PIERCE
AEROSPACE

B1 Remote ID Beacon User Guide

The Pierce Aerospace B1 Remote ID (RID) Beacon is a Part 89 compliant Remote ID transmitter. Featuring an internal LiPo battery, USB-C charging, and RID transmission over Bluetooth protocol, this beacon's small footprint and all-in-one form factor makes equipping legacy sUAS a breeze.

Beacon Specifications

Dimensions (LWH): 74mm (2.9in) x 24mm (0.95in) x 19mm (0.77in)
Weight: 28g
2 Zip Tie mount points
Battery: 3.7V LiPo 400mAh
Battery Life (Internal Battery): Approximately 8 hours
Power Output: 18dBm
Frequency Range: 2.400-2.4835 GHz
Broadcast: ASTM F3411-22 Bluetooth 4 Legacy and Bluetooth 5
FAA RID DOC: RID000000317-1

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Register the B1 RID Beacon with the FAA

Registration of the B1 RID Beacon with the FAA is required when the B1 is used to provide Remote Identification for the attached aircraft. To register the B1 for Part 107 use, please follow the below steps:

1. Navigate to and log in to your account at FAA DroneZone: https://faadronezone-access.faa.gov/#/
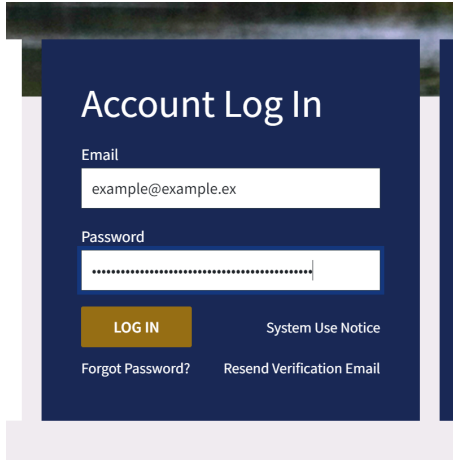


2. Launch the Drone Owners and Pilots Dashboard.
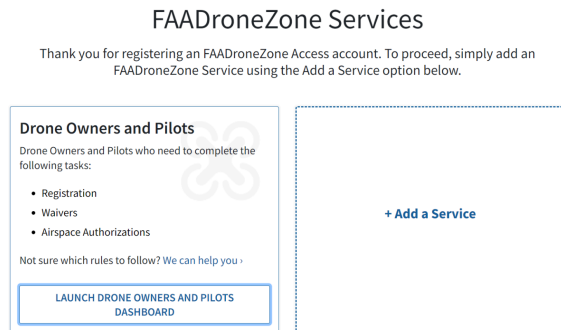
3. Select Manage Device Inventory.

4. If registering your B1 to an existing sUAS registration, please go to Page 3. Otherwise, if registering alongside a new sUAS registration, go to Page 4.

To Register the B1 with an existing sUAS

1. To register your B1 to an existing sUAS, for the sUAS you will be mounting the B1 RID Beacon to select the three dots on the right hand side under *ACTIONS* and then select *EDIT* to begin the registration process.
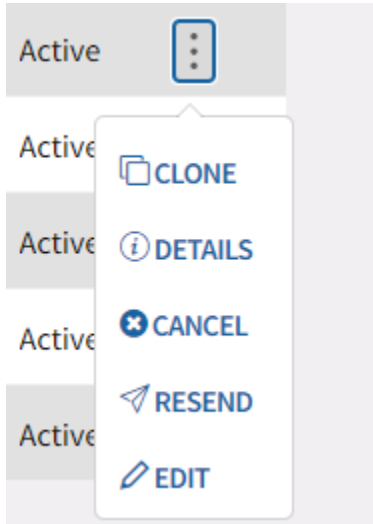
2. Select *YES* for the question *DOES YOUR DRONE BROADCAST FAA REMOTE ID INFORMATION?*

DOES YOUR DRONE BROADCAST **FAA REMOTE ID** INFORMATION? *   ⦿ YES   ○ NO

3. Select *Remote ID Broadcast Module* in the *UAS TYPE* dropdown selection.

UAS TYPE *   Remote ID Broadcast Module   ▲

Standard Remote ID

Remote ID Broadcast Module

UAS MANUFACTURER

5. Enter your included Remote ID Serial Number (written on your Quality Assurance Card) into the *REMOTE ID SERIAL NUMBER* field.

REMOTE ID SERIAL NUMBER *   1893FB10000ANEXAMPLE

6. Select *SAVE*. Your B1 RID Module is now registered with the FAA!

SAVE

To Register the B1 alongside a new sUAS Registration

1. To register your B1 and a new sUAS, select *ADD DEVICE* to begin the registration process.

ADD DEVICE

2. Select *YES* for the question *DOES YOUR DRONE BROADCAST FAA REMOTE ID INFORMATION?*

DOES YOUR DRONE BROADCAST **FAA REMOTE ID** INFORMATION? *   ● YES   ○ NO

3. Select *Remote ID Broadcast Module* in the *UAS TYPE* dropdown selection.

UAS TYPE *	Remote ID Broadcast Module ▲
	Standard Remote ID
UAS MANUFACTURER	**Remote ID Broadcast Module**

7. Continue to enter your information into the *NICKNAME, UAS MANUFACTURER,* and *UAS MODEL* fields.

UAS TYPE *	Remote ID Broadcast Module ▼	NICKNAME	Murphy
UAS MANUFACTURER *	Omni Consumer Products	UAS MODEL *	Unit 001

8. Enter your included Remote ID Serial Number (written on your Quality Assurance Card) into the *REMOTE ID SERIAL NUMBER* field.

REMOTE ID SERIAL NUMBER *   1893FB10000ANEXAMPLE

9. Select *ADD DEVICE* - Important! Your registration is not complete!

ADD DEVICE

10. Once ready to register, select *CHECKOUT.*

CHECKOUT

11. Complete the Acknowledgements and Checkout process, once complete, your new sUAS and B1 RID Module are registered with the FAA!

Attaching the B1 RID Beacon to the UAS

No matter which mounting method is selected to attach the B1 RID beacon to the UAS, there are a handful of universal best practices to follow, ensuring proper operation of the beacon and minimal impact to UAS flight characteristics.

1. The Pilot in Command is the ultimate responsibility for safe operation of the UAS, and is responsible for the safe attachment and operation of the B1 RID Beacon.
2. Do not attach the B1 RID Beacon within the arc of the propellers, within the range of any moving parts, or on any moving parts which may cause hazard to the operation of the system.
3. Do not attach the B1 RID Beacon on or over any flight sensors–visual, ultrasonic, magnetic or otherwise–as this may cause loss of control of the UAS.
4. It is recommended to avoid placing the B1 RID Beacon underneath the center of the UAS. In order to receive GPS location, the Pierce Aerospace RID Beacon should have a clear line of sight to the sky. Some UAS models have been found to cause this issue when a beacon is mounted to its bottom–smaller UAS may not present this issue.
5. It is recommended to avoid placing the B1 RID Beacon directly on or surrounded by electrically conductive material, primarily carbon fiber and aluminum, as this may limit the transmitting capability of the Beacon.

Mounting Methods

Pierce Aerospace Recommended: Zip-Tie

The B1 RID Beacon has two (2) mounting locations on its underside intended for the passthrough of common small zip-ties. Depending on the size of zip-ties used, anywhere from 2 to 8 zip-ties total can be used to mount this beacon to the UAS.

Common mounting locations include:
- Side or underside of UAS arm
- Top of UAS body
- On a landing strut

Reclosable Fastener

The B1 RID Beacon has a flat face on its bottom onto which an adhesive backed reclosable fastener can be attached to interface with UAS side attachment. Most brands of adhesive backed fastener will hold to the beacon body securely, while also permitting removal as necessary. When using reclosable fasteners as an attachment solution, avoid applying excess permanent adhesives such as cyanoacrylate or epoxy. Ensure before flight that mount is secure, and will not be vibrated or shaken off in flight.

Common mounting locations include:
- Top of UAS body
- Rear of UAS body

Gaff Tape

The B1 RID Beacon can be attached to an aircraft with Gaff Tape as well. However, gaff tape SHOULD NOT be used if the beacon is to be flown in inclement weather or any precipitation as gaff tape is incompatible in inclement weather. It is recommended that the surface the gaff tape be attached to is cleaned before application. It is recommended that the gaff tape be wrapped around the surface at least once, then apply the beacon, and then continue wrapping the tape around the beacon so that it is securely attached to the aircraft. Give the beacon a wiggle to ensure it is securely attached to the aircraft. Gaff Tape is not a permanent mounting solution and should regularly be inspected for proper hold and securing of the B1. Regular replacement of Gaff Tape is required.

Common mounting locations include:
- Top of UAS body
- Side or underside of UAS arm
- Rear of UAS body
- UAS Wing (fixed wing - often the underside and always away from and not interfering with moving components.)
- On a landing strut

Operating Pierce Aerospace Remote ID Beacons

Power On

Once the Pierce Aerospace RID Beacon has been attached to the UAS, and the PIC has confirmed the security of attachment, continue to ready the UAS for operations as usual and based on the UAS OEM recommendations.

When ready to turn on the UAS, flip the switch of the B1 RID Beacon to the **on** position.The **on** position has the switch moved away from the USB-C port. Once on, the beacon LED will cycle through white, red, green, and blue before turning solid red, indicating that the beacon is transmitting its identity while seeking a GPS fix.

Once a GPS fix has been made, the LED will transition to solid white, and the system is ready to fly.

Note: Generally, GPS fix takes less than 30 seconds to be locked. If the beacon does not receive a GPS fix within 2 minutes, ensure that the top of the beacon with the Pierce Aerospace text has a view of the sky, and is not blocked by any UAS components. If a GPS fix still does not occur, contact Pierce Aerospace support at: www.pierceaerospace.net/pages/service-desk for further assistance.

Power Off

At the completion of the UAS flight, the Pierce Aerospace RID Beacon can be powered down immediately when safe to do so. Simply flip the switch to the **off** position, towards the USB-C port, and the beacon will stop transmitting, indicated by the LED turning off.

Charging

To charge a B1 RID Beacon, ensure the switch is in the **off** position, and then plug into a 5 volt USB power source. The red light next to the USB-C charging port indicates the charging state of the battery.

When red, the battery is charging. When off, the battery is charged. Charging time depends on the state of discharge of the battery, but can take up to 4 hours to fully charge. Do not leave the beacon unattended while charging.

Pre-Flight Self Test

Your B1 RID Beacon will conduct a Pre-Flight Self Test prior to operation. Upon turning the B1 RID Beacon on, the internal computer will conduct a series of checks to confirm that the GPS and Bluetooth Transmitter are operating properly. This test is indicated by the multicolor status LED flash pattern. If an error in either system is detected, the B1 RID Beacon will notify you through one of two flash codes:

Failure of the Bluetooth Transmitter:
Two red flashes of the status LED in rapid succession, repeating after pause.

Failure of the GPS:
Four red flashes of the status LED in rapid succession, repeating after pause.

B1 v1.1 Remote ID Beacon Quick Start Guide

This is not an all inclusive guide for proper usage of Pierce Aerospace Dusky Remote ID beacons. Pierce Aerospace recommends reading the B1 V1.0 Remote ID Beacon User Guide before using the Quick Start Guide. This guide is for quick reference purposes only.

Beacon Attachment

Don't
- Do not attach the beacon to a propeller, in the arc of a propeller, or to any moving surface of the UAS.
- Do not attach the beacon over any sensors.
- Do not attach the beacon to a location where it cannot see the sky or the ground.
- Do not attach the beacon to a location where it is surrounded by Carbon Fiber or Aluminum.
- Do not cover or mount the beacon in a manner that prevents the pilot from turning the beacon on or off.

Do
- Attach the beacon securely and with multiple failovers, such as three zip ties, or other multiple points of attachment.

- Attach the beacon to the outside of the UAS.
- Attach the beacon to an easily accessible location for pre-launch access.

Before Takeoff
1. Turn on the B1
2. Confirm that the B1 completes the Pre-Flight Self Test (PFST)
3. Continue readying the UAS
4. Wait for a solid white status LED indicating GPS fix
5. Beacon ready to fly

On Landing
1. Turn off the UAS
2. Turn off the B1
3. Confirm that beacon status LED turns off
4. Remove beacon from UAS as necessary
5. Beacon shutdown complete

Charging Beacon
1. Turn off the B1
2. Plug in the B1 to a 5V USB C power cable
3. Do not leave the B1 unattended while charging