**HID**®

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# HID® FlexSmart™

## 609X Series Readers

### INSTALLATION GUIDE

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## Contents

# 1    Overview

## 1.1    Introduction

The HID® FlexSmart™ 609X series are RFID card readers based on MIFARE® smartcard technology. They are encapsulated units designed to attach to a single-gang electrical box, suitable for both indoor and outdoor use. Data is output in either Wiegand or ABA track 2 (magstripe) formats, and is application dependent. Electrical connection is made via a 6-way detachable screw terminal block.

**Note**: The format and function of the reader depends on the configuration loaded from a configuration card.

## 1.2    Parts Included

First, unpack the contents and become familiar with the components.

The following items will be included with FlexSmart readers:

1.   Installation Guide
2.   MIFARE reader module
3.   Fixing accessories

## 1.3    Specifications

| | |
|---|---|
| **Supply Voltage** | 9VDC to 16VDC  (12VDC typical) |
| **Supply Current** | 20 mA typical,  75mA peak |
| | |
| **Input** | 2 lines available<br>Typical use: 1 line LED control, and 1 line buzzer control<br>Application dependent |
| **Output formats** | Wiegand/ABA track 2<br>Application dependent |
| | |
| **Operating Frequency** | 13.56MHz, 106k Baud |
| **Data Transmission** | Contactless |
| **Authentication** | ISO/IEC DIS 9792-2 |
| | |
| **Operating Temperature** | -4°F (-20°C) to 131°F (55°C) |
| **Non-Operating Temperature** | -40°F (-40°C) to 158°F (70°C) |
| **Operating Humidity** | 5% to 95% condensing |
| | |
| **Finish** | Black |
| **Dimensions** | 3.39" x 3.39" x 1.18"  (86 x 86 x 30 mm) |
| **Weight** | 9 oz (250g) |

# 2 Mounting
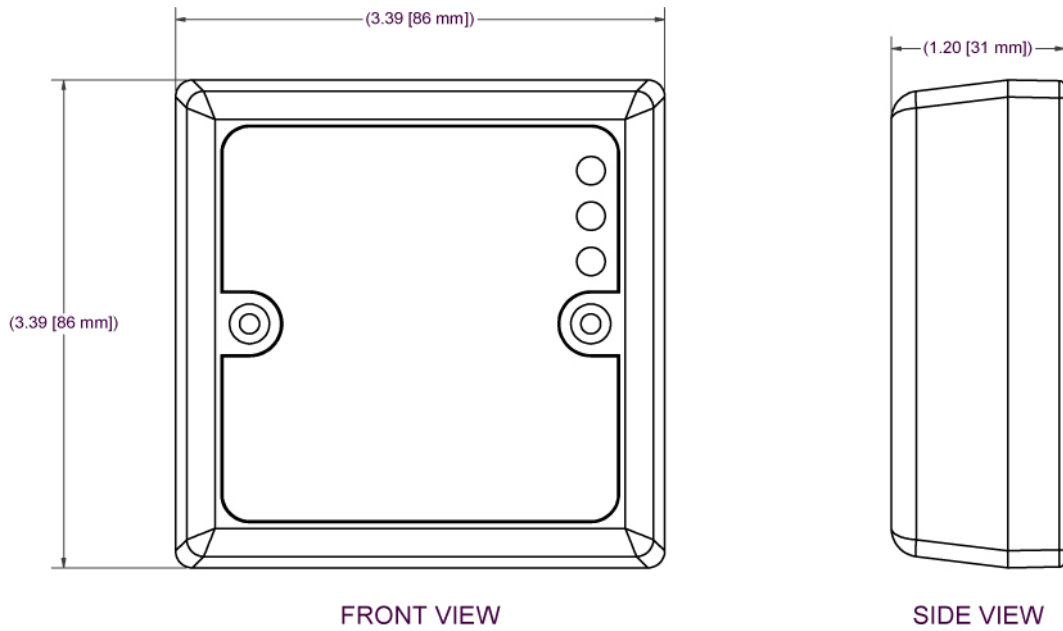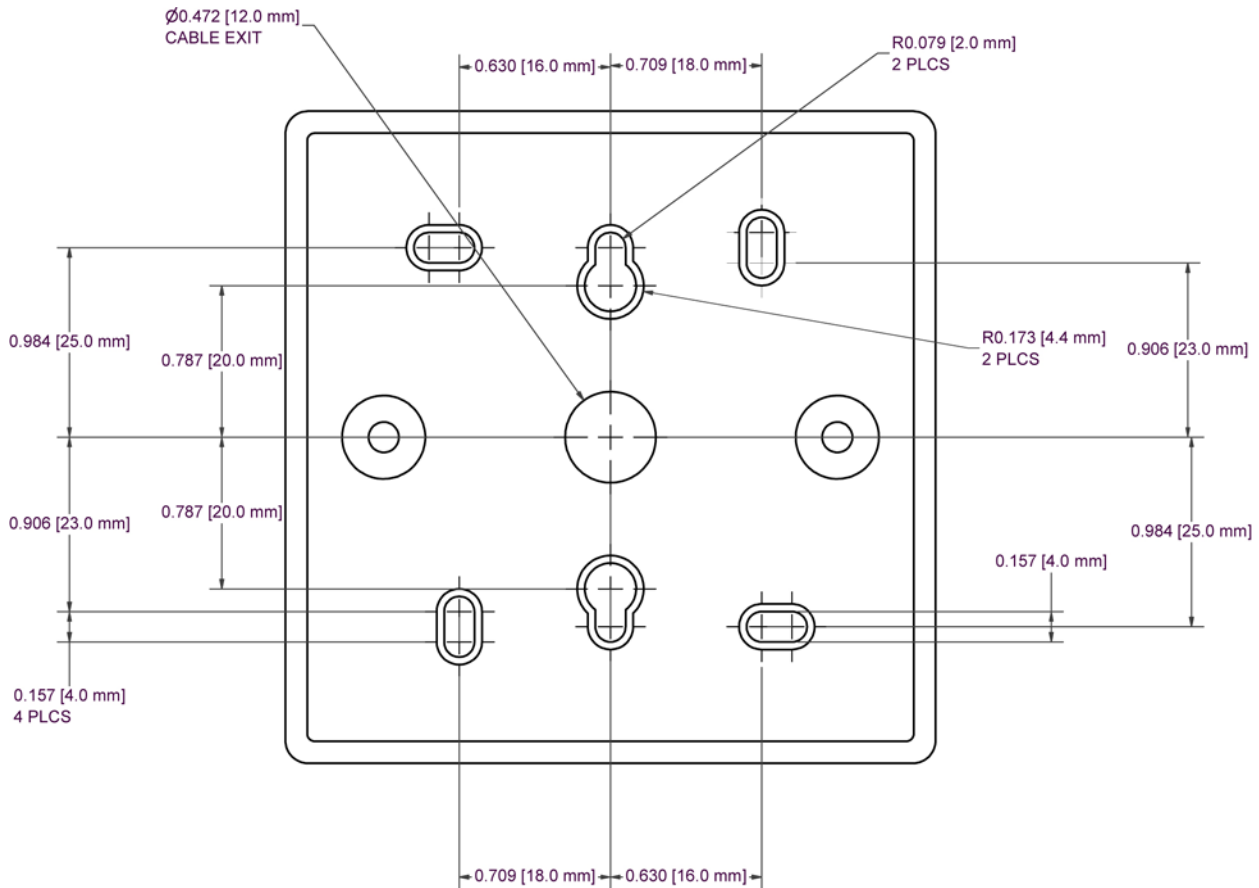


**Figure 2-1 – Overall Dimensions**



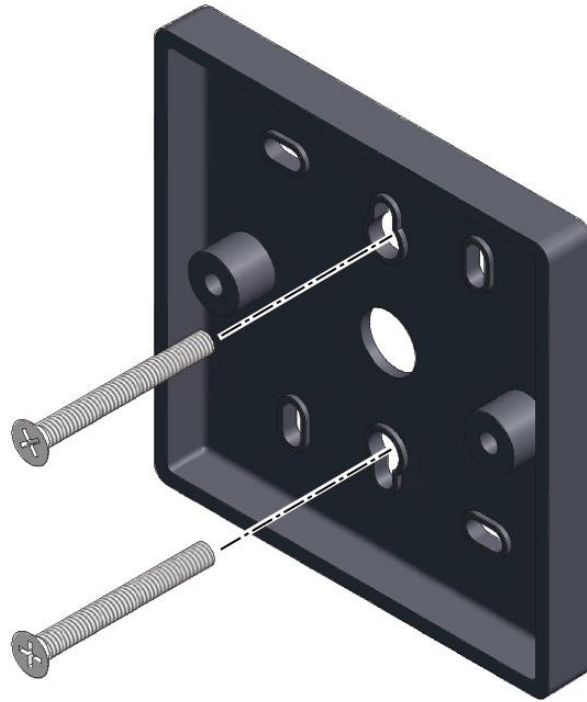**Figure 2-2 – Back Plate Dimensions**

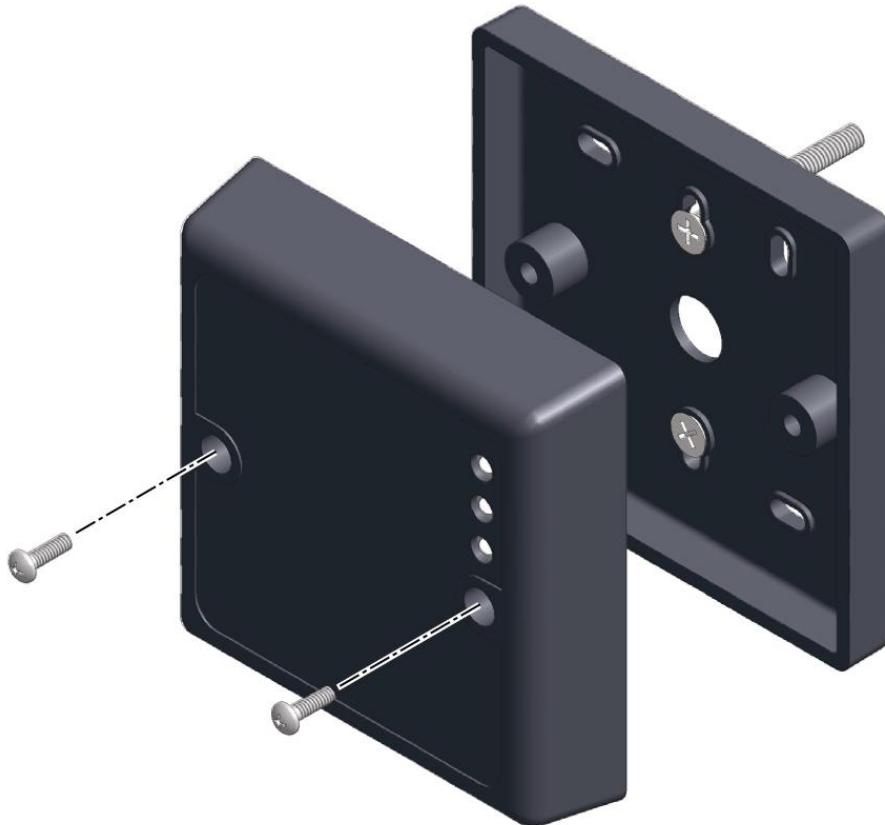**Figure 2-3 – Attaching Backplate**
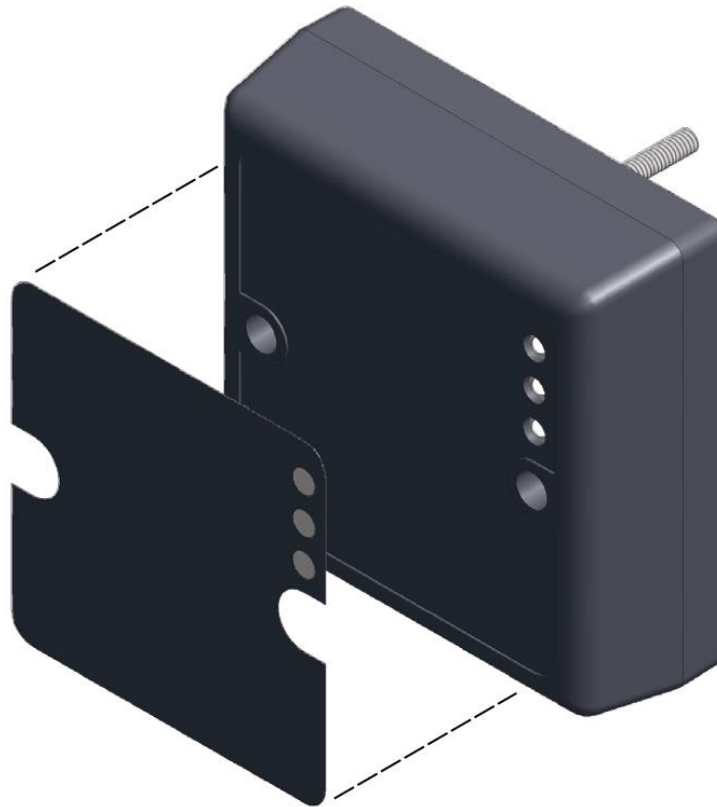


**Figure 2-4 Install Reader**

**Figure 2-5 – Fascia Label**

# 3    Wiring

## 3.1    Cable Types and Maximum Lengths

The 609x series readers require a minimum supply voltage of 9.0 VDC at the reader. Voltage drops, caused by the cable resistance, can be compensated by increasing the power supply voltage, provided the maximum supply voltage (16.0 VDC) is not exceeded at the reader.

**CAUTION**: THE READER SUPPLY VOLTAGE MUST NOT EXCEED 16.0 VDC.

**CAUTION**: DO NOT USE CABLES WITH GAUGES SMALLER THAN 24 AWG:

The following are recommended cable types and maximum cable lengths for a cable connecting the power supply to the reader.

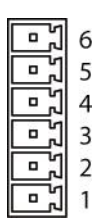| Maximum Cable Length | Cable Type |
|---|---|
| 200' (61 m) | 24 AWG (0.51mm), overall foil shield, Belden 9533 series or equivalent. |
| 300' (91 m) | 22 AWG (0.64mm), overall foil shield, Alpha Wire 5192C series or equivalent. |
| 500' (152 m) | 18 AWG (1.02mm), overall foil shield, Alpha Wire 5382C series or equivalent. |

System data line terminations may affect the cable required. Contact your system manufacturer for exact requirements. Installation should be in accordance with National Electric Code ANSI/NFPA 70.

**Note**: The cable should have a minimum of four cores (two for power and two for output data). If the reader's input control lines are required, then the cable will need to have extra one or two cores depending on the inputs required.

## 3.2 Connections

There is a 6-way connector with detachable terminal block at the rear of the unit. Wire this connector according

| Pin | Reader Wiring |
|-----|---------------|
| Pin 6 | LED control input |
| Pin 5 | Beeper control input |
| Pin 4 | Wiegand data '0'/Strobe |
| Pin 3 | Wiegand data '1'/Data |
| Pin 2 | Power supply 0V (ground) |
| Pin 1 | Power supply +VE |

**Figure 3-1 Wiring Connections**

Pins 5 and 6, (LED and buzzer control inputs) may be left unconnected if they will not be used.

The cable shield/drain should not be connected to anything at the reader end.

## 3.3 Grounding

At the controller end of the cable the shield/drain should be connected directly to an earth ground. An earth ground can be established by driving a copper clad ground rod into the earth. If a direct connection to a ground rod is not possible, connect the shield/drain to an earth grounded cold water metal pipe or steel frame (building beam) that connects to earth. Make certain that the DC resistance between your established earth ground and the system ground is 50 ohms or less. Do not connect to a copper fire sprinkler system because this may have non-conductive couplings.
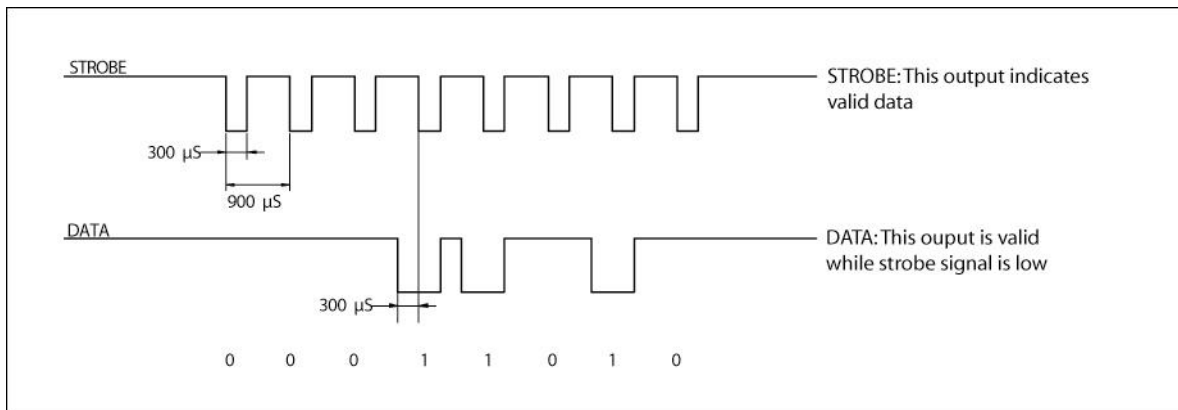
**Note**: The shield/drain should be connected at the power supply.

Connection of the shield/drain to an earth ground will provide greater ESD protection of the reader.

# Wiegand Output Timing
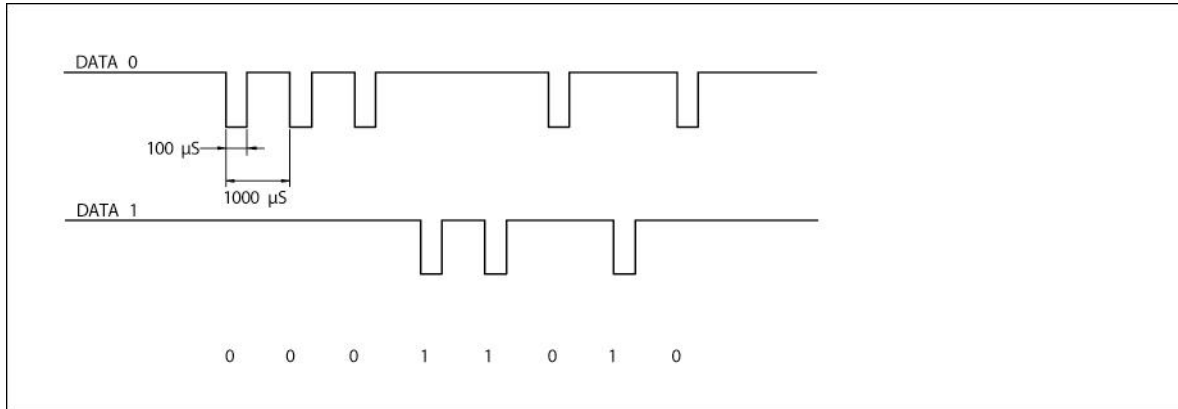


# ABA Track 2 Magnetic Stripe Output Timing



# Regulatory

### FCC

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. Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

### UL

This Proximity Reader is intended to be powered from a limited power source output of a previously certified power supply.  This Reader is intended to be used with UL 294 Listed Control Equipment.

# Models

**6090**   HID Format MIFARE Euro Reader

**6091**   Custom MIFARE Euro Reader

**6092**   Custom DESFire Euro Reader

# Contact

| Americas |
|---|
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