows Logo testing to verify its compatibility with Windows XP. (Tell me why this testing is important.)         Continuing your installation of this software may impair or destabilize the correct operation of your system either immediately or in the future. Microsoft strongly recommends that you stop this installation now and contact the hardware vendor for software that has passed Windows Logo testing.			
	Continue Anyway STOP Installation	el		

Figure 8



Figure 9



Found New Hardware Wizard		
	Completing the Found New Hardware Wizard	
	The wizard has finished installing the software for:	
	UsbHarve.Sys for Intel Harve RFID MAC	
	Click Finish to close the wizard.	
	< <u>B</u> ack Finish Cancel	

Figure 10

# 2.3 Install .Net Framework 2.0

If your O/S doesn't have installed .Net Framework 2.0 yet, "Setup.exe" would install .Net Framework 2.0 automatically. And install .Net Framework 2.0 step by step as the following instructions:

- 1. Double click "Setup.exe" (The file is located in the win32 folder of the disc.)
- Select Read and accept the terms of the license agreement, and click "Install", as figure 11.
- 3. Wait the installation, as figure 12.
- 4. Click "Exit" to finish the installation, as figure 13.



icrosoft .NET Framework 2.0 SP1 Set	ир 📃 🗖 🔀		
Welcome to Setup	.net Framework		
Be sure to carefully read and understand all the right license terms. You must accept the license terms before MICROSOFT SOFTWARE SUPPLEME MICROSOFT .NET FRAMEWORK 2.0	s and restrictions described in the pre you can install the software.		
Microsoft Corporation (or based on when	e you live, one of its affiliates) 🔽		
Press the Page Down key to see more text. I have read and ACCEPT the terms of the License I DO NOT ACCEPT the terms of the License Agree	Agreement ment		
Send information about my setup experiences to Microsoft Corporation. Details regarding the <u>data collection policy</u>			
	Install > Cancel		

Figure 11



Microsoft .NET Framework 2.0 SP1 Setup	
Installation Progress	. Framework
Installing:	
	Cancel

Figure 12



Microsoft . NET Framework 2.0 SP1 Se	etup
Setup Complete	. Framework
Microsoft .NET Framework 2.0 SP1 has been in It is highly recommended that you download a security updates for this product. For more information, see <u>Windows Update</u>	and install the latest service packs and
	Exit

Figure 13

# 2.3 Install ClarIDy UHF Demo

Install ClarIDy UHF Demo step by step as the following instructions:

- 1. Double click "Setup.exe" which is in the disc (The file is located in the win32 folder of the disc.).
- 2. Click "Next", as figure 14.
- 3. Click "Browser" to the Folder to install and select the user, and click "Next", as figure 15.
- 4. Click "Next" to start installation, as figure 16.
- 5. Wait for the installation, as figure 17.
- 6. Click "Close" to exit, as figure 18.



🛃 ClarIDy UHF SDK	
Welcome to the ClarIDy UHF SDK Setup Wizard	
The installer will guide you through the steps required to install ClarIDy UHF SDK on	your computer.
WARNING: This computer program is protected by copyright law and international tr Unauthorized duplication or distribution of this program, or any portion of it, may resul or criminal penalties, and will be prosecuted to the maximum extent possible under th	eaties. t in severe civil le law.
	<u>N</u> ext >

Figure 14

🛃 ClarIDy UHF SDK	
Select Installation Folder	
The installer will install ClarIDy UHF SDK to the following folder. To install in this folder, click "Next". To install to a different folder, enter it bek	ow or click "Browse".
C:\Program Files\ClarIDy Solutions\ClarIDy UHF SDK\	B <u>r</u> owse Disk Cost
Install ClarIDy UHF SDK for yourself, or for anyone who uses this computer <u>E</u> veryone <u>Just me         </u>	r.*
Cancel < <u>B</u> ack	<u>N</u> ext >



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i ClarIDy UHF SDK	
Confirm Installation	
The installer is ready to install ClarIDy UHF SDK on your computer. Click "Next" to start the installation.	
Cancel < <u>B</u> ack	) <u>N</u> ext >







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🙀 ClarIDy UHF SDK	
Installation Complete	
ClarIDy UHF SDK has been successfully installed.	
Click "Close" to exit.	
Please use Windows Update to check for any critical updates to the .NET Framewor	k.
Cancel < <u>B</u> ack	<u>C</u> lose

Figure 18



# 3. Demo Program Operation Guide

The following sections will describe the usage of the ClarIDy UHF Demo application. The application is include seven Controls, "Setting Control", "Algorithm Control", "Set-Session Control", "Inventory Control", "Read/Write Control", "Filter Inventory Control", "Filter Read/Write Control" and "Lock/Kill Control".

# 3.1 Setting Control

Click the "Setting" button of the main form, as figure 19. The Settings Page is displayed. This page allows the user to configure the following items:

- Link Profile
- Data Format ( Compact, Normal or Extended )
- Operational Mode ( Continuous Mode or Discontinuous Mode )
- Inventory Algorithm (Fixed "Q", Variable "Q", Variable "Q" Adjustable or Variable "Q" Threshold )

RFID_UHF_SDK Demo	Raiss alles	
ClarIDy Advanced HPID SOLUTIONS		
	Reader Info	
UHF Reader Demo	MAC Value	
Setting Algorithm Inventory Read Write Filter Inventor	ry FilterWrite/Read Lock/Kill	
Current Reader Setting:		
Region	FCC_GENERIC -	
Link Profile	2: PR_ASK/M2/250khz	
Data Format	NORMAL	
Operation Mode	NONCONTINUOUS -	
Inventory Algorithm	DYNAMICQ_THRESH -	
	Inventory Algorithm Changed	
Reader number(s) = 1		.::



### ClarIDy UHF USB Reader Demo Program Figure 19: Setting View Panel

As you can see in Figure 20, the settings page has a two column layout. The left column is used to specify the startup settings that will be automatically applied to the reader when the application starts. The right column allows the user to change the current reader configuration.

Region	FCC_GENERIC	Ŧ
Link Profile	2: PR_ASK/M2/250khz	•
Data Format	NORMAL	•
Operation Mode	NONCONTINUOUS	•
Inventory Algorithm	DYNAMICQ_THRESH	•
Inventory Algorithm	DYNAMICQ_THRESH Inventory Algorithm Che	• nged

## Figure 20: Settings

- 1. Link Profile: Sets the current link profile for the reader module, as figure 21. The option is as follows:
  - 0: DSB ASK / MO / 40 khz
  - 1: DSB\_ASK / M1 / 160 khz
  - 2: PR\_ASK / M2 / 25U khz
  - 3: PR\_ASK / M2 / 300 khz
  - 4: DSB\_ASK / MO / 400 khz
  - 5: PR\_ASK / M1 / 250 khz



- 2. Data Format: Sets the operation response data reporting mode for tag-protocol operations, as figure 22. The option is as follows:
  - **COMPACT:** The response data is limited to provide the application with the pertinent tag-access operation data, but minimize the amount of MAC-to-host communication overhead.
  - **NORMAL:** The response data builds on the compact mode to provide the application with status and contextual information to give additional
    - finer-grained feedback such as the beginning of inventory cycles, etc.
  - **EXTENDED:** The response data builds on the normal mode by providing additional

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diagnostics and statistical information.

NORMAL	-
COMPACT	
NORMAL	
EXTENDED	

Figure 22

- 3. Operation Mode: Sets the reader's operation mode, as figure 23. The option is as follows:
  - **CONTINUOUS:** In continuous mode, when a tag-protocol-operation cycle (i.e., one iteration through all enabled antenna ports) has completed, the reader module will begin a new tag-protocol-operation cycle with the first enabled antenna port and will continue to do so until the operation is explicitly cancelled by the application.
  - **NONCONTINUOUS:** In non-continuous mode, only a single tag-protocol-operation cycle is executed upon the reader module.

NON	CONTINUOUS	
CON	TINUOUS	
NON	CONTINUOUS	

Figure 23

4. Inventory Algorithm: Allows the application to set the currently-active singulation algorithm, as figure 24. The option is as follows:

0: ALGORITHM\_FIXEDQ

- 1: DYNAMICQ
- 2: DYNAMICQ\_ADJUST

3: DYNAMICQ\_THRESHOLD

DYNAMICO\_THRESH 
FIXEDO DYNAMICO\_ADJUST DYNAMICO\_THRESH Figure 24



# ClarIDy UHF USB Reader Demo Program 3.2 Algorithm Control

Click the "Algorithm" button of the main form, as figure 25. The Algorithm pane is used to view, the parameters for the selected singulation algorithm. The user may select Fixed Q, Dyanmic Q, Dynamic Q Adjustable and Dynamic Q Threshold from the Active Algorithm combo box and click "Load" button to query the current selected Algorithm and refresh the values displayed in the Algorithm Settings View panel, as figure 26.

Reader Info IF Reader Demo s Algorithm Inventory Read Write Filter Inventory Filter Write/Read Lock/Kill aridy_uem001_000001 Activate Select Rules: FixedQ Load Edit Algorithm Q Value Retry Count Toggle Target Repeat Until No Tags Algorithm Q Value Algorithm Setting:	ly l	
Reader Info   MAC Value     aridy_uem001_000001     Activate Select Rules:   FixedQ   Load   Edit     Algorithm   Q Value   P   Toggle Target (A+>B)	SOLUTIONS	
MAC Value          g       Algorithm       Inventory       Read Write       Filter Inventory       Filter Write/Read       Lock/Kill         aridy_uem001_000001		Reader Info
aridy_uem001_000001         Algorithm         Activate Select Rules:         FixedQ         Load         Edit         Algorithm         Q Value         Retry Count         Toggle Target (A <> B)	Reader Demo	MAC Value
aridy_uem001_000001 Activate Select Rules: FixedQ  Load Edit Algorithm Q Value Retry Count Toggle Target Repeat Until No Tags Algorithm Q Value	rithm Inventory Read Write Filter Inventory	r FilterWrite/Read Lock/Kill
Activate Select Rules: FixedQ  Load Edit  Algorithm Q Value Retry Count Toggle Target Repeat Until No Tags Algorithm Q Value  Algorithm Setting:  Q Value 0  Toggle Target (A \vee B)		
Activate Select Rules:       FixedQ       Load       Edit         Algorithm       Q Value       Retry Count       Toggle Target       Repeat Until No Tags       Algorithm       Q Value         Algorithm       Setting:       Image: Toggle Target (A⇔B)       Image: Toggle Target (A⇔B)       Image: Toggle Target (A⇔B)	1001_000001	
Algorithm       Q Value       Retry Count       Toggle Target       Repeat Until No Tags       Algorithm       Q Value         Algorithm Setting:	rate Select Rules: FixedQ	▼ Load Edit
Algorithm Setting:	nithm O Value Retry Count	Tozzle Tarzet Repeat Until No Tazz Alzonithm O Va
Algorithm Setting:		
Q Value 0 Ioggle Target (A <> B)	rithm Setting:	
Q Value 0 Toggle Target (A <> B )	num setting.	
	Q Value	Toggle Target (A<>B)
Retry Count 0 Repeat Until No Tags	Retry Count 0	Repeat Until No Tags
Save	г	Correct
		Save

Figure 25: Algorithm View Panel



Algorithm	Q Value	Retry Count	Toggle Target	Repeat Until No Ta	igs i	Algorithm	Q Value
FixedQ	8	0	Enable	Enable			
( [		III					
Q Value	8		A. V	Toggle Target ( A <> B )	Enable	-	
Retry Cou	at 0			Repeat Until No Tags	Enable		

Figure 26: Load Value

To modify the algorithm settings for the current reader, click on the "Edit" button. This will enable a algorithm setting panel similar to the one shown in Figure 27.

Algorithm	Q Value	Retry Count	Toggle Target	Repeat Until No Ta	gs	Algorithm	Q Value
FixedQ	8	0	Enable	Enable			
< [		III					
			R	lepeat Until No Tags	Enable	•	
Retry Cou	nt 0						

Figure 27: Modify Algorithm Settings



- 1. FixedQ : Fixed Q algorithm. The items as follows:
  - 1: qValue: The Q value to use. Valid values are 0 to 15, inclusive.
  - 2: retryCount: Specifies the number of times to try another execution of the singulation algorithm for the specified session/target before either toggling the target (if toggleTarget is non-zero) or terminating the inventory/tag access operation. Valid values are 0-255, inclusive.
  - 3: toggleTarget: A flag that indicates if, after performing the inventory cycle for the specified target (i.e., A or B), if the target should be toggled (i.e., A to B or B to A) and another inventory cycle run. A non-zero value indicates that the target should be toggled. A zero value indicates that the target should not be toggled. Note that if the target is toggled, retryCount and repeatUntilNoTags will also apply to the new target.
  - 4: repeatUntilNoTags: A flag that indicates whether or not the singulation algorithm should continue performing inventory rounds until no tags are singulated. A non-zero value indicates that, for each execution of the singulation algorithm, inventory rounds should be performed until no tags are singulated. A zero value indicates that a single inventory round should be performed for each execution of the singulation algorithm.
- 2. DynamicQ: Adjusts the Q value based on the presence or absence of tags. The items as follows:
  - 1: startQValue: The starting Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 2: minQValue: The minimum Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 3: maxQValue: The maximum Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 4: retryCount: Specifies the number of times to try another execution of the singulation algorithm for the specified session/target before either toggling the target (if toggleTarget is non-zero) or terminating the inventory/tag access operation. Valid values are 0-255, inclusive.
  - 5: maxQueryRepCount: The maximum number of ISO 18000-6C QueryRep commands that will follow the ISO 18000-6C Query command during a single inventory round. Valid values are 0-255, inclusive.
  - 6: toggleTarget: A flag that indicates if, after performing the inventory cycle for the specified target (i.e., A or B), if the target should be toggled (i.e., A to B or B to A) and another inventory cycle run. A non-zero value indicates that the target should be toggled. A zero value indicates that the target should not be toggled. Note that if the target is toggled, retryCount and repeatUntilNoTags
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will also apply to the new target.

- DynamicQAdjust: This algorithm modifies the previous dynamic Q algorithm by issuing ISO 18000-6C Query Adjust commands instead of ISO 18000-6C Query commands when adjusting the Q value. The items as follows:
  - 1: startQValue: The starting Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 2: minQValue: The minimum Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 3: maxQValue: The maximum Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 4: retryCount: Specifies the number of times to try another execution of the singulation algorithm for the specified session/target before either toggling the target (if toggleTarget is non-zero) or terminating the inventory/tag access operation. Valid values are 0-255, inclusive.
  - 5: maxQueryRepCount: The maximum number of ISO 18000-6C QueryRep commands that will follow the ISO 18000-6C Query command during a single inventory round. Valid values are 0-255, inclusive.
  - 6: toggleTarget: A flag that indicates if, after performing the inventory cycle for the specified target (i.e., A or B), if the target should be toggled (i.e., A to B or B to A) and another inventory cycle run. A non-zero value indicates that the target should be toggled. A zero value indicates that the target should not be toggled. Note that if the target is toggled, retryCount and repeatUntilNoTags will also apply to the new target.
- 4. DynamicQThreshold: This algorithm uses a Q-modification algorithm that allows the application to control the change of the Q-adjustment-threshold value. The items as follows:
  - 1: startQValue: The starting Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 2: minQValue: The minimum Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 3: maxQValue: The maximum Q value to use. Valid values are 0 to 15, inclusive. minQValue <= startQValue <= maxQValue
  - 4:retryCount: Specifies the number of times to try another execution of the singulation algorithm for the specified session/target before either toggling the target (if toggleTarget is non-zero) or terminating the inventory/tag access operation. Valid values are 0-255, inclusive.
  - 5: toggleTarget: A flag that indicates if, after performing the inventory cycle for the specified target (i.e., A or B), if the target should be toggled (i.e., A to B or B to © Copyright 2008 ClarIDy Solutions, Inc. All rights reserved.



A) and another inventory cycle run. A non-zero value indicates that the target should be toggled. A zero value indicates that the target should not be toggled. Note that if the target is toggled, retryCount and repeatUntilNoTags will also apply to the new target.

6: thresholdMultiplier: The multiplier, specified in units of fourths (i.e., 0.25), that will be applied to the Q-adjustment threshold as part of the dynamic-Q algorithm. Valid values are 0-255, inclusive.



# 3.3 Inventory Control

Click the "Inventory" button of the main form, as figure 28. The Inventory panel is used to read tag data and view tag data. Click the "Start" button to read tags, as figure 29.

FID_UHF	SDK Demo	Sec. of the sec.		
	CED AFID SOLUTIONS			
		Reader Info		
UH	F Reader D	emo MAC Value		
Setting	Algorithm Inventory Re	ad Write Filter Inventory Filter Write/Read	Lock/Kill	
-	claridar nem001_000001			
	Start	Clear		
	No PC	EPC	CRC Count H	1225
	10 1.0	Di C		

Figure 28: Inventory Control.



No	PC	EPC	CRC	Count	RSSI
1	3000	123456789012345678ABCDEF	0525	238	87.2
2	3000	1B0C5678901234567890ABCD	D0C9	192	85.6
3	3000	E00012345678901234500001	4CF4	163	87.2
4	3000	123400005678901234500005	A87A	138	87.2
5	3000	E00012345678901234500002	0525	134	79.2

## Figure 29: Start Read Tags

Click the "Stop" button to stop read tags, as figure 30.

No	PC	EPC	CRC	Count	RSSI
1	3000	123456789012345678ABCDEF	0525	2475	86.4
2	3000	1B0C5678901234567890ABCD	D0C9	2435	84.8
3	3000	E00012345678901234500001	4CF4	2402	80.8
4	3000	123400005678901234500005	A87A	2388	87.2
5	3000	E00012345678901234500002	0525	2386	87.2

Figure 30: Stop Read Tags



# ClarIDy UHF USB Reader Demo Program 3.4 Read/Write Control

Click the "Read/Write" button of the main form, as figure 31. The "Read/Write" panel is used to read tag data and write tag data. The user may select "Reserved – Memory Band 0", "EPC – Memory Band 1", "TID – Memory Band 2" and "User – Memory Band 3" from the Memory Bank combo box. When this combo box is modified, the group box enabled with the indicated memory bank in the "Read/Write" panel.

RFID_UHF_SDK Demo	
ADVANCED HITD SOLUTIONS	
Reader Info UHF Reader Demo	
Setting Algorithm Set Session Inventory Read Write Filter Inventory FilterWrite/Read Lock/Kill	
Memory Bank : EPC - Memory Bank 1 🗸	
Read/Write EPC	-
New EPC: 123456789012345678ABCDEF EPC Lengh: 24 (Please input 24 Hexadecimal digits 0-9, A-F)	
Read/Write User Memory Location : 0 Value : 0000 (Please input 4 Hexadecimal digits 0-9, A-F)	
Write Read Reset	

Figure 31: Read/Write Control

The user can write or read EPC code and User Memory. When the user wants to write EPC, the user must input 24 hexadecimal digits, as figure 32.

New EPC:	123456789012345678ABCDEF	EPC Lengh :	24
(	Please input 24 Hexadecimal digits 0-9.	A-F)	

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When the user wants to read EPC, the user clicks the "Read" button and value is showed to message list, as figure 33.

123400005678901234500005	

Figure 33: Read EPC

When the user wants to write User Memory, the user must input location and 4 hexadecimal digits, as figure 34

Read/Write User I	Memory	r.		
Location :	0	Value :	0000	
			(Please	input 4 Hexadecimal digits 0-9, A-F)

Figure 34: Write User Memory

When the user wants to read User Memory, the user must input location and value is showed to message list, as figure 35.

0000	
Figure 35: Read User Memor	у



## 3.5 Filter Inventory

Click the "Filter Inventory" button of the main form, as figure 36. The "Filter Inventory" panel is used to read tag UID. The user may select to read tag UID by filter value. If the user selects "NONE" from the rule combo box, the reader will read all cards. If the user selects "NOT EQUAL" from the rule combo box, the reader will read card which is not match filter value. If the user selects "EQUAL" from the rule combo box, the reader will read card which is not match filter value. If the user selects "EQUAL" from the rule combo box, the reader will read card which is match filter value.

Follow the instructions step by step as following:

- 1. Select "Rule"
- 2. Select start location of filter value
- 3. Input filter value
- 4. Select "Memory Bank"
- 5. Click the "Start" button, the result as figure 37.

RFID_UHF_SDK Demo	CAN SHE SHOW	Rent plant			X
		Reader Info			
UHF Reade	r Demo	MAC Value			
Setting Algorithm Invent	ory Read Write Filter Inventor	y FilterWrite/Read Lock/	ĸш		
claridy vem001 000001					
Rule: NONE	✓ Start Location: <sup>1</sup>	Elength: 1	Filter Value: 0		
Memory Bank : B	IPC - Memory Bank 1 🛛 👻				
	Clear			<u></u>	
No PC	EPC	CRC	C Count RSSI		

Figure 36: Filter Inventory Control © Copyright 2008 ClarIDy Solutions, Inc. All rights reserved.



ClarID	y UHF USB Reader Demo Program				
claridy_uem001_000001					
Rule: NONE	✓ Start Location: <sup>1</sup>	1 🔶 F	ilter Value:	1	
Memory Bank :	EPC - Memory Bank 1 👻				
Stop	Clear				
No PC	EPC	CRC	Count	RSSI	
1 3000	123456789012345678ABCDEF	0525	79	84.8	

Figure 37



# 3.6 Filter Write Read

Click the "Filter Write/Read" button of the main form, as figure 38. The "Filter Write/Read" panel is used to read and write tag. The user may select to read and write by filter value. If the user selects "NONE" from the rule combo box, the reader will read or write one of cards. If the user selects "NOT EQUAL" from the rule combo box, the reader will read or write one of cards which is not match filter value. If the user selects "EQUAL" from the rule combo box, the reader will read or write one of cards which is not match filter value. If the user selects "EQUAL" from the rule combo box, the reader will read or write one of cards which is match filter value.

Follow the instructions step by step as following:

- 1. Select "Rule"
- 2. Select start location of filter value
- 3. Input filter value
- 4. Select "Memory Bank"
- 5. Click the "Read" button or "Write button."

RFID_UHF_SDK Demo	X
About ClarIDy UHF Demo       Reader Info       UHFF Reader Demo       MAC Value	
Setting Algorithm Inventory Read Write Filter Inventory Filter Write/Read Lock/Kill	12
Rule: NONE   Start Location:  Length:  Filter Value: 0	
Memory Bank : EPC - Memory Bank 1 - Read/Write Reserved  Access Password Value : 00000000  Kill Password (Please input 8 Heradecimal digits 0-9, A-F)	
Read/Write EPC New EPC : 123456789012345678ABCDEF EPC Lengh : 24 (Please input 24 Hexadecimal digits 0-9, A-F)	
Read TID TID Length: 4	
Location: 0 Value: 0000 (Please input 4 Hexadecimal digits 0-9, A-F)	
Password: 00000000 Write Read Reset	

Figure 38: Filter Write/Read Control



# ClarIDy UHF USB Reader Demo Program 3.7 Lock/Kill Tag

Click the "Lock/Kill" page of the main form, as figure 39. The "Lock/Kill" panel is used to Lock tag data and Kill tag.

RFID_UHF_SDK Demo	88× 10 / 10	Inc.i wante add		x
UHF Reader Dem	About ClarIDy UHF Dem Reader Info MAC Value			
Setting Algorithm Inventory Read Wr	ite Filter Inventory Filter Write/Ro	ead Lock/Kill		
claridy_uem001_000002				
Memory Bank : EPC - Memor	y Bank 1 👻			
Rule: NONE - S	tart Location: 1 📑 Leng	th: 1 📮 Filter Value:	0	
Lock		ĸıı		
Access PWD:	No Change 🗸			
Kill PWD:	No Change 👻	AccessPWD:	0000000	
EPC Bank: TID Bank:	No Change			
User Bank:	No Change 🗸	KillPWD:	0000000	
AccessPWD: 000000	000 Lock Tag		Kill Tag	



Follow the instructions step by step as following:

- 1. Select "Mask Memory Bank"
- 2. Select "Rule"
- 3. Select start location of filter value
- 4. Input "Filter Value"
- 5. If you want to lock the tag, please select state (Access PWD, Kill PWD, EPC Bank, TID Bank, User Bank) and input "AccessPWD". And if you want to kill the tag, please input "AccessPWD" and KillPWD".
- 6. If you want to kill or lock the tag, please select "OK", as Figure 40.
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7. The kill and lock function would not be change permanently, please confirm again as figure 41.

CheckDialog
Wamning:
The tag would be killed.
OK Cancel

Figure 40

CheckDialog
Wamning:
The setting can not be changed permanently after selecting "Writeable Permanently" and "Not Writeable Permanently".
OK Cancel

Figure 41

### Note:

For individual passwords, the access permissions can be set as figure42.

No Change
Accessible
Accessible Permanently
Secured Accessible
Not Accessible Permanently
No Change

Figure 42

Accessible: The password may be read and written when the tag is in either the open or secured states.

Accessible Permanently: The password may be read and written when the tag is in either the open

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or secured states and this access permission should be set permanently.

Secured Accessible: The password may be read or written only when the tag is in the secured state.

Not Accessible Permanently: The password may not be read or written and this access permission should be set permanently.

No Change: The password's access permission should remain unchanged.

The memory bank is writeable when the tag is in either the open or secured states, as figure 43.



Figure 43

Writeable: The memory bank is writeable when the tag is in either the open or secured states.Writeable Permanently: The memory bank is writeable when the tag is in either the open or secured states and this access permission should be set permanently.

Secured Writeable: The memory bank is writeable only when the tag is in the secured state.

Not Writeable Permanently: The memory bank is not writeable and this access permission should be set permanently.

**No Change:** The memory bank's access permission should remain unchanged.



# 4. Error Code

The following lists provide error codes of UHF Reader Demo Program. These values are defined in the description.

Code (dec)	Description		
0	Success		
-9999	Attempted to open a reader that is already open		
-9998	Buffer supplied is too small		
-9997	General failure		
-9996	Failed to load reader bus driver		
-9995	Library cannot use version of reader bus driver present on system		
-9994	Operation cannot be performed while library is in emulation mode		
-9993	Antenna number is invalid		
-9992	Reader handle provided is invalid		
-9991	One of the parameters to the function is invalid		
-9990	Attempted to open a non-existent reader		
-9989	Library has not been successfully initialized		
-9988	Function not supported		
-9987	Operation was cancelled by call to cancel operation, close reader, or shut		
	down the library		
-9986	Library encountered an error allocating memory		
-9985	The operation cannot be performed because the reader is currently busy		
-9984	The underlying reader module encountered an error		
-9983	The reader has been detached from the system		
-9982	The RFID library function is not allowed at this time.		
-9981	The reader module's MAC firmware is not responding to requests.		
-9980	The MAC firmware encountered an error while initiating the nonvolatile		
	memory update. The MAC firmware will return to its normal idle state		
	without resetting the reader module.		
-9979	An attempt was made to write data to an address that is not in the valid		
	range of reader module nonvolatile memory addresses.		
-9978	The MAC firmware encountered an error while trying to write to the rea		
	module's nonvolatile memory region.		
-9977	The underlying transport layer detected that there was an overflow error		
	resulting in one or more bytes of the incoming data being dropped. The		
	operation was aborted and all data in the pipeline was flushed.		



CI	arIDy UHF USB Reader Demo Program
-7999	Fail to find reader
-7998	Fail to allocate memory
-7997	Write Data failure
-7996	Read Data failure
-7995	Lock Tag failure
-7994	Kill Tag failure



# 5. Uninstall

Uninstall ClarIDy UHF Demo program step by step as the following instructions:

- 1. Double click "Setup.exe" which is in the disc.
- 2. Select "Remove ClarIDy UHF Demo", as figure 44.
- 3. Waiting system to remove, as figure 45.
- 4. The "ClarIDy UHF Demo" is completed removed and click "Close" to close window, as figure 46.

B ClarIDy UHF SDK
Welcome to the ClarIDy UHF SDK Setup Wizard
Select whether you want to repair or remove ClarIDy UHF SDK.
<ul> <li>● <u>Repair ClarIDy UHF SDK</u></li> <li>○ Remove ClarIDy UHF SDK</li> </ul>
Cancel < Back Finish

Figure 44



岗 ClarIDy UHF SDK	
Removing ClarIDy UHF SDK	
ClarIDy UHF SDK is being removed.	
Please wait	
Cancel < <u>B</u> ack	

Figure 45



## Figure 46

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