

IDTECK SRK101
IDTECK SRK101U
IDTECK SRK101B

13.56MHz Contactless Smart Card Reader
13.56MHz Contactless Universal Smart Card Reader
Fingerprint-Stored Smart Card ID-Only Reader



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1. Important Safety Instructions

When using the 13.56MHz [MIFARE] Contactless Smart Card Reader (SRK101) / 13.56MHz Contactless Universal Smart Card Reader (SRK101U) / Fingerprint Stored Smart Card ID Only Reader (SRK101B), basic safety precautions should always be followed to reduce the risk of fire, electrical shock, and injury to persons.

In addition, the following should also be followed:

1. **Fully** read and understand all instructions and follow them completely.
2. **Follow** all warnings and instructions marked on the product.
3. **Do not** use liquid or aerosol cleaners. Use a damp cloth for cleaning. If necessary, use mild soap.
4. **Do not** use this product near water.
5. **Only** operate this product using the type of power source indicated. If you are not sure of the type of power supplied to your installation site, consult your dealer or local power company.
6. **Never** insert objects of any kind into the product or through the cabinet slots as they may touch voltage points and/or short circuit parts possibly resulting in fire or electric shock.
Never spill liquid of any kind on the product.
7. **Never** disassemble this product by yourself; take the unit to a qualified service center whenever service or repair is required. Opening or removing the covers may expose you to dangerous voltages or other risks. Also, incorrect reassembly can cause electric shock when the unit is subsequently used.
8. **Unplug** this product from the Direct Current (DC) power source and refer to qualified service personnel under these conditions:
 - When the power supply cord or plug is damaged or frayed.
 - If liquid has been spilled on the product.
 - If the product does not operate normally after following the operating instructions in this manual.
Adjust only those controls that are covered by the operating instructions in this manual. Improper adjustment of other controls that are not covered by this manual may damage the unit and will often require extensive work by a qualified technician to restore normal operation.
 - If the product exhibits a distinct change in performance.

2. General

The IDTECK SR101/SR101U/SR101B Smart Card Reader is a proximity reader with the read range of up to 4 inches (10cm). The IDTECK SR101/SR101U/SR101B Smart Card Reader has a built-in keypad with night-vision backlighting which makes operation at night convenient.

IDTECK SR101 reads the serial number stored on the Philips Mifare™ card (ISO14443 Type A) and transmits the data to the controller in various formats.

IDTECK SR101U reads the serial number stored on the ISO14443 Type A/B card and transmits the data to the controller in various formats.

IDTECK SR101B reads the IDs stored on the user cards that have been issued using the PRG2000B and transmits the data to the controller in various formats.

3 LED indicators (red, green, and yellow) and a built-in Piezo buzzer will guarantee you accurate and reliable system operations.

3. Features

✓ Common

- 13.56MHz [MIFARE] Contactless Smart Card & PIN Reader
- Read Range: Up to 4 inches (10cm)
- User-Defined Formats Available
- 4 / 8bit Burst Output Format Available
- 12-Button Keypad
- External LED Control
- External Buzzer Control
- Tamper Switch
- Wall Mount (US, EU, Asian Gang Box Size)
- Reverse Polarity Protection
- Options:
 - 3ea of External LED Control
 - Supervisory Signal

✓ SRK101

- ISO 14443 type A compatible
- Serial Number Read only
- 34bit Wiegand (default) / RS232, ABA Track II (optional) Output Format
- Compatible Controller: iCON100SR, iTDC-SR, Third Party Controller
FINGER007SR, FACE007SR, SR505

✓ SRK101U

- ISO 14443 type A/B compatible
- Serial Number Read only
- 34bit Wiegand (default) / RS232, ABA Track II (optional) Output Format
- Compatible Controller: iCON100SR, iTDC-SR, Third Party Controller
FINGER007SR, FACE007SR, SR505

✓ SRK101B

- Read Encrypted ID of Smart Card that is written by PRG2000B
- 26bit Wiegand (default) / RS232, ABA Track II (optional) Output Format
- Compatible Controller: iCON100, iTDC, FINGER007SRB, Third Party Controller.
- Compatible Reader: SR10B, SR30B, FGR006SRB, FINGER006SRB

4. Identifying Supplied Parts

Please unpack and check the contents of the box:



SRK101/SRK101U/SRK101B
(1ea)



Wall Mount
(1ea)



O-Ring
(5ea)



User's Manual
(1 Copy)



3.5*40 Screws
(4ea)



3.5*12 Screws
(4ea)



Anchor Bolts
(4ea)

5. Specification

Model		SRK101	SRK101U	SRK101B
Read Range	Type A	ISK50 / IMC135: up to 2 inches (5cm) ISC80: up to 4 inches (10cm)		
	Type B	N/A	ISC80B: up to 4 inches (10cm)	N/A
Card Reading Time		30ms		
Power / Current		DC12V / Max. 180mA		
Input Port	Default	1ea of External LED Control, 1ea of External Buzzer Control		
	Optional	3ea of External LED Control, 1ea of External Buzzer Control		
Output Port		34bit Wiegand(Default) RS232(Default)		26bit Wiegand(Default) RS232(Default)
		4/8bit Burst for PIN (Selectable) / ABA Track II (Optional)		
Keypad		12-button Keypad		
LED Indicator		3 Array LED Indicators (Red, Green, Yellow)		
Buzzer		Piezo Buzzer		
Operating Temperature		-35° ~ +65°C (-31°F ~ +149°F)		
Operating Humidity		10% ~ 90% Relative Humidity (Non-condensing)		
Color		Dark Pearl Gray		
Material		Polycarbonate		
Dimensions (W x H x T)		87mm x 100mm x 31mm (3.4" x 3.94" x 1.22")		
Weight		190g (0.42lbs)		
Certifications		FCC, CE, MIC		

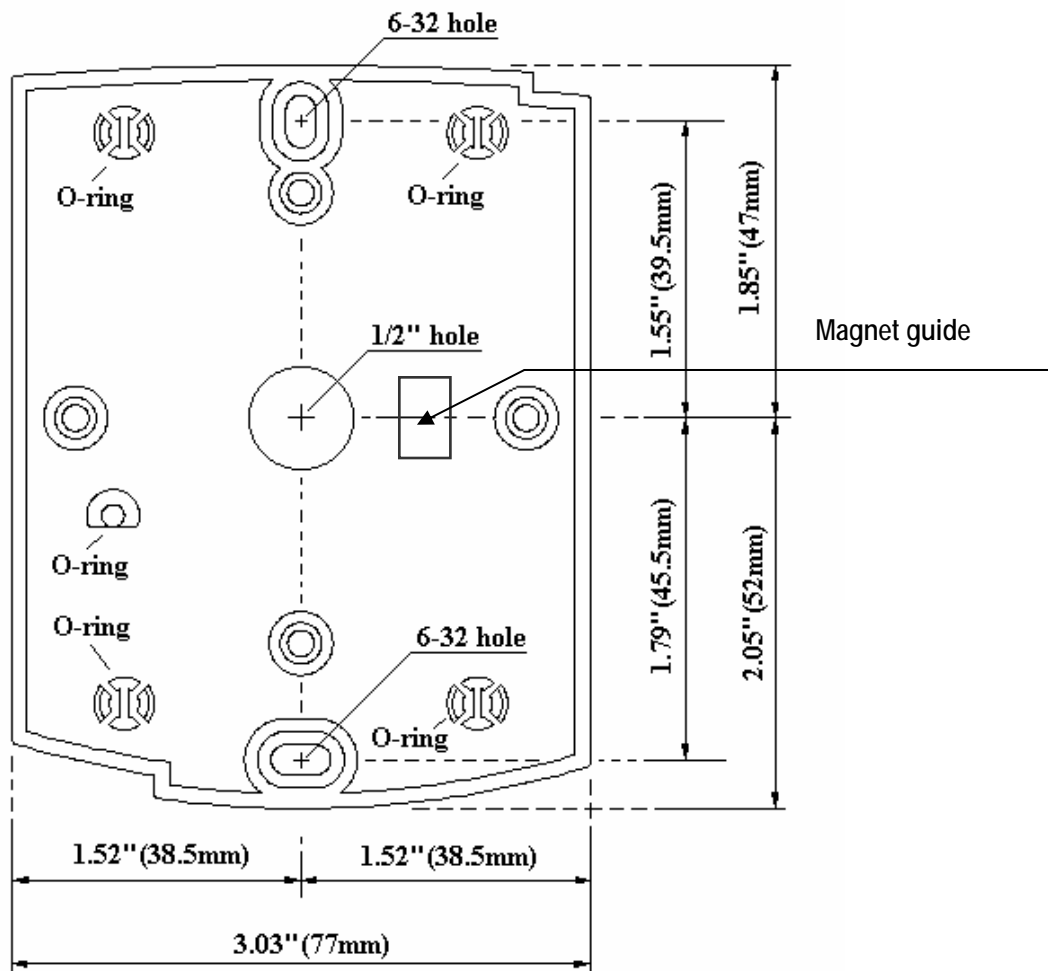


Card Read Range of each Contactless Smart[Mifare] Reader

Model		ISC80	ISC80B	ISK50	IMC135	IHC80
Read Range	SR10 / SR30 / SRK101	Up to 4 inches (10cm)	Up to 2 inches (5cm)			
	SR10B / SR30B / SRK101B	Up to 4 inches (10cm)	Up to 2 inches (5cm)			
	SR10U / SR30U / SRK101U	Up to 4 inches (10cm)	Up to 2 inches (5cm)			
	SR10RW / SR30RW / SRK101RW	Up to 4 inches (10cm)	Up to 2 inches (5cm)			
	FINGER007SR(B) FINGER006SR(B) FGR006SR(B)	Up to 4 inches (10cm)	Up to 2 inches (5cm)			
	SR505	Up to 4 inches (10cm)	Up to 2 inches (5cm)			
	FACE007SR FACE006SR	Up to 4 inches (10cm)	Up to 2 inches (5cm)			

6. Installation

- 6-1. Make sure the magnet is attached to the magnet guide on the Wall Mount.
- 6-2. On the last page of this manual, you can find an actual-size template for the Wall Mount. Cut the page out and use it as a guide to help you drill two 6-32 or M3 screw holes and one 1/2" hole. (If an electric gang box is already installed, skip this procedure.)



- 6-3. Using two 6-32 or M3 screws, install the Wall Mount to the wall.

※ Caution:

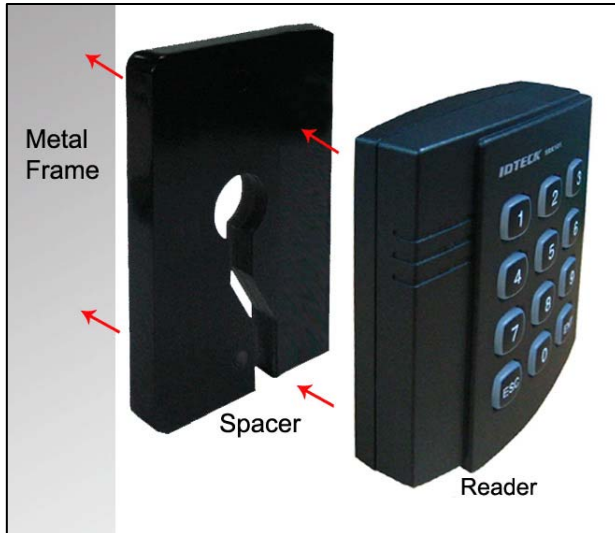
Once mounted to Wall Mount, the Main Unit can't be unmounted. Therefore, it is important to have all functions tested before mounting to the Wall Mount. If you unmount an already-installed Main Unit from the Wall Mount, the lock parts on the Wall Mount will be broken, and you'll have to replace it with a new Wall Mount.

- 6-4. Insert 5 O-rings to the Wall Mount, and route the cable of the Main Unit through the center hole and push the Main Unit to the Wall Mount until it locks into place.

6-5. Installation Considerations

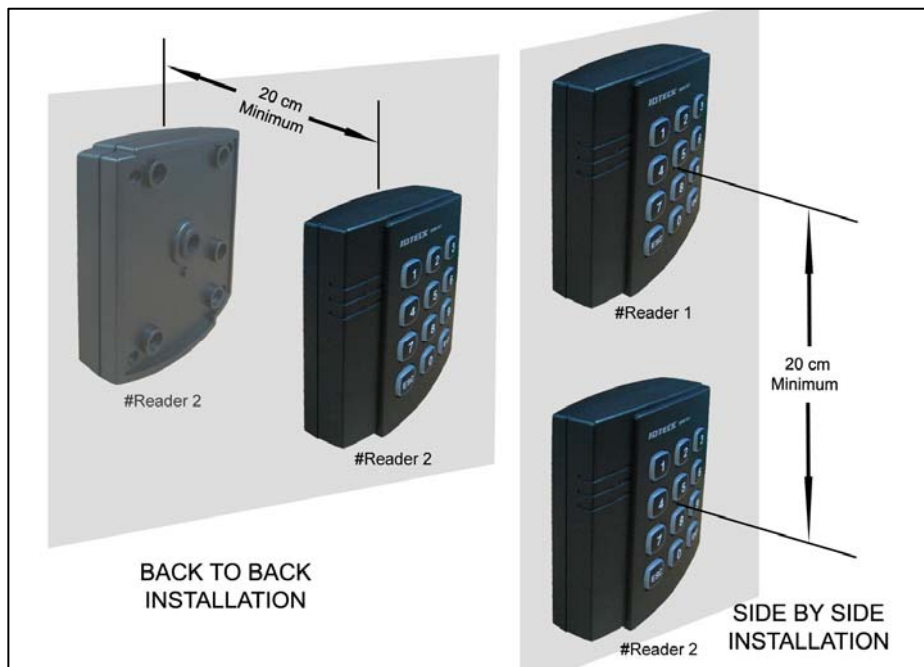
1. When installing a reader on a metal wall

The read range may get reduced if the reader is installed on a metal surface. To prevent such a read range reduction, install a Spacer between the metal surface and the reader.



2. When installing more than two readers side-by-side or back-to-back

The read range may get reduced if more than two readers are installed side by side or back to back. Also, when a card is presented to one of the readers, the other reader may wrongly recognize the card as well. To prevent such interference, make sure the distance between readers is at least 20cm.



7. Wire Color Table

Signal	Color
Main Power (+12V)	Red
Power Ground (GND)	Black
ABA Track II CP Out	Orange
Wiegand Data 0 Out / ABA Track II Data Out	Green
Wiegand Data 1 Out / ABA Track II Clock Out	White
Buzzer Control In	Blue
LED Control In (RED)	White wire with Red stripe
LED Control In (GREEN)	Yellow
LED Control In (YELLOW)	White wire with Blue stripe
Tamper Switch Out (NC)	White wire with Green stripe
Tamper Switch Out (COM)	Gray
RS232 (TX)	Purple

* Cut out the tail connector before installation.

8. Output Format

8-1. Wiegand Output Format

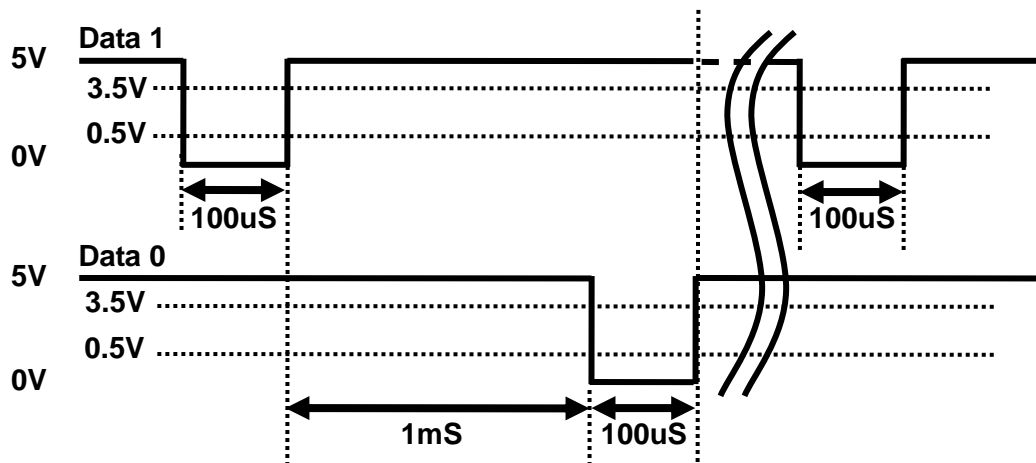
1. Data Format (34-bit /26-bit)

Bit 1: Even Parity Bit of Bit 2 to Bit 17

Bit 2 to Bit 33: 4-byte ID number

Bit 34: Odd Parity Bit of Bit 18 to Bit 33

2. Timing Diagram



8-2 4bit and 8bit Burst Output Format (Keypad)

1. Data Format

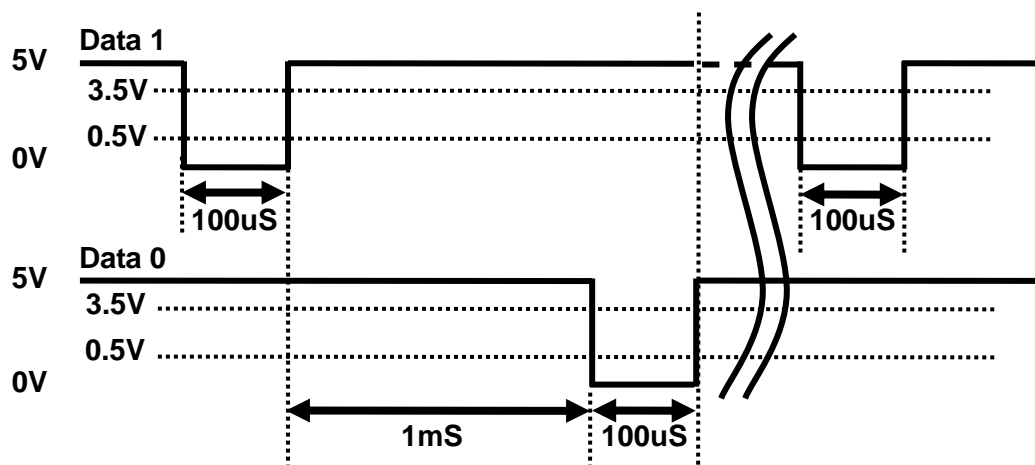
(4bit Burst output format)

Keypads	Binary	Hexa	Keypads	Binary	Hexa
0	0000	0	6	0110	6
1	0001	1	7	0111	7
2	0010	2	8	1000	8
3	0011	3	9	1001	9
4	0100	4	ESC	1010	A
5	0101	5	ENT	1011	B

(8bit Burst output format)

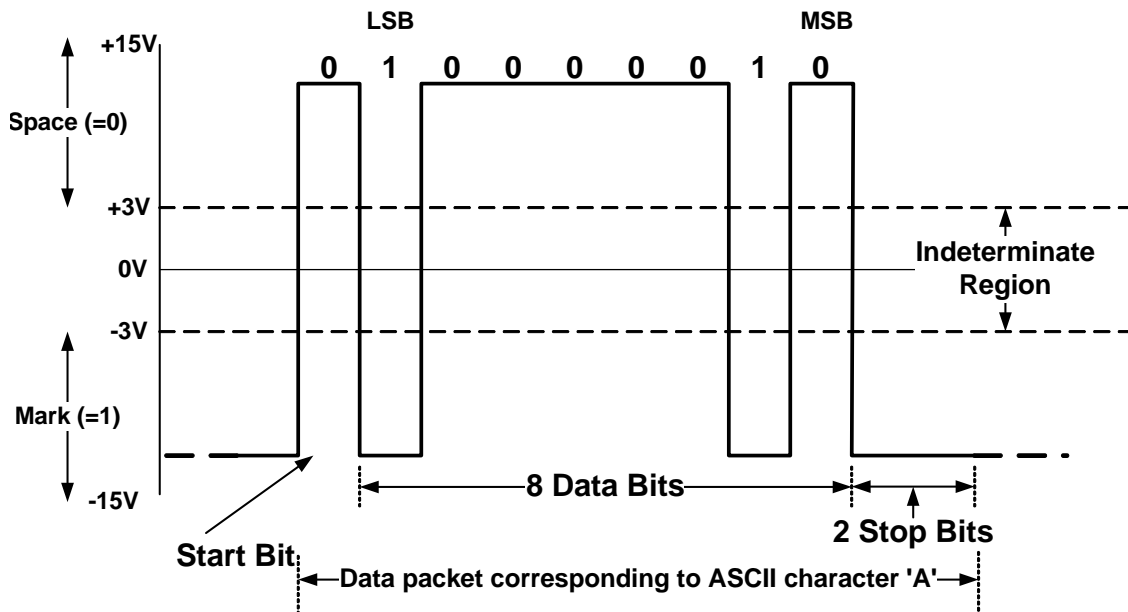
Keypads	Binary	Hexa	Keypads	Binary	Hexa
0	11110000	F0	6	10010110	96
1	11100001	E1	7	10000111	87
2	11010010	D2	8	01111000	78
3	11000011	C3	9	01101001	69
4	10110100	B4	ESC	01011010	5A
5	10100101	A5	ENT	01001011	4B

2. Timing Diagram



8-3 RS-232 (Option) Output Format

1. Data Format (Baud Rate : 9600bps)



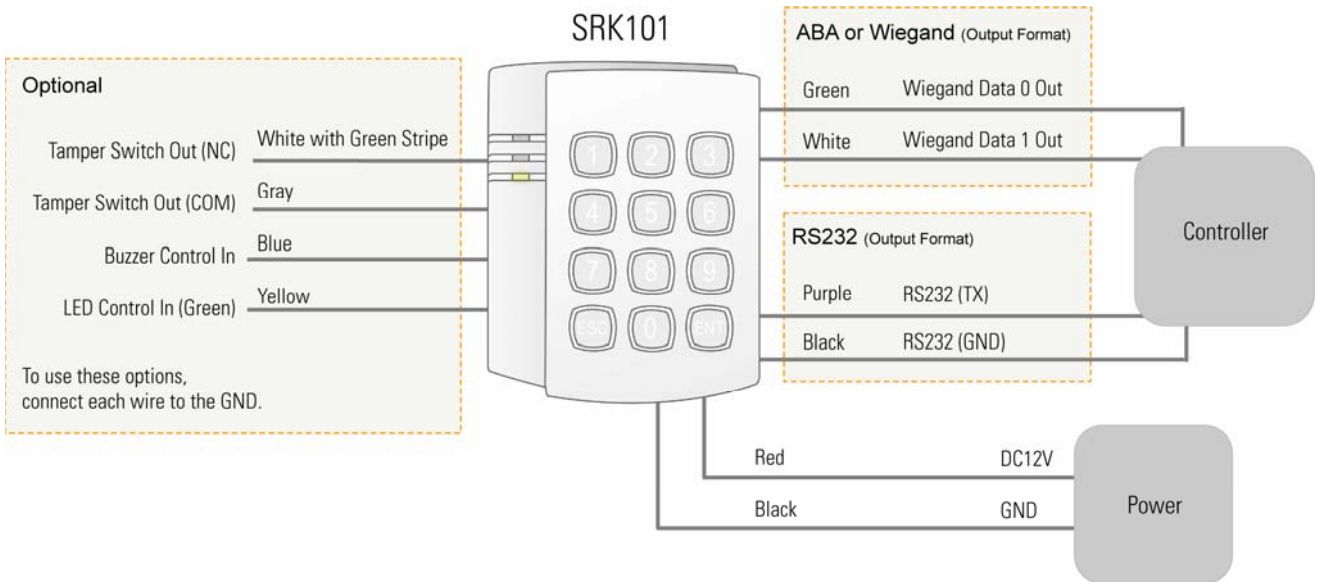
2. Data Structure

START(0X02H)	DATA(8 Char)	END (0x03H)	LRC	(Card Output)
START(0X02H)	DATA(1~8 Char)	END (0x03H)	LRC	(Keypad Output)

9. Wire Connection to Access Controller

9-1. Wiring for Controlling Green LED (Default)

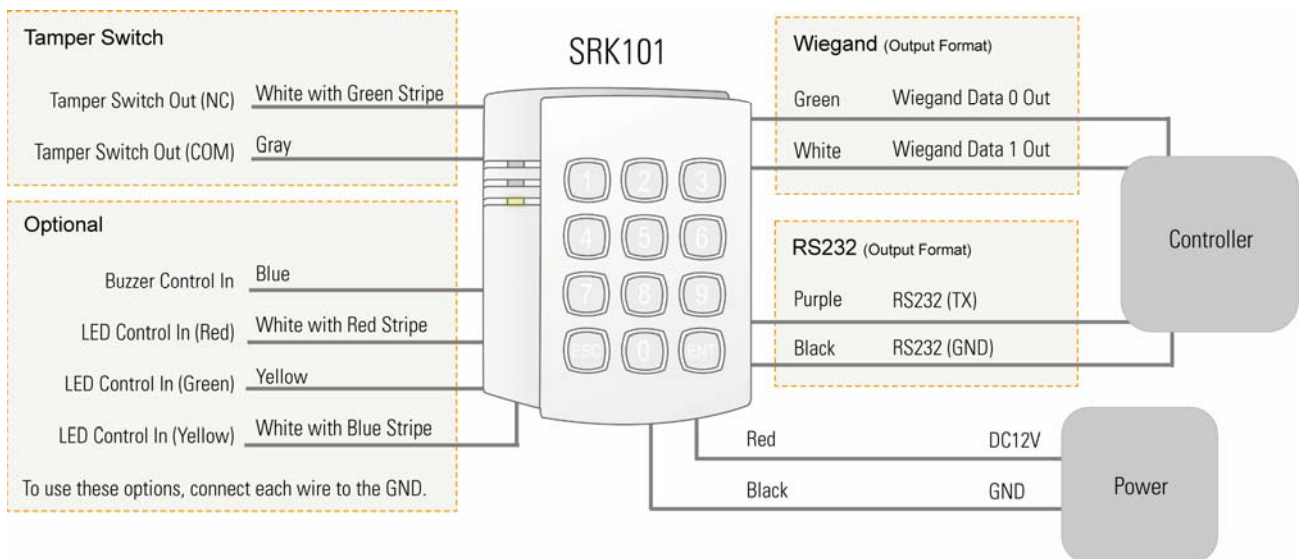
SRK101/SRK101U Output Format: 34bit Wiegand + RS232 (Card) + 8bit Burst (PIN)
 SRK101B Output Format: 26bit Wiegand + RS232 (Card) + 8bit Burst (PIN)



- SRK101/SRK101U/SRK101B transmits the card/keypad data to the Access Controller via Wiegand Data1 and RS232(TX) wires. (34/26bit Wiegand, 8bit burst, RS232)

9-2. Wiring for Controlling Red, Green, and Yellow LEDs (Optional)

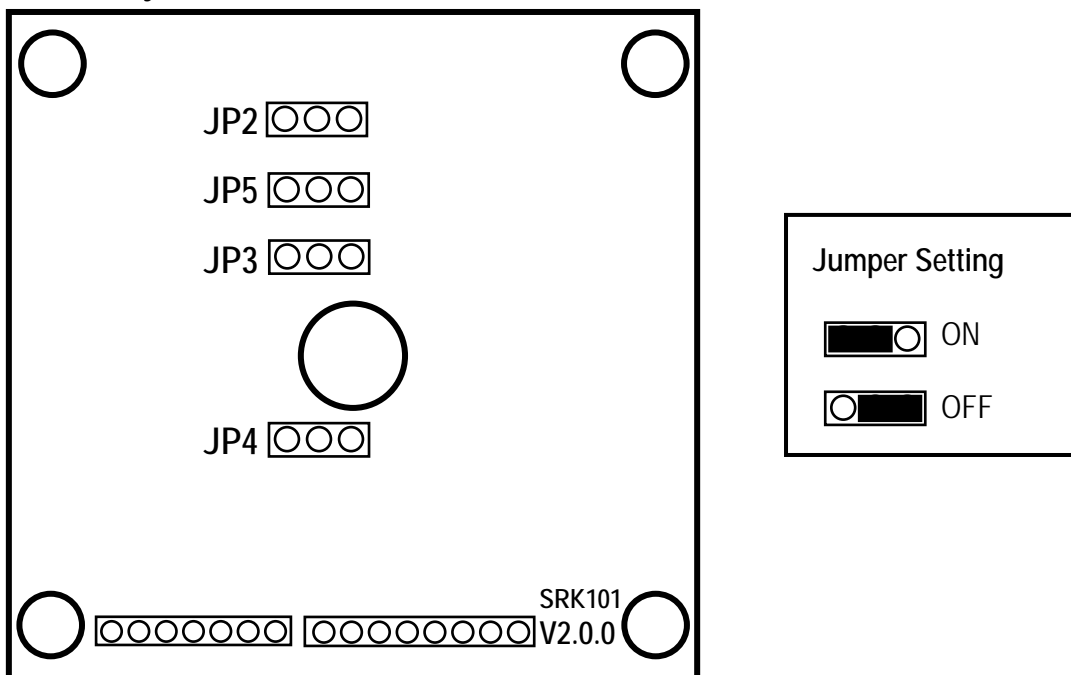
SRK101/SRK101U Output Format: 34bit Wiegand + RS232 (Card) + 8bit Burst (PIN)
 SRK101B Output Format: 26bit Wiegand + RS232 (Card) + 8bit Burst (PIN)



- SRK101/SRK101U/SRK101B transmits the card/keypad data to the Access Controller via Wiegand Data0, Wiegand Data1 and RS232(TX) wires. (34/26bit Wiegand, 8bit burst, RS232)

10. Operations

10-1. Connector Layout



JP2, JP4 : OFF (Do not change these jumpers by yourself.)

10-2. Output Selection

Table 1. Jumper Setting (SRK101/SRK101U/SRK101B)

JP3	JP5	Card Output Format	Keypad Output Format
<u>OFF</u>	<u>OFF</u>	<u>34/26bit Wiegand + RS232</u>	<u>8bit Burst</u>
OFF	ON	34/26bit Wiegand + RS232	4bit Burst
ON	OFF	34/26bit Wiegand + RS232	34/26bit Wiegand + RS232
ON	ON	34/26bit Wiegand + RS232	34/26bit Wiegand + RS232

※**CAUTION:** By default, both JP3 and JP5 are OFF.

10-3. Operations

10-3-1. Basic Operations

1. After powered on, the Reader beeps 4 times and the LEDs are turned on and off. If the Red and Yellow LEDs are lit, the Reader is in the standby mode after successful initialization and diagnosis.
2. Present a Smart[Mifare] card to the reader until you hear a beep and the Green LED is lit. Then, the Reader will pass the Smart[Mifare] card data on to the Controller and turn on

the Yellow LED, indicating that it's waiting for another card to be read.

3. Press the keypad and you'll hear a beep. Then, the reader will pass the keypad input data on to the controller.
4. In the 34bit Wiegand + RS232 output format (SRK101 or SRK101U), an ID (PIN) is in the range of 0 to 4294967295, without a facility code. In the 26bit Wiegand + RS232 output format (SRK101B), a facility code is within the range of 0 to 255 and an ID (PIN) in the range of 0 to 65535. If you don't finish your PIN entry with "ENT" key or if you don't press any key within 5 seconds, the reader will make error beeps "Beep Beep Beep Beep" then clear the PIN data (no output) and return to the standby mode. An ID (PIN) you can enter via the keypad is from 1 to 10 digits (SRK101 or SRK101U) or 1 to 8 digits (SRK101B).

e.g. <u>Keys Pressed</u>	<u>Output Mode</u>	<u>SRK101 or SRK101U</u>	<u>SRK101B</u>
① 1234ENT	Wiegand	0000001234	00001234
	RS232	0000001234	00001234
② 12345678ENT	Wiegand	0012345678	12345678
	RS232	0012345678	12345678

5. LED Control:
 To change the LED colors, you may connect the LED Control Input (Yellow wire) to the Ground. Then, the Green LED will be lit while the reader is in the standby mode. If a Smart[Mifare] card is presented to the reader, the Yellow LED will be lit, and then the Green LED will come back on again for the next reading.
6. Buzzer Control:
 By default, the reader generates one beep when a Smart[Mifare] card is presented. However, by connecting the Buzzer Control Input (Blue wire) to the Ground, you can set the reader to generate more beeps for better indication of its access (granted or denied) status. You'll hear one beep as the Blue wire gets connected to the Ground.
7. Tamper Switch
 The SRK101/SRK101U/SRK101B has a normally-closed (NC) type Tamper Switch. When the reader is mounted to the Wall Mount, the NC-type Tamper Switch Output (Orange wire) and the COM-type Tamper Switch Output (Gray wire) will be short-circuited. On the other hand, if the SRK101/SRK101U/SRK101B is not attached to the Wall Mount, the NC-type Tamper Switch Output (Orange wire) and the COM-type Tamper Switch Output (Gray wire) will be open-circuit.

10-3-2. Advanced Operations (Optional)

1. Supervisory Signal: The reader sends a supervisory signal (ID:"0000000000/000000") every 40 seconds through the Wiegand Data wire.
2. Three-LED Control: to change the LED colors, you may connect the LED Control Inputs (Yellow wire for Green LED, White wire with Red stripe for Red LED, White wire with Blue stripe for Yellow LED) to the Ground. While they are connected to the Ground, the LEDs will stay lit.

11. Applendix

Troubleshooting

Cards won't be read properly.	
Cause	Voltage other than DC12V is used, or the type of the card is different.
Solution	<ol style="list-style-type: none"> 1. Check the standard voltage in the manual or catalog. 2. See if the card is ISO14443 Type A or B type. => 125KHz cards can't be used. But, 13.56MHz cards can be used if they are ISO15693 compatible. (Contact the place where you purchased the cards.) 3. If the problem still persists, contact the service center.

When powered on, the reader beeps and the LED is dimly lit.	
Cause	The power adapter being used is not capable of meeting the current consumption level of the reader, or the power cable is too long for sufficient power to reach the reader.
Solution	<ol style="list-style-type: none"> 1. Make sure to use an adapter with a capacity that is larger than the current consumption level of the reader. If more than one reader is connected to one single adapter, make sure that the capacity adapter can support the current consumption of each reader multiplied by the number of the connected readers. 2. Even if the power source has sufficient capacity, the cable may not be an ordinary power cable (i.e. communication cable, UTP cable, etc.) or the length is so long that there is lots of power loss. In this case, replace the cable with a power cable, or reinforce the cable. 3. If the problem still persists, contact the service center.

The read range of cards varies every time a card is read.	
Cause	Even if the cards are of the same type, they might be produced by different companies and, therefore, have different characteristics. (IDTECK cards are made according to the MIFARE card of Philips.)
Solution	<ol style="list-style-type: none"> 1. Depending on the card manufacturer and special manufacturing processes, the characteristics of the card may vary. Therefore, make sure that the cards are manufactured by one company. If the cards are manufactured by different companies, it is natural that they have varying read ranges. 2. If the read range of the cards manufactured by a single company varies, contact the service center.

12. FCC Registration Information

FCC REQUIREMENTS PART 15

Caution: Any changes or modifications in construction of this device which are not expressly approved by the manufacturer for compliance could void the user's authority to operate the equipment.

NOTE: 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 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 radio or television off and on, the user is encouraged to try to correct interference by one or more of the following measures.

1. Reorient or relocate the receiving antenna.
2. Increase the separation between the equipment and receiver.
3. Connect the equipment into an outlet on another circuit.
4. Consult the dealer or an experienced radio/TV technician for help.



13. Warranty and Service

The following warranty and service information applies only to the United States of America and Republic of Korea. For the information in other countries, please contact your local distributor. To obtain in or out of warranty service, please prepay shipment and return the unit to the service facility listed below.

Headquarters: IDTECK Co., Ltd.

5F Ace Techno Tower B/D,
684-1 Deungchon-Dong, Gangseo-Gu,
SEOUL, KOREA 157-030

Tel: +82-2-2659-0055

Fax: +82-2-2659-0086

E-mail: webmaster@idteck.com

Website: www.idteck.com

U.S Branch: RF Logics Inc.

370 Amapola Ave, #106

Torrance, CA 90501

Tel: 310-782-8383

Fax: 310-782-8298

E-mail: rflogics@rflogics.com

Website: www.rflogics.com

Hong Kong Branch: IDTECK Hong Kong

12/F, B2B Centre, No.36 Connaught Road West, Hong Kong

Tel: 852-2581-9580

Fax: 852-2234-5150

E-mail: alchu@gala.com.hk

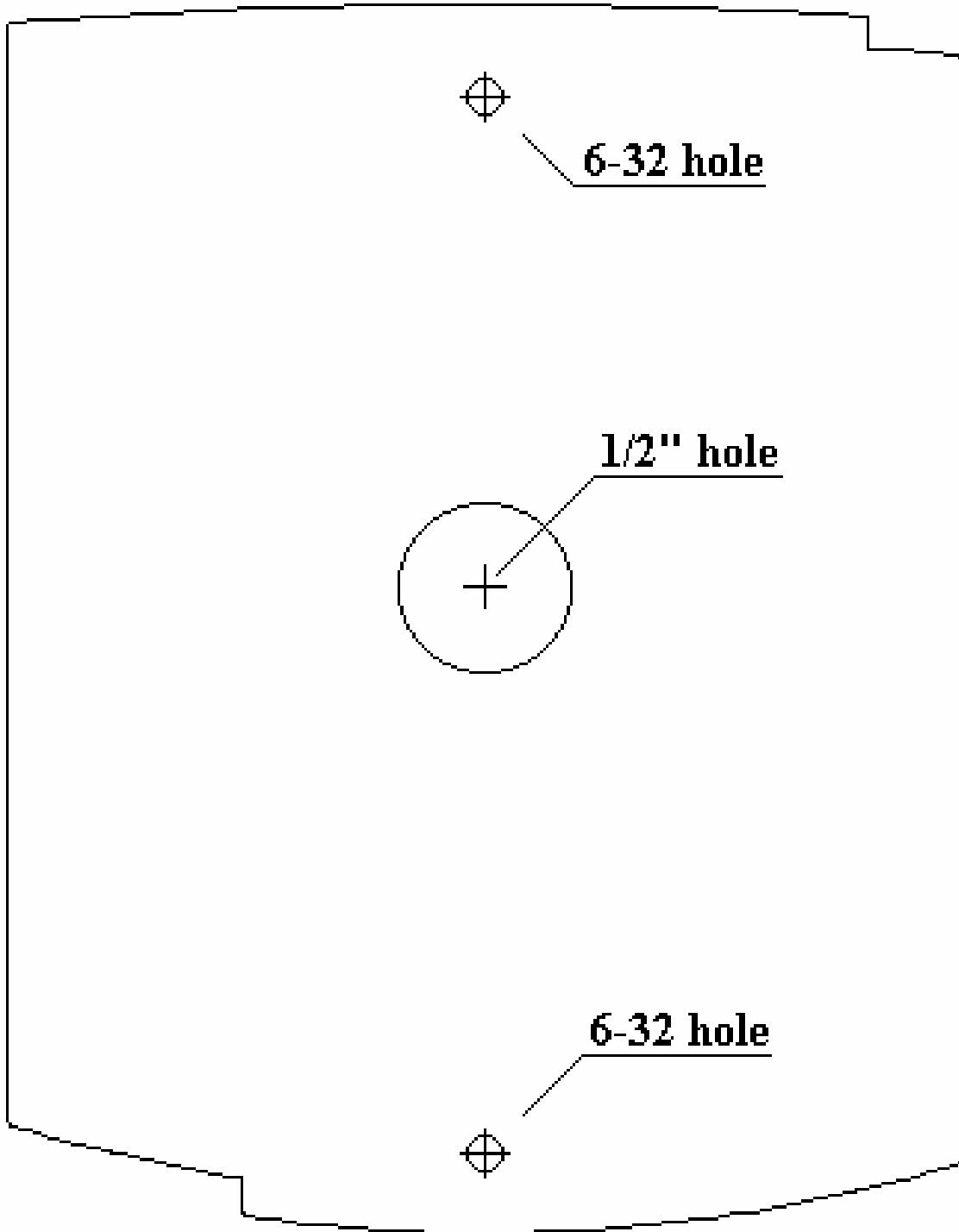
Website: www.ristarhk.com

Please use the original container, or pack the unit(s) in a sturdy carton with sufficient packing to prevent damage, include the following information:

1. A proof-of-purchase indicating model number and date of purchase.
2. Bill-to address.
3. Ship-to address.
4. Number and description of units shipped.
5. Name and telephone number of person to contact.
6. Reason for return and description of the problem.

NOTE: Damage occurring during shipment is deemed the responsibility of the carrier, and claims should be made directly to the carrier.

14. Template





The specifications contained in this manual are subject to change without notice at any time.

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MARSR30HK3X
MARSR3UHK1X
MARSR3BHK3X

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