DF700A/DF710A/DF750A-U2
DF750A/DF760A
DF750AK/DF760AK
User Manual

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PROMAG®

GIGA-TMS INC.

FEDERAL COMMUNICATIONS COMMISSION INTERFERENCE STATEMENT

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

-Reorient or relocate the receiving antenna.

-Increase the separation between the equipment and receiver.

-Connect the equipment into an outlet on a circuit different from that to which the receiver is connected.

-Consult the dealer or an experienced radio/ TV technician for help.

CAUTION:

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

The device has been evaluated to meet general RF exposure requirement.

Canada, Industry Canada (IC) Notices

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:

(1) This device may not cause interference; and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Canada, avis d'Industry Canada (IC)

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

Radio Frequency (RF) Exposure Information

The radiated output power of the Wireless Device is below the Industry Canada (IC) radio frequency exposure limits. The Wireless Device should be used in such a manner such that the potential for human contact during normal operation is minimized.

This device has also been evaluated and shown compliant with the IC RF Exposure limits under mobile exposure conditions.

Informations concernant l'exposition aux fréquences radio (RF)

La puissance de sortie émise par l'appareil de sans fil est inférieure à la limite d'exposition aux fréquences radio d'Industry Canada (IC). Utilisez l'appareil de sans fil de façon à minimiser les contacts humains lors du fonctionnement normal.

Ce périphérique a également été évalué et démontré conforme aux limites d'exposition aux RF d'IC dans des conditions d'exposition à des appareils mobiles.

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- The software will be uninterrupted, timely, secure or error-free.
- The results that may be obtained from the use of the software will be effective, accurate or reliable.
- The quality of the software will meet your expectations.
- Any errors in the software obtained from GIGA-TMS INC will be corrected.

The software and its documentation made available for test or demo purpose

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GIGA-TMS warrants that the products sold pursuant to this Agreement will perform in accordance with GIGA-TMS's published specifications. This warranty shall be provided only for a period of **one year** from the date of the shipment of the product from GIGA-TMS (the "Warranty Period"). This warranty shall apply only to the "Buyer" (the original purchaser, unless that entity resells the product as authorized by GIGA-TMS, in which event this warranty shall apply only to the first re-purchaser).

During the Warranty Period, should this product fail to conform to GIGA-TMS's specifications, GIGA-TMS will, at its option, repair or replace this product at no additional charge except as set forth below. Repair parts and replacement products will be furnished on an exchange basis and will be either reconditioned or new. All replaced parts and products become the property of GIGA-TMS. This limited warranty does not include service to repair damage to the product resulting from accident, disaster, unreasonable use, misuse, abuse, negligence, or modification of the product not authorized by GIGA-TMS. GIGA-TMS reserves the right to examine the alleged defective goods to determine whether the warranty is applicable.
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Introduction

General

DESFire Reader is a user configurable MIFARE sector data reader. It can be configured to read MIFARE card with MAD1/MAD2/MAD3 standard in a MIFARE application open system, or can be configured to read the user-defined sector data (Non-MAD) in a user defined closed system.
Output interface can be configured as an RS232 output or Wiegand output. Wiegand output is selectable up to 128 bits.
DESFire Reader can also be set with a Reader ID number for multi-unit communication.

Features:

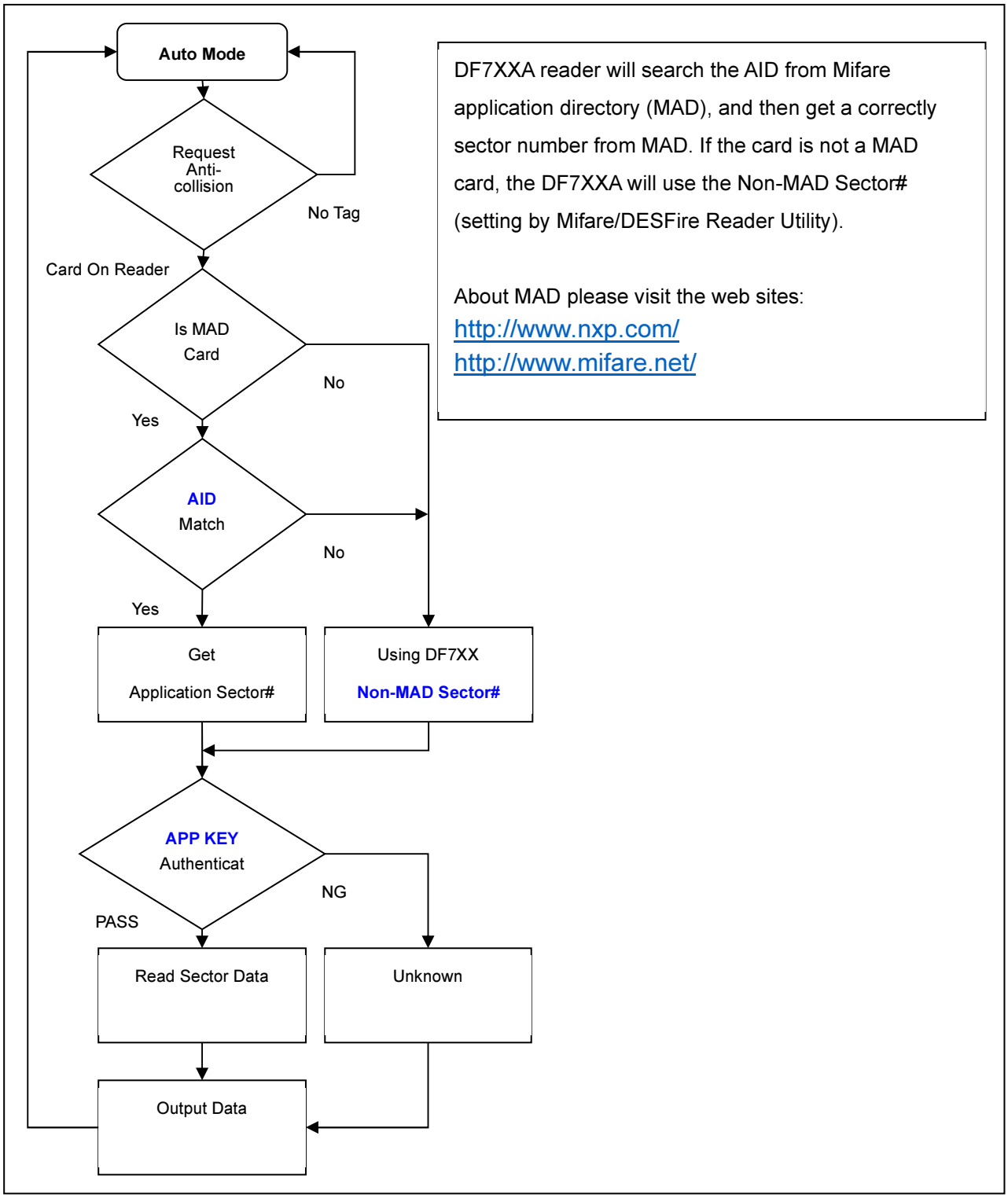
1. Supports MAD1/MAD2/MAD3 standard, and supports customer MAD-AID setting.
2. Supports Non-MAD format with user-defined sector number.
3. Supports used card with data offset and length.
4. Supports multi sectors.
5. Reads Mifare™ Classic 1K/4K, or DESFire™ 2K/4K/8K card.
6. Sets each reader with reader ID for multi-link application.
7. Output interface: Wiegand (Default), ABA-TK2 and RS232/RS485.
8. Wiegand output selectable from 1 bit to 128 bits.
9. RS232 output packet can be set with header, reader ID and trailer.
10. Serves as a versatile configurable reader bundled with a utility developed by Promag™ engineering teams which is easy to set up for buzzer or LED color indication.
11. Protected by mutual three passes authentication, DES & 3 DES MACing/Encipherment.
12. Classic housing and various models offer customers wide coverage to select for their application demand. The inside buzzer and LED are able to be configured by the bundled utility.

Application:

1. Access Control.
2. Time Attendance.
3. Guest Registration System.
4. Academic Services.
5. Info Services.
6. Identity authentication.

MIFARE™ Application Directory (MAD) Support

DF7XXA supports the MAD format card, the MAD (MIFARE application directory) standard proposes the introduction of common data structures for card application directory entries. DF7XXA should take advantage of this feature using those sector pointers instead of physical sector number.



Hardware Features

DF700A/DF710A Series

Wire Assignment

DF700A-00/DF710A-00

Color	Symbol	I/O	Description
Red	VCC	IN	Power Input : DC 9V~24V
Black	GND	IN	Power Ground
White	DATA 1	OUT	Wiegand Data 1 Signal / ABA-TK2 Clock (Strobe)
Green	DATA 0	OUT	Wiegand Data 0 Signal / ABA-TK2 Data
Yellow	TXD	OUT	DF700A-00: RS232 TXD (To Host RXD) DF710A-00:RS485+
Blue	RXD	IN	DF700A-00: RS232 RXD (To Host TXD) DF710A-00: RS485-

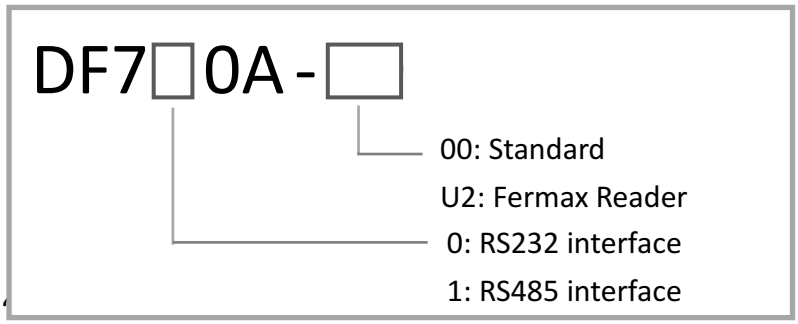
Orange	CP	IN	ABA TK2 Card Present
Brown	LED/BUZZER	IN	External LED/BUZZER Control

DF710A-U2

Color	Symbol	I/O	Description
Red	VCC	IN	Power Input : DC 9V~24V
Black	GND	IN	Power Ground
White	DATA 1	OUT	Wiegand Data 1 Signal
Green	DATA 0	OUT	Wiegand Data 0 Signal
Yellow	TXD	OUT	RS485+
Blue	RXD	IN	RS485-
Orange	DI1	IN	Digital Input 1 (Door Sensor)
Brown	DI2	IN	Digital Input 2 (Exit Button)
Purple	DO1	OUT	Digital Output 1
Gray	DO2	OUT	Digital Output 2

Part Numbers

Device numbering scheme is as follows:



Examples of valid part numbers:

Part Number	Description
DF700A-00	DF700A reader with RS232 communication interface.
DF710A-00	DF710A reader with RS485 communication interface.

Specification

Features \ Model	DF700A	DF710A
Card Type	MIFARE Classic (1K/4K for MAD1/MAD2), MIFARE DESFire (2K/4K/8K for MAD3)	
Security	DES & 3DES MACing / Encipherment	
Read Range	3 cm	
Interface	Weigand, ABA-TK2, RS232	Weigand, ABA-TK2, RS485
Status Indicator	2 LEDs	
Buzzer	1	
Waterproof	Yes	
Communication		
RS232/RS485 speed	19,200 bit/s	
Electrical		
Voltage	DC 9V~24V	

RF Frequency	13.56 MHz
Environment	
Operating Temperature	0C ~ +50C
Storage Temperature	-10C ~ +60C
Humidity	10 ~ 90 relative
Dimensions	
Width	46.5 mm
Height	82.5 mm
Depth	25.0 mm

DF750A/DF760A/DF750AK/DF760AK Series

DF750A/DF760A series

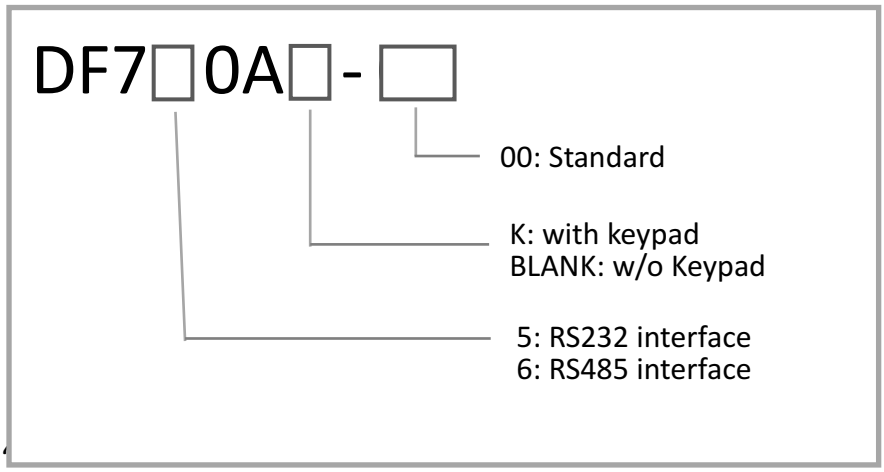
DF750AK/DF760AK Series

Wire Assignment

Color	Symbol	I/O	Description
Red	VCC	IN	Power Input : DC 9V~24V
Black	GND	IN	Power Ground
White	DATA 1	OUT	Wiegand Data 1 Signal / ABA-TK2 Clock (Strobe)
Green	DATA 0	OUT	Wiegand Data 0 Signal / ABA-TK2 Data
Yellow	TXD	OUT	DF750A/DF750AK: RS232 TXD (To Host RXD) DF760A/DF760AK: RS485+
Blue	RXD	IN	DF750A/DF750AK: RS232 RXD (To Host TXD) DF760A/DF760AK: RS485-
Orange	CP	IN	ABA TK2 Card Present
Brown	LED/BUZZER	IN	External LED/BUZZER Control

Part Numbers

Device numbering scheme is as follows:



Examples of valid part numbers:

Part Number	Description
DF750A-00	DF750A reader doesn’t have keypad with RS232 communication interface.
DF760AK-00	DF760A reader has keypad with RS485 communication interface.

Specification

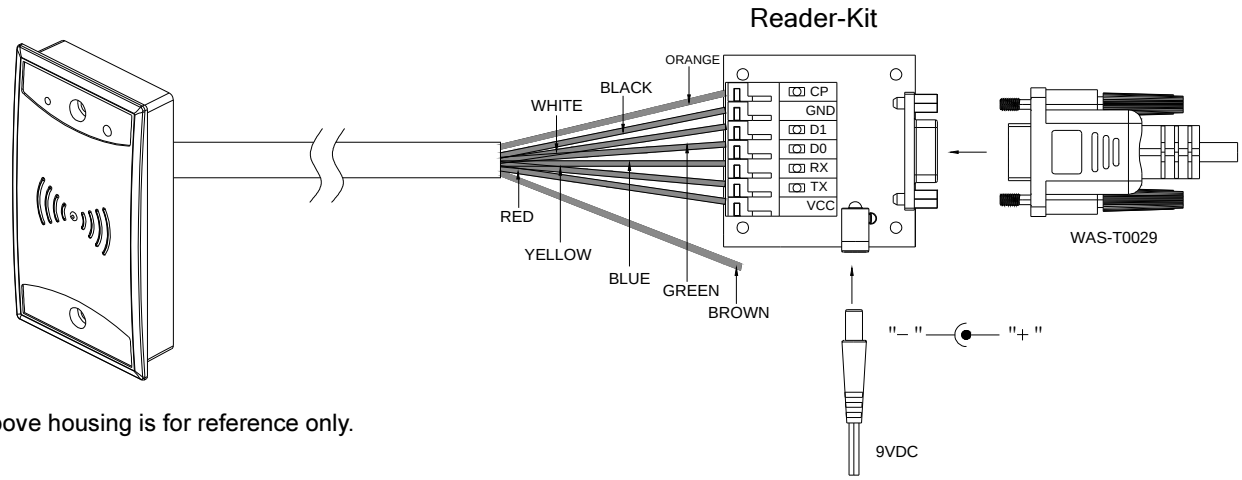
Model / Features	DF750A/DF760A	DF750AK/DF760AK
Card Type	MIFARE Classic (1K/4K for MAD1/MAD2), MIFARE DESFire (2K/4K/8K for MAD3)	
Security	DES & 3DES MACing / Encipherment	
Read Range	3 cm	
Interface	DF750A: Weigand, ABA-TK2, RS232 DF760A: Weigand, ABA-TK2, RS485	DF750AK: Weigand, ABA-TK2, RS232 DF760AK: Weigand, ABA-TK2, RS485
Status Indicator	2 LEDs	
Buzzer	1	
Housing Material	ABS Housing	ABS Housing/Metallic 4x3 Keys
Waterproof	Yes	
Communication		
RS232/RS485 speed	19,200 bit/s	
Electrical		
Voltage	DC 9V~24V	
RF Frequency	13.56 MHz	
Environment		
Operating Temperature	0C ~ +50C	
Storage Temperature	-10C ~ +60C	
Humidity	10 ~ 90 relative	
Dimensions		
Width	96 mm	
Height	112.3 mm	
Depth	22.0 mm	

Device Operation

Preparation

To configure DF7XXA(K), you need to connect the reader to the reader-kit first below (refer to **wire assignment**):

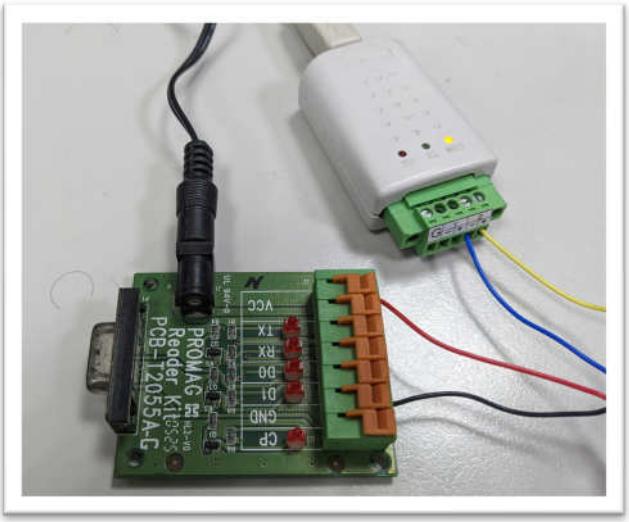
DF700A

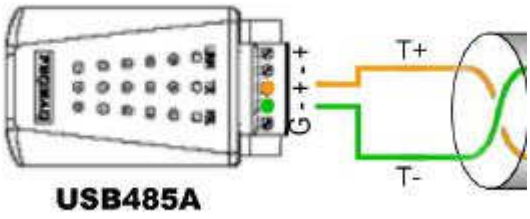


Above housing is for reference only.

DF710A

The following is the example of using USB485A-00 with DF710A.
Connect the reader's yellow wire (T+) and blue wire (T-) to RS485 converter. Connect RS485 converter to PC. (Using Promag™ USB485A-00 is recommended.)





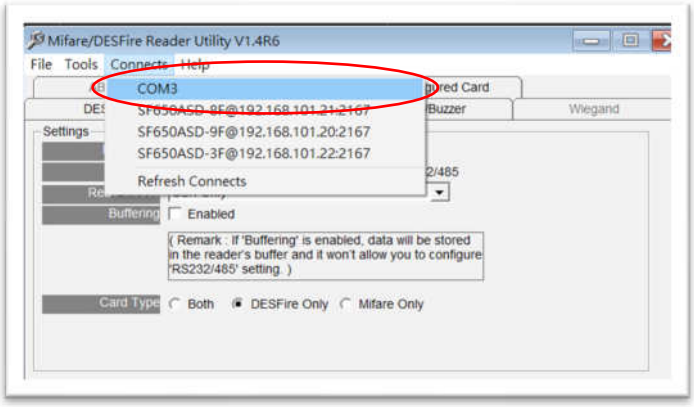
Note: Reader-kit and USB485A-00 are connection tool kit. They are optional items for purchasing.

Setting up Reader – Using Mifare/DESFire Reader Utility

Install **Mifare/DESFire Reader Utility** software in your PC and connect the reader to PC. Please check the connection of PC-to-reader is correctly.

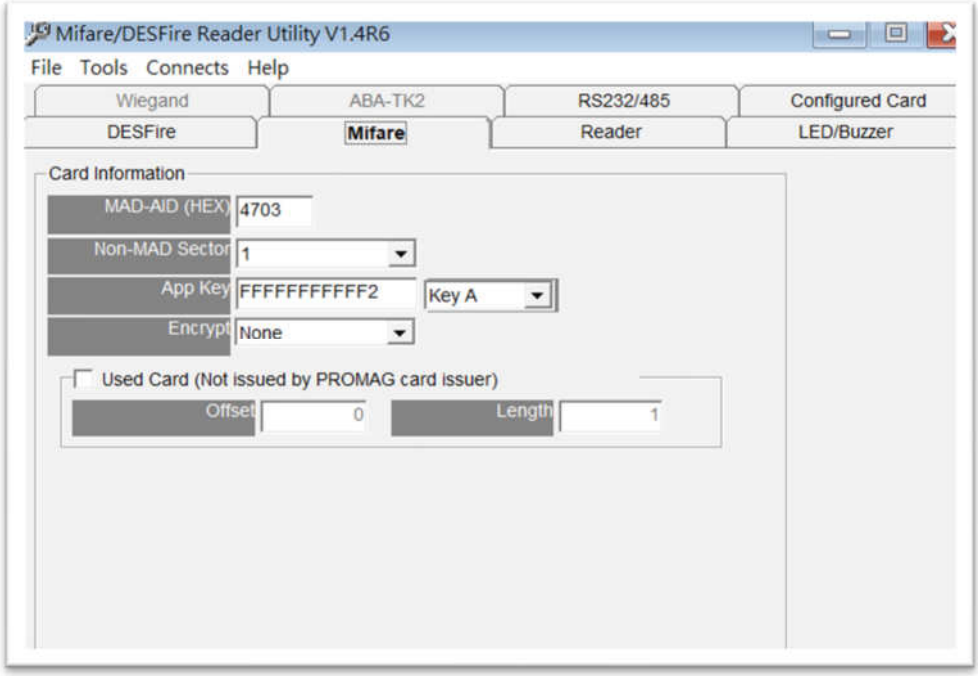
Note: Download the **Mifare/DESFire Reader Utility** setup file from the link: http://ftp.gigatms.com.tw/disks/disk5238/.

Connect to Reader



On **Connections** menu, click the port name where reader connects.

Mifare Settings



MAD-AID (default=4703)

MAD Application Identifier number is authorized and assigned by Mifare.net™ upon the customer's request for registered Application Identifier in a Mifare application open system (AID:0000h~FFFFh).Or it is also possible for the user to define the AID himself for the application in user defined closed system without registering into MAD group. According to the AID, DF7XXA can find and read the corresponding sector on the MAD card.

App Key (KEY_A) (default=FFFFFFFFFFFF)

App Key must be the same as the KEY_A of the card issued. This means DF7XX only can read the sector data on the card with the same KEY_A.

Encrypt (default=None)

Fraud prevention, Select Encrypt Mode (None, Encrypt 1, Encrypt 2, Encrypt 3, Encrypt 4, Encrypt 5) to protect your card data. (Remark: Encrypt mode must work together with the same encrypt mode of "Mifare Card Issuer" software.)

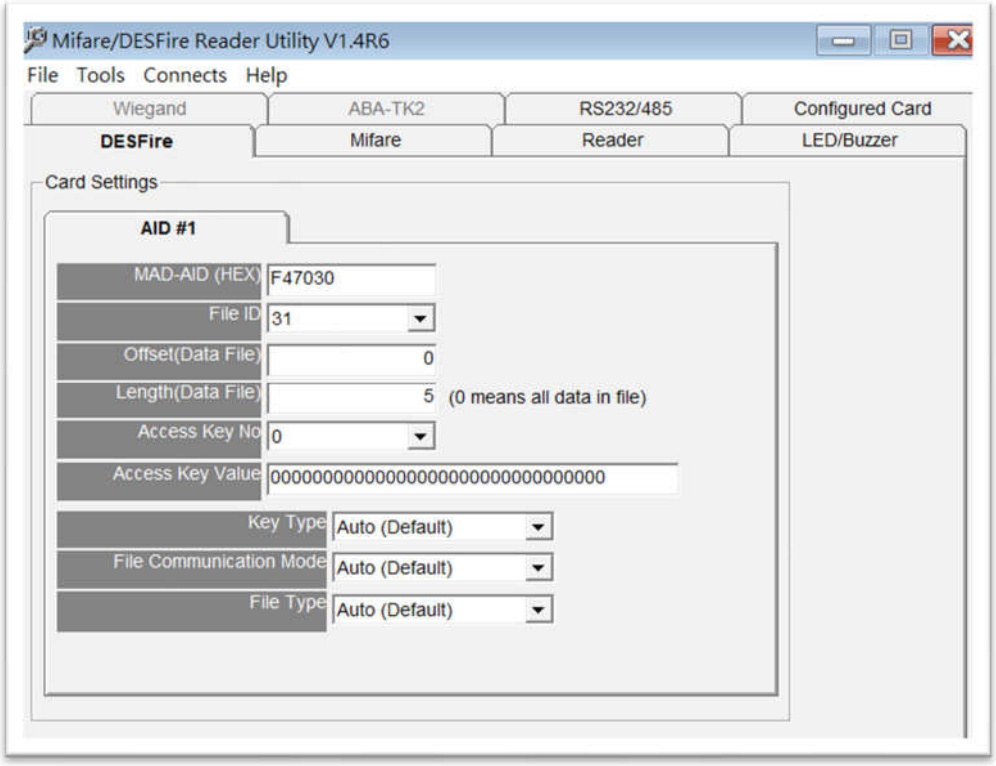
Used Card (Not issued by PROMAG Card Issuer)

You have to indicate the data position in the card, when the card is not issued by "Mifare Card Issuer" software. And you must set the "Offset" (Max 255, and base from zero) from the beginning of sector and set your data "Length" (Max 240).

Example: If your card data is in the grey grid of sector, you have to set the "Offset" = 17, and set the "Length"= 20.

	AID Sector (or Non-MAD Sector)															
Block 0	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15
Block 1	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30	31
Block 2	32	33	34	35	36	37	38	39	40	41	42	43	44	45	46	47

DESFire Settings



MAD-AID (default=F47030)

MAD Application Identifier number is authorized and assigned by Mifare.net™ upon the customer's request for registered Application Identifier in a Mifare application open system (AID:000000h~FFFFFFh).Or it is also possible for the user to define the AID himself for the application in user defined closed system without registering into MAD group. According to the AID, DF7XXA can find and read the corresponding application on the card.

File ID (default=0)

File ID is 0~15. There are three file types. Data file, Value file and Record file. DF7XXA will auto detect the type and output the data.

Offset/Length (default=0 / 5)

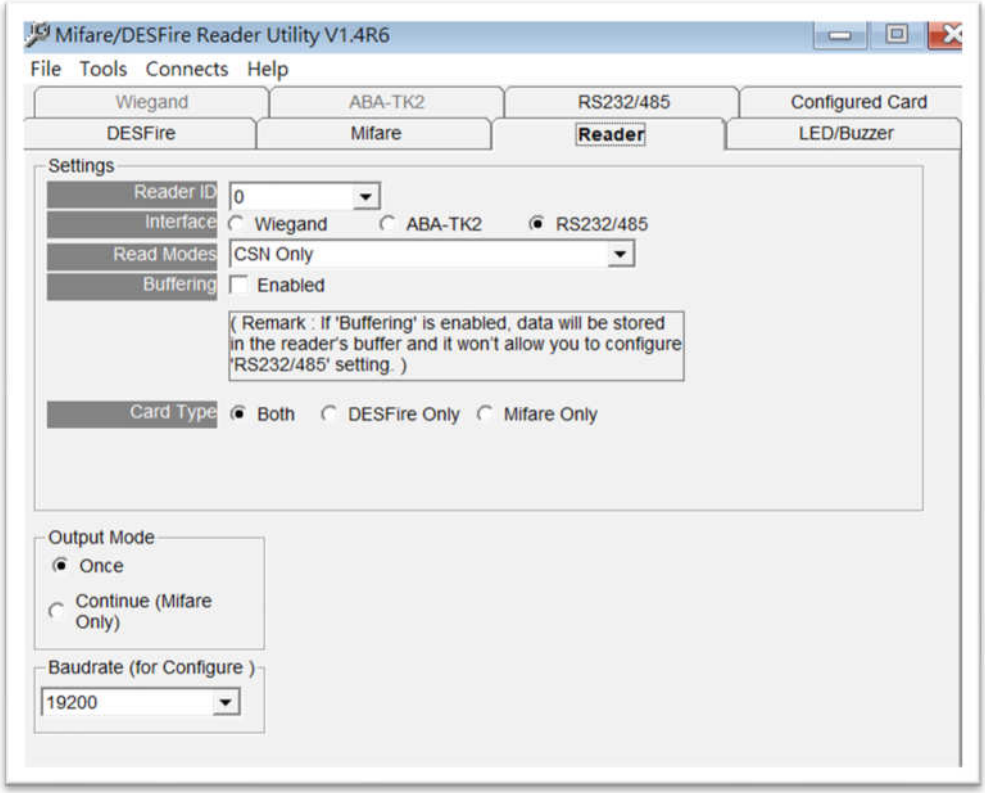
The Data file will depend on the value to output data. The Value file will be sent the value out. The Record file will be sent the latest record data.

Access Key No/Value (default=0 / 00000000000000000000000000000000)

Key must be the same as the Read or Read/Write KEY of the card issued. This means DF7XXA only can read the data on the card with the same key.

DF App Admin Key (KeyNo=0)

Reader Settings



Reader ID (default=0)

DF7XXA ID for multi link application. (ID: 0~63)

Interface (default=Wiegand)

DF7XXA can be set as Wiegand, RS232 or ABA-TK2 output.

Read Modes (default=Card Data Only)

- **Card Data Only** Read card sector data only. If any error occurs (ex: App. key incorrect.), the reader will represent "Card Invalid" status.
- **Card Data or CSN** Read card sector data. When any error occurs (ex: App. key incorrect.), the reader will output "CSN".

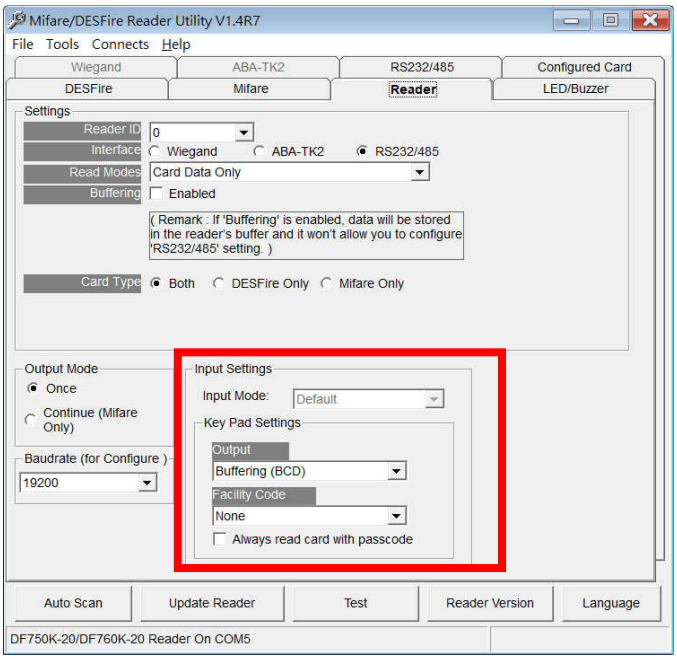
- **CSN Only** Read card CSN (card ID) only.

Output Modes (default=Once)

- **Once** Read card sector data only. If any error occurs (ex: App. key incorrect.), the reader will represent "Card Invalid" status.
- **Continue** Keeping sending data (or CSN) to host till card remove. Only for Mifare card.

Keypad Settings

These keypad settings are applied only for reader has keypad (DF750AK/DF760AK).



Key Pad Settings

- Output (default=Wiegand 8Bits)
  - **Wiegand 4, 6, 8** Send Wiegand signal pre key pressing.
  - **ASCII Hex Code** Send ASCII code pre key pressing.
  - **Buffering (Decimal)** Press 0~65535 numbers and press "#" to send decimal numbers. ("*" to cancel.)
  - **Buffering (BCD)** Press 0~ 99999999 numbers and press "#" to send BCD numbers. ("*" to cancel.)

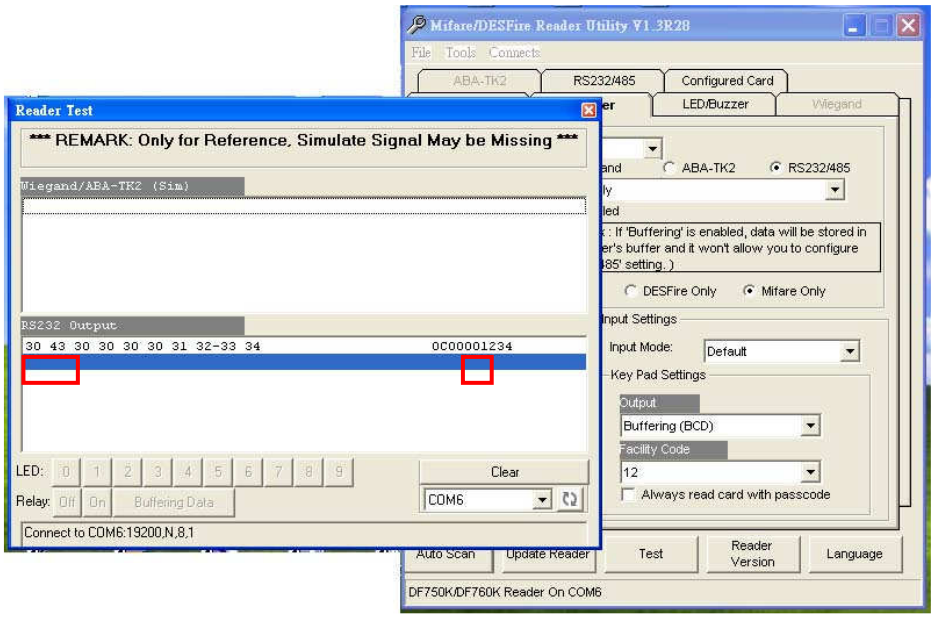
	Wiegand 4 bits	Wiegand 6 bits	Wiegand 8 bits	ASCII Hex Code	Buffering (Decimal)	Buffering (BCD)
1	0001	000010	11100001	31 00 00	0~65535	00000000~ 99999999
2	0010	000100	11010010	32 00 00		
3	0011	000111	11000011	33 00 00		
4	0100	101001	10110100	34 00 00		
5	0101	101010	10100101	35 00 00		
6	0110	101100	10010110	36 00 00		

7	0111	101111	10000111	37 00 00		
8	1000	110001	01111000	38 00 00		
9	1001	110010	01101001	39 00 00		
0	0000	000001	11110000	30 00 00		
*	1010	110100	01011010	2A 00 00	Cancel	Cancel
#	1011	110111	01001011	23 00 00	Send	Send

Remark: Please refer to ANNEX J. for simply output examples.

- **Facility Code**

Facility Code is placed in the first two bytes of output PIN data. Following is an example (without any package settings, such as header, trailer etc.) that the Facility Code is set to 12 (0x0C). Once the Facility is set, the output length of PIN data will fixed to 10.

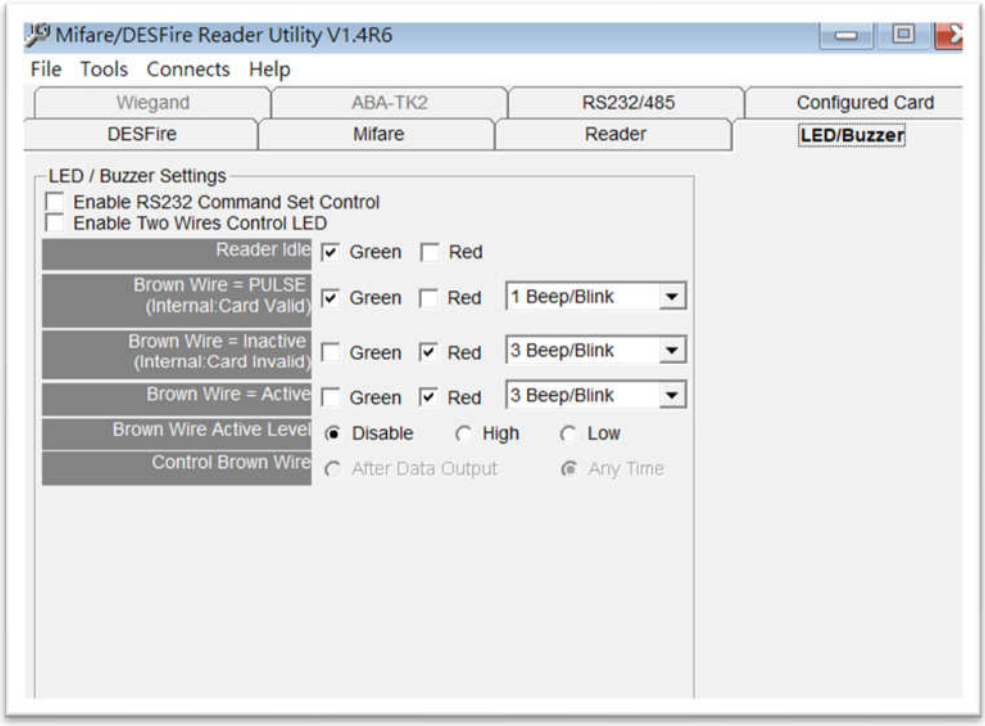


- **Always read card with passcode selection box**

When you select the **Input Mode** to **Default**, you can choose to access the card with passcode registered or not. If you select this setting, then only the card with passcode registered can be read. Once reader read the card and then will require user to enter the PIN number, if match the passcode, the reader will output the card data (or CSN).If you don't select this setting, then present the card without passcode registered, reader will output the card data (or CSN) without requiring user to enter PIN.

Note: The **passcode** can be registered to card by using Card Issuer program with PCR310/320 reader (see the following **PIN Code** field).

LED/Buzzer Settings

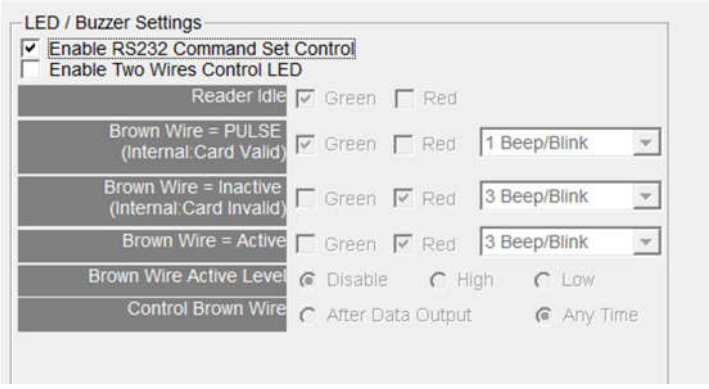


DF7XX supports LED/Alarm configure. Set the LED/Buzzer to indicate the system status for end-user.

Enable RS232 Command Set Control

Enable this setting if you need to control LED/Buzzer by software command set.

Note: This function is only available for the RS232 communication settings are (19200, N, 8, 1).


LED / Buzzer Settings
Enable RS232 Command Set Control
Enable Two Wires Control LED
Reader Idle
Green
Red
Brown Wire = PULSE (Internal:Card Valid)
Green
Red
1 Beep/Blink
Brown Wire = Inactive (Internal:Card Invalid)
Green
Red
3 Beep/Blink
Brown Wire = Active
Green
Red
3 Beep/Blink
Brown Wire Active Level
Disable
High
Low
Control Brown Wire
After Data Output
Any Time

RS232 LED/Buzzer command set frame

STX	J	NUMBER (0~9)	CR
02h	4Ah	30h~39h	0Dh

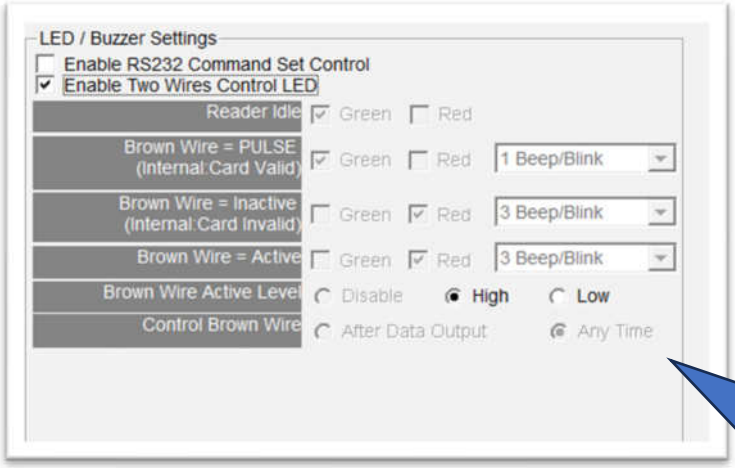
Command Table

NUMBER	Descriptions
0 (30h)	All LED Off, Buzzer Off
1 (31h)	Green LED ON
2 (32h)	Green LED OFF
3 (33h)	Red LED ON
4 (34h)	Red LED OFF
5 (35h)	Buzzer Beep once
6 (36h)	Buzzer Beep 3 Times
7 (37h)	Green LED ON with Beep once
8 (38h)	Red LED ON with Beep 3 Times
9 (39h)	All LED ON (Orange)

Enable Two Wires Control LED (Only for Promag™ reader of baud rate=19200, n, 8, 1)

Set up the "Brown Wire Active Level", and Brown wire and Orange wire will follow the setting.

Example: "Brown Wire Active Level"=High; Green light on when brown wire level was high. The red LED light on when orange wire level high. When both wire change level high at the same time, it will both light on without beep.



Remark:
If "Enable Two Wires Control LED" checkbox is checked, the external LED/Buzzer control with high/low level control will be disabled.

Read Idle

Show LED color after power on or idle state.

Brown Wire = PULSE (Internal: Card is Valid)

Show LED color and beeps to indicate the end-user when brown wire inputted pulse signal, or card was passed by reader.

Remark: This setting is enabled when “Brown Wire Active Level” is “Disable”.

Brown Wire = Inactive (Internal: Card is Invalid)

Show LED color and beeps to indicate the end-user when brown wire inputted GND signal, or card was failed by reader.

Brown Wire = Active

Show LED color and beeps to indicate the end-user that brown wire inputted the active level signal from host.

Remark: This setting is enabled when “Brown Wire Active Level” is not “Disable”.

Brown Wire Active Level (default=Disable)

Set brown wire active level condition with host status.

- **Disable** Disable the brown wire. The LED/buzzer is controlled by settings.
- **High** Brown wire active state is in high logic, normal state is in low logic (normal open).
- **Low** Brown wire active state is in low logic, normal state is in high logic (normal closed).

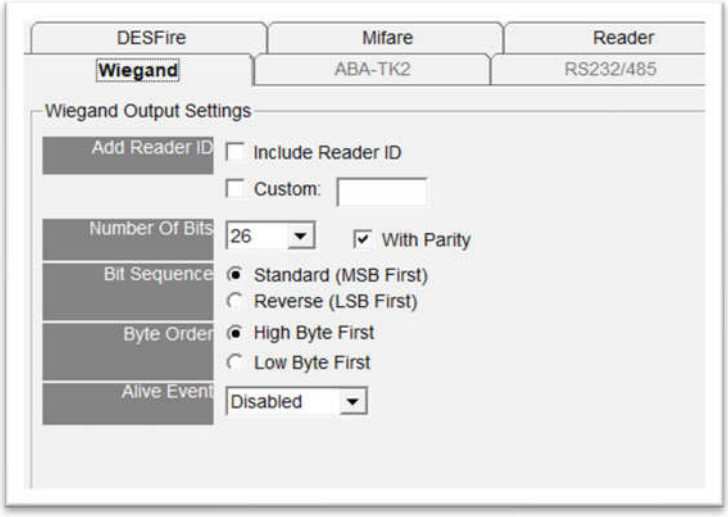
Remark: If setting Active Low, you may have to connect the brown wire to a pull-up resistor (1K~10K) with 5VDC.

Control Brown wire

- **After Data Output** The brown wire will be enabling after finished output the card data or CSN.
- **Any Time** The brown wire enabled in any time.

Note:LED/Buzzer can be controlled by the externally high/low level controller also. (See Annex E.)

Wiegand Settings



Add Reader ID (default=Disable)

Set Wiegand output data to include the Reader ID when it is checked.

Custom Preamble (default=Disable)

Set the Wiegand output data to include prem **Add Reader ID (default=Disable)**

Set Wiegand output data to include the Reader ID when it is checked.

Custom Preamble (default=Disable)

Set the Wiegand output data to include preamble code when it is enabled. This code only combines with CSN output.

Number of Bits (default=26)

Set the Wiegand output type you want to meet your host (or terminal). It can be 1 to 128.

With parity (default=Enable)

Set data with or without parity bit. If this is enabled, it will automatically add parity bit when sending output data.

Bit Sequence (default=Standard)

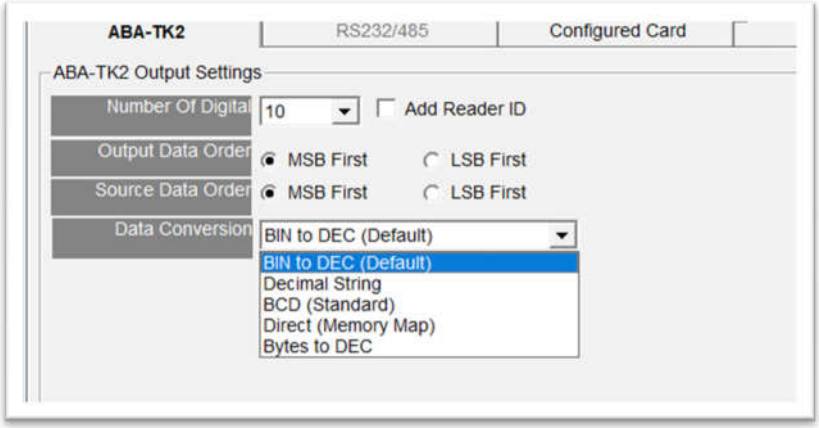
Set the Wiegand output data sequence, and it can be a standard data sequence (MSB first) or a reverse data sequence (LSB first).

Byte Order (default=High Byte First)

Set the Wiegand output data byte order, and it can be high byte first or low byte first.

Alive Event is reserved.

ABA-TK2 Settings



Number of Digital (default=10)

Set the number of digital codes for TK2 output.

Add Reader ID (default=Disable)

Add Reader ID into TK2 data.

Output Data Order (default=MSB First)

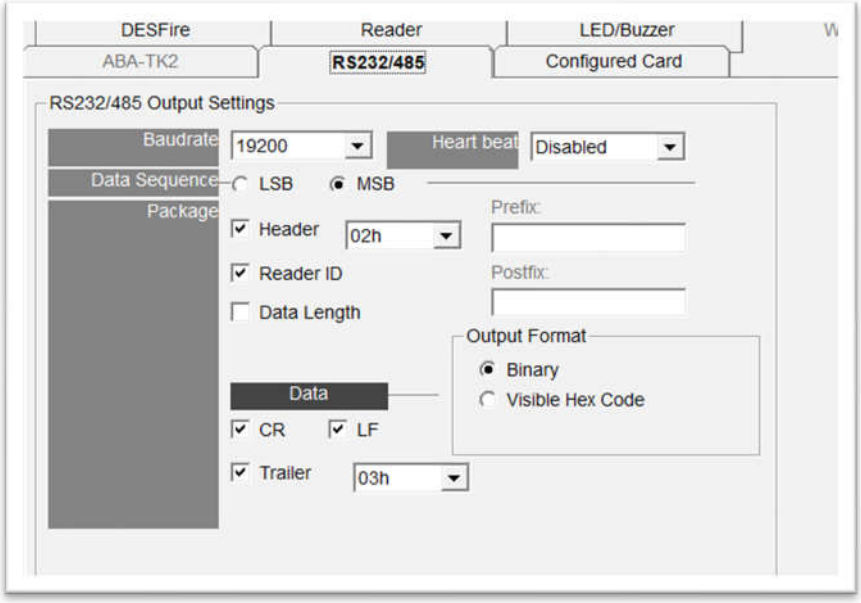
Set the TK2 data sequence order.

Data Conversion (default=BIN to DEC)

Select card data format to convert.

- BIN to DEC (the card is issued by Mifare Card Issuer.)
- Decimal String (ex. "123456")
- BCD
- Direct (Memory Map)
- Byte to DEC

RS232/485 Settings



Baud rate (default=9600)

The working range can be set from 2400 to 57600 (depends on the device).

Heart beat (default=disabled)

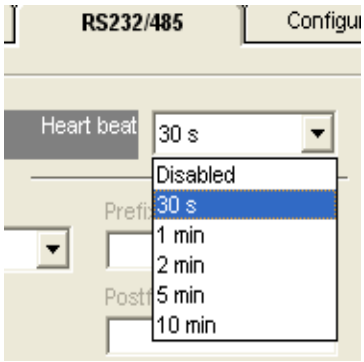
Click to select the interval time of periodically sending the heart beat data to host via RS232/485 interface. The heart beat data format is: *'E' + 'H' + Device Serial Number.*

Example

Header		**Device Serial Number**							
45h	48h	43h	42h	34h	45h	35h	42h	24h	32h
'E'	**'H'**	'C'	'B'	'4'	'E'	'5'	'B'	'4'	'2'

If you want an end character in the end of the heart beat data, for example CR, then you can select **CR** box in **Package** group then update to reader.

The interval of sending heart beat data can be:



Data Sequence (default=MSB first)

The output data sequence order can be set to "LSB" first or "MSB" first.

Package (default=Header (02h) + CR + LF + Trailer (03h))

To set a packet which includes the “Header”, “Reader ID”, “Data Length”, “CR”, “LF” and “Trailer”. (Header: 00h~FFh, Trailer: 00h~FFh).

Output Format (default=Hex String)

The output format can be "Binary" or "Hex String”.

Note:

(1) Wiegand output data packet with Reader ID

Standard	Parity (**Even**)	Reader ID	(MSB) Data Bits (LSB)	Parity (**Odd**)
Reverse	Parity (**Odd**)	Reader ID	(LSB) Data Bits (MSB)	Parity (**Even**)

(2) RS232/RS485 output data packet with Header, Reader ID and Trailer

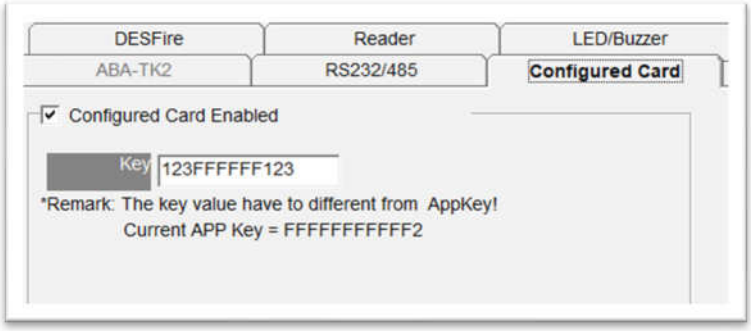
Header	Reader ID	(LSB) Data Bytes (MSB)	Trailer

(3) ABA-TK2 with Reader ID

MSB First	SS	Reader ID	(MSB) Digital Code (LSB)	ES	LRC
LSB First	SS	Reader ID	(LSB) Digital Code (MSB)	ES	LRC

Remark: The reader’s all configuration items are written only, which means the reader’s settings cannot be read to show them on software UI, so any user cannot read the configuration items from the reader to get the App Key, this is very important to protect your App Key and all configuration items.

Configured Card Settings



Configured Card Enabled (default=Enable)

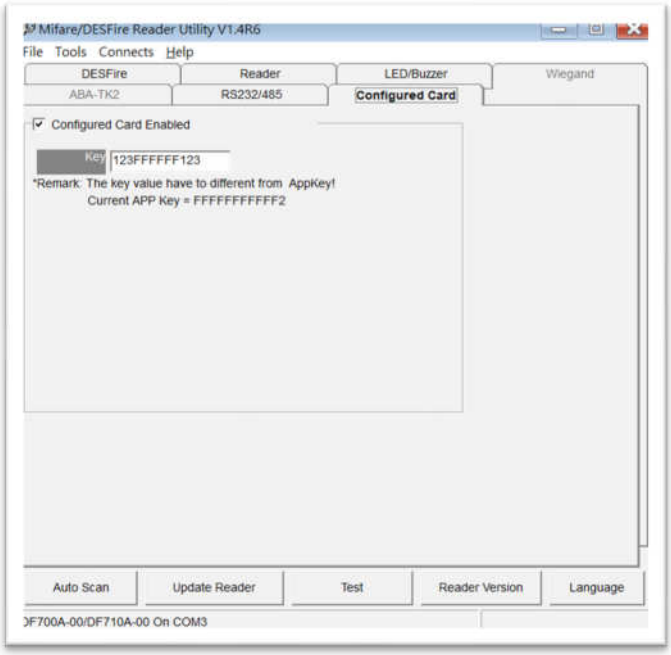
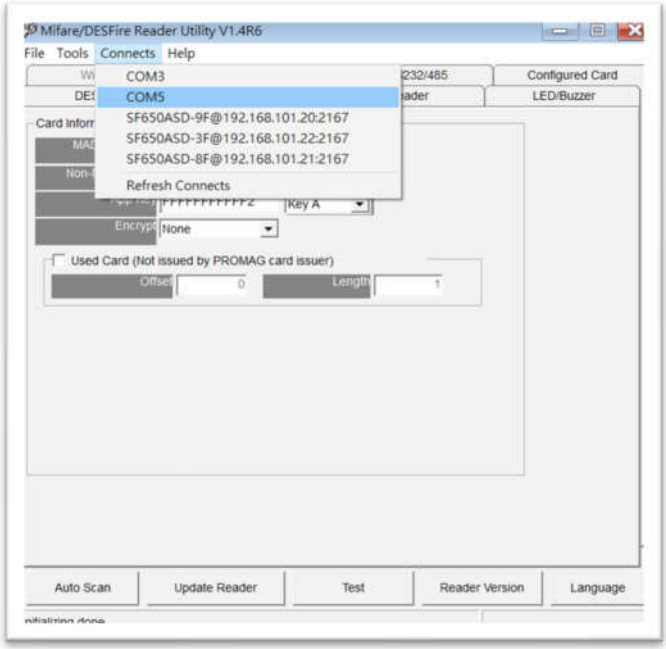
Can allow your reader change configuration by Mifare Card.

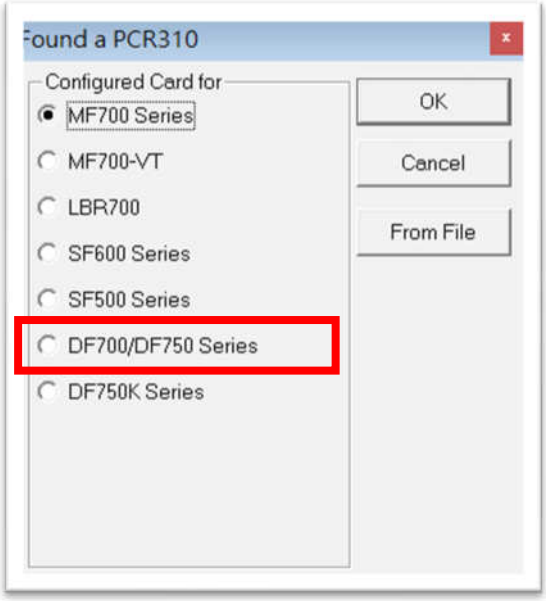
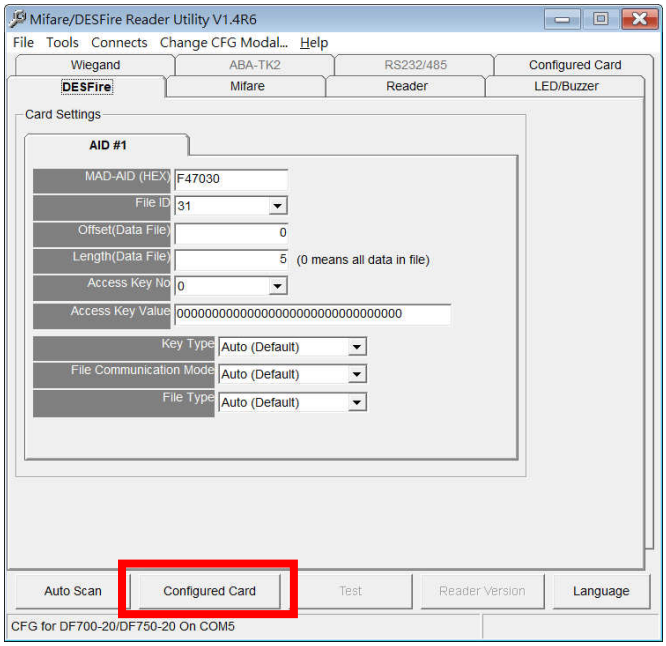
Key (default=000000000000)

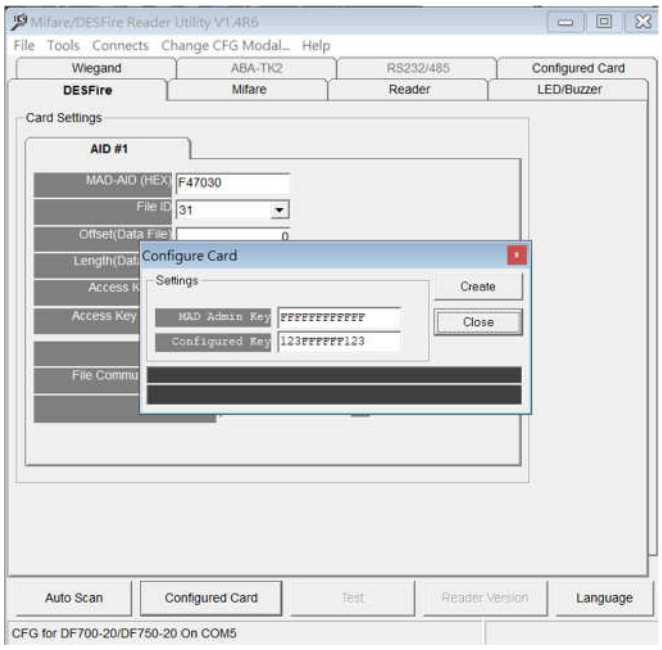
To be the Mifare Key A for allowed the configured card.

Make a Configured Card

DF7XX supports updating the reader by reading Configured Card. This function is specially using when stand alone system. The following steps guide you how to make a configured card.

Step 1: Configure the reader. Click to select **Configured Card Enabled**, and then click **Update Reader**.	
Step 2: Prepare **PCR310** reader and connect it to PC for issuing config card. ↓ Select the series corresponding, or load the configuration file. ↓ Select the reader's model name. ↓ Click "OK".	

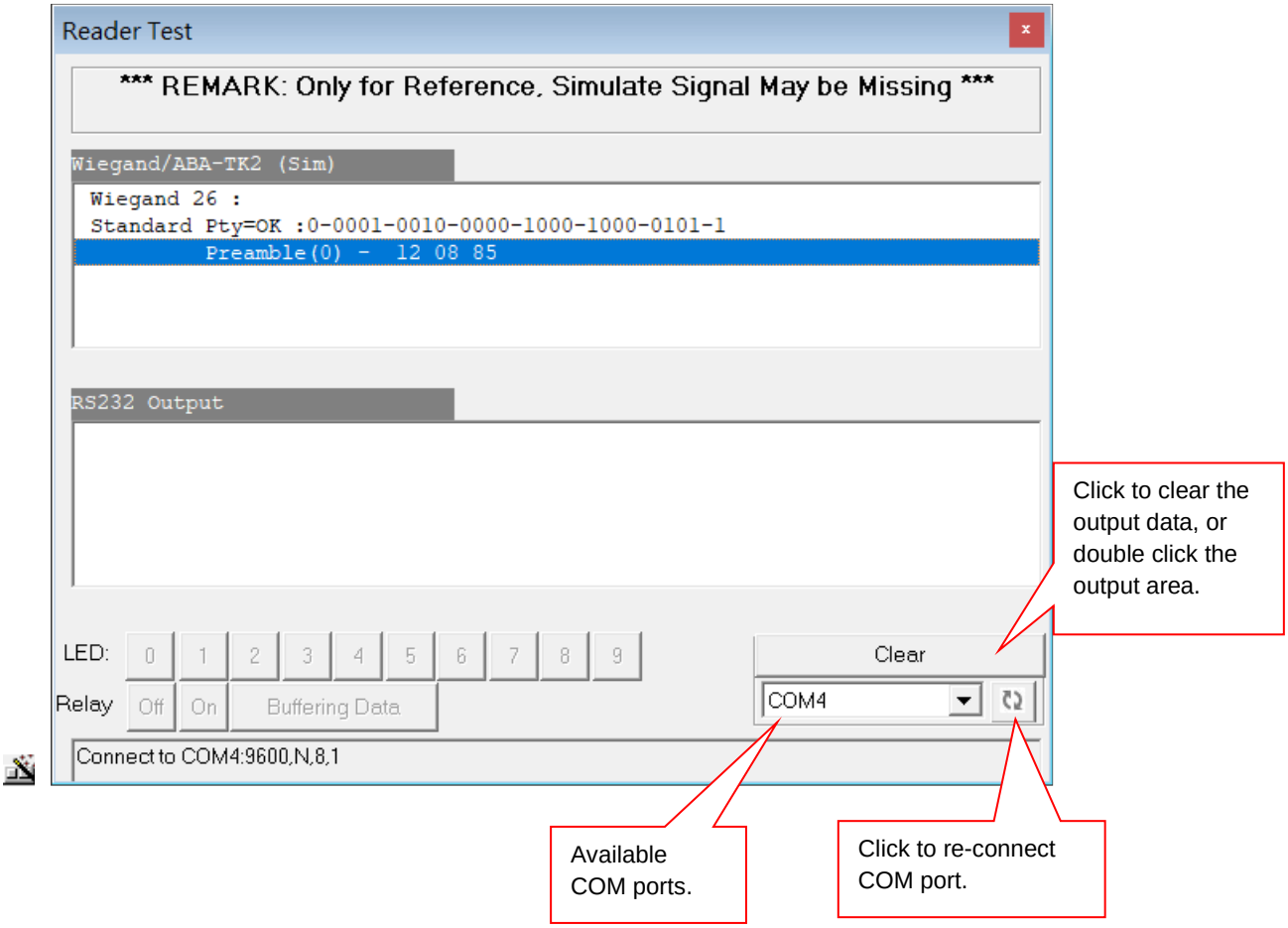
Remark: The corresponding series are **"DF700/DF750 Series"**.	
Step 3: Configure all settings as normal. ↓ Click **Configure Card**.	

Step 4: Put a Mifare card in the PCR310 cassette. ↓ Enter “MAD Admin Key” and “Configured Key” (which has been updated to the corresponding reader). ↓ Click **Create**.	
Step 5: Take this card to approach the reader for configured settings.	Remark: If the reader you use is the one with the keypad, you need to press *00# to enter the configuration mode (within 10-seconds beeps) and press * to exit the configuration mode. In short, to make the configured card work, please press *00# on the reader (the reader will start to sound the beeps) and then present the configured card to the reader.

Data Output

Reader Test

After reader's configurations have been updated success, you can use **Test** function to check reader's configurations have been correctly stored.



LED [0]~[9] (default=Disable)

Manually to control LED/buzzer by commands [0]~[9]. Enable this by "Enable RS232 Command Set Control".

Buffering (default=Disable)

Manually to control data output timing by the command [Buffering Data].

Enable this by "Buffering" Enabled.

Relay (default=Disable)

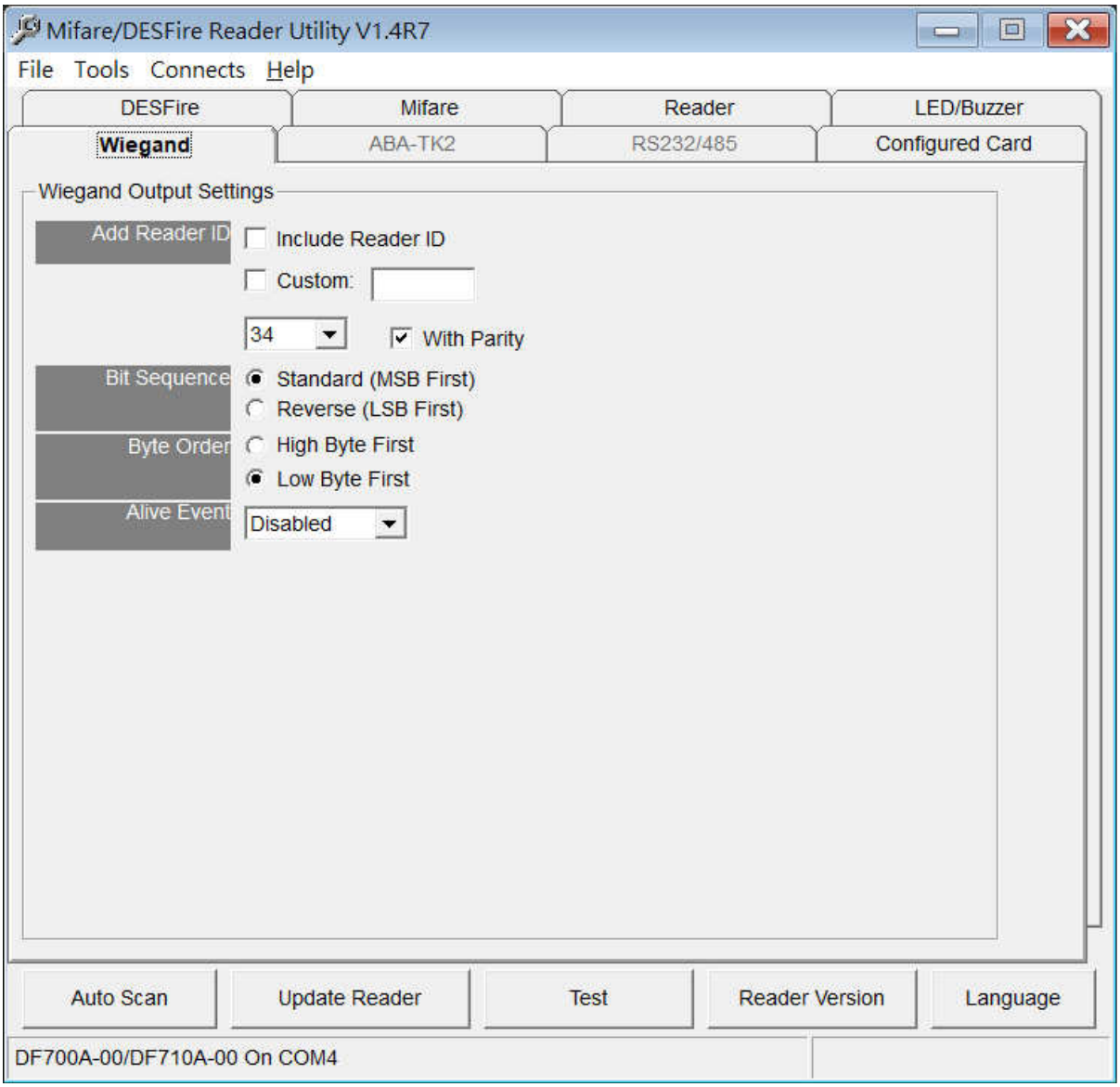
Not available for DF7XXA.

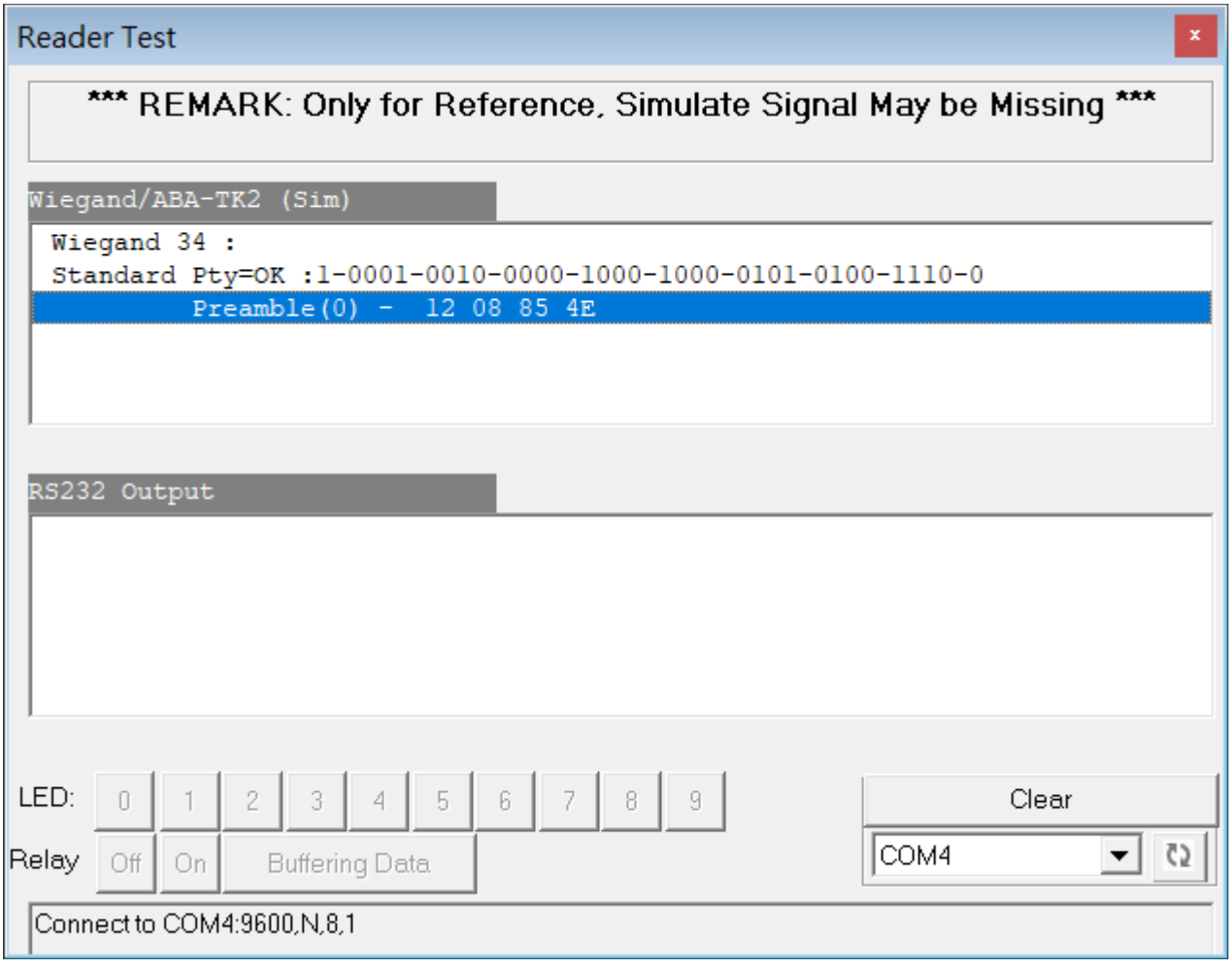
Test Read Card After Updating

The following steps guide you how to test read card.

1. After set configurations in the Reader Utility software, you can click **Update Reader** to update the currently configurations to the reader.
2. Or, click **Test** to update configurations and verify output data.
3. Take an issued Mifare card and approach it to the reader, You can see the output data on “Reader Test” window.

Example: Wiegand 34 bits output data with Standard bit sequence



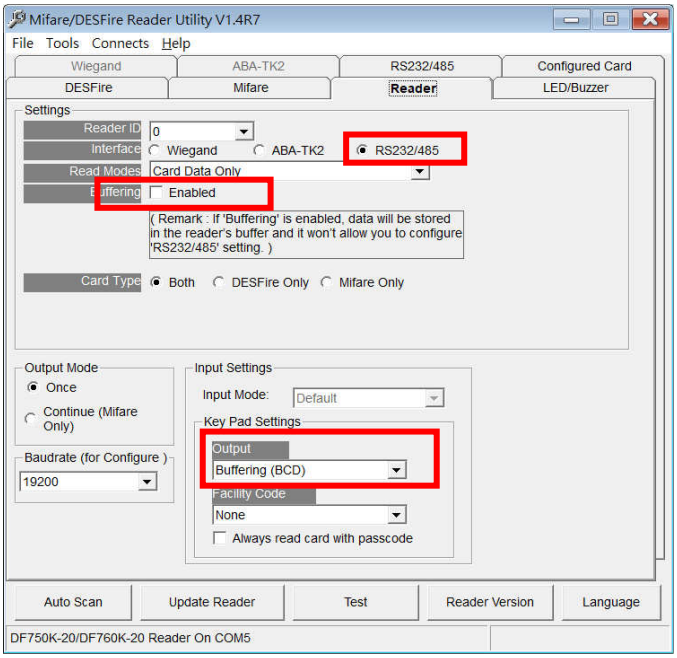


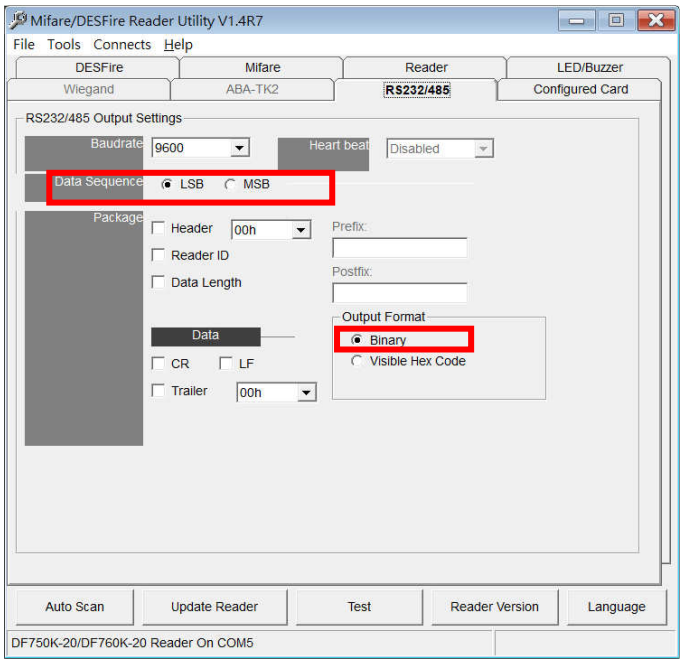
Remark: (1) When using reader-kit to test Wiegand (or TK2) signal, this test may be failed if the processor of computer is too slow. (2) When using reader-kit to test Wiegand (or TK2) signal, you need to connect to the physical COM port.

Test Key Pad After Updating

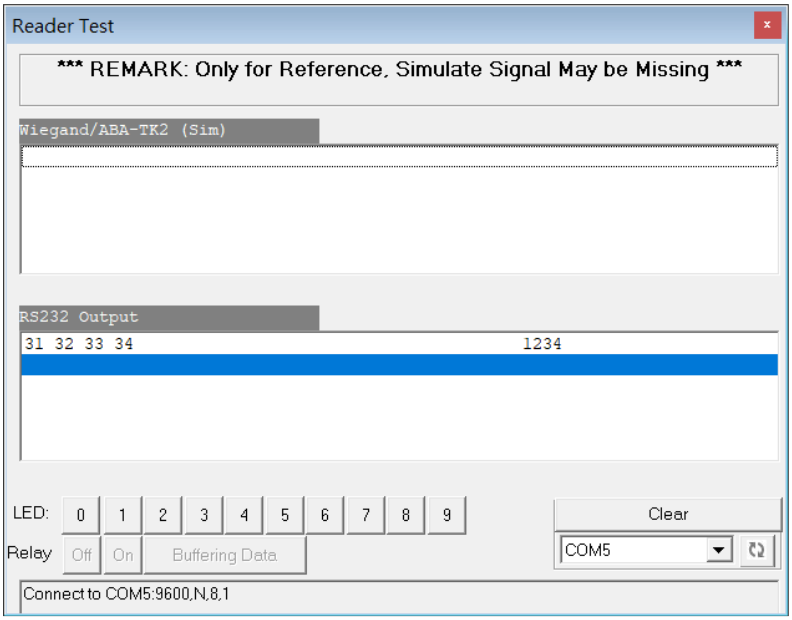
Simply Output “1234” – RS232 Interface

RS232 interface – Settings





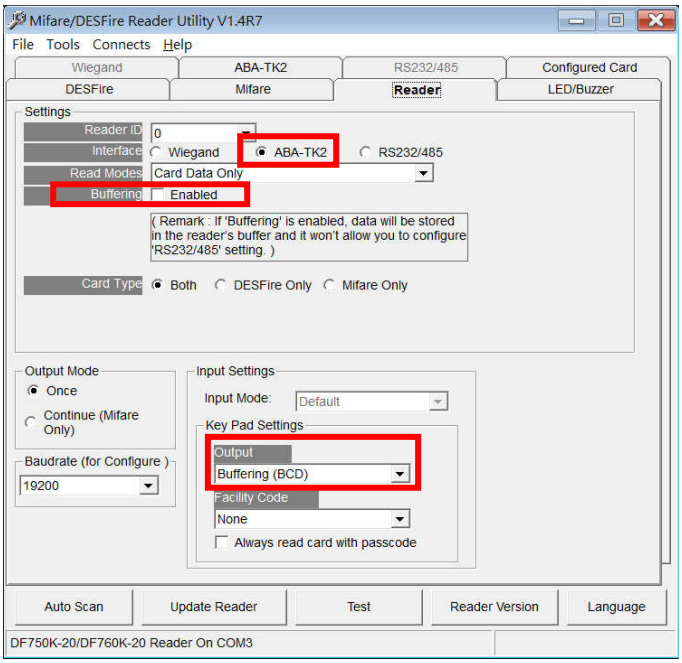
RS232 interface – Output: Press “1234” + “#”

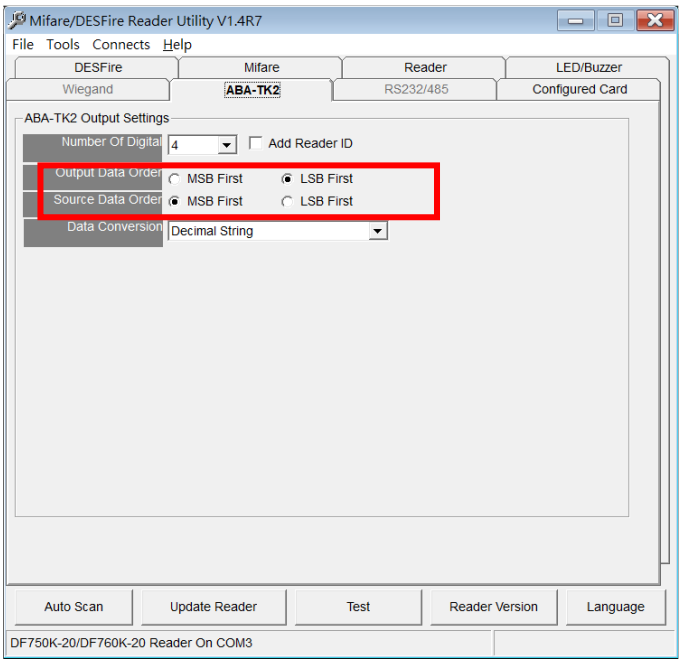


Result=1234

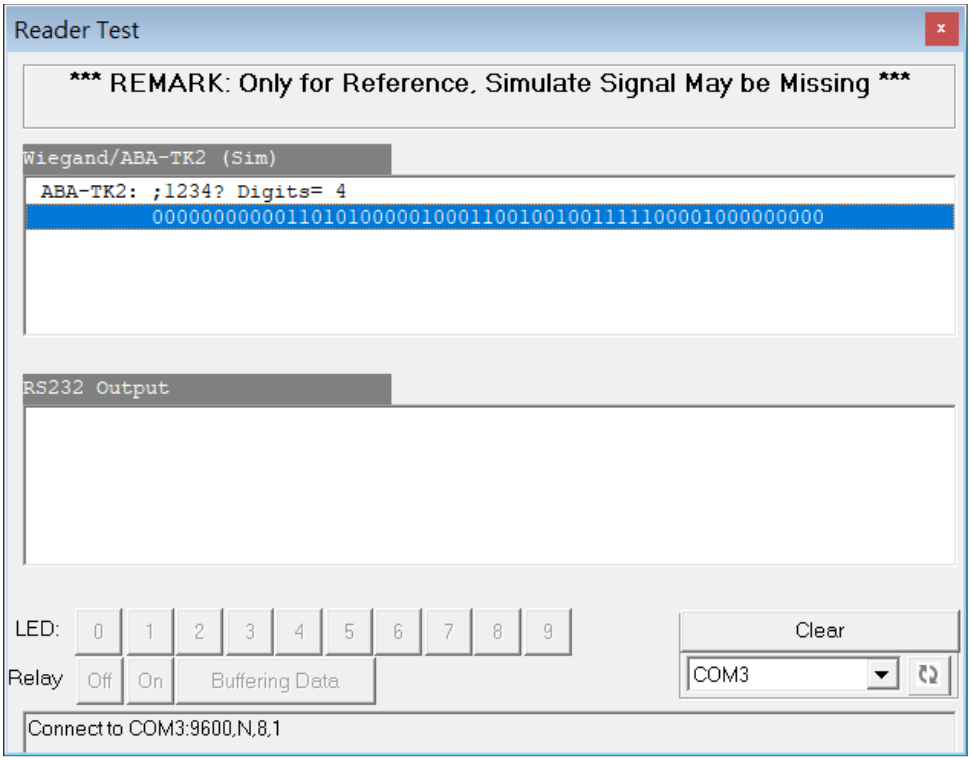
Simply Output “1234” – ABA-TK2 Interface

ABA-TK2 interface – Settings





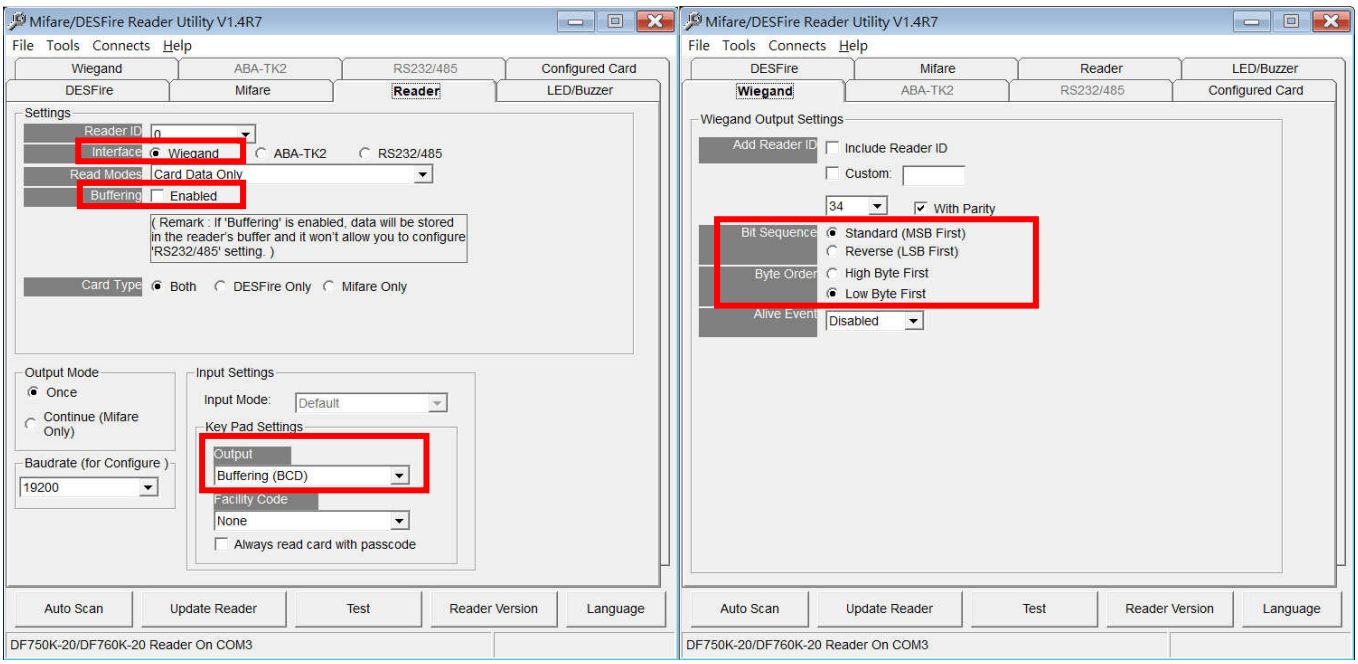
ABA-TK2 interface – Output: Press “1234” + “#”



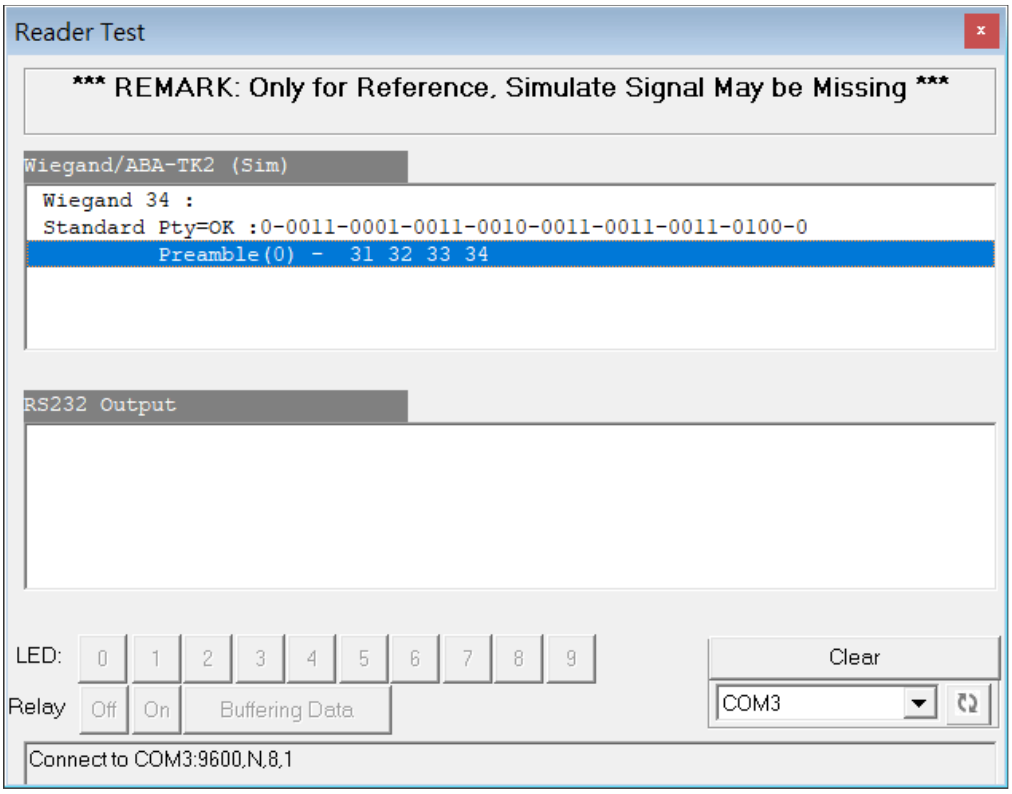
Result=1234

Simply Output “1234” –Wiegand Interface

Wiegand interface – Settings



Wiegand interface – Output: Press “1234” + “#”



Result=”1234”

Technical Support

http://ftp.gigatms.com.tw/disks/disk5238/

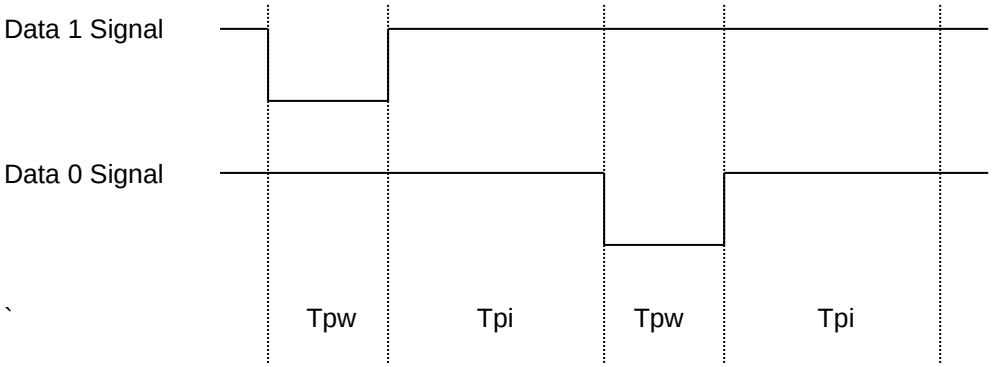
Is your Download Center where you can:

- Find apps and source code.
- View manuals and the knowledge base.
- Download the latest firmware and software.

Appendix

Wiegand Interface

The Data 1 and Data 0 signals are held at a logic high level unit, the reader is ready to send a data stream. The reader places data as asynchronous low-going pulses on the Data 1 or Data 0 lines to transmit the data stream to Host. The Data 1 and Data 0 pulses will allowable pulse width times and pulse interval times for the reader.



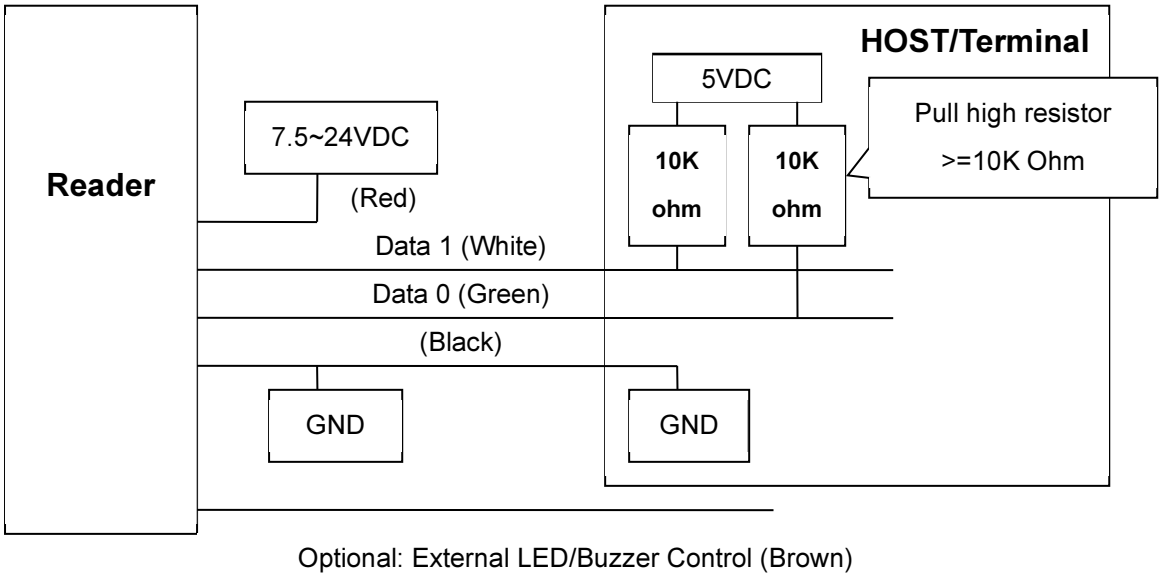
Pulse Times

Symbol	Description	Typical Time
Tpw	Pulse Width Time	100us +/- 3%
Tpi	Pulse Interval Time	1.9ms +/- 3%

Wiegand Packet (Without Reader ID)

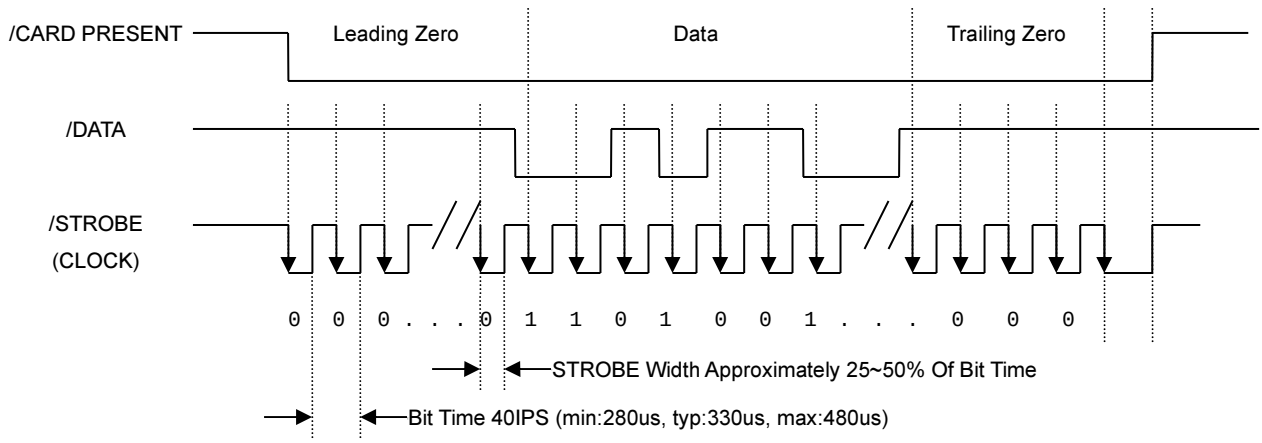
Standard (Default)	Parity(Even)	(MSB) Data Bits (LSB)	Parity(Odd)
Reverse (Option)	Parity(Odd)	(LSB) Data Bits (MSB)	Parity(Even)

Example of connecting Wiegand wires (the pull high resister must >= 10K Ohm)



ABA-TK2 Interface

Example of the timing for card present, clock (strobe) and data



DATA

The data signal is valid while the clock is low. If the Data signal is high, the bit is a zero. If the Data signal is low, the bit is a one.

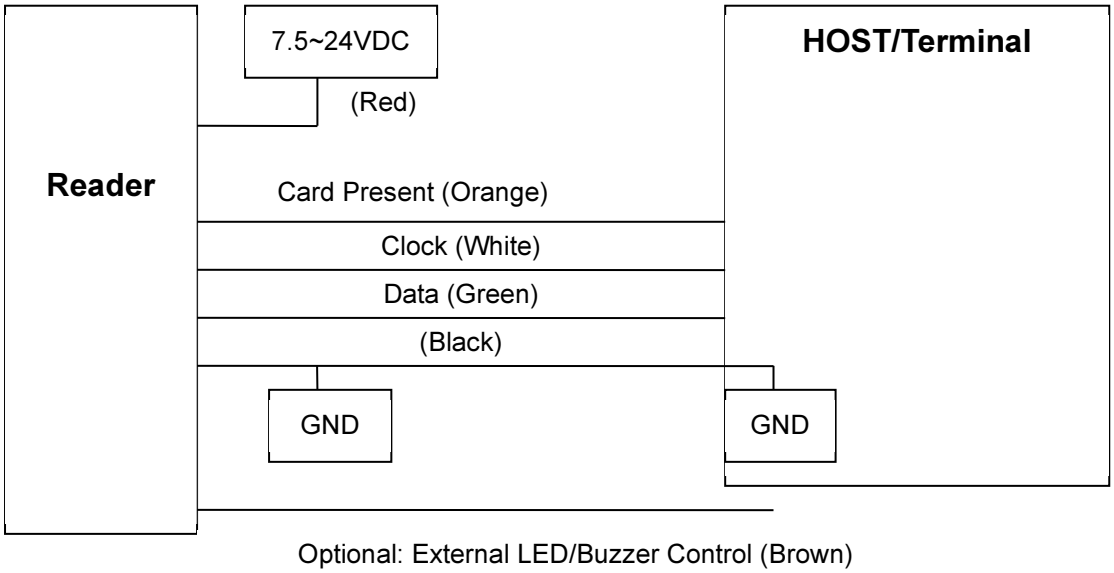
CLOCK (STROBE)

The Clock signal indicates when Data is valid. It is recommended that Data be loaded by the user with the leading edge (negative) of the Strobe.

CARD PRESENT

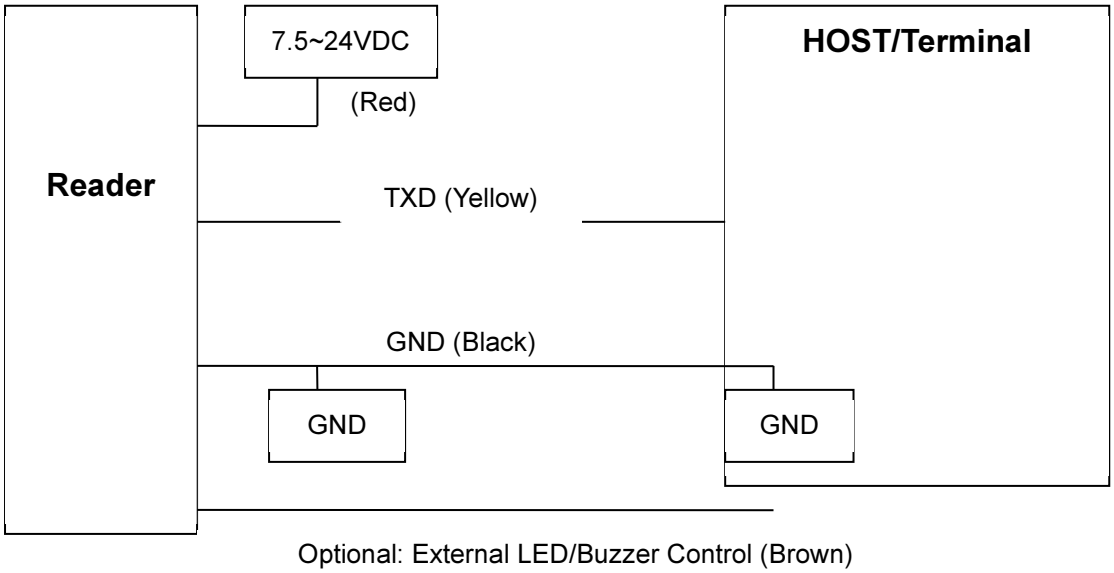
Card Present will go low after flux reversals from the Reader. Card Present will return high after the last flux reversal.

Example of connecting ABA TK2 wires



RS232 Interface

Example of connecting RS232 wires

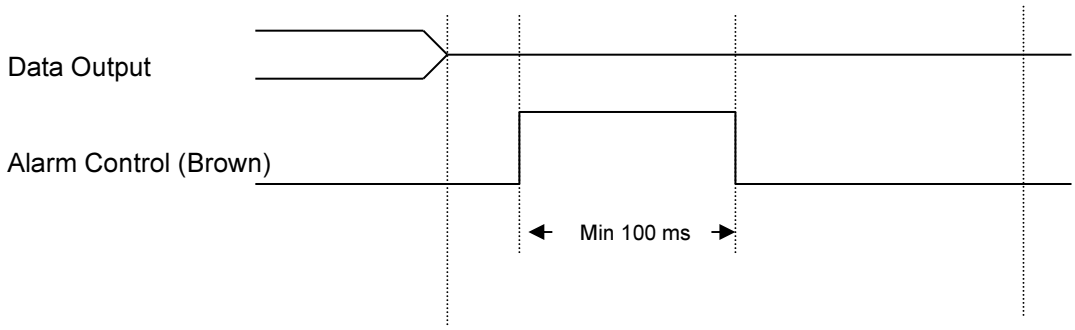


External LED/Buzzer Control

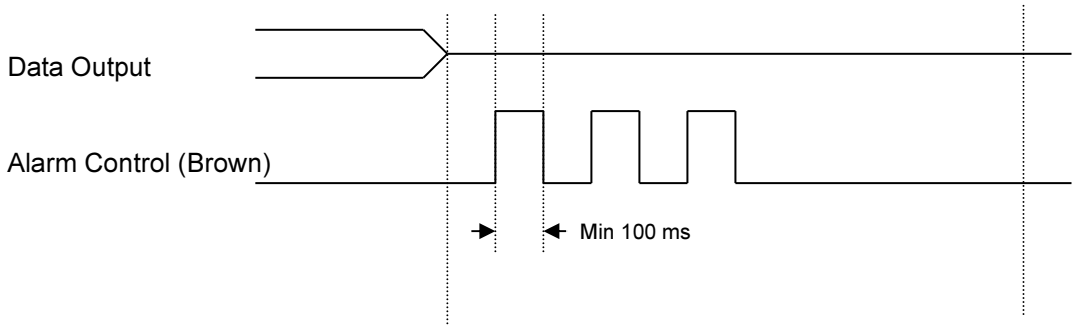
DF7XXA supports the external LED/Buzzer control for Terminal (or Host) to prompt end-user the card data is invalid or valid. Use Brown wire to control the LED/Buzzer of DF7XX.

Examples (Active High)

(1) Show External Invalid Status



(2) Show Card Valid Status



Note

1. Send one pulse to show the “Extern Invalid” LED/buzzer status.
2. Send three or more pulse to show the “Card Valid” LED/buzzer status.
3. You can configure the LED/buzzer status by reader utility software.

Caution

CAUTION:

The crossed out wheeled bin label that can be found on your product indicates that this product should not be disposed of via the normal household waste stream.

To prevent possible harm to the environment or human health please separate this product from other waste streams to en-sure that it can be recycled in an environmentally sound manner.

For more details on available collection facilities please contact your local government office or the retailer where you purchased this product.
This information only applies to customers in the European Union.

Update History

2023/8/21 V1.0

- Added **DF750A/DF750AK/DF760A/DF760AK** readers.

2023/8/21 V1.0

- Original Release