IDTeck
RF10 / RF20

Proximity Reader

USER'S MANUAL

IDTECK

CONTENTS

1. Important safety instructions

To prevent injuries to persons and damages to property, please read all the instructions and follow them whenever you deal with this product.

After reading, please put this instruction manual where it can be easily seen for the system operator.

ON INSTALLATION AND POWER

Use 12V DC power ONLY.
- Connecting to higher than 12V DC may result in a risk of electric shock, fire, or heavy damage of the unit.

Do NOT install this product at places with wet or metallic dust, or that can be watered.
- There may be risks of electric shock and fire.

Do NOT install this product near electric motors running.
- The unit may not operate normally.

Do NOT set this product near heaters or any thing that produces heat.
- There may be a risk of fire.

Be ALWAYS careful not to short-circuit any part of the circuitry with tools like a screwdriver in hand.
- There may be a risk of fire or heavy damage of the unit.

ON MAINTENANCE

Do NOT use any kind of liquid for cleaning.
- There may be a risk of electric shock, fire or heavy damage of the unit. Use an air spray, if needed.

Users are cautioned NOT to attempt repair of this product or modify the wirings set by the installer at their own discretion.
- It may pose the risk of fire, hardware damages, or abnormal operations of the unit.

It is recommended not to use a flammable spray or something easy to burn near this product.
- There may be the risk of an explosion or fire.

Keep the unit away from any unauthorized people.
- It may cause abnormal operations of the unit.

NOTICE

Please, contact a designated service centre or the outlet at which the product was purchased when

A. Any liquid has been spilt or sprayed onto the product. In this case, cut the power off first.
B. The product seems to be operating abnormally.
C. The unit exhibits a distinct change in performance.
D. The unit has fallen to be broken down or damaged on its case.

* The cost of repairing can be charged for troubles due to the improper handling or negligence of users or the operator.

2. Introduction

The NESS - IDTECK RF10 / RF20 is an elegant looking 4" read range proximity reader which can be mounted to a metal door frame (mullion) or any flat wall surface. The RF10 / RF20 uses the same electronic module in epoxy potting that ensures you successful operation even in harsh environments. The different bezels allow you to interchange the bezel for different applications or wall conditions.

A two-colour LED (green and red) and an inside Piezo buzzer sound will guarantee you an accurate and reliable system operation.

3. Identifying supplied parts

Please unpack and check the contents of the box.

Reader Module (1 ea)

RF10 Bezel (1 ea)

or

RF20 Bezel (1 ea)

Users Manual (1 ea)

4. Specification

Read Range/Time	Up to 4"(10cm) / 30ms
Input Voltage/Current	DC 5V ~ 12V, Max. 180mA
Output Format	26 bit Wiegand, ABA Track II, RS232C
External Buzzer control Input	Low Active, DC 0 ~ 12V, Max. 50 mA
External LED control Input	Low Active, DC 0 ~ 12V, Max. 50 mA
LED/Buzzer	2 Colour LED (Red and Green) / Piezo Buzzer
Colour	Dark Pearl Grey
Operating Environment	-35˚ ~ +65 ˚ (-31˚ ~ 149˚), 10~90% Humidity
Overall Size (WxHxD)	RF10: 46x122x23mm (1.82"x4.81"x0.87")
	RF20: 76x124x23.5mm (3.00"x4.89"x0.87")
Weight	RF10: 160g (0.35lb)
	RF20: 185g (0.41lb)

5. Check Points and Tip

- Recommended cable type and permissible length of cable

Description	Cable Specification	Maximum Distance
Reader (Power and Data) Reader -> ACU	Belden #9512, 22 AWG 4 conductor, shielded	70 m
	Belden #9514, 22 AWG 8 conductor, shielded	

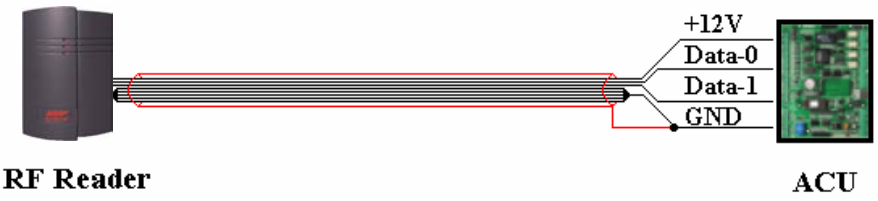
* Need thicker wire if you connect the reader with high current consumption.

- Reader connection

  If the reader is installed a long distance from the ACU, you have to remember that there will be a voltage drop between both ends of GND wire. For example, if you connect a reader with 100mA current consumption at 100m distance (assume to using DC resistance of cable of 100Ω/100m) and the reader power is supplied from the ACU, the volt drop of the GND wire will be 1V. In this case, the Wiegand data signal cannot be measured lower than 1V.
  The ACU is capturing the signal by the voltage level of data input and 1V is the critical point whether the ACU will read the data logic "1" or logic "0" therefore the reader output cannot be read correctly from the ACU.
  You have to think about how you reduce the voltage drop between both ends of GND wire. There are two methods to reduce the voltage drop so data is read correctly.

  - Reduce the DC resistance of GND wire; Using thick cable or add more wires to GND wire in parallel. If you connect 4 wires in parallel of GND, the DC resistance of GND wire will be reduced to 1/4 of single wire.

  - Use separate power for the reader; Disconnect +12V wire from the ACU and connect external power supply to the reader nearby then there will be no current flow through the GND wire and no voltage drop between both ends of GND wire.



< Reader connection using additional wires >

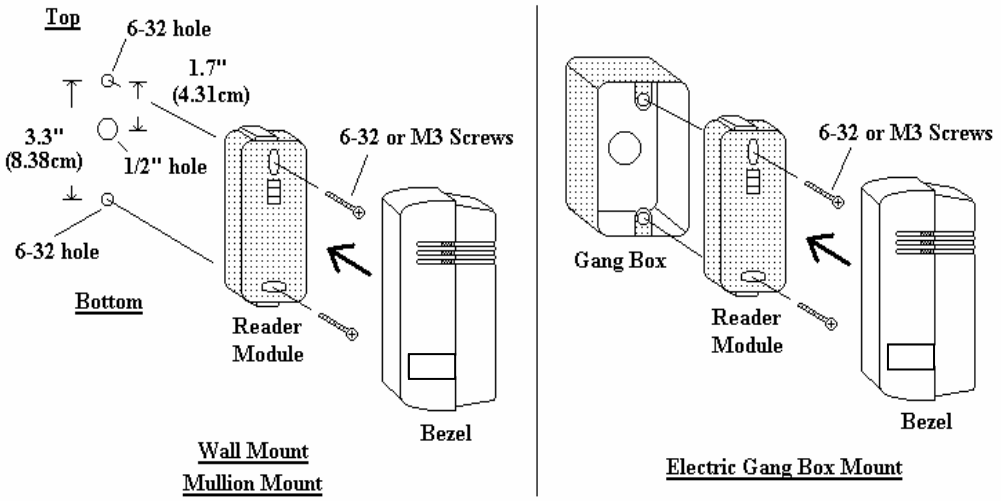
< Reader connection using external power supply >

6. Installation

- Mullion/Wall Mount
  Drill two 6-32 or M3 holes 8.38cm (3.3") apart in vertical and drill one 1/2" hole for the reader cable 4.31cm (1.7") apart from the top hole.
  (Skip this step, if you have installed an electric gang box.)

- Put reader cable into the centre hole and install the reader module by using two 6-32 or M3 screws.

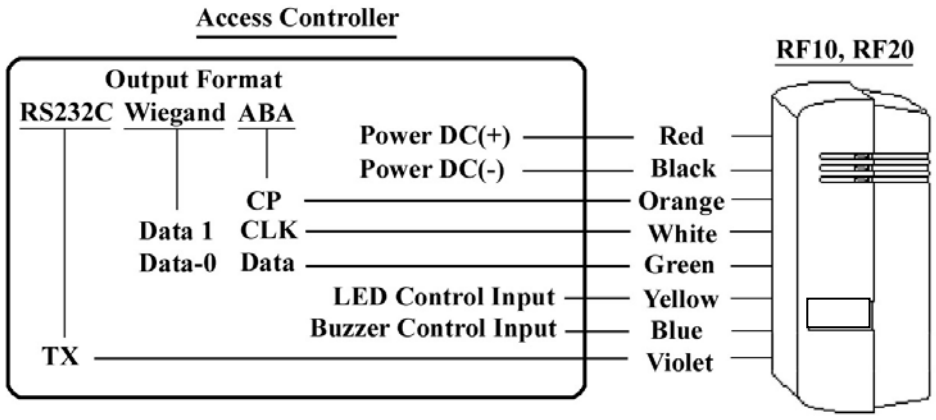
- Put bezel into the reader module. Then push bezel until you hear the locking sound.



7. Wire Colour Table of the Reader

POWER		
Power (DC +5V~+12V)	DC (+)	Red wire
Power (DC Ground)	DC (-)(GND)	Black wire
INPUT		
Buzzer control input	BUZZER	Blue wire
LED control input	LED	Yellow wire
OUTPUT (Wiegand Format)		
Wiegand Data-0	Data-0	Green wire
Wiegand Data-1	Data-1	White wire
OUTPUT (ABA Track II Format)		
ABA (Card Present)	CP	Orange wire
ABA (Clock)	CLK	White wire
ABA (DATA)	Data	Green wire
OUTPUT (RS232C Format)		
RS232C (TX)	TX	Violet wire

8. Wire Connection to Controller



Wire Connection to Controller

9. Operation

9-1. Once the power is applied, three beeping sounds can be heard and the LED toggles the colour to red-green-red indicating that the reader is in standby mode after a successful initialisation and diagnostics

9-2. Present proximity card to the reader until you hear a beep sound. The LED is changing the colour to Green simultaneously and sends the RF card data to the controller. Afterwards the LED changes the colour to red again for the next reading.

9-3. LED Control:

To change the LED colours, you may connect the LED Control Input (Yellow wire)
to power ground. The green LED is indicating that the reader is in standby mode. Present proximity card. The LED changes the colour to red simultaneously, then to green again for the next reading.

9-4. Buzzer Control:

When the reader reads the proximity card, one beep sound generates in normal operation mode, but you can generate more beep sounds to distinguish whether the access is granted or denied.

To generate more beeps, you may control the Buzzer Control Input (Blue wire) to power ground.

Afterwards you can turn the beeper on, while holding the Buzzer Control Input to power ground.

10. FCC Registration Information

FCC REQUIREMENTS PART 15

Caution: Any changes or modifications in construction of this device, which are not expressly approved by the responsible 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 interface, 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 A 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.

11. Contacts

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