# IDTONYX™ HARDWARE MANUAL



Version 1.1

# Contents

# Part I
# Introduction

# 1. Introduction

IDT Onyx™ - the physical Access Control Biometric terminal for those who are looking for a "low cost & accurate" identification/verification process.

The IDT Onyx™ and the accommodating IdentyManage™ software solutions offer a complete Identity Management Solution both for indoor / outdoor environments.

## 1.1. Overview

IDT Onyx™ incorporates precision Multi Spectral Imaging Fingerprint technology into an ergonomic embedded peripheral that delivers unparalleled performance, reliability and convenience. Available in a modular manner, the IDT Onyx™ provides a price sensitive solution for small to medium access control deployments.

With its integrated Smart Card / Proximity reader, the IDT Onyx™ provides a true two method Identification / Verification PAC.

The IDT Onyx™ operates as a standalone PAC or as part of a networked Access control solution, allowing for complete modularity and interoperability between all IdentyTech and third party software and hardware using our IDT-SDK.

Internal / External processing options using the IdentyTech Octopus™ controller for the only true Real-Time Operating system solution to market. Octopus™ allows a two door, four reader control using encrypted protocols for a total secured controlled environment.

## 1.2. General features

- Full stand-alone capabilities
- Internal SQLite db.
- Easy integration into third party hardware and software.
- Integrated Contactless HID SE Module – Supporting 13.56MHz iClass & Mifare Cards and 125 KHz HID & EM Prox Cards
- Critical information is Secured and encrypted
- Encrypted communications
- Easy installation kit
- TCP/IP
- Exit push button input
- Door status input
- 2 power sources - power supply, POE
- USB host
- RS232/485
- On board 1 relay unit
- Real Time Clock
- Wiegand IN/OUT (26-64 bit formats)
- Multi-color functional LED interface for displaying Biometric Terminal stats.
- 2 functional buttons (external buttons)

- protected power input
- smart card reader interface (RS232)
- Operating temperature -10 to +60 C

## 1.3. Operational modes

- Multi Factor Authentication
- Identification and Verification.
- Integrated Contactless HID SE Module – Supporting 13.56MHz iClass & Mifare Cards And 125 KHz HID & EM Proximity Cards
- 1: 1 Verification – Smart card serial number, template on card, external reader.
- 1: N Identification - 10,000 Templates.
- Custom database sizes available upon request.
- Full Standalone users management Terminal (no network nor management software is needed)
- Server / Client software with unlimited users available.

### The IDT Onyx™ support also different Access Modes

- Fingerprint only
- Smart card only
- Proximity card only
- Smart card or fingerprint
- Smart card and fingerprint
- Proximity card and fingerprint
- Proximity card or fingerprint

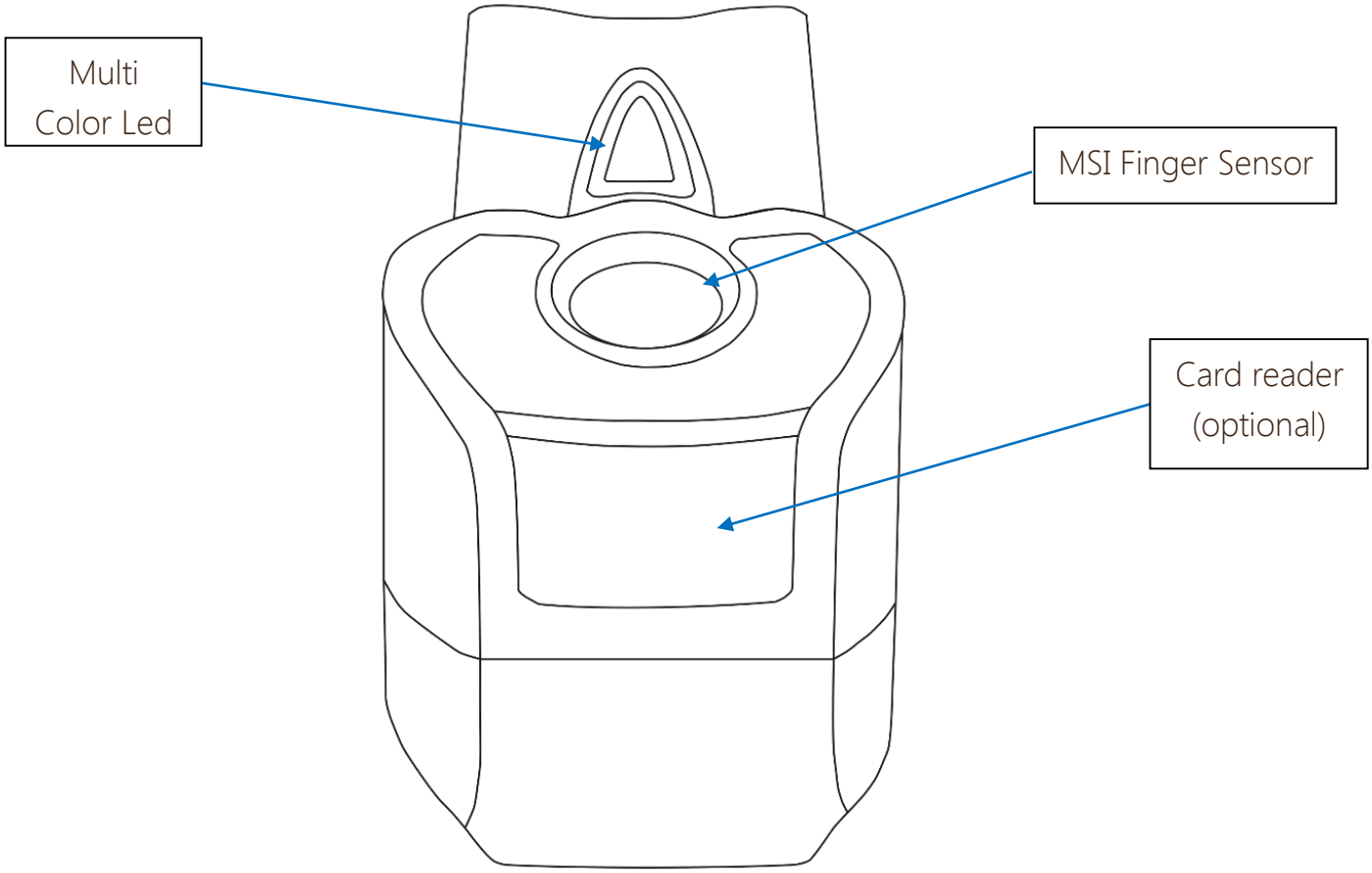
### The IDT Onyx™ also support a different controlled door states and statuses

- Strike Time - the time duration that the strike relay will be energized for in the case of an access grant
- Held Open Time - after an access grant and a subsequent opening of the door contact, the time in which the door contact must be closed before an alarm state is reported
- Forced Open Time - the door status changed , without any access granted activity forced open alarm is generated

# Part II
# Hardware layout

# 2. Terminal layout

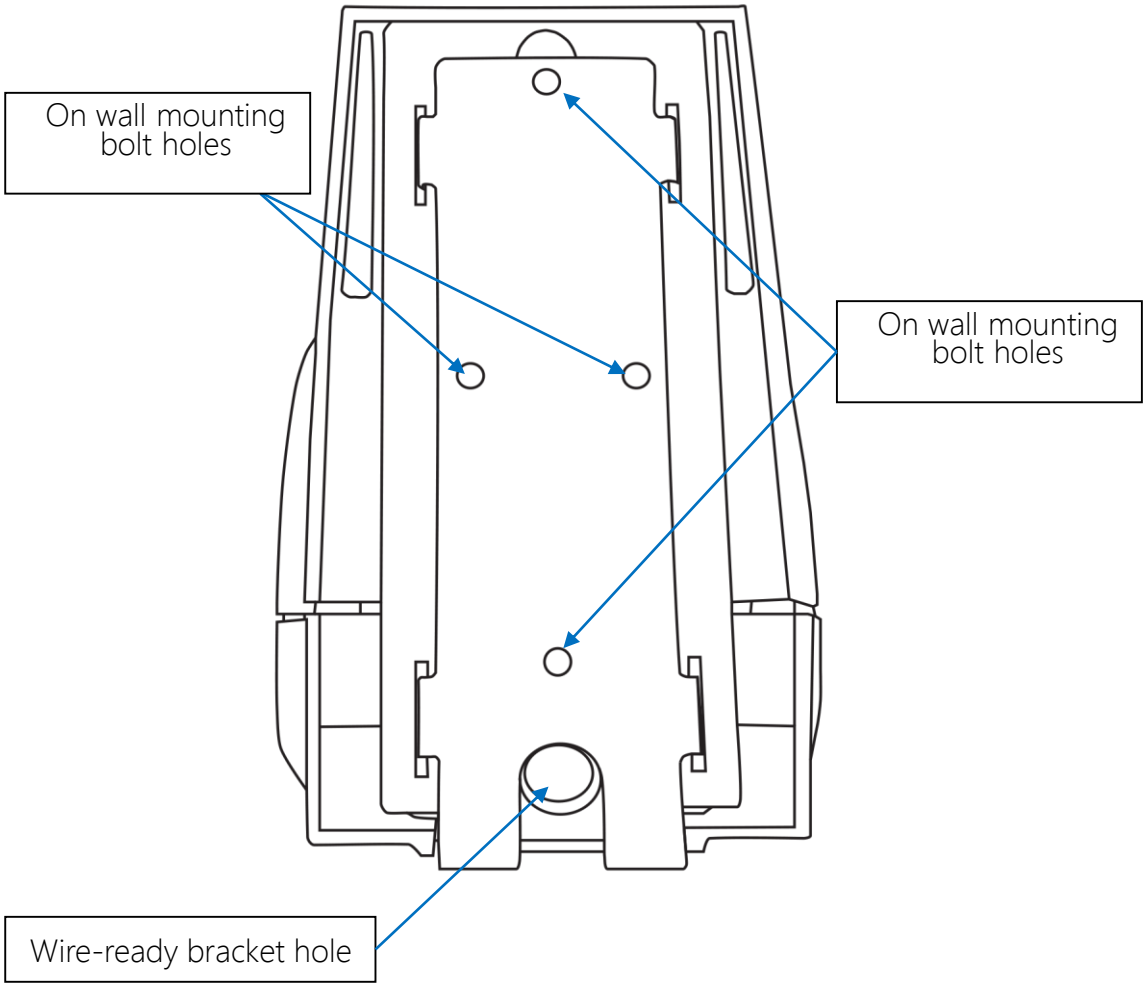
## 2.1. Terminal front view



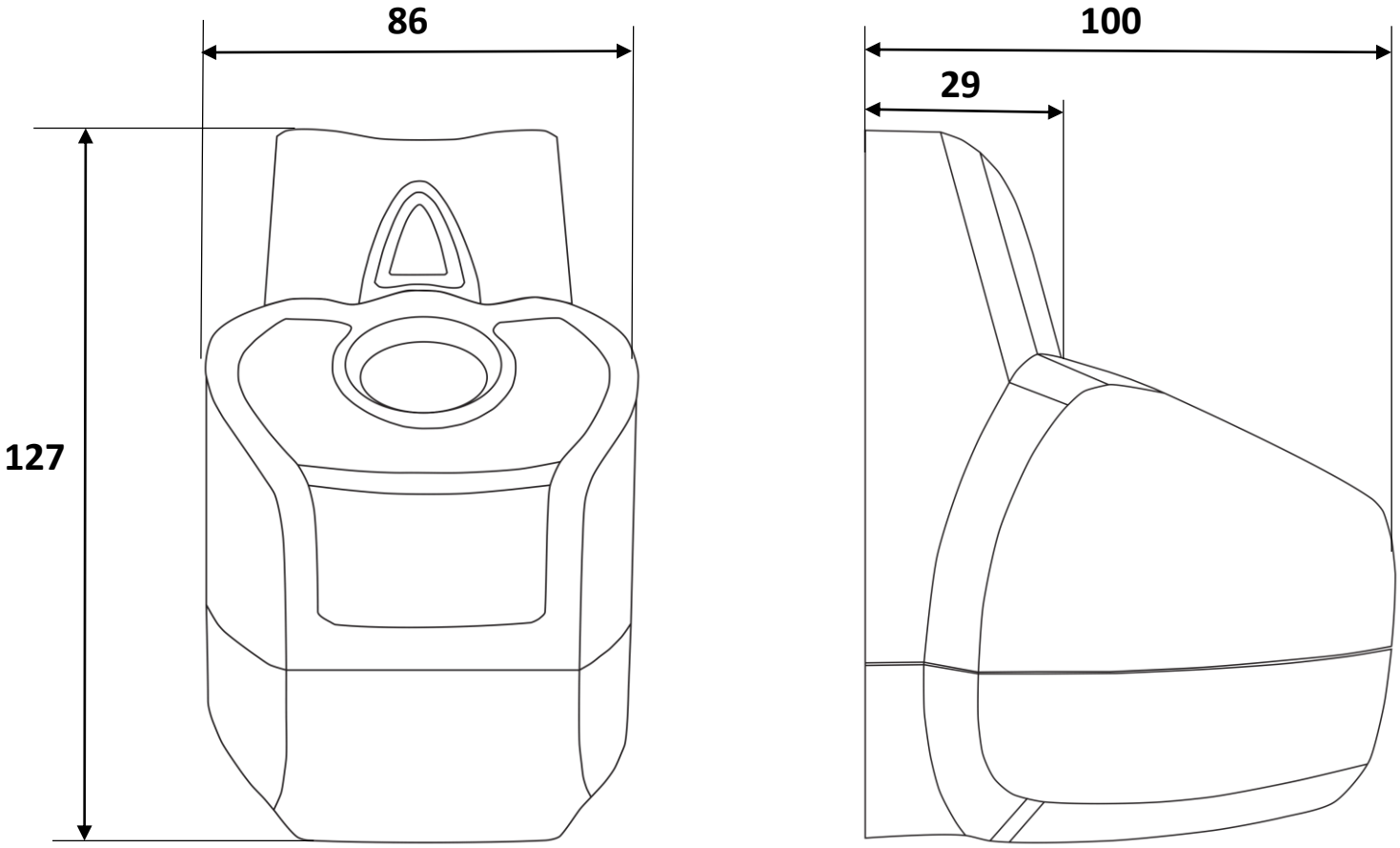

Terminal Front Elements

- Multi-Spectral fingerprint sensor
- Integrated card reader
- Multi-color LED

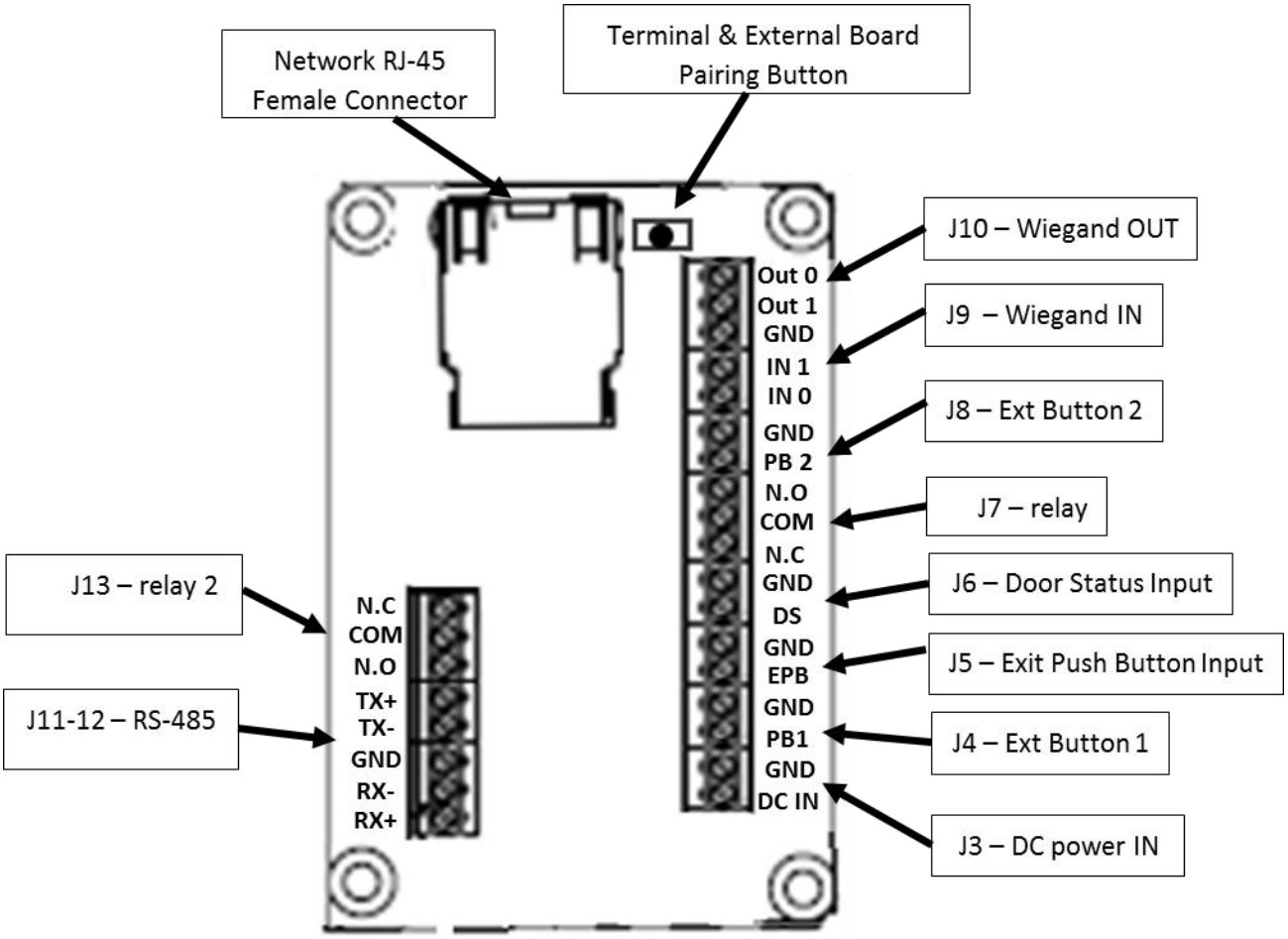
## 2.2. Terminal back view



## 2.3. Terminal dimensions



## 2.4. I\O Connection Terminal Board

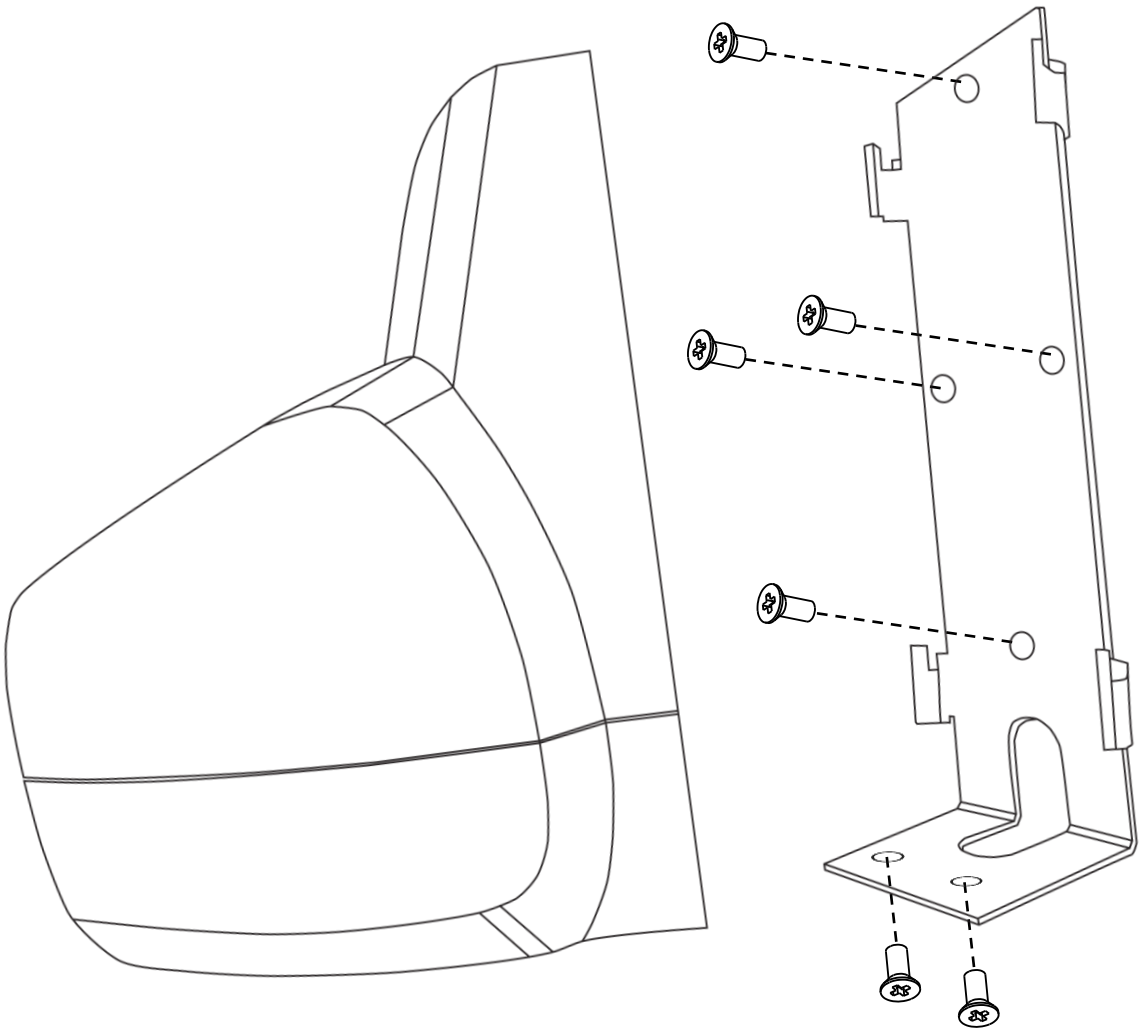



## I\O Terminal Board Connectors

- J3 - Terminal Main Power 12V DC power supply
- J5 - Door Exit Push Button Connector.
- J6 - Door Status Connector.
- J7 - Door Strike Relay Connectors (NO, C, NC).
- J9 - Wiegand IN Communication Connector for different types of Readers
- J10 - Wiegand OUT Communication Connector to 3rd Party Equipment
- J11-12 – RS-485 communication Connectors.
- J13 – External Relay Connectors (NO, C, NC).

| | I\O Terminal Board Connectors Table | | | |
|---|---|---|---|---|
| | **Function** | **Label** | **Type** | **Position** |
| **J13** | Strike Relay Connection | N.C | Relay NC (Normally Close) | |
| | | COM | Relay Com (Common) | |
| | | N.O | Relay NO (Normally Open) | |
| **J12** | RS – 485 Communication Connections | TX+ | non-inverting Transmit | |
| | | TX- | inverting Transmit | |
| **J11** | RS – 485 Communication Connections | GND | Ground | |
| | | RX- | inverting Receive | |
| | | RX+ | non-inverting Receive | |
| **J10** | **Wiegand** Communication from 3rd Party Controller | Out 0 | Wiegand Data OUT 0 | |
| | | Out 1 | Wiegand Data OUT 1 | |
| | | GND | Ground (Controller Power) | |
| **J9** | **Wiegand** Communication from 3rd Party Reader | In 1 | Wiegand Data IN 1 | |
| | | In 0 | Ground | |
| **J8** | External Button Input 2 (Normally Open) | GND | External Button | |
| | | PB2 | External Button Return | |
| **J7** | Door Strike Relay Connection | N.O | Relay NO (Normally Open) | |
| | | COM | Relay C (Common) | |
| | | N.C | Relay NC (Normally Close) | |
| **J6** | Door Status Connection (Normally Closed) | GND | Exit Push Button | |
| | | DS | Exit Push Button Return | |
| **J5** | Door Exit Push Button Input (Normally Open) | GND | Power Fault Input | |
| | | EPB | Power Fault Input Return | |
| **J4** | External Button Input 1 (Normally Open) | GND | External Button | |
| | | PB1 | External Button Return | |
| **J3** | 12v DC power Supply | GND | Ground (Terminal Power) | |
| | | DC-IN | VDC (Terminal Power) | |

## 2.5. Wall Mounting



# Part Ⅲ
# Relay wiring

# 3. Output Relay Wiring

The Secure I\O has two output relays onboard, both relays are dedicated strike relay, The Secure I\O can support a mixture of uses of onboard and on external relay modules.

Typically, doors are held closed and released by one of two methods (Fail Safe or Fail secure). Failsafe – Locked when powered; Fail-secure – Unlocked when Powered.

A. Failsafe locks and strikes require power to lock. When power is interrupted by an access control unit or power outage, the door will unlock. Failsafe locks are often used for life safety applications such as the access control of perimeter fire rated exit doors and high rise building stairwell doors where the locks are automatically released by a signal from the building fire life safety command center during an emergency or building power outage. When used on interior doors that do not require connection to the life safety command center, a battery back-up power supply may be used to provide continuous power to electric locks and strikes during a power outage.

B. Fail secure locks and strikes require power to unlock. When powered by use of an access control controller, the door unlocks. The door will lock or stay locked during a building power outage. A battery back-up power supply may be provided to ensure continued operation during loss of building power. This architecture is typically used for high security applications where fail- secure locks are not permitted on fire rated doors because they do not unlock during an emergency or power loss.

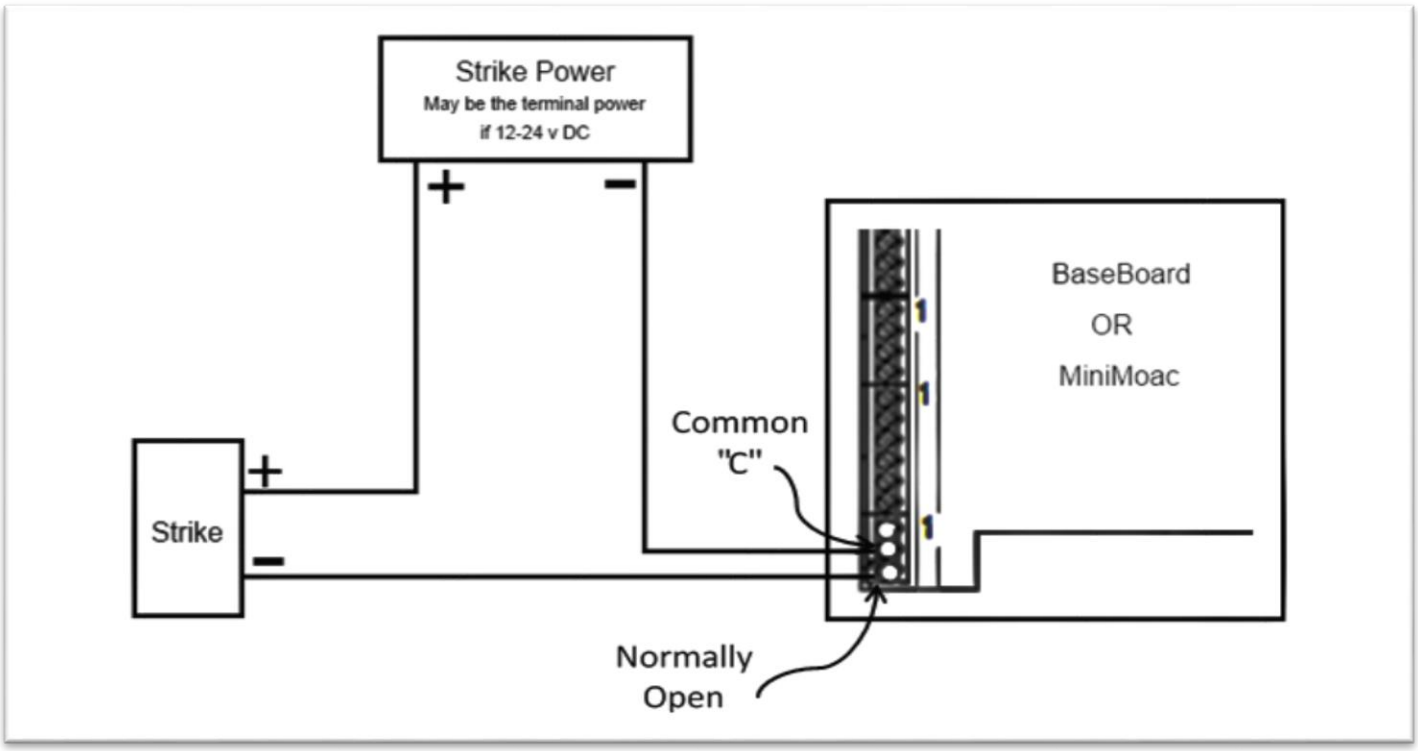
C. An electric door strike is installed in the door frame, replacing the mechanical strike plate. This type of strike has a "gate" that is normally held closed and is released by command from the terminal. This allows the door to be opened.

D. A second type of lock is an electro-magnetic lock which is a two piece device mounted on the perimeter of the door. A solid plate is mounted to the door and an electro-magnetic lock is mounted adjacent to the plate on the frame of the door. The electro-magnetic lock firmly holds the plate mounted to the door, holding it closed until the power is removed by the Terminal, allowing the door to be opened.

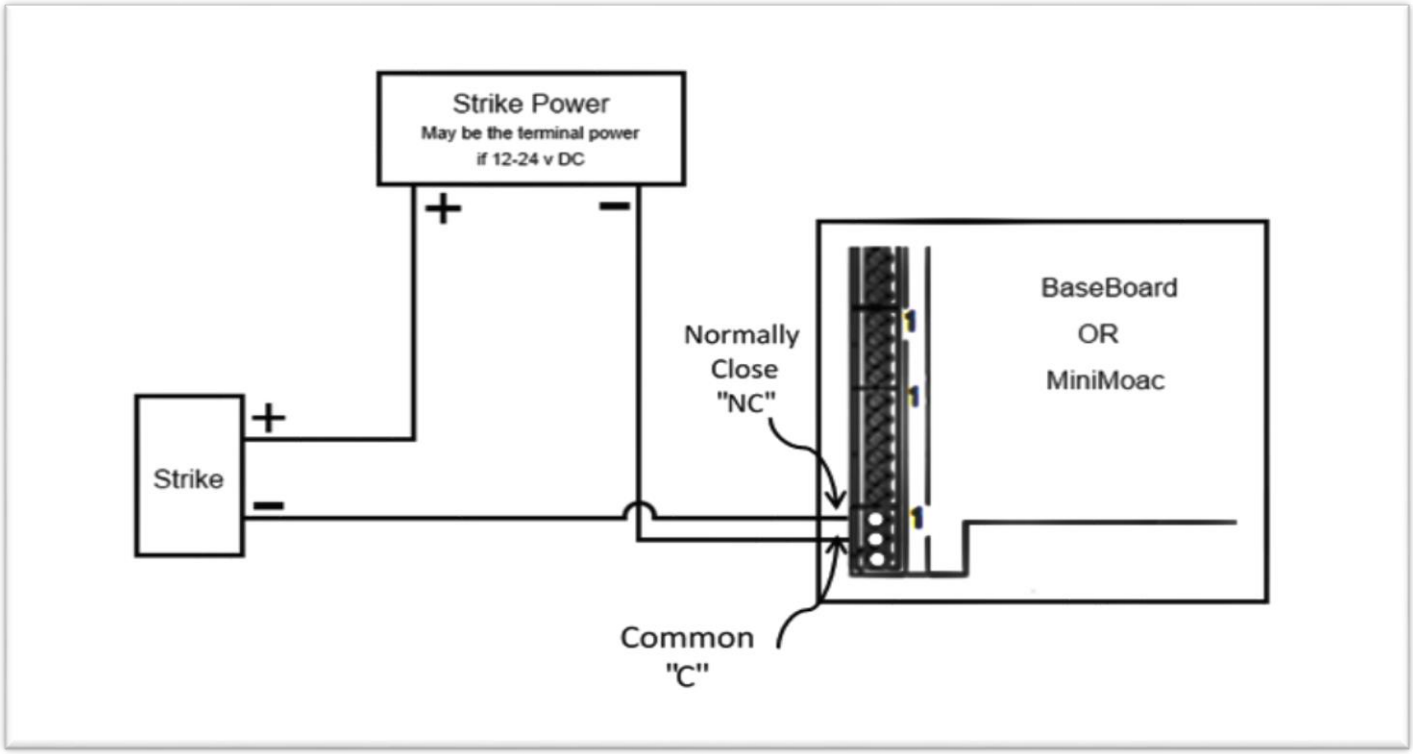
Most electric locks are available in two configurations, Fail-Safe and Fail-Secure. Fail-Safe locks require power to hold the door closed and will release the door when power is removed. This type of lock will open the door if a power outage occurs. This is desirable for doors used as emergency exits.

Fail-Secure locks hold the door closed automatically and require power to release the door. This type of lock is desirable for securing doors in high security applications.

Electro-Magnetic locks are typically only available in the Fail-Safe configuration. Electric locks are also available in a range of operating voltages. 12 volts DC or 24 volts DC are the most common.
AC power strikes are also available but are not widely used because of the difficulty in connecting.




Fail-secure strike wiring configuration




Fail-safe strike wiring configuration

# Part IV
# Terminal IP configuration

# 4. Terminal IP configuration

## 4.1. Default IP settings

All of IDTOnyx™ terminals are shipped with the default IP settings as follows:

- IP address: 192.168.1.1
- Subnet mask: 255.0.0.0
- Default gateway: 192.168.1.1