

# ACR3901U-S1 Bluetooth Contact Card Reader

User Manual V1.00

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# **1.0. Introduction**

ACR3901U-S1 Bluetooth Contact Card Reader combines the latest technology in the world of smart card readers with Bluetooth connectivity. This compact and wireless smart card reader brings together sophisticated technology with fresh design to meet different requirements in various smart card-based applications using Bluetooth-enabled devices, such as smart phones and tablets.

This document contains information regarding the installation and workflow of demo included in the Android<sup>™</sup> and iOS library of the ACR3901U-S1 Bluetooth Contact Card Reader.

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# 2.0. For iOS

## 2.1. Installing the application

- 1. Download the device library from ACS website under ACR3901U-S1 category.
- 2. Using XCode application, open the *BTDemo.xcodeproj*.

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		▼ 🔅 ▼ 🖻			
FAVORITES		_			
All My Files			1 A A A		
AirDrop					
Desktop	ACSBluetooth	BIDemo	BI Demo.xcodeproj	BIDemolests	
Documents					
Ownloads					
DEVICES					
Mountain Li					
Remote Disc					
SHARED					
All					
TACS					
Red					
😑 Orange					

3. Transfer the *BTDemo.xcodeproj* to your mobile device by choosing your mobile device and then clicking the play button.

Control of the c

Note: Make sure that your mobile device is connected to your computer.

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# 2.2. Using the application

This section provides a simple step-by-step procedure on how to use the ACR3901U-S1 Bluetooth Card Reader using the BT Demo application.

#### 2.2.1. Connecting the reader

- 1. Enable your iOS device's Bluetooth by going to **Settings > Bluetooth**.
- 2. Enable ACR3901U-S1's Bluetooth mode by switching the toggle to the right.



- 3. Open BT Demo application.
- 4. Tap Select.



5. Choose the reader to pair your iOS device with, then tap **Done**.



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6. A Bluetooth Pairing Request message will be displayed. Tap **Pair** to continue.



7. A prompt will be shown that the pairing was a success. Tap **OK** to close the prompt.



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## 2.2.2. Getting the device information

To get the reader's information, tap **Device Information**.

●●●● Globe 奈	10:58 AM	۵ 🗱 ۱۵۵% 🗩
K BT Demo De	evice Info	ormation
Manufacturer		ACS
Firmware Revi	sion	V0.01
Model Numbe	r	ACR3901U-S1
Serial Number		305-000015

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#### 2.2.3. Getting the battery status

To get the battery status:

1. Tap Get Battery Status.



2. Battery status will be displayed.



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## 2.2.4. Getting the ATR

To get the ATR of the card:

- 1. Insert smart card into the ACR3901U-S1 reader.
- 2. Tap Authenticate Reader to validate device.

••••• Globe 훅	10:58 AM	● ◀ \$ 100% ■
Cancel	Reader	Done
Escape Resp	onse	
Get Battery S	tatus	
Authenticate	Reader	
Power On Ca	rd	
Power Off Ca	rd	
Get Card Stat	tus	
Transmit APD	U	
Transmit Esca	ape Comn	nand



3. A prompt will be shown that the authentication was a success. Tap **OK** to close the prompt.



4. Tap Power On Card.



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5. Card's ATR will be displayed.

••••• Globe 중	10:59 AM	🕑 🔰 100% 🗩
Clear	BT Demo	Select
STATUS		
ATR 3B BE 11 00 00 4 01 90 00	1 01 38 00 00 00	00 00 00 00 00
Card Status		
Battery Statu	IS	
APDU		
Command A 80 84 00 00 08	NPDU	
Response A	PDU	

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#### 2.2.5. Transmitting command APDU

To transmit APDU command:

- 1. Insert smart card into the ACR3901U-S1 reader.
- 2. Tap Authenticate Reader to validate device.



3. Tap Transmit APDU.



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4. Response APDU will be displayed.

●●●●● Globe 훅	10:59 AM	🕑 🖇 100% 🗩
Clear	BT Demo	Select
APDU		
Command A 80 84 00 00 08	NPDU	
Response A 8F 13 67 44 47 EE	<b>PDU</b> 3 DA 9E 90 00	
CONTROL		
Escape Con	nmand	
Escape Res	ponse	
Get Battery	Status	
Authenticate	Reader	

\*Note: User could edit the APDU command by tapping Command APDU.

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#### 2.2.6. Executing escape command

To execute an escape command:

- 1. Insert smart card into the ACR3901U-S1 reader.
- 2. Tap Authenticate Reader to validate device.

••••• Globe 훅	10:58 AM	🕑 🕇 🕴 100% 🗩
Cancel	Reader	Done
Escape Resp	onse	
Get Battery S	tatus	
Authenticate	Reader	
Power On Ca	rd	
Power Off Ca	rd	
Get Card Stat	us	
Transmit APD	U	
Transmit Esca	ape Comn	nand

3. Tap Power On Card, and then Transmit Escape Command.



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4. Escape Response will be displayed.

••••• Globe 奈	10:59 AM	⊕ \$ 100% ■
Clear	BT Demo	Select
CONTROL		
Escape Con	nmand	
Escape Res 84 05 56 30 2E 30	oonse 0 31	
Get Battery	Status	
Authenticate	Reader	
Power On C	ard	
Power Off C	ard	
Get Card Sta	atus	
Transmit AP	ווס	



# 3.0. For Android

# 3.1. Installing the application

1. Connect your mobile device to the computer.



2. In the internal storage of your device, create a folder where the ACR3901U-S1 BTdemo will be placed.



- 3. Download the device library from ACS website under ACR3901U-S1 category.
- 4. Copy the *BTDemo.apk* file from the downloaded ACR3901U-S1 Android library into the previously created folder.



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5. Disconnect your mobile device from the computer, and then locate the *BTDemo.apk* using a file manager application.



6. Tap the BTDemo.apk file to start the installation process.



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7. Complete the action using **Package Installer**.



- 8. A prompt will ask for hardware control access. Tap **Install** to proceed.
- 9. Once the installation is complete, you may now open the BT Demo application.



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# 3.2. Using the application

#### 3.2.1. Connecting the reader

- 1. Enable your Android device's Bluetooth by going to **Settings > Bluetooth**.
- 2. Enable ACR3901U-S1's Bluetooth mode by switching the toggle to the right.



- 3. Open ACS BT Demo application.
- 4. Choose the reader to pair your Android device with, then tap Done.



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5. Click Connect at the right top corner, and ACR3901U-S1 and mobile device will start bonding.



6. Once the bonding is complete, ACR3901U-S1 is now ready to be used with the mobile device.



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## 3.2.2. Getting the device information

To get the reader's information, tap Get Device Info.

🖬 🛨 🗉	8 🗎 2:38
< 🔯 ACR3901U-S1-000014	DISCONNECT
ATR	
Card Status	
APDU command	
80 84 00 00 08	
Escape Command	
02	
Device Info	
Manufacturer: ACS Model Num: ACR3901U-S1	
Serial Num: 305-000014 FW revision: V0.01	
Battery service	
Battery status:	
Clear	
Authenticate	
Power On Card	
Power Off Card	
Get Card Status	
Transmit APDU	
Transmit Escape Com	mand
Get Device Info	
Get Battery Status	3

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#### 3.2.3. Getting the battery status

To get the battery status, tap **Get Battery Status**.

1 🖬 🗉					🛛 🗎 2:43
< 时 ACR39	01U-S1-0000	14			DISCONNECT
ATR					
Card Status					
APDU comma	nd				
80 84 00 00 0	08				
Escape Comm	and				
02					
Device Info					
Manufacturer: Model Num:	ACS ACR3901U-S1				
Serial Num:	305-000014				
FW revision:	V0.01				
Battery service	P The better is f				
Battery status:	The battery is n	ull.			_
		Clear			
		Authentica	te		
		Power On C	ard		
		Power Off C	ard		
		Get Card Sta	atus		
		Transmit AF	PDU		
	Tran	ismit Escape (	Command		
	C	Get Device I	nfo		
		Get Battery S	tatus		
	$\rightarrow$	$\bigcirc$		_	

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# 3.2.4. Getting the ATR

To get the ATR of the card:

- 1. Insert smart card into the ACR3901U-S1 reader.
- 2. Tap Authenticate to validate device.

<u>t</u> 🖬 🗄	8 🛢 3:05
< 👼 ACR3901U-S1-000014	DISCONNECT
Status change notifications Connection status: BOND BONDED Card status: The reader is in power saving mode. Battery status: The battery is full. Authentication Key	
FF	
Authentication Success! ATR	
Card Status	
APDU command	
80 84 00 00 08	
Escape Command	
02	
Device Info Manufacturer: ACS Model Num: ACR3901U-S1 Serial Num: 305-000014 FW revision: V0.01 Battery service Battery status: The battery is full.	
Clear	
Authenticate	
Power On Card	
Power Off Card	
Get Card Status	
Transmit ADDU	

- 3. Once it is finished, it will show an Authentication Success message.
- 4. Tap **Power On Card** to power on card and display ATR.

<u>†</u> 🖬 🗄		8 🗎 3:08
< 👘 ACR39	901U-S1-000014	DISCONNECT
Status change Connection statu Card status:The of Battery status:Th Authentication	e notifications #BOND BONDED and is present and inactive. e battery is full. h Key	
FF FF FF FF	FF	
Authentication Su	uccess!	
3B BE 11 00 00 4	1 01 38 00 00 00 00 00 00 00 00 01 90 00	
Card Status		
APDU comma	and	
80 84 00 00	08	
Escape Comm	nand	
02		
Device Info		
Manufacturer:	ACS	
Model Num:	ACR3901U-S1	
Serial Num: FW revision	305-000014 V0.01	
Battery service	ce	
Battery status:	The battery is full.	
	Clear	
	Authenticate	
	Power On Card	
	Power Off Card	
	Get Card Status	
	Transmit ADDU	

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## 3.2.5. Transmitting command APDU

To transmit APDU command:

- 1. Insert smart card into the ACR3901U-S1 reader.
- 2. Tap Authenticate to validate device.

1 🖬 🗉				8 🛢 3:05	
< 📷 ACR3	901U-S1-0000	14		DISCONNECT	
Status chang Connection statu Card status:The Battery status:Th Authenticatio	e notifications is:BOND BONDED reader is in power he battery is full. n Key	saving mode.			
FF					
Authentication S ATR	uccess!				
Card Status					
APDU comm	and				
80 84 00 00	08				
Escape Comr 02	mand				
Device Info Manufacturer: Model Num: Serial Num: FW revision: Battery servic Battery status:	ACS ACR3901U-S1 305-000014 V0.01 Ce The battery is fu	dl.			
		Clear			
		Authenticate	]		
		Power On Card			
		Power Off Card			
		Get Card Status			
	$\leftarrow$		_		

- 3. Once it is finished, it will show Authencation Success message.
- 4. Tap Transmit APDU, and response APDU will be displayed under APDU command.



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5. APDU command response will be displayed.

<u>†</u> 🖬 🗉		8 🛢 3:16				
< 📷 ACR3	901U-S1-000014	DISCONNECT				
Battery status: Th	e battery is full.					
Authentication Key						
FF						
Authentication Si ATR	uccess!					
3B BE 11 00 00 4	1 01 38 00 00 00 00 00 00 00 00 01 90 00					
Card Status						
APDU comma	and					
80 84 00 00	08					
C3 EF 4B F3 BF 5B 93 A7 90 00						
escape Comr	Escape Command					
02						
Device Info						
Manufacturer: Model Num:	ACS ACR3901U-S1					
Serial Num:	305-000014					
Battery service	ce					
Battery status:	The battery is full.					
	Clear					
	Authenticate					
	Power On Card					
	Power Off Card					
	Get Card Status					
	Transmit APDU					
Transmit Escape Command						
	· ~ _					

Note: User could edit the APDU command by tapping Command APDU.

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#### 3.2.6. Executing escape command

To execute an escape command:

- 1. Insert smart card into the ACR3901U-S1 reader.
- 2. Tap Authenticate to validate device.

<u>1</u> . I	8 🛢 3:05				
< 👼 ACR3901U-S1-000014	DISCONNECT				
Status change notifications Connection status:BOND BONDED Card status:The reader is in power saving mode. Battery status:The battery is full. Authentication Key					
FF					
Authentication Success! ATR					
Card Status					
APDU command					
80 84 00 00 08					
Escape Command					
Device Info     Manufacturer:   ACS     Model Num:   ACR3901U-S1     Serial Num:   305-000014     FW revision:   V0.01     Battery status:   The battery is full.					
Clear					
Authenticate					
Power On Card					
Power Off Card					
Get Card Status					
Tropomit ADDU					

- 3. Once it is finished, it will show an Authentication Success message.
- 4. Tap Power On Card, and then Transmit Escape Command.



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5. Escape Response will be displayed.



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