

# **Vehicle Reader**

Installation Guide



Version: **v6 (updated 03/03/25)** Software: **v2.1** 

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# Contents

- 02 Package contents
- 03 System overview
- 05 Pre-installation
- **07** Installation instructions
- 10 Testing and activation

This is the installation guide for the ButterflyMX V2 Vehicle Reader, and should be used after the ButterflyMX Access Controller has been installed.

While the Vehicle Reader is outdoor rated, the ButterflyMX Access Controller is meant for indoor use only. Please ensure that the Controller installed in a secure, weatherproof location.

- If installing a ButterflyMX Access Controller, Keypad Reader, Mullion Reader, or Single-Gang Reader, please see the Access Controller Installation Guide.
- If installing a ButterflyMX Elevator Control System, please see the Elevator Control System Installation Guide.
- If installing the V1 Vehicle Reader, contact ButterflyMX Support.

# **Package Contents**

ButterflyMX Vehicle Reader

24VDC Power Supply and Pigtail

Full Motion Wall Mounting Kit

ButterflyMX Windshield Tags (optional)

ButterflyMX Windshield Tag Programmer (optional)

- All ButterflyMX Vehicle Readers require an external power supply.
- The ButterflyMX Access Controller is required to operate the ButterflyMX Vehicle Readers.
- Access Control Systems MUST meet all relevant Local, State, and Federal codes. It is the responsibility of the installer to make sure the entire system is configured in a way that is safe, effective, and meets all relevant codes.



# **System Overview**



#### **3rd-Party Garage Door Opener**

Device that physically opens and closes the garage door.

## **Door Controller**

ButterflyMX Access Controller.



# **Wiring Information**

Connection path	Popular compatible cables	Max run length	
Controller to Vehicle	1. Shielded CAT6A	800 ft	
Reader	2. Shielded CAT6	Note: included external	
	3. Shielded RS485 with 22 - 24 AWG (thicker wire is preferred)	power supply is required for any vehicle reader installation	
	4. Shielded CAT5e		
	5. Unshielded CAT6		
	6. Unshielded CAT5e		
	7. Shielded 22 AWG, 4 conductors (22/4) cable		

#### **External Power Supply**

For installation of external power supply:

- To avoid data corruption, the two wires for data must be from the same pair (i.e. green and white green).
- 18 AWG: 1 conductor for 24V, 1 conductor for GND
- CAT6 (23-24 AWG): 3 conductors for 24V, 3 conductors for GND

## ATTENTION

#### All ButterflyMX Vehicle Reader installations require an external power supply (included in the packaging).

The ButterflyMX Access Controller is required to operate the ButterflyMX Vehicle Readers.

Access Control Systems MUST meet all relevant Local, State, and Federal codes. It is the responsibility of the installer to make sure the entire system is safe, effective, and meets all relevant codes.



# **Pre-Installation**

Before you start

**Do** install the module/reader with the word "UP" facing upwards.



**Do** perform a site visit prior to installation to determine which ButterflyMX hardware and / or additional third-party hardware is required for the installation.

**Do not** remove the caps from the unused RF connectors.



**Do not** remove the caps of unused cable glands.



# **Pre-Installation**

## Prepare the Vehicle Reader for Installation

1.

Remove the access hatch on the back of the reader.

In order to access the reader connectors, open only the white square hatch by unscrewing the 4 captive screws. 2.

Be sure to only remove the screws highlighted with green dots in the diagram. Other screws, highlighted in red, will disconnect the RFID antenna if removed from the device.





# **Installation Instructions**

## **Connect Power and Data**

**Connect the Vehicle Reader to the ButterflyMX 2-Door Access Controller and external power supply** using only the 4 rightmost screw terminals on the Vehicle Reader's terminal block.

The external power supply is required for all installations of the Vehicle Reader and Controller.



Vehicle Reader	Controller	External Power Supply
ALIM	_	24v
DATA 1 Tx / L+	D+/L+	-
CLK 1 Rx / L-	D- / L-	-
GND	_	GND
	ALIM DATA 1 Tx / L+ CLK 1 Rx / L-	ALIM – DATA 1 Tx / L+ D+ / L+ CLK 1 Rx / L- D- / L-

# **Installation Instructions**

## Mount the Vehicle Reader

 Attach the adjustable mounting
bracket and M4×12 stainless steel screws included in the accessories kit.

> Pole mounting hardware must be purchased separately. We recommend the WALI Mount Plate for pole diameters between 1.1" and 2.4"



## 2. Mount the vehicle reader, aligning it as parallel as possible to the average car height for the building.

Position the Vehicle Reader in front of the gate or barrier whenever possible to improve the reliability of the system and leave the gate control time to open the barrier.

3. Adjust the mounting angle of the Reader as needed, verifying consistency of reads during testing.

Make sure that there are no solid objects blocking the Vehicle Reader
from a car's Windshield Tag.

The reliability of reads will depend on the height and angle of the Reader relative to the approaching vehicle.

# **Placement guidelines**

## Mount the Vehicle Reader

Recommended mounting height = 6.5 - 9.8 ft



Optimal tag identification area = 0 - 9.8 ft from the reader

The effectiveness of the reader is influenced by factors such as distance, the angle between the tag and reader, windshield material, and more. Under ideal conditions, the reader can scan tags up to 10 feet away. For the most reliable tag scanning, we recommend 0-9.8 ft between the Reader and Windshield Tag.

# **Testing and Activation**

### **Placement requirements**

Find vehicles for testings that are representative of the building

For example, if the building has a large number of SUVs, be sure to test with a SUV.

Try to test multiple types of vehicles in order to ensure the Reader is positioned to cover as many use cases as possible.

For example: SUVs, sedans, athermic windshields, etc.

**3.** Call ButterflyMX Support to activate the Vehicle Reader continue testing.

4.

6.

2.

## Place the Tag on a test vehicle's windshield.

Do not hold the tag in your hand during testing as it may block the read.

5. With a stationary car, test to see if the Reader is able to scan the Tag.

If nothing is scanned, adjust the height and direction of the Reader until a reading is obtained. Retest the setup with a moving vehicle and adjust the Reader as necessary until the Tag is read as expected.

Distance of reading is measured from the center of the reader, and depends on the type of tag, operating environment of the reader, and power supply voltage. External disturbances can cause the reading distances to decrease. The performance is reduced on athermic windshield.

# **Accessories Installation**

## **Vehicle Tags Options**

Windshield Tag



3.80 in W x 0.9 in L

Headlight Tag



3.90 in W x 0.5 in L

# **Accessories Installation**

## **Placing Windshield Tags**

Each vehicle should have only one (1) ButterflyMX Tag.



- Windshield Tags must be installed on the inside of the car, behind the central rear-view mirror on the front windshield. They should be placed on the side closest to the vehicle reader, with only one tag per car.
- Having multiple tags in close proximity on your vehicle will impede quality of reads and may prevent access to the gate. Tags must be placed as far away as possible from any other inuse tags, a minimum of 2 feet. Remove any tags that are no longer in use.
- Ensure the tag is properly adhered to the glass of the windshield, and not to the upper cloth or plastic edge.

Athermic windshields impact the performance of the Vehicle Reader, as the metal on the windshield blocks the Reader from reading the tag.

Most athermic windshields have a non-athermic section intended for radio-based systems (like GPS or toll payment badges). Even if placed in this area, the read distance may be shorter than expected.

For support on installing the Windshield Tag on athermic windshields, please contact ButterflyMX Solutions Architecture.

# **Accessories Installation**

## **Placing Headlight Tags**

Each vehicle should have only one (1) ButterflyMX Tag.



- Headlight Tags must be installed on one of the front lights of the car. The tags must be adhered to plastic, not the metal body of the car.
- Tags should be placed on the side closest to the vehicle reader. Place the tag towards the top of the headlight to reduce distance between tag and reader.
- Having multiple tags in close proximity on your vehicle will impede quality of reads and may prevent access to the gate. There should be no other tags on the same side of the car as the one being used for the ButterflyMX headlight tag. Tags must be placed as far away as possible from any other in-use tags, a minimum of 2 feet. Remove any tags that are no longer in use.
- Ensure the tag is properly adhered to the plastic of the headlight. The tag will not adhere properly to metal.

# STOP

# Activation is required.

Call ButterflyMX Support (800) 398-4416, ext 2. while the installer is on-site.

All systems must be activated once installation is complete and while the installer is on-site.

Activation will verify all systems are operational, document installed hardware, and activate the system. Activation is done by calling ButterflyMX Support while the installer is on-site at (800) 398-4416, ext 2.

Please schedule installations with this requirement in mind.

ButterflyMX will onboard the client.

All documentation can be found on https://butterflymx.com/resources/installers/documentation.

