USER'S MANUAL

Star RFK101

Proximity Reader with KEYPAD

Rev.3.5.1

IDTECK

Table of Contents

1. Important Safety Instructions

When using your Single Door Controller, 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. Read and understand all instructions.
2. Follow all warnings and instructions marked on the product.
3. Do not use liquid cleaners or aerosol cleaners. Use a damp cloth for cleaning. If necessary, use mild soap.
4. Do not use this product near water, such as bath-tub, wash bowl, kitchen sink, laundry tub, in a wet basement, or swimming pool.
5. This product should be operated only from the type of power source indicated on the marking label. If you are not sure of the type of power supplied to your installation site, consult your dealer or local power company.
6. Never push objects of any kind into this product or through the cabinet slots as they may touch voltage points or short out parts that could result in fire or electric shock. Never spill liquid of any kind on the product.
7. To reduce the risk of electric shock, do not disassemble this product by yourself, but take it to qualified service 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:
   a. When the power supply cord or plug is damaged or frayed.
   b. If liquid has been spilled on the product.
   c. 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 STAR RFK101 is an elegant looking and built in an attractive 10cm (4") read range proximity reader with KEYPAD. The STAR RFK101 has back lighting on the KEYPAD that ensures you successful operation even the night operating. The KEYPAD allows you to access door with proximity card and personal PIN numbers.

Three LEDs of green, yellow and red, inside Piezo buzzer sound will guarantee you an accurate and reliable system operations.

3. Features

- Up to 4” (10cm) Read Range
- Built in 12 Key Numeric Keypad
- 26 Bit Wiegand, RS232, ABA Track || Magnetic Stripe Format and 4/8 Bit Burst or 3*4 Matrix Output Available
- PSK Modulation
- User Format Available
- Back Lighting on Keypad
- 3 LED Indicators
- Dual Beep Tones
- High Durability and Reliability
- Supervisory signal (optional)

4. Identifying Supplied Parts

Please unpack and check the contents of the box.

Reader unit
(1ea)

Wall Mount
(1ea)

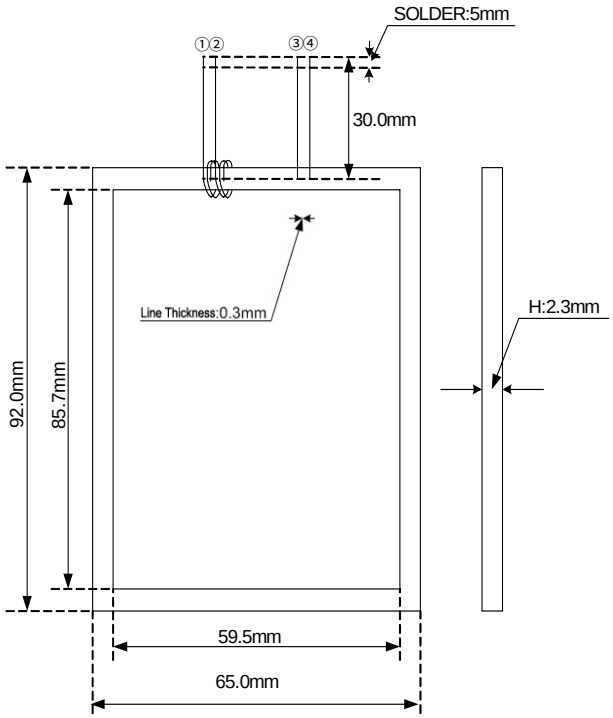
O-ring
(5ea)

User’s Manual
(1ea)

5. Specification

Read Range/Time	Up to 10cm (4") / 30ms
Input Voltage/Current	DC 12V, 150mA
Reset	Power on reset and WDT reset
LED/Beeper	3 LEDs (Red, Yellow and Green) / Piezo Buzzer
Keypad	12key back lighting
Color	Dark Pearl Grey
Operating Environment	-35℃ ~ +65℃, 10~90% Humidity

Dimensions (WxHxD)	487mm(3.40")x100mm(3.94")x31mm(1.22")
Weight	190 g (0.412 lbs)
Output Format	26bit Wiegand, RS-232, ABA Track II Magstripe Output Format with 8bit Burst or 3x4 Matrix Format for PIN



* Antenna Features

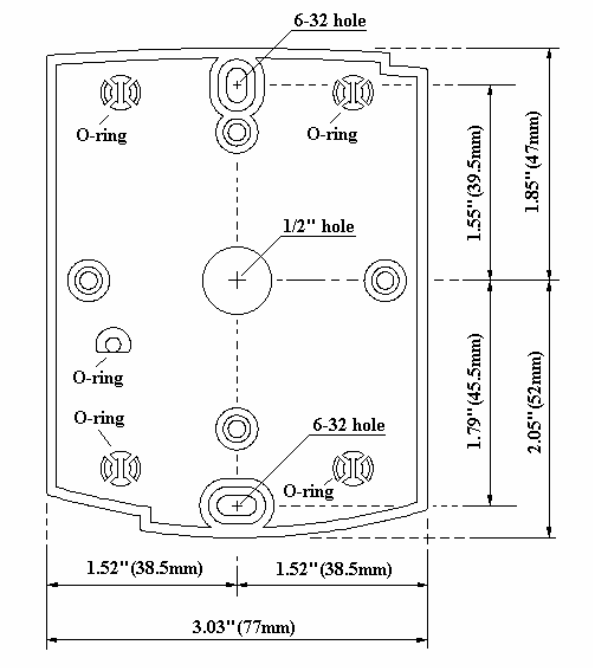
1. Antenna Type	Loop Coil Antenna
2. Inductance	Primary Coil: 13uH, Secondary Coil: 627uH
3. Antenna Gain	34.54DB
4. Direction	Omni-directional antenna
5. Polarization	Horizontal Polarization
6. Connection with Transmitter	Soldering directly on PCB

6. Installation

6-1. Drill two 6-32 or M3 holes 3.3"(8.38cm) apart in vertical and one 1/2" hole at the center of these two holes. (If you have installed electric gang box then skip this step.)

6-2. Using two 6-32 or M3 screws, install wall mount to the wall.

6-3. Insert 5 O-rings to the wall mount as indicated, then route the cable of the main unit through the center hole and push the main unit to wall mount to lock the main unit and make sure that the main unit is locked with wall mount.



7. Wire Color Table of the Reader

POWER

Power(DC 12V)	+12V	Red wire
Power(DC 12V)	0V(GND)	Black wire

OUTPUT

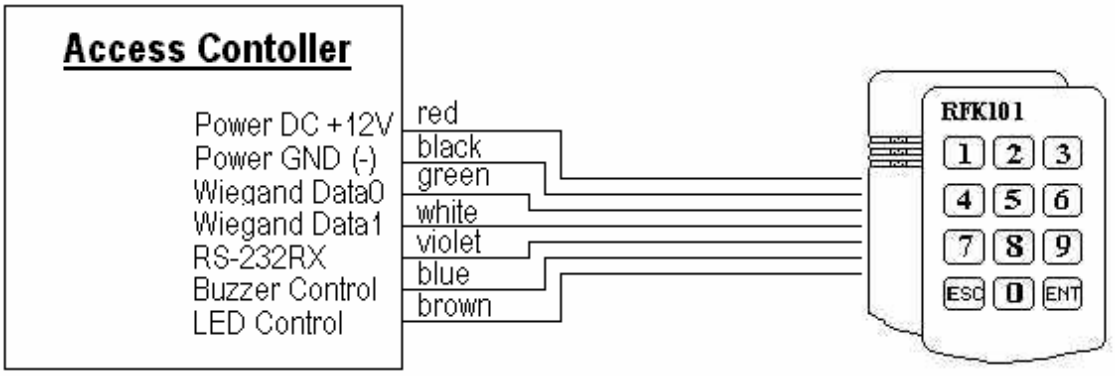
ABA Track II(Card Present)	CLS	Yellow wire
ABA Track II(Clock), Wiegand Data1	RD1	White wire
ABA Track II(Data), Wiegand Data0	RD0	Green wire
RS-232 TX	TX	Violet wire
KEYPAD 3x4 Matrix(Column0)	C0	White wire with Blue stripe
KEYPAD 3x4 Matrix(Column1)	C1	White wire with Green stripe
KEYPAD 3x4 Matrix(Column2)	C2	White wire with Red stripe
KEYPAD 3x4 Matrix(Row0)	R0	Cyan wire
KEYPAD 3x4 Matrix(Row1)	R1	Pink wire
KEYPAD 3x4 Matrix(Row2)	R2	Orange wire
KEYPAD 3x4 Matrix(Row3)	R3	Gray wire

INPUT

LED Control	LED	Brown wire
Beeper Control	BEEP	Blue wire

8. Wire Connection to Controller

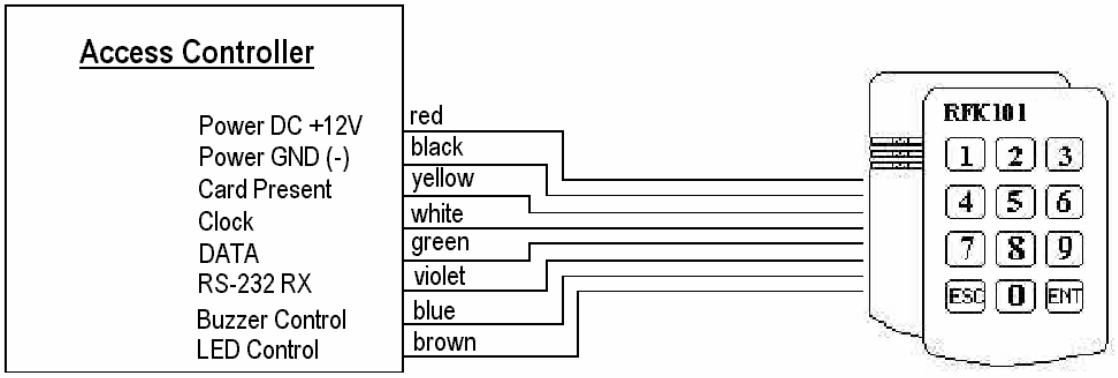
8-1. 26bit Weigand+RS232(for Card) and 8bit Burst format(for PIN)



-The Reader transmits Card data to Wiegand Data0, Data1 and RS-232 TX line.

-The Reader transmits PIN data to Wiegand Data0 and Data1. (8bit Burst format.)

8-2. ABA Track II+RS232(for Card) and ABA Track II+RS232(for PIN)

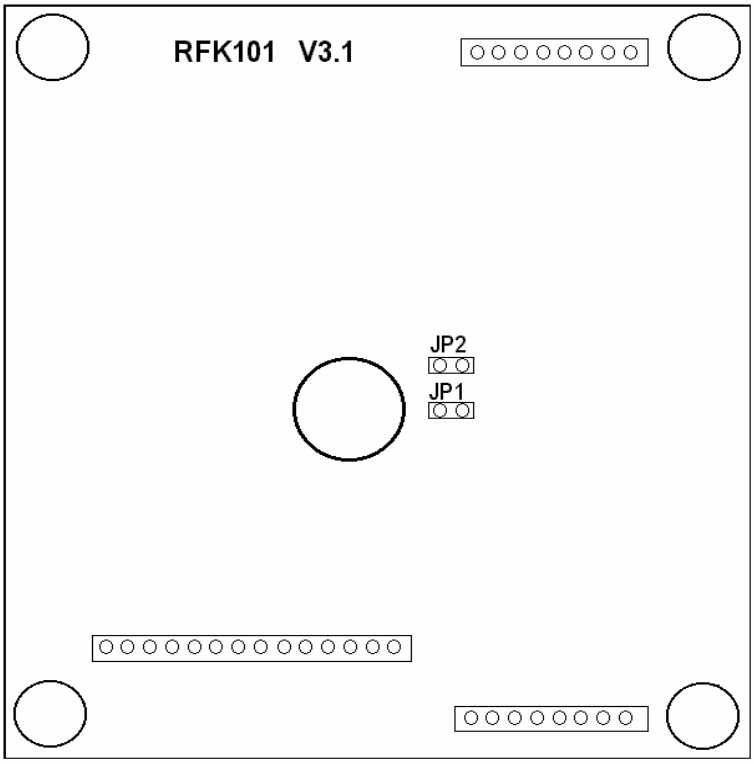


- The Reader transmits Card & PIN data on card presentation, Clock, DATA and RS-232 TX line.

※NOTE: You have to enter at least 1 numeric number (max. 8 numbers) followed by "ENT" key.

9. Operation

9-1. Connector Layout



9-2. Output mode Setting

Table 1. Jumpers Setting

JP1	JP2	Card Output format	Keypad Output format
close	close	26bit Wiegand + RS232	8bit Burst (or 3x4 Matrix)
open	close	26bit Wiegand + RS232	26bit Wiegand + RS232(or 3x4 Matrix)
close	open	ABA Track II + RS232	8bit Burst (or 3x4 Matrix)
open	open	ABA Track II + RS23	ABA Track II + RS232 (or 3x4 Matrix)

※Note: Default setting value for JP1 and JP2 jumpers are “close”(short circuit)

9-3. Operation

1. Once the power is applied, you should hear 3 initial beeps and red and yellow LEDs on indicating that the reader is in standby mode after a successful initialization and diagnostics.

2. Present a proximity card to the reader until you hear the beeping sound and the green LED come on. The reader will send the RF card data to the controller then the yellow LED on again for the next reading.

3. Enter the Keypad until you hear the beeping sound. The reader will then send the Key data to the controller.

4. LED Control:
   To change the LED colours, you may connect the LED Control Input (brown wire) to ground and the green LED will turn on indicating that the reader is in standby mode. Presenting a proximity card and the LED will then change colour to yellow then green again for the next reading.

5. Beeper Control:
   In normal operation, the reader generates one beep when it reads a proximity card, However additional beeps can be generated to improve indication for access status (granted or denied) by forcing the Beeper Control Input, (blue wire) to system ground level. The beeper will remain on as long as the blue wire is connected to system ground.

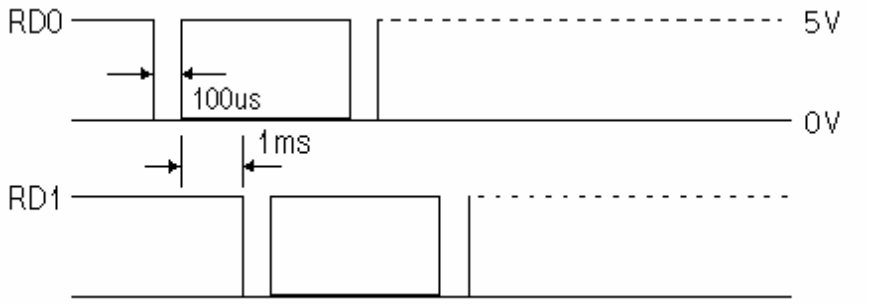
10. Output Format

10-1. 26bit Wiegand output format

1. Data format

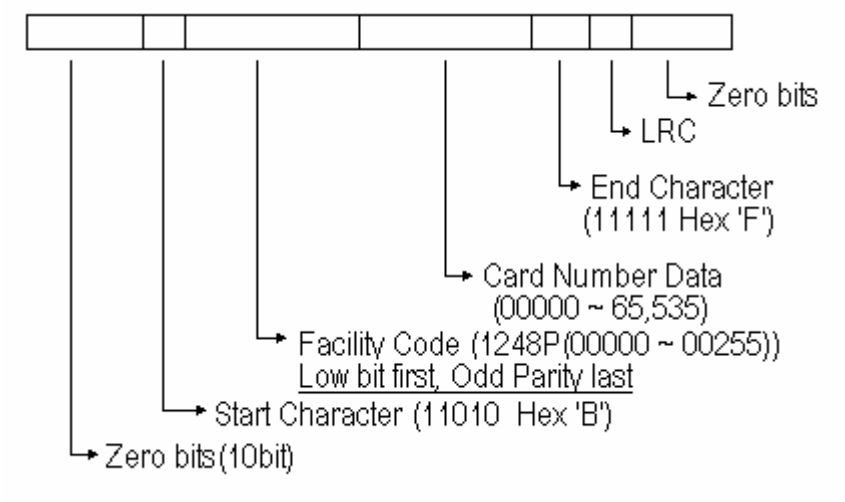
Bit 1	: Even parity of bit 2 ~ bit 13
Bit 2～9	: Facility code (000 ~ 255)
Bit 10～25	: ID number (00000 ~ 65,535)
Bit 26	: Odd parity of bit 14 ~ bit 25

2. Timing diagram

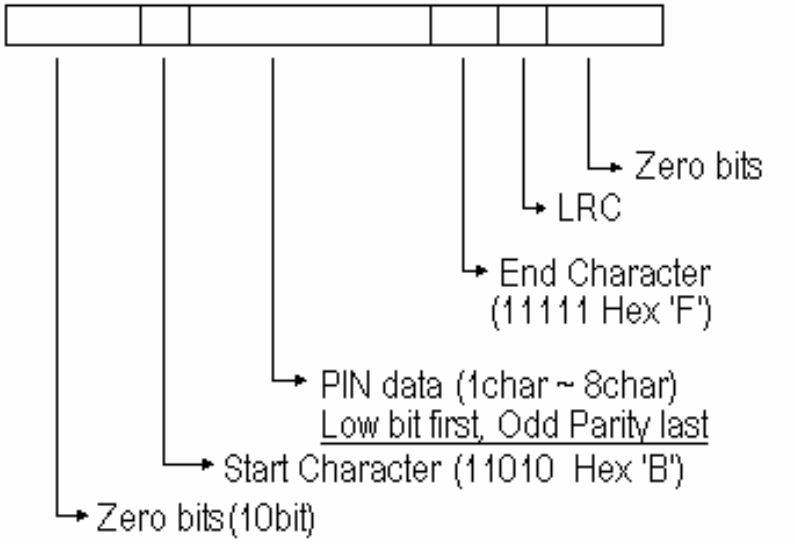


10-2. ABA Track II Magstripe output format

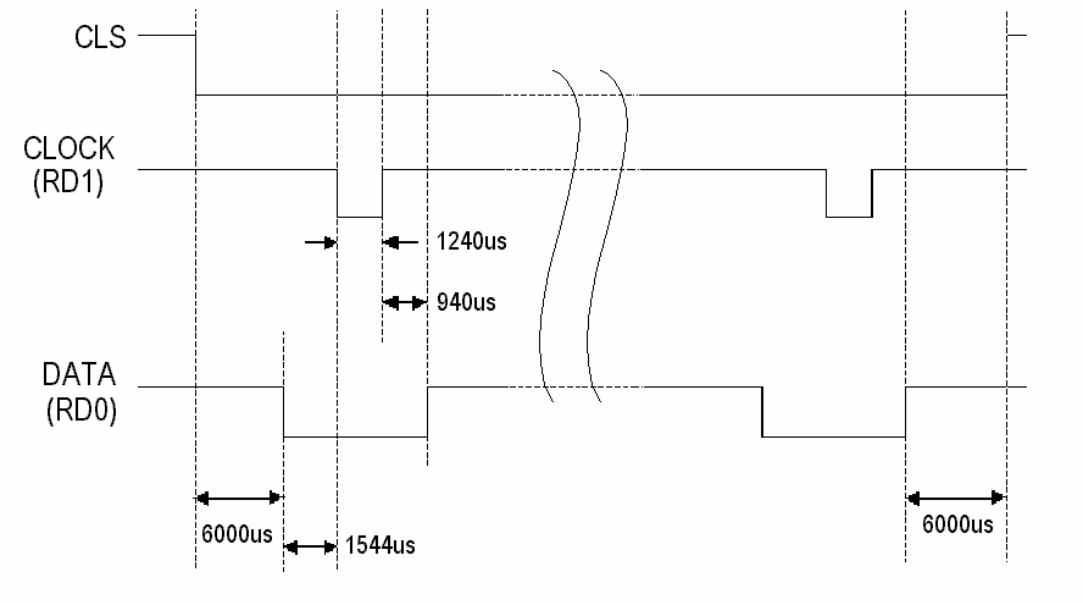
1. Data format (for Card numbers)



2. Data format (for PIN)



3. Timing diagram

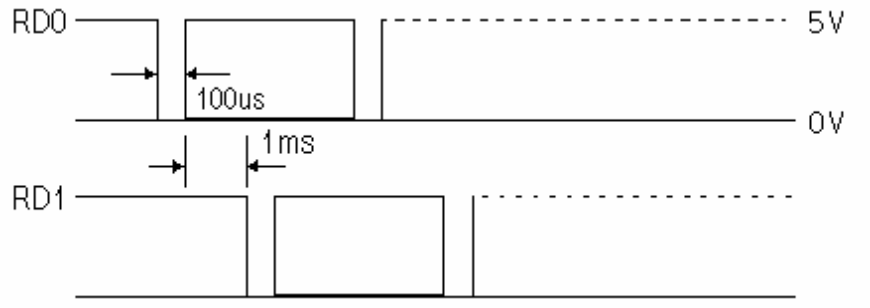


10-3. 8bit Burst output format (for PIN)

1. Data format

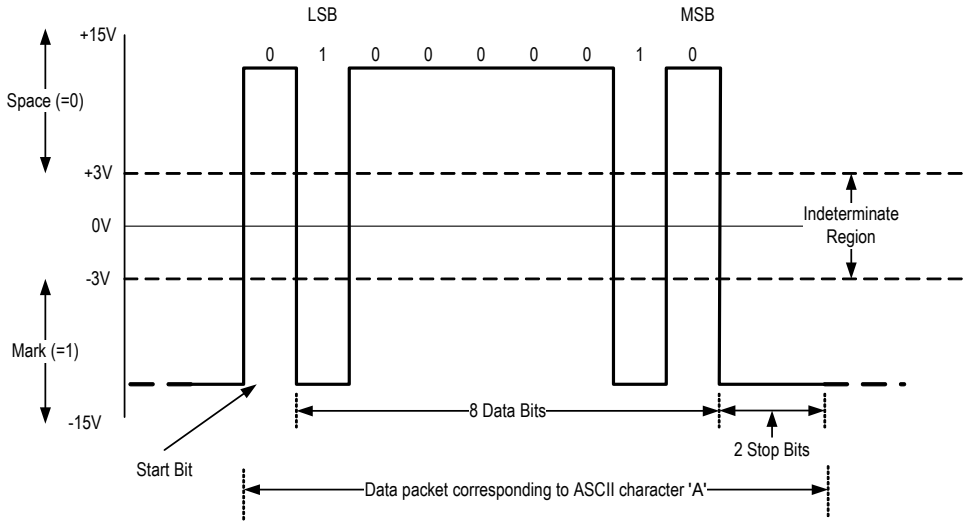
Keypads	Binary	Hexa		Keypads	Binary	Hexa
0	11110000	F0		6	10010110	96
1	11100001	E1		7	10000111	87
2	11010010	D2		8	01111000	78
3	11000011	C3		9	01101001	69
4	10110100	B4		ESC	01011010	5A
5	10100101	A5		ENT	01001011	4B

2. Timing diagram



10-4. RS-232 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)

10-5. Matrix (3x4) format

1. Data format

		Column0	Column1	Column2
		↓	↓	↓
Row0	→	1	2	3
Row1	→	4	5	6
Row2	→	7	8	9
Row3	→	ESC	0	ENT

11. 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.

IN THE UNITED STATES
RF Logics Inc. Service Center
370 Amapola Ave, #106
Torrance, CA 90501
Tel: (310) 782-8383
Fax: (310) 782-8298
E-mail: rflogics@rflogics.com
Web-site: www.rflogics.com

OUTSIDE OF THE UNITED STATES
IDTECK CO., LTD. Service Center
5F Ace Techno Tower B/D,
684-1 Deungchon-Dong, Gangseo-Gu,
SEOUL, KOREA 157-030
Tel: +82 (2) 659-0055
Fax: +82 (2) 659-0086
E-mail: webmaster@idteck.com
Web-site: www.idteck.com

12. RMA Request Form

- RMA REQUEST FORM : ORIGINAL

IDTECK Co., Ltd.

5F, Ace Techno Tower B/D, 684-1, Deungchon-Dong, Gangseo-Gu, Seoul, 157-030, Korea
TEL : +82-2-2659-0055, FAX ; +82-2-2659-0086, www.idteck.com

RMA REQUEST FORM					
Send to: RMA Customer Service 5F, Ace Techno Tower B/D 684-1, Deungchon-Dong, Gangseo-Gu Seoul, 157-030, Korea Sales Person In Charge			RMA No. & Date : Original Invoice No. & Date :		
			Requested from :		
Shipping Port :			Departure Date :		
Air / Vessel :					
NO	Model	Serial Number	Error Check Box by shipper		
1			RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
2			RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
3			RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
4			RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
5			RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
Manufacture's Verification					
Product Defective : User's Misuse : Communication Error :			Installation Error : Connection Error : Others :		
Packing Details					
Dimension(L:W:H) : Net & Gross Weight :			No. of Units: No. of Boxes:		
Requested by: Signature of Buyer			Received by: Signature of IDTECK		

- RMA REQUEST FORM : SAMPLE

IDTECK Co., Ltd.

yes! ID CASH POINT

5F, Ace Techno Tower B/D, 684-1, Deungchon-Dong, Gangseo-Gu, Seoul, 157-030, Korea
TEL : +82-2-2659-0055, FAX ; +82-2-2659-0086, www.idteck.com

RMA REQUEST FORM					
Send to: RMA Customer Service 5F, Ace Techno Tower B/D 684-1, Deungchon-Dong, Gangseo-Gu Seoul, 157-030, Korea Sales Person in Charge: Karina Kwak			RMA No. & Date :. We will send this No. , if needed. Original Invoice No. & Date : 00-00-0-000 / 2005.10.01 Requested from : Mr. XXXX YYYY ABC Company Address: Country:		
Shipping Port :	Narita		Departure Date :	2005, 10. 15	
Air / Vessel :	Air				
NO	Model	Serial Number	Error Check Box by Shipper		
1	SR 10	XXXXXXXXXXXX	RS 232 Com. □ Input/Output □	Power ■ Keypad □	Card Reading ■ RS 422 Com □
	Engineer Comment	Write problem (must be detailed).	Others □ :		
2	others		RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
3			RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
4			RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
5			RS 232 Com. □ Input/Output □	Power □ Keypad □	Card Reading □ RS 422 Com □
	Engineer Comment		Others □ :		
Manufacturer's Verification					
Product Defective : User's Misuse : Communication Error :			Installation Error : Connection Error : Others :		
Packing Details					
Dimension(L:W:H) : 30 * 25 * 80 Net & Gross Weight : 150g			No. of Units: 20 No. of Boxes: 2		
Requested by: XXXX YYYY Signature of Buyer			Received by: Signature of IDTECK		

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

5F, Ace Techno Tower B/D, 684-1, Deungchon-Dong,
Gangseo-Gu, Seoul, 157-030, Korea
Tel : (82) 2 2659-0055
Fax : (82) 2 2659-0086
E-mail : webmaster@idteck.com