

# Swiftlane - STID Vehicle Tag Installation Manual

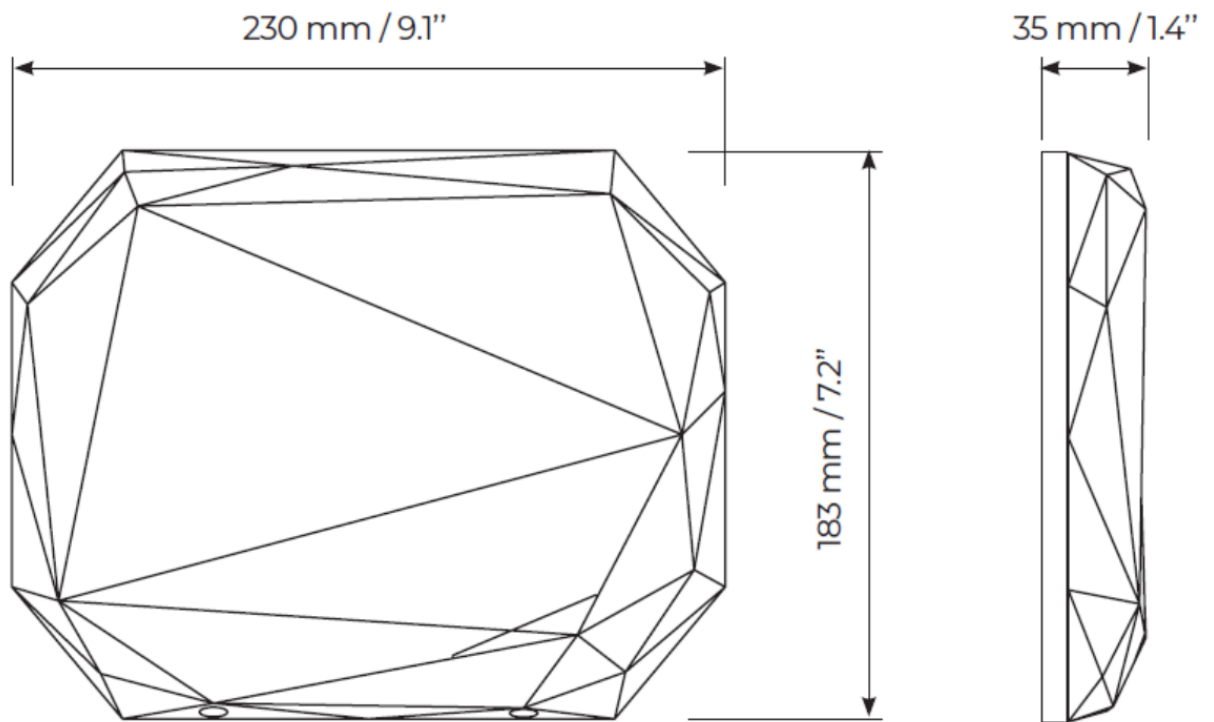
For help, please contact [support@swiftlane.com](mailto:support@swiftlane.com) or 505-65-SWIFT

## 1. Electrical Specifications

Operating Voltage	10-30 V DC
Current Consumption	0.9A @ 12V DC (Typical) 1.25A @ 12V DC (max)
Temperature	-22 °F to 140 °F

## 2. Mechanical Characteristics

### 2.1. Spectre Nano Dimensions



## **2.2. Installation Recommendations**

- Install the reader away from computer transmission cables or from power sources. The disruptions that they can cause can vary according to their radiation power and their proximity.
- Use a filtered and regulated power supply.
- Before any service operation you must de-energize the reader.

## **2.3. Wiring Recommendations**

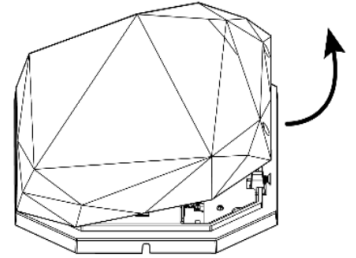
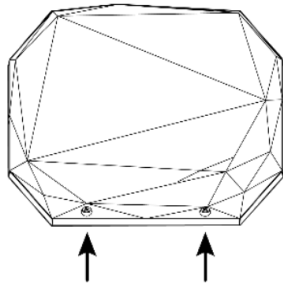
Use a multi-conductor shielded untwisted 2 cables. Ranges with some commonly used cable types are given below.

- AWG24 – 30 m / 98.4 ft max 4 cables
- AWG24 – 60 m / 196.9 ft max 6 cables
- AWG24 – 100 m / 328.1 ft max 2 cable
- AWG20 – 50 m / 164. ft max 4 cables
- AWG20 – 100 m / 328.1 ft max

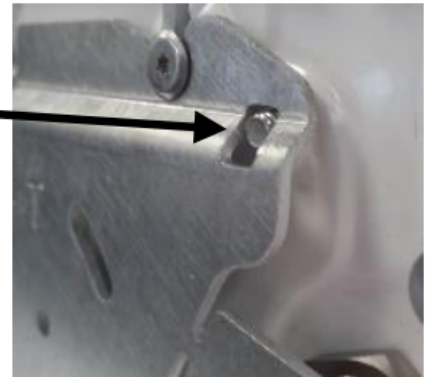
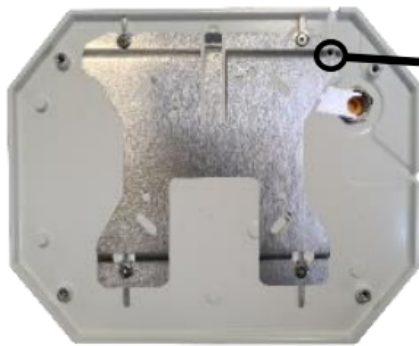
### 3. Mounting the Reader

#### 3.1. Removing the mounting plate

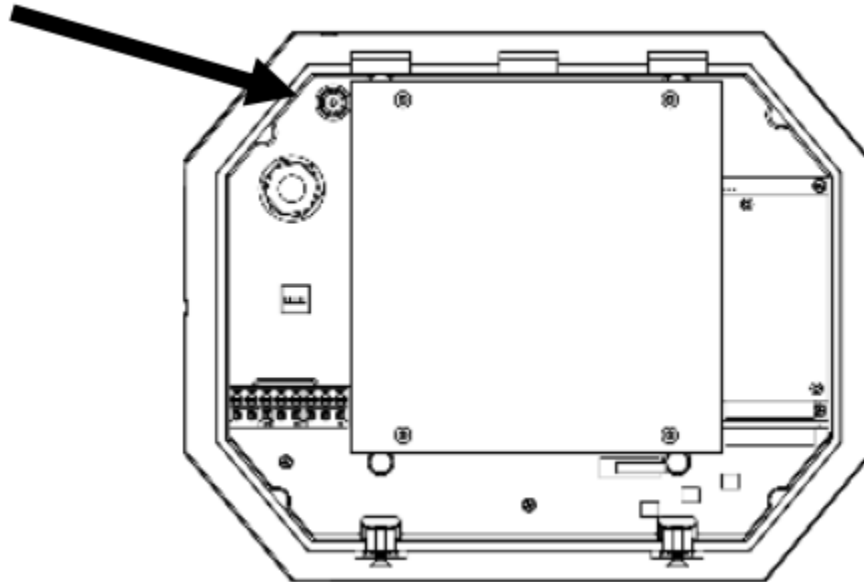
3.1.1. Open the reader by unscrewing the two screws and lifting the cover.



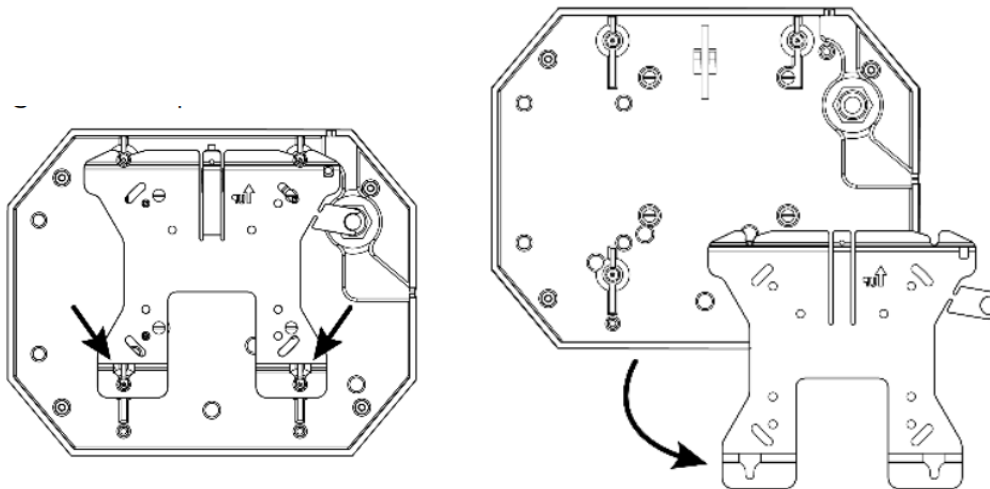
3.1.2. The reader is equipped with a locking screw that secures the reader plate to the metal mounting plate.



3.1.3. Unscrew the locking screw with Torx T8 tool, **without removing the screw from the plate so as not to lose the seal.**



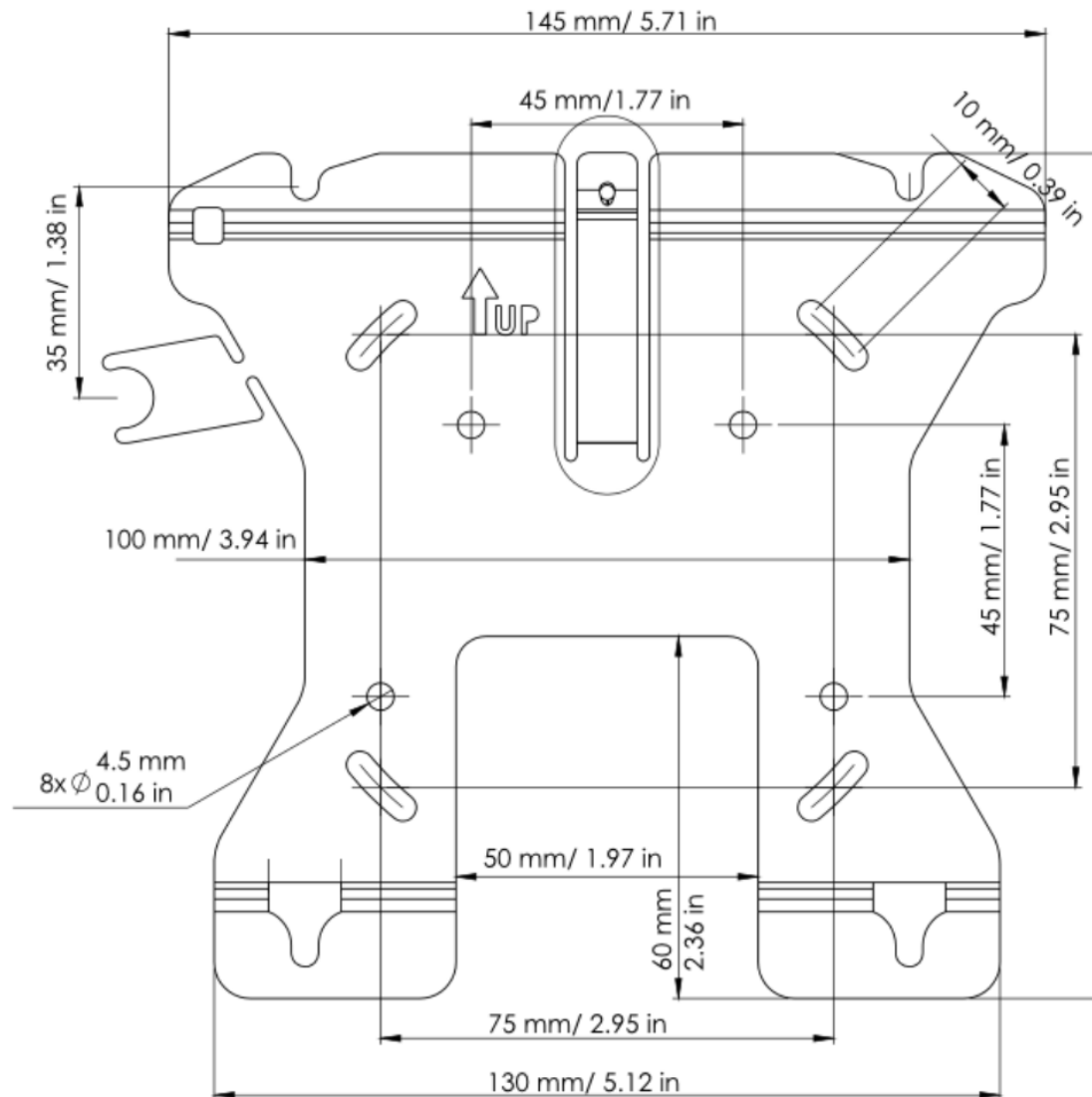
3.1.4. Remove the metal mounting plate by exerting pressure on the metal plate while sliding it. Leave the four mounting screws in place.



### 3.2. Mounting the reader on a wall

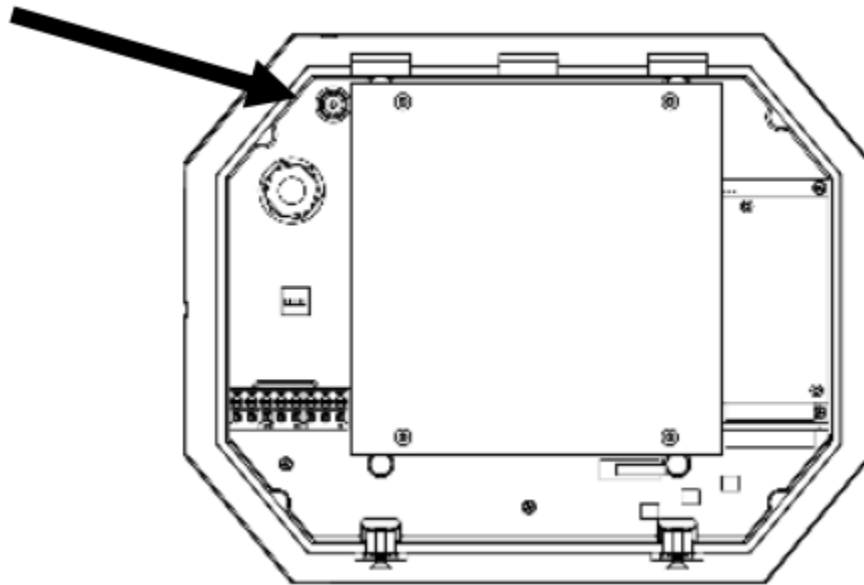
**To fix the reader to a wall with the metal mounting plate please follow Steps 3.1.1 to 3.1.3 to remove the metal mounting plate from the reader. Then follow the next steps:**

- 3.2.1. Place and mount the metal mounting plate onto the wall. Use the mounting plate as a drilling template.



- 3.2.2. Pass the wires through the reader cable gland. Adjust the emergent cable length to allow normal closing of the reader.
- 3.2.3. Put the reader back on the mounting plate by sliding it down on the 4 mounting screws.

3.2.4. Tighten the locking screw (with its gasket) with the provided Torx T8 tool.



### 3.3. Mounting with KFX-UHF

If you want to mount the reader with KFX-UHF, please follow the Steps 3.1.1 to 3.1.3 to remove the metal mounting plate from the reader. Then follow the next steps:

- 3.3.1. Fix the standard 75x75 mm VESA type mounting bracket on the reader using the M4x12 stainless steel screws provided in the mounting kit.



- 3.3.2. Tighten the mounting bracket to a pole at the required height.



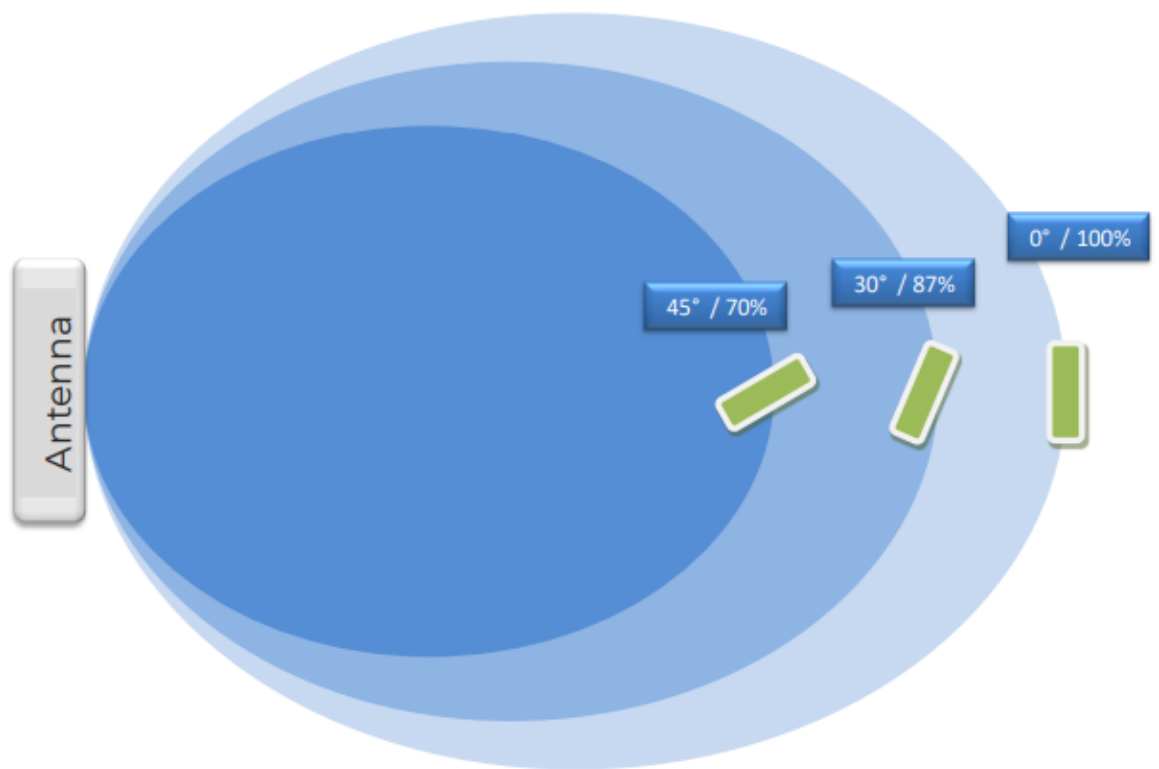
### 3.4. Reader Orientation Recommendation

Site layout plays an important role when mounting the reader. It is important to understand how the placement of the reader affects the reading efficiency. It is recommended that we minimize the distance and angle between the reader and tag. The reader offers the best results when the reader antenna and tag are parallel to each other.

The antenna angle is applied horizontally and vertically depending on the:

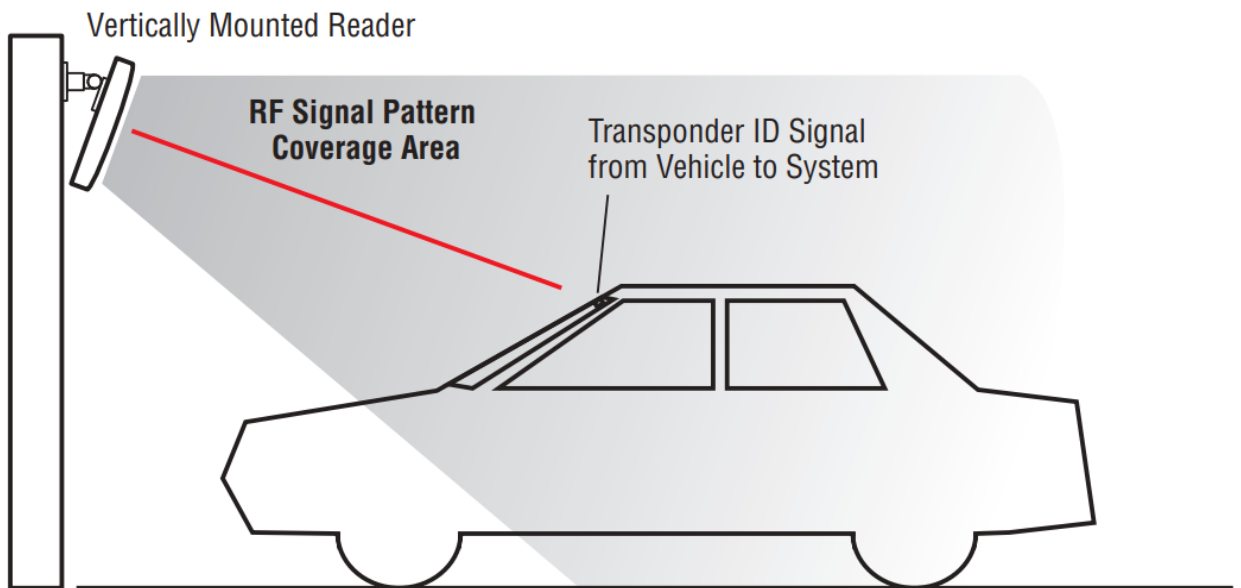
- The height of the antenna relative to the vehicle.
- The offset of the antenna on the side relative to the side of the road.

The diagram below shows accuracy of reads depending on the angle of the tag to the reader and the distance. Ensuring that the reader is parallel to the tag allows 100% accuracy over a longer distance.



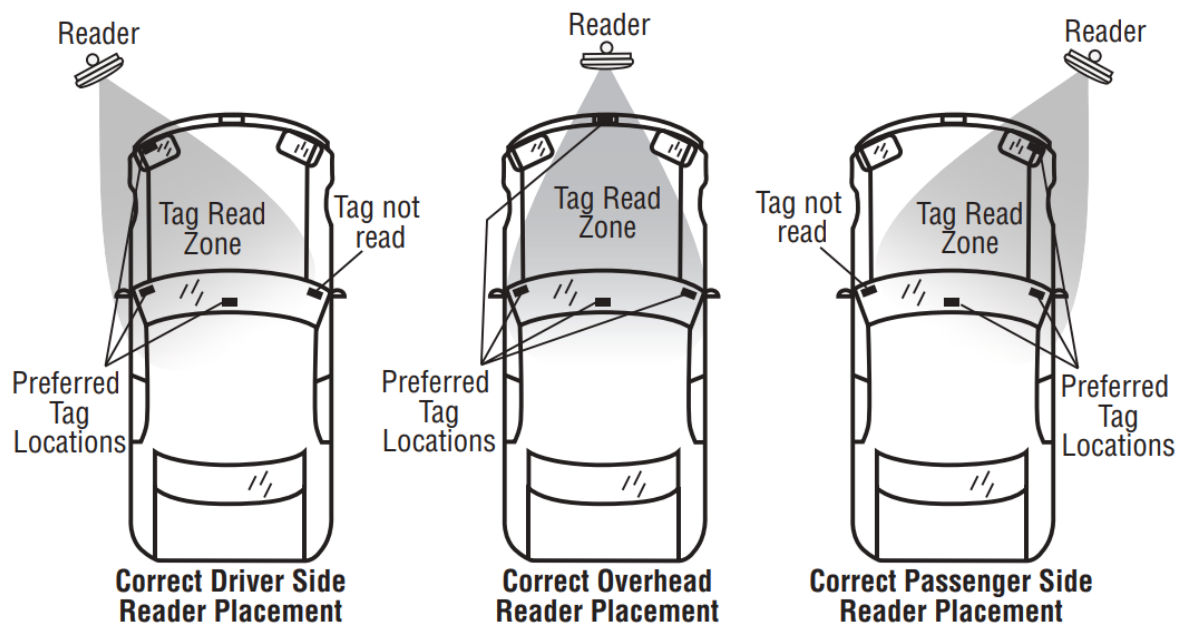


### 3.5. Recommended Reader Positioning

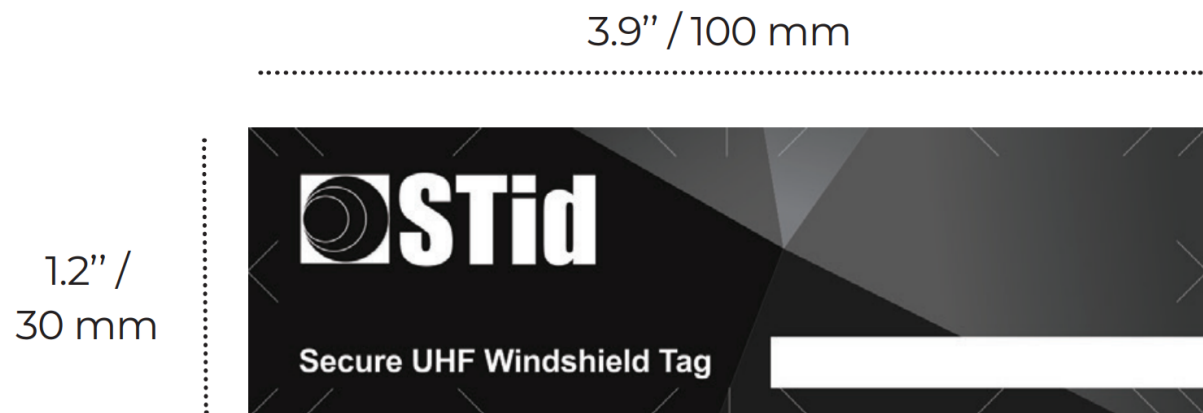


### 3.6. Recommended Tag positioning

For further information about tag positioning with reference to types of windshield, please refer to section 7.

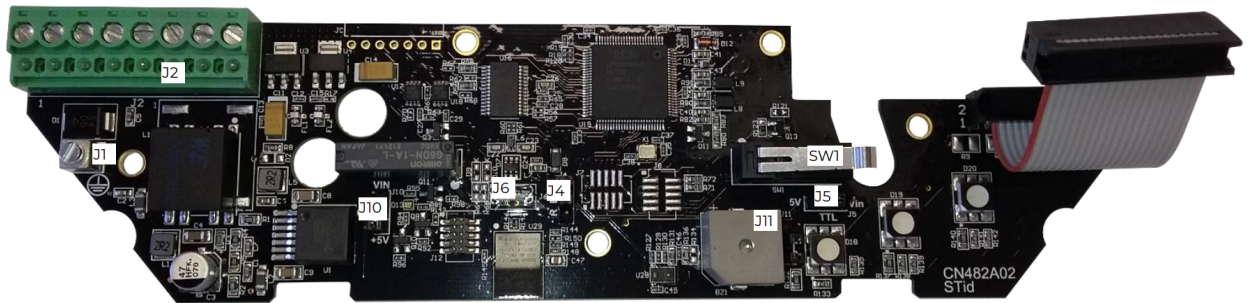


### 3.7. Tag Dimensions



## 4. Wiring the Reader

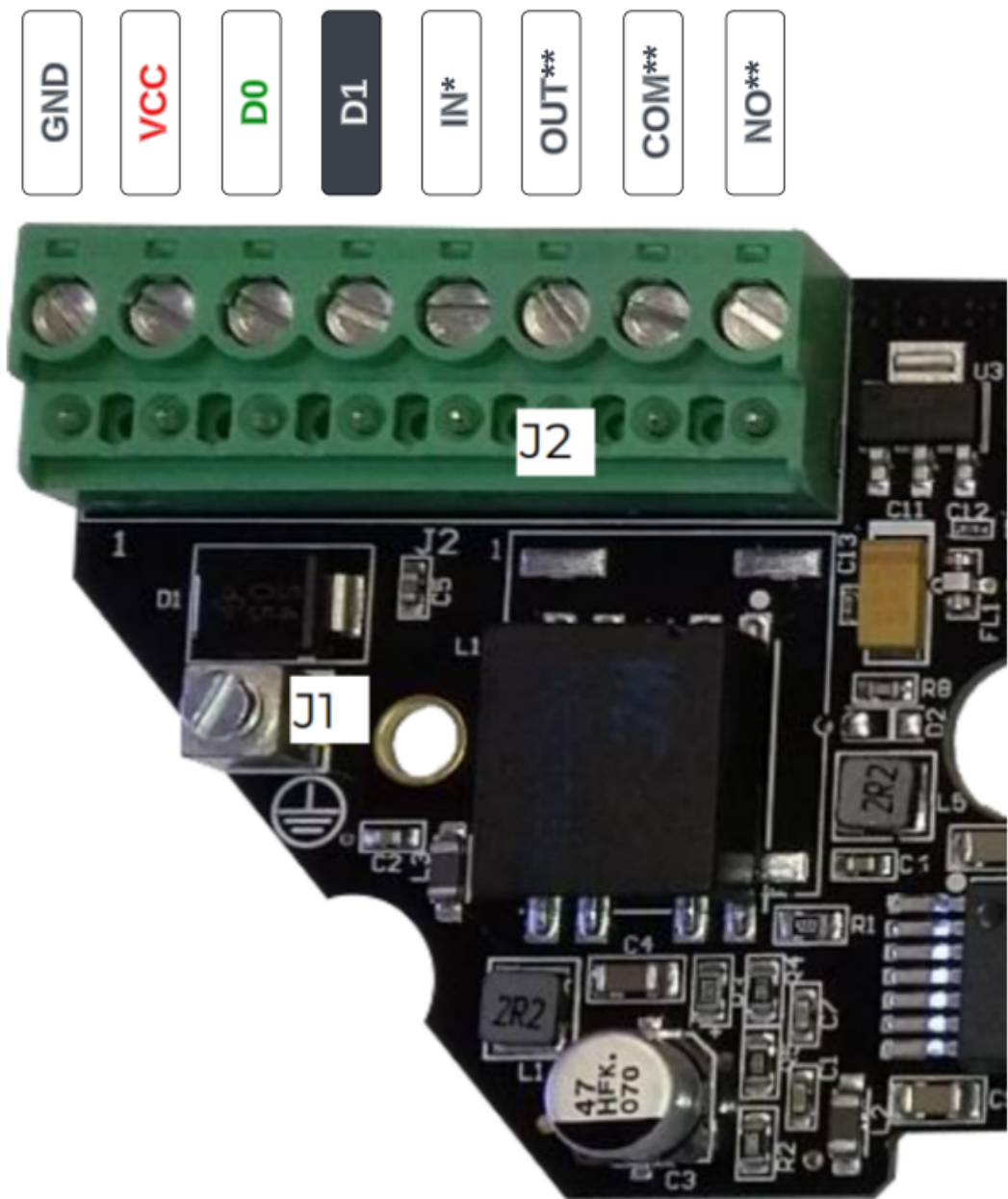
### 4.1. Reader Terminals/Connections



J1	Terminal for earth connection. Connect to earth ground via AWG 20 cable. Leave unconnected if earth ground terminal is not available.
J2	Interface terminal for Access Control Systems
J4	EOL resistor (Only for RS485 configuration) - <b>Not used for Wiegand connections.</b>
J5	TTL output level: +5V or Vin. Leave in default state.
J6	micro-USB connector for programming
J11	Buzzer
J10	Pull up output to +5V or Vin. Leave in default state.
SW1	Intrusion detection switch. Triggers the output relay if the reader is opened.

## 4.2. Pinout for connecting to the Access Control Systems (J2).

To connect the DCU (or other access control systems) to the Spectre Nano, connect the terminals shown below connect the terminal J2 to the corresponding Wiegand terminal.



### Notes:

\*IN : Auxilliary Input. **Not Used.**

\*\*Output relay terminals. Triggerred if output cover is removed. **Not Used.**

## 5. Example Wiring Configuration

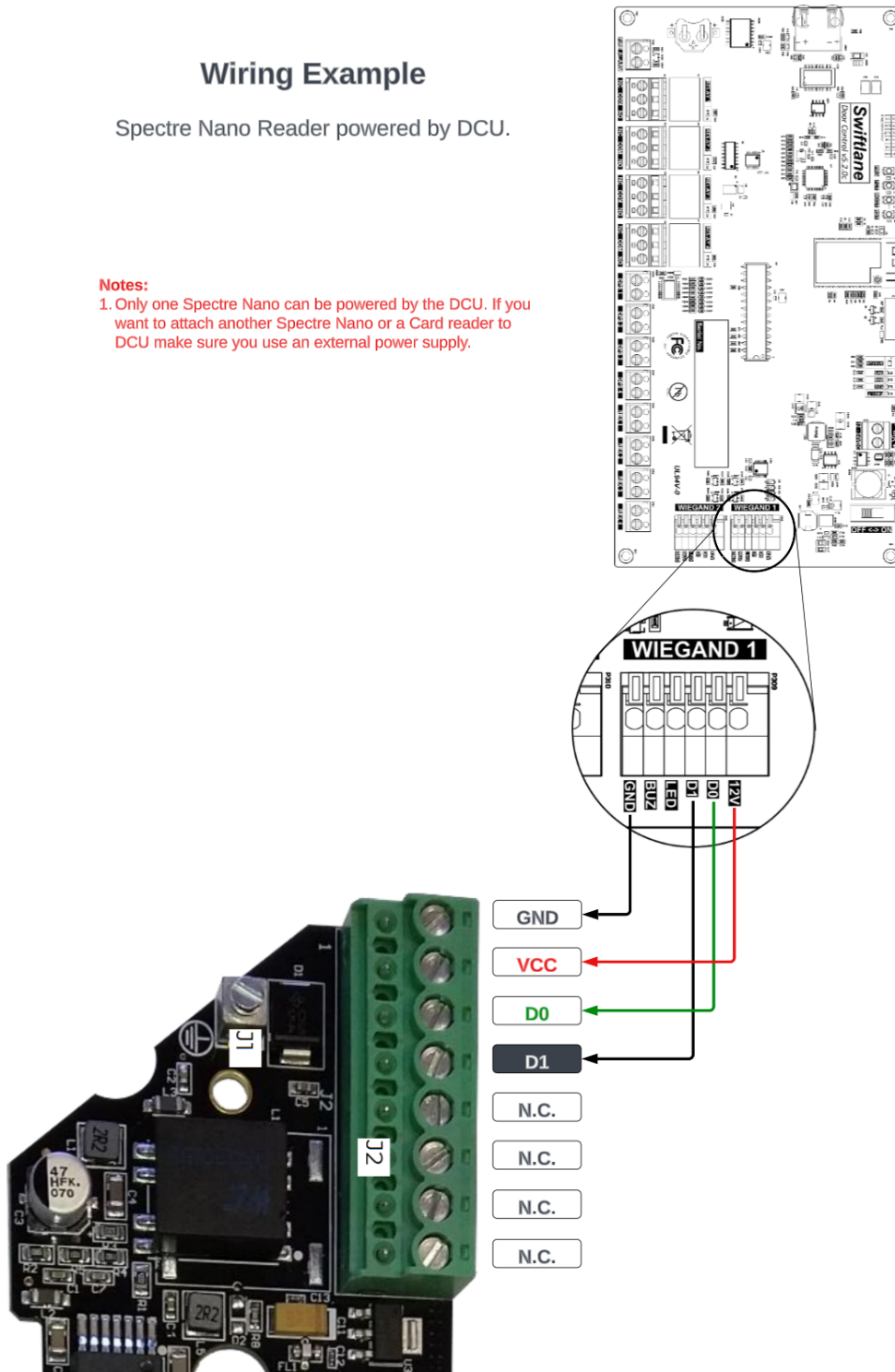
### 5.1. Reader powered by DCU.

#### Wiring Example

Spectre Nano Reader powered by DCU.

**Notes:**

1. Only one Spectre Nano can be powered by the DCU. If you want to attach another Spectre Nano or a Card reader to DCU make sure you use an external power supply.



## 5.2. Reader powered by a separate power supply

### Wiring Example

Spectre Nano Reader powered by separate power supply.

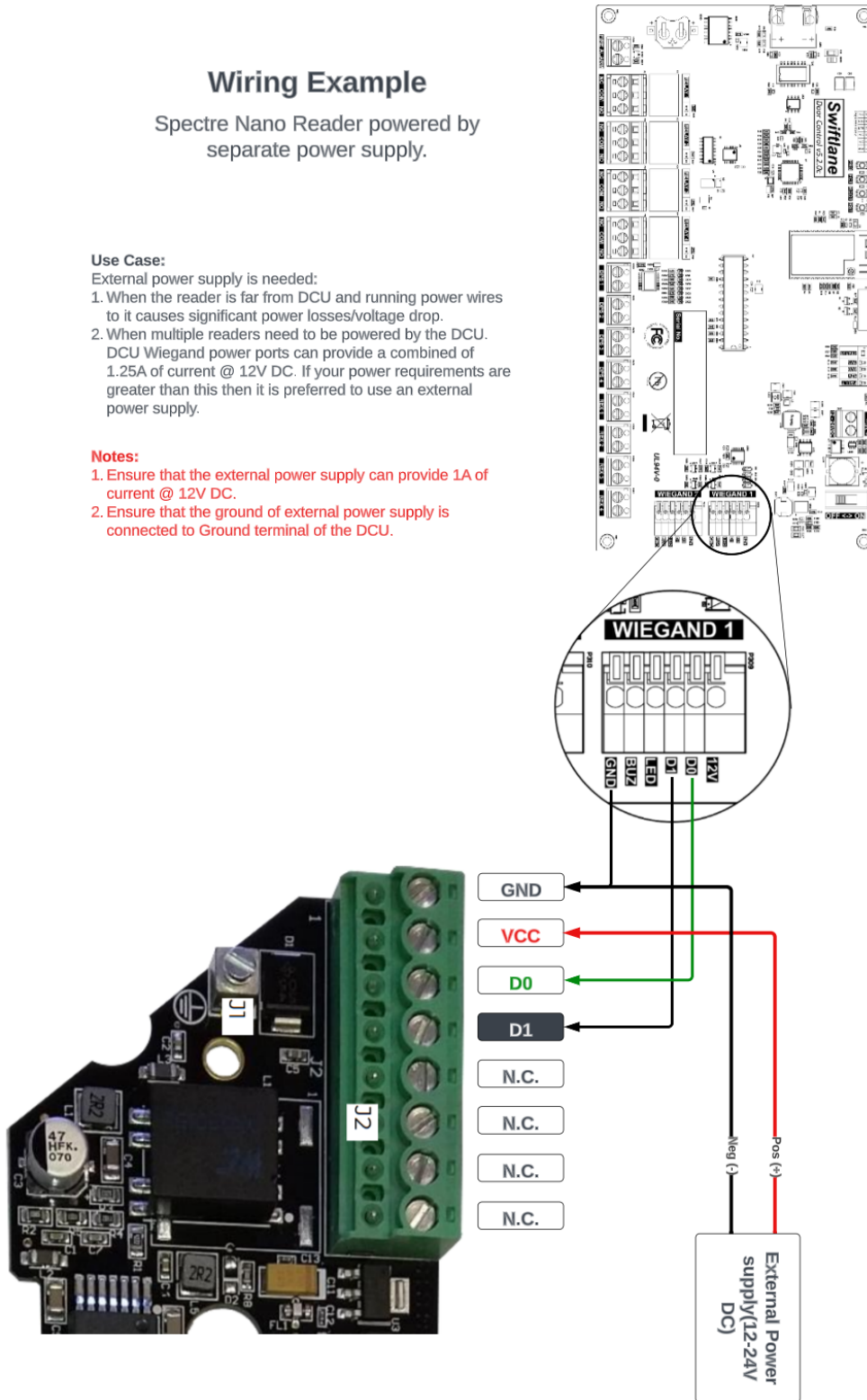
#### Use Case:

External power supply is needed:

1. When the reader is far from DCU and running power wires to it causes significant power losses/voltage drop.
2. When multiple readers need to be powered by the DCU.  
DCU Wiegand power ports can provide a combined of 1.25A of current @ 12V DC. If your power requirements are greater than this then it is preferred to use an external power supply.

#### Notes:

1. Ensure that the external power supply can provide 1A of current @ 12V DC.
2. Ensure that the ground of external power supply is connected to Ground terminal of the DCU.





## 6. Example Install Configuration

### 6.1. Vehicle Identification

#### 6.1.1. Application Use Case

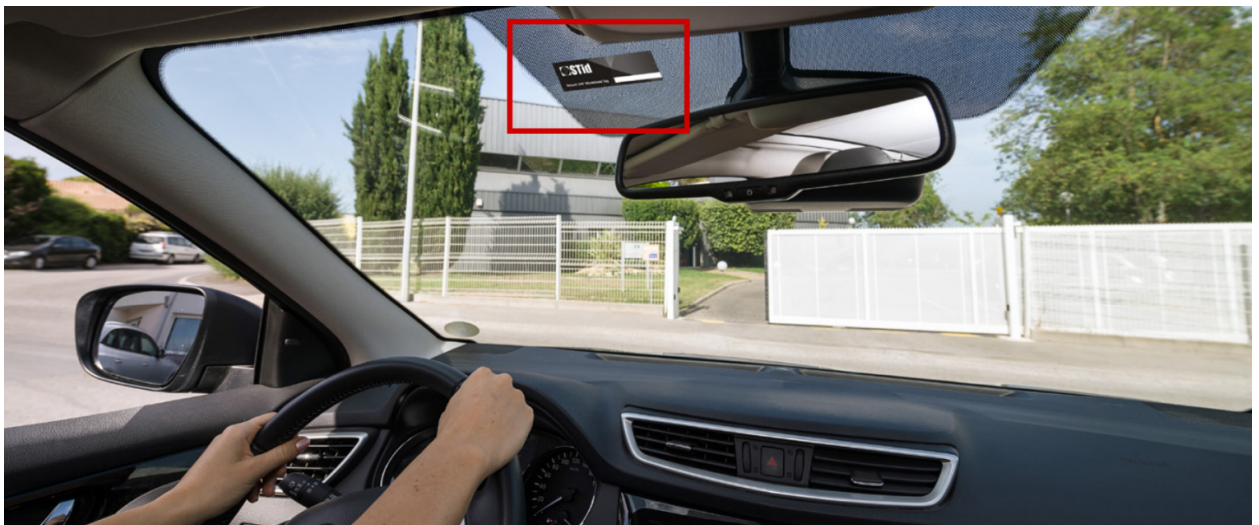
Vehicle identification with the UHF tag mounted on the windshield.

#### 6.1.2. Implementation

It is recommended to place the reader and determine the detection zone sufficiently far from the barrier. This makes the detection more reliable and it gives the system sufficient time to open the barrier.



- A SPECTRE nano reader installed laterally on a mast offset at 45° (2.5 m high).
- Positioned before the barrier so that detection occurs sufficiently early.
- Vehicle label positioned to the left of the central mirror



## 7. Windshield Information

Athermal windshields are made of sheets of metal in order to partially reduce the heat inside the vehicle's passenger compartment.

### 7.1. Impact of athermal windshields on operation

Athermal windshields influence the performance of the system, because the metal blocks the radio waves. Most athermal windshields have a non-athermal section (see the nonexhaustive list in the Appendix). This section is intended for radio-based systems (GPS, toll payment badges, RFID, etc.). At other locations the reading distances may be considerably shorter.

### 7.2. How to recognize an athermal windshield?

The majority of motorists are able to identify an athermal windshield with the naked eye. This type of glazing has a purple, blue or petrol blue reflection in daylight. However, this way of determining the type of windshield remains quite subjective and is not always reliable. There are other methods to identify an athermal windshield. Some models show dotted lines on certain parts of the glazing. These marks delimit the untreated surface and this area reacts like ordinary glazing. Located under the serial number, the symbols inscribed by the manufacturers also enable recognition of an athermal windshield. Usually, a small icon with a thermometer is a clear indication that the window is athermal.





## 8. Common Issues

### **Reader is not powering up.**

- Make sure that the reader is getting at least 12V DC on the Vcc pin.
- Check that your power supply is capable of providing at least 1A @ 12V DC.
- Always use a filtered power supply with the reader.

### **Reader is not reading any data at all.**

- Please check that you are reading the right type of cards. Spectre Nano can read vehicle tags and UHF cards.
- Make sure that the reader is turned on and properly wired to the access control system.
- Make sure that you are within the reading range of the reader

### **Reader is reading incorrect data from vehicle tags/cards.**

- Make sure that the reader is properly wired to the access control system. Ensure that the D0/D1 are connected to their respective ports.
- If the reader is being powered by a separate power supply make sure that the ground of the access control system is connected to the ground of the reader.
- Make sure that the correct type of wire is being used and the wiring distances are not too long. Look at the section "Wiring Recommendations" for more information.

### **Reader is lighting up and scanning the card but not opening the gate**

- Please check the [admin dashboard](#) activity feed to see if:
  - The tag has been assigned to a person
  - That the person has access to the gate
  - If the tag is registered in the system
  - Visit the admin dashboard at <https://admin.swiftlane.com/>
- Please check the relay wiring to the gate and ensure that the relays are connected to the gate
- Please check if the relay light is triggering on the Swiftlane door controller board, as a confirmation that the relay has been mapped correctly
- Ensure that the relay has been mapped for that gate on the software side by visiting the Hardware Tab -> Door Controllers in <https://admin.swiftlane.com/>
- Swiftlane relays are dry contact, make sure the power to the gate motor is flowing correctly