

Volume

1



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Instruction Manual



## ***EverAccess Proximity Readers***

***ERR-871***

***ERK-871***

***ERM-871***

EVERFOCUS ELECTRONICS CORPORATION

ERR-871

ERK-871

ERM-871

## Instruction Guide

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## Product Overview

EverAccess Proximity Readers, including the ERR-871, ERK-871 and ERM-871, incorporate state-of-the-art technology, reliable performance, easy-to-use features, and elegant appearance. The Readers generate a 125 kHz RF field that detects data from proximity cards. The data output format is Wiegand 26 or RS-232, which allows easy integration with most controllers, including EverAccess controllers. The Readers have 3 LED indicators which emit red, green, and yellow colors that indicate different values. The pigtail wiring on the back of the Readers is 18" long, enabling easy installation. EverAccess Proximity Readers are an ideal choice for any Access Control System.

### Features

- 125kHz proximity technology
- Wiegand 26 or Special RS232 data output format
- 3 LED indicators
- Weather resistant; suitable for indoor or outdoor use
- 18" Wire pigtail for easy installation
- Built-in audio buzzer
- 200ms read time
- Elegant Design
- Transient voltage shock protection up to 500W



## Parts List

Please be careful when you unpack the box due to the electronics devices inside. Check and make sure that you have all the items below inside the original box:

- 1 125kHz Proximity Reader
- 1 User manual
- 2 ST4\*20 self-tapping panhead screws
- 2 M4\*20 screws
- 1 L-type Spanner

If an item appears to have been damaged in shipment, replace it properly in its carton and notify the shipper. If any items are missing, notify your Everfocus Electronics Corp. Sales Representative or Customer Service. The shipping carton is the safest container in which the unit may be transported. Save it for possible future use.

In addition, EverAccess recommends the following parts, to be provided by the installer:

- 9 Wire Splice
- 1 DC Power Supply, 6.5-18VDC, 150mA
- Up to 500 ft. Cable, 22AWG, 5 Conductor

## Specifications

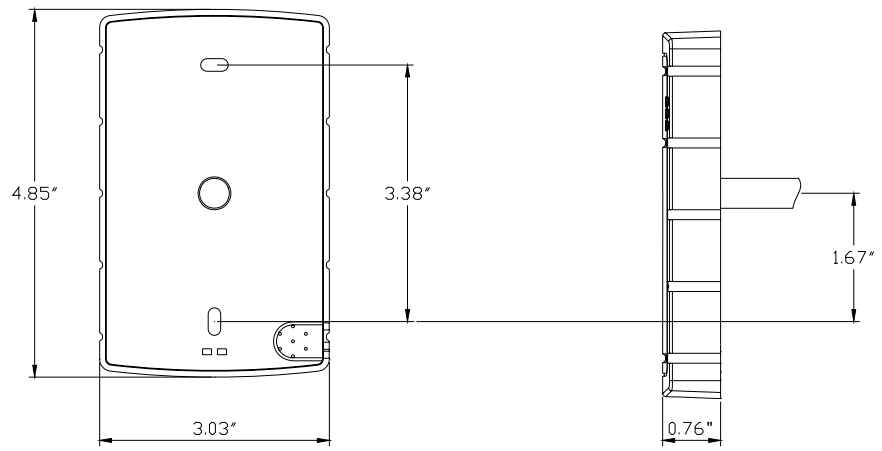
**Table 1.1. Reader specifications**

	Regular reader	Keypad reader	Mullion reader
Frequency	125 KHz		
Data format	64 bit		
Read range	5-12cm (2-4.7")	5-12cm (2-4.7")	5-10cm (2-3.9")
Read time	200 ms		
Output format	Wiegand 26 and Special RS232 format for EverAccess controller		
Audio	Built-in Buzzer, 2 kHz		
Indicator	3 LEDs: Red: Power Green: Card Present Yellow: Outer Source		
Power supply	6.5V-18V DC, Max:150mA		
Operation temperature	14°F~140°F (-10°~60°C)		
Dimension	4.85"x3.03"x0.76" (12.3x7.7x1.9cm)	4.85"x3.03"x0.85" (12.3x7.7x2.1cm)	5.52"x1.58"x0.95" (14.0x4.0x2.4cm)
Transition distance	500 ft.		
Tamper switch	Yes, Normally Closed		
Keypad	N/A	4*4	N/A

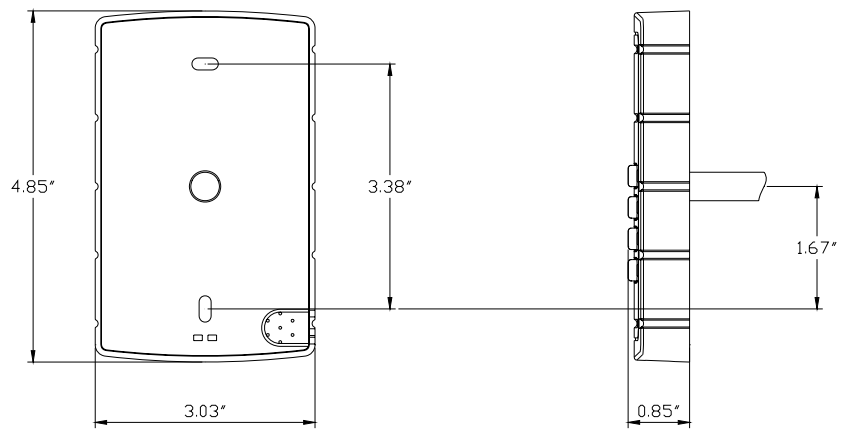
**Table 1.2. Reader sense range**

Sense range (	Regular reader	Keypad reader	Mullion reader
Frequency	125 KHz		
Data format	64 bit		
Read range	5-12cm (2-4.7")	5-12cm (2-4.7")	5-10cm (2-3.9")
Read time	200 ms		
Output format	Wiegand 26 and Special RS232 format for EverAccess controller		
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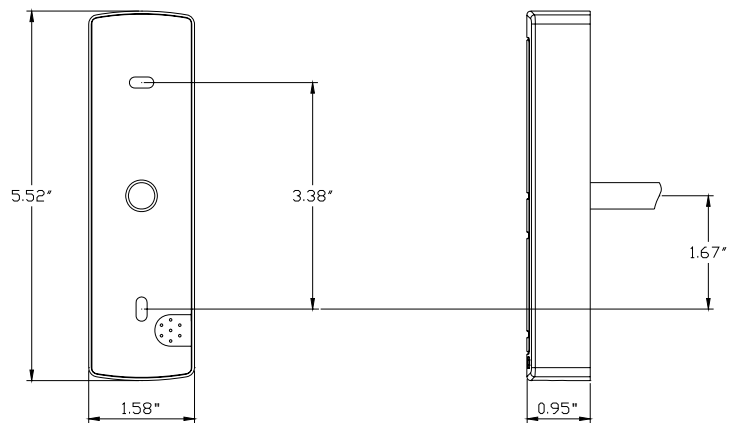
CHAPTER 1 PRODUCT OVERVIEW



**Regular Reader**



**Keypad Reader**



**Mullion Reader**

## Installation

EverAccess Proximity Readers should be installed by qualified installation professionals. The installation procedures described below are recommended guidelines, but all local, state, and national electrical codes take precedence.

Please refer to the following diagram for the wiring connections and mounting instruction.

## Wiring Connections

**Table 2.1. Reader wires' definition**

Color	Functionality
Red	Power supply 6.5 ~ 18 V DC
Black	GND
Green	Data 0 (Wiegand)
Brown	Data 1 (Wiegand)
Blue	Specialized RS-232 TX
Gray	Specialized RS-232 RX
Yellow	For control purpose, as the power supply is 5~12V the yellow led indication lights up
Orange	Anti-tamper Switch
Violet	Anti-tamper Switch



## Connection to Controller

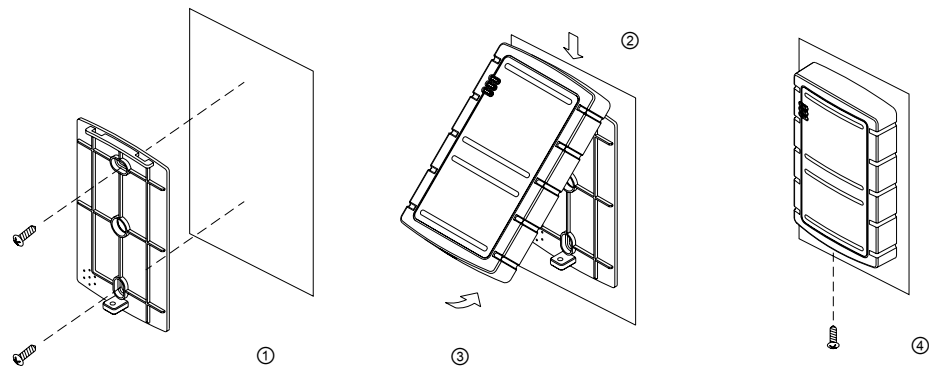
Two options are available for data output: Wiegand 26 and a special RS232 format. Both formats are compatible with EverAccess controllers, and Wiegand 26 is compatible with many brand name controllers. Table 2.2 describes these two data formats and their corresponding connection method in detail.

**Table 2.2 connecting controller and readers**

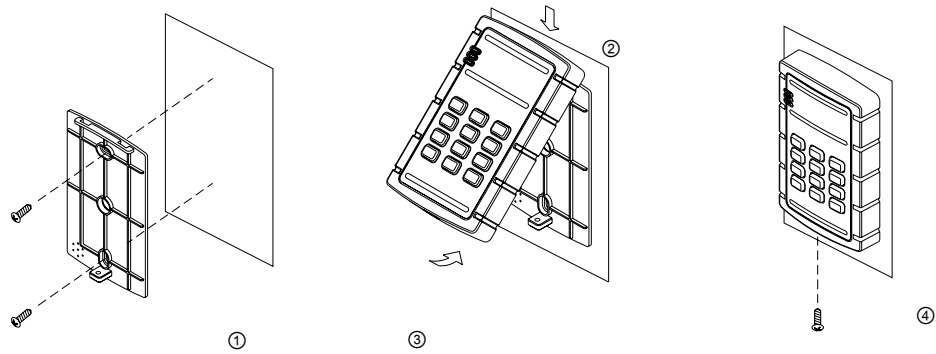
Connection mode	Controller end	Reader end wires
Specialized RS-232	DC IN	Red
	GND	Black
	Specialized RS-232 TX	Blue
	Specialized RS-232 RX	Gray
Wiegand 26	DC IN	Red
	GND	Black
	Data 0	Green
	Data 1	Brown

## Basic Mounting Instructions

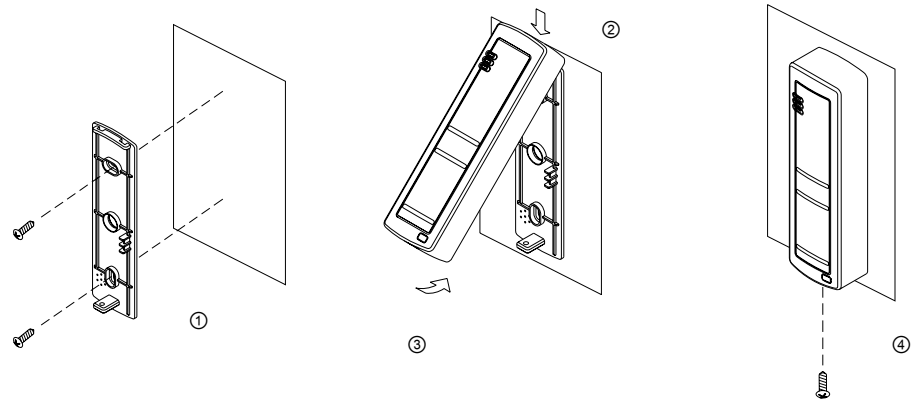
Please refer to Fig 2.1 to assist you with this portion of the installation. Fig. 2.1 (a), (b) and (c) show the mounting steps for the regular reader, keypad reader and mullion reader, respectively. The general rule is connecting the wires in the back of the reader first. Take off the cover box from the reader, and fix the baseboard on the wall with the screws (provided in the package) firmly (step 1). Then put the cover box of the reader back on the baseboard (step 2, 3). Finally mount the screw at the bottom of the reader (step 4. Both the screw and the spanner are provided in the package.)



**(a) Regular reader**



(b) Keypad reader

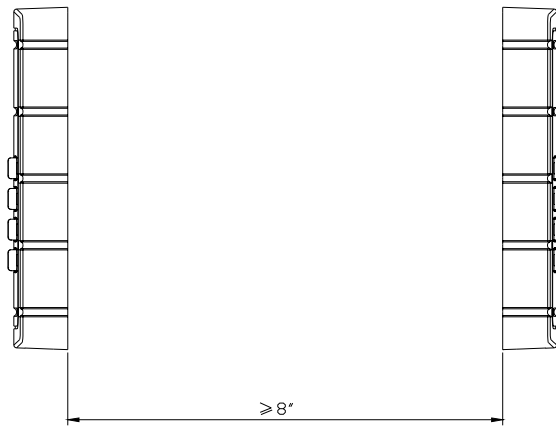
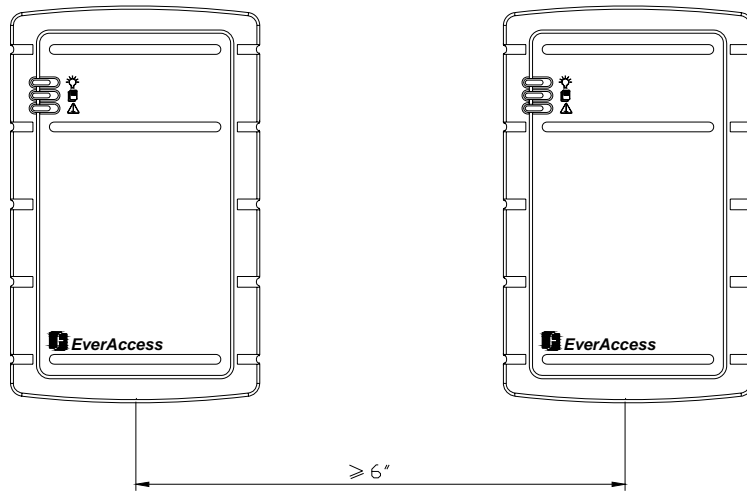


(c) Mullion reader

Figure 2.1 Reader mounting

Note: Please keep reader from large metal for at least 2.4". Two reader scan NOT be installed side by side, or back to back with short distance. In case it is required to install the reader side by side, a minimum distance of 6" is recommended between readers. For the back-to-back case, the recommendation distance is 8" at least.

CHAPTER 2 INSTALLATION



## Data Format

This chapter will briefly introduce the format of reader's output.

Two formats can be used to transfer data from the readers to controllers: specialized RS-232 and wiegand 26. Specialized RS-232, specially designed for EverAccess system, is recommended for use to achieve the best performance.

### Specialized RS-232

The data speed of specialized RS-232 is 9600 bps. All data including card information and keypad input has been combined together into a data packet. The data packet is transferred as ASCII character codes.

The length of one data packet is 22 bytes totally, which contains 1-byte packet header, 1-byte synchronization information, 16-byte card information, 1-byte keypad input, 1-byte tail (0x30) and 2-byte checksum. The last 2 bytes are the arithmetic checksum of the previous 20 bytes data.

Each new data packet will be transferred repeatedly for 50 times. After that, a single idle packet will be transmitted until some new data enters the system. The format of the idle packet is similar to the normal data packet except that card information bytes and keypad input bytes will be changed into 0x30, the same as the 1 byte packet tail.

1	2	3~18	19	20	21~22
Head	SYNC	Card information	Keypad input	Tail	Check-sum

Figure 3.1 Specialized RS-232 packet format (byte)

### Wiegand 26

As the name implies, each wiegand 26 packet contains 26 bit inside: 2 parity bits and 24-bit data. Please refer to Fig 3.2 for details. The 1<sup>st</sup> bit is the even parity of sequential 12 bits and the last bit (the 26<sup>th</sup> bit) is the odd parity of the 12-bit data before it

1	2~25	26
<b>Even parity</b>	<b>Data</b>	<b>Odd parity</b>

Figure 3.2 wiegand 26 format (bit)

Unlike specialized RS-232 format, the keypad input is processed separately from the card information. Each time the keypad is pressed, the data bus of Data 0 (green wire) and Data 1 (brown wire) will send out a corresponding digit combination, as Table 3.1 shows:

Table 3.1 Data 0 and Data1 combination for keypad input

Keypad input	Data 0	Data 1
1	0001	1110
2	0010	1101
3	0011	1100
4	0100	1011
5	0101	1010
6	0110	1001
7	0111	1000
8	1000	0111
9	1001	0110
*	1010	0101
0	0000	1111
#	1011	0100

Notes

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