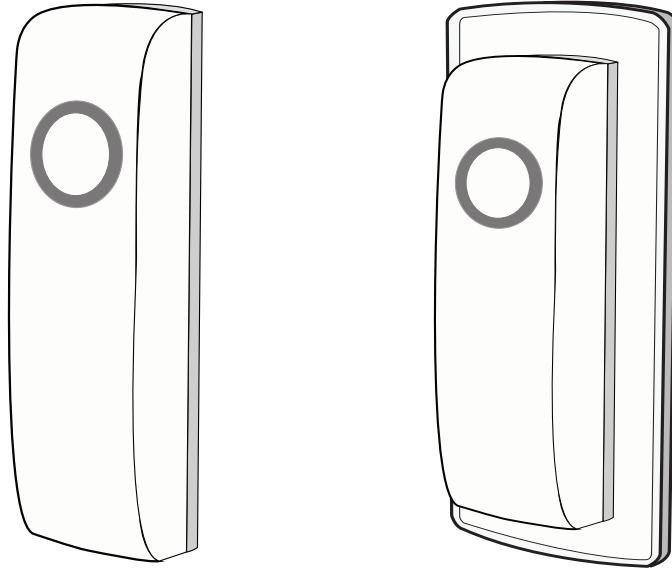




# BluePass

## 2-N-1 BluePass Multi-Tech Reader Manual



# Installation Instructions

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## Introduction

The Linear 2-N-1 BluePass Multi-Tech Reader is a combination legacy proximity card reader and an advanced Bluetooth Low Energy all-in-one reader. This reader is intended for use in conjunction with an access control system that manages physical access to a protected area. This reader allows for an access request to be transmitted to a control panel using the industry standard Wiegand protocol. End-users can present any combination of 125 KHz prox cards and Fobs, or Bluetooth Low Energy Credentials via a supported smart device such as Android and Apple mobile devices to request access using the Linear 2-N-1 BluePass Multi-Tech Reader.

This guide is intended as a brief reference used by an experienced technician. For additional information, please visit the Linear website at <https://bluepasscloud.io>.

## Mounting Provisions

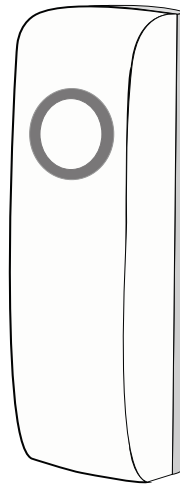
This reader supports both single-gang and mullion-mount housings and is intended for both indoor and outdoor installations.

The installation and wiring of this reader must be done in accordance with the National Electric Code and ANSI/NFPA 70.

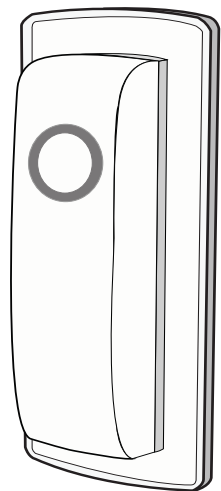
**Model:** 2N1-BTPRX

**Ordering Part Number:** 820-00001

2-N-1 BluePass Multi-Tech Reader, BLE/125 KHz



**Mullion Mount**



**Single-gang Mount  
with Adaptor Plate**  
*(Adaptor included in packaging)*

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## Reader Wiring

Wiegand	
Conductor	Purpose
Red	DC +6 VDC - 16 VDC
Black	Ground
Green	Data 0
White	Data 1
Purple	Red LED
Orange	Buzzer
Yellow	Card Present
Blue	Green LED
Drain	Shield Ground

**Voltage:** +5.5 VDC – 16.0 VDC (12 VDC Nominal) at the reader

**Current Draw:** 100 - 200 mA (typical @ 12 VDC), 225 mA max peak @ 12 VDC low-power mode.

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## Cable Requirements

Belden 9535 or equivalent. Multi-conductor stranded with foil shield, minimum 24AWG. Maximum length 400ft (152m).

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## Output Formats

26 to 37-bit Wiegand formats.

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## Grounding

Shield must run continuously from the reader to the panel. At the panel, the reader ground, shield line, and earth ground must be connected together at a single point.

**Notes:**

- Do not ground the shield line at the reader end, as this will create a potential ground loop.
- Ensure the shield foil and wire are taped and not exposed.

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## Power

A non-switching power supply at the panel is recommended to power the reader for the highest noise immunity and best performance. We recommend using Linear's stand-alone power supplies for optimum performance.

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## Voltage

- Current Draw: 100 - 200 mA typical, 225 mA max peak @ 12 VDC in low-power mode.
- At the Reader: +5.5 - 16 VDC. 12.0 VDC is recommended. A regulated power supply and 12 VDC at the reader is recommended for best operation.

**Note:** The reader is in Low Power Mode by default. High-Power Mode can be configured via the Phone App.

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## Connection

Connections must be in accordance with NFPA 70.

**WARNING:** DO NOT connect this reader's power supply to a receptacle controlled by a switch.

## Overview

The Linear BluePass Multi-Tech Reader provides a simple and convenient way to leverage state of the art BLE mobile credentials for access control. Whether for a new site installation or an upgrade of an existing system, realizing the power of mobile credentials is a very simple process. In this guide, we will walk you through setting up and configuring the necessary to get started.

There are several major components in the Linear BluePass ecosystem solution illustrated in this guide:

1. The Linear BluePass Cloud – This is a web-based portal used by the dealer/installer/facility administrator to manage mobile credentials.

Portal functionality includes the following for issuing and managing electronic credentials:

- a. Redeem store, and distribute your Credential-To-Go™ cards for mobile credential credits.
  - b. Define top level Organizations in which end-users have access to via mobile credentials.
  - c. Issue mobile credentials to end-users for access to an Organization.
  - d. Manage existing BLE credentials, their associated Wiegand IDs, and view reports on the number of credential credits remaining for issuance.
2. The BluePass Mobile Application – This mobile app is available for both iOS and Android and is intended for use by end-users of an organization to gain entry to a protected area using a BluePass Multi-Tech Reader. This app displays virtual credentials assigned for use when the app is opened. Under normal circumstances, the app runs in the background

of the user's mobile device, transmitting the end-user BLE credential to the reader when the user activates the reader's capacitive touch sensor, typically by touching the reader.

- a. The Installer Permission Credential + the BluePass APP – Is designed specifically for the dealer/installer to configure and manage BluePass Multi-Tech Readers installed at the Organizations they manage. This type of credential is granted by checking the installer Permission box located at the bottom of the "Add User" page.



This Permission allows the Administrators/Installers to:

- b. Enroll (assign) your reader to a specific Organization configured in the Dealer Portal account.
    - i. Change setup configurations of individual reader hardware, such as BLE range requirements for acceptance of access requests, and the reader power setting for LED intensity and animations.
    - ii. Over-The-Air (OTA) firmware upgrades and advanced version reporting.
3. The Linear BluePass Multi-Tech Reader – This is the physical reader hardware that supports a standard mullion-style or U.S. single-gang mounting installation. The reader supports 26 to 37-bit HID™ compatible 125 KHz Wiegand prox cards, as well as the Linear BluePass Mobile Credential. The reader is configured using the Linear Dealer/Installer Mobile Application during installation.
  4. **Note:** There is no separate Linear Dealer/Installer Mobile Application. It is the type of credential sent that opens up additional functionality in the common APP.

## Mounting the Reader

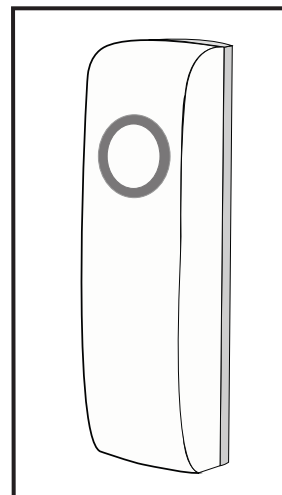
### Mounting Location

If the unit is used to control a door or pedestrian gate, locate the unit as near as practical to the entry point. If the unit is mounted on or in a wall adjacent to the entry point, ensure the wall is sturdy. The repeated shock and vibration from a slamming door or spring-loaded pedestrian gate must be isolated from the unit.

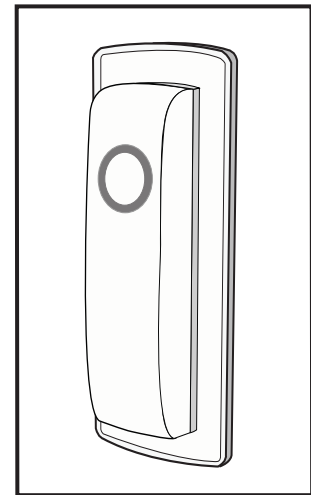
**Note:** Placing a unit directly on a moving door or gate will damage the reader's sensitive functionality.

Choose a well-lit location near the controlled opening. Wiring access for power, network, and earth ground must be available to the mounting location. This reader supports both single-gang and mullion-mount applications and is intended for both indoor and outdoor installations.

The installation and wiring of this reader must be done in accordance with the National Electric Code and ANSI/NFPA 70.



Mullion Mount



Single-gang Mount with Adaptor Plate

## Mullion Mounting

The reader can be mounted on a wall or any suitable flat surface. The Mullion-mounted BluePass Reader can be installed as a new device, or replace an existing one. Depending on the mounting location, new mounting screws may be necessary. These instructions assume no previous mounting hardware exists.

To properly mount the BluePass Reader, perform the following steps:

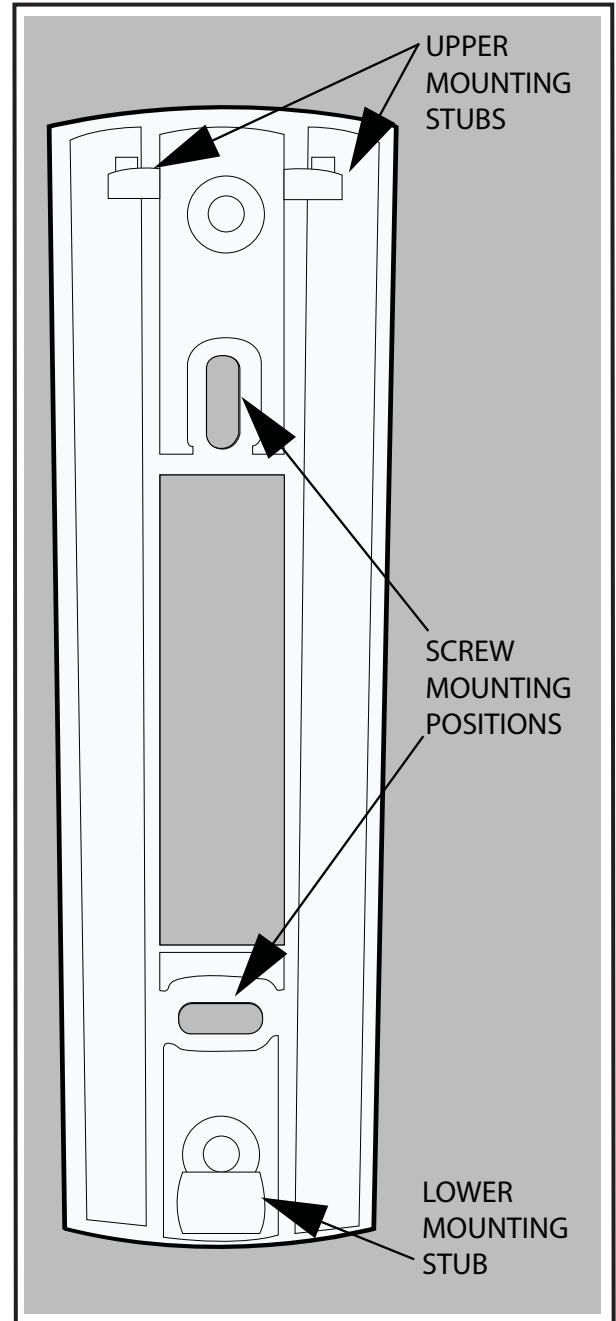
1. Identify a suitable location for mounting with proper power supply.
2. Mark location on wall for mounting screws approximately 3 inches apart with the power supply wires in center.
3. Drill two holes.
4. Install wall anchors to support mounting screws.
5. Feed power cable through mounting bracket's center opening.
6. Place mounting bracket on wall, aligning screw mounting positions with wall anchors.
7. Insert two (2) screws.
8. Connect Reader wires to corresponding Wiegand wiring on panel.
9. Connect the power supply wires to BluePass Reader.  
**Note:** Ensure power supply is not energized until all wires are properly connected and terminated.
10. Feed excess cable into wall.
11. Mount BluePass Reader into upper and lower mounting stubs.

Once completed, the BluePass LED ring will illuminate amber. The administrator establishes the proper online credentials profiles that enables the reader to function properly. After the profiles are created and the initial scan is complete, the illumination ring will change to blue.

### ADA Mounting Height Requirements

ADA has certain height and reach requirements to allow access for persons in wheelchairs.

- Keypads should be mounted so that the top of the number touchpad is no more than 48" above the finished floor with no obstructions in locations where wheelchair access is available only from the front.
- Keypads should be mounted so that the top of the number touchpad is no more than 54" above the finished floor with no obstructions in locations where the wheelchair has sideways access.



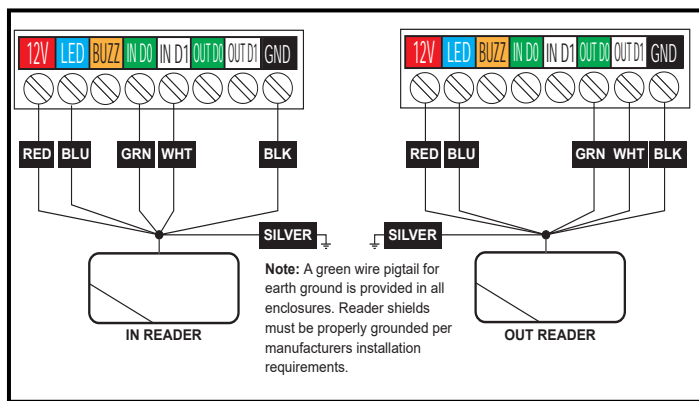
BluePass Reader Mullion Mounting Bracket

## Single-Gang Mounting

The reader can be mounted on a wall or any suitable flat surface. The Single-Gang mounted BluePass Reader can be installed as a new device, or replace an existing one. If the BluePass Reader is replacing a legacy device, the Single-Gang mounting method is recommended. The mounting plate can be utilized to cover various sized holes in the wall's surface. Depending on the mounting location, new mounting screws may be necessary. These instructions assume no previous mounting hardware exists.

### Follow these steps to properly mount a single-gang BluePass Reader:

1. Identify a suitable location for mounting with proper power supply.
2. Mark location on wall for mounting screws approximately 3 inches apart with power supply in center.
3. Drill two holes.
4. Install wall anchors to support mounting screws.
5. Feed power cable through mounting bracket's center opening.



BluePass Reader Wiring Diagram

6. Place mounting bracket on wall, aligning screw mounting positions with wall anchors.
7. Screw in two (2) screws.
8. Connect Reader wires to corresponding Wiegand wiring on panel.
9. Connect the power supply wires to BluePass Reader.  
**Note:** Ensure power supply is not energized at time until all wires are properly connected and terminated.
10. Feed excess cable into wall.
11. Mount BluePass Reader unto upper and lower mounting stubs.

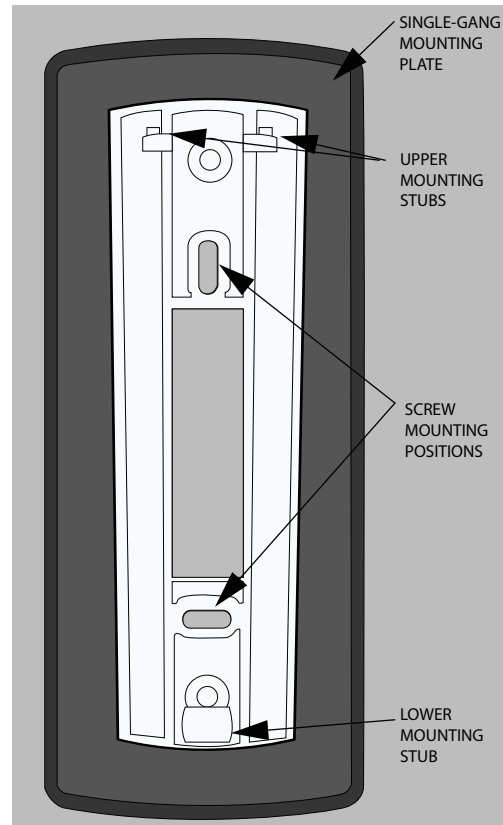
Once connected, the illumination ring will change to a default color of blue after the reader has been enrolled into an organization by the the installer.

## Setting Up an Account

Log onto <https://bluepasscloud.io> to set up an account. An Installer credential is required to configure the readers and test the system.

Standard 125Khz credentials can be read by touching the reader. The led ring will flash indicating it is ready for the user to present a card or fob. The unit will beep if recognized but not enrolled. The BluePass reader LED will turn green if enrolled in the system the reader is connected with.

**Note:** If a single gang box already exists there is no need to drill any holes as the holes in the reader line up with the standard spacing for the mounting of light switches and wall receptacle



BluePass Reader Single-Gang Mounting Bracket

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## Frequently Asked Questions

### How much power does the BluePass Reader use?

- 100 - 200 mA typical, 225 mA max peak @ 12 VDC low-power mode. Bright light power mode available.
- High power mode - 120 mA @ 12 VDC

### What voltage does the reader require?

- +5.5 - 16 VDC at the reader. Regulated power supply and 12 VDC at the reader is recommended for best operation.

### What prox cards does the reader support?

- The reader supports HID™ compatible 26 - 37-bit 125KHz Wiegand formats  
Other bit formats will be supported in the future with OTA reader firmware updates.

### What card technologies are supported?

- 125 KHz Prox and Bluetooth Low Energy

### Which RFID modulations are supported?

- EM4102 (ASK modulation)
- ISOProx II (HID™ Prox II H10301 compatible FSK modulation)

### Does the reader support RS-485/OSDP?

- Not at this time.

### How can it replace an existing reader?

- Swapping of an existing 26 to 37-bit 125 KHz reader with a new BluePass Reader and is simple and easy with common Wiegand wiring.

### What do I do if I am replacing a single-gang reader with this mullion reader?

- The mullion reader comes with a U.S. single-gang adaptor plate. The mounting holes are aligned with the most common mullion readers on the market.

### Does the reader require any special access control panel features to work?

- No. The Reader is compatible with most preexisting access control panel that supports standard Wiegand protocol input/output.

## Mobile Applications

### What phones/devices are supported?

- Any Apple device running iOS 10.0 or higher
- Android devices running Android v5.0 (Lollipop) or higher that supports BLE peripheral mode.

### Does the Linear App have to be running in the foreground or “active” to enter a door?

- No, as long as the app has been launched after the phone is powered on, it can run silently in the background without any further interaction by the user needed to enter a door, except for presenting the phone to the reader.

### Do I have to present my phone to the reader to enter a door?

- The allowed distance between reader and mobile device is configurable by the facility manager on a per reader basis. The range can be restricted such that a user must present the mobile device to the reader much like a legacy prox card. Alternatively the range setting can be relaxed allowing the user to simply wave their hand near the reader and leave the mobile device in their pocket, backpack, or purse when requesting access.
- We strongly recommend that in most cases the BLE range settings of the readers be set to the shortest range possible to prevent inadvertent access into the building and for the highest level of security.

### How do I receive Bluetooth Credentials to a building?

- You will receive an email from your facility manager to download the mobile application and mobile credential.  
Select the link for each step to successfully download the app and accept the credential.

### How do I get the mobile app?

- Typically, you will download the apps via the App Store for iOS and the Play Store for Android.

### Do I have to have an internet connection to enter a door using a mobile key?

- No, once you have accepted the BluePass Mobile Credential on your mobile device it is securely stored on the device and requires no network connectivity to request access to a door. Only Bluetooth is required.

### Are mobile keys secure?

- The BluePass Mobile Credential uses the CORE™ platform which features a robust security architecture. It is based on the largest mobile key platform in the world with more than 135 million access transactions to date. Credentials feature AES128 encryption using a PKI implementation that meets or exceeds industry standard best practices.

### As a facility manager, how do I issue, modify or revoke mobile credentials for my users?

- Facility managers have access to a simple web portal that allows them to redeem credential credits using Credential-To-Go™ cards, create new end-users, or modify existing end-users. These actions take effect immediately on the end-user mobile device.

**Note:** Additional FAQ information can be found by visiting <https://bluepasscloud.io>.

## Troubleshooting

Issue	Corrective Action
The reader will not read cards and fobs.	Check cards and fobs to ensure they are HID™ compatible 26 to 37-bit 125 KHz RFID.
End-user was issued credentials and replaced their mobile device with a newer model. They downloaded the app and used their original e-mail invite link to reinstall credentials on their new device. The installation was unsuccessful.	BluePass mobile credentials are only good for the life of the original mobile device. Once a new device is purchased, new credentials are required, even if the phone number and email have not changed.
I installed the system in a multi-tenant residential condominium complex. The property management company wants to re-use mobile credentials from departing tenants, reissuing them to the new tenants moving in. Is there an option in the dashboard to repurpose the same credentials without having to buy them each time this happens?	No. BluePass Credentials are tied to specific mobile devices. The only way the property management firm could do this is if they owned the mobile devices, repurposing the device from a departing tenant to a new tenant. A more viable and less expensive option would be to use BluePass Bluetooth fobs.
Our customer wants to fully migrate away from 125 KHz cards and fobs, turning off that portion of the reader so it will only read the Bluetooth-based credentials. Can I turn off that portion of the reader?	Currently, you cannot turn off the 125 KHz portion of a reader.
My customer has a home access control system and has programmed it so he can use the same fob that he uses to access the building at his work, he simply programmed the same legacy credential ID number from his fob into his home system. This makes it convenient, requiring him to only need one credential. Does the BluePass system allow for the same thing?	No. The system is specific to each organization. Your customer's home reader will not read the employer's BluePass credential at all. The customer will need to have two BluePass credentials; one for home and one for work. When the customer replaces their mobile device, two new credentials will need to be purchased.

## Certifications

FCC Compliance 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.

Product can be used without license conditions or restrictions in all European Union countries, including Austria, Belgium, Denmark, Finland, France, Germany, Greece, Ireland, Luxembourg, The Netherlands, Portugal, Spain, Sweden, and the United Kingdom, as well as other non-EU countries, including Iceland, Norway, and Switzerland.



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