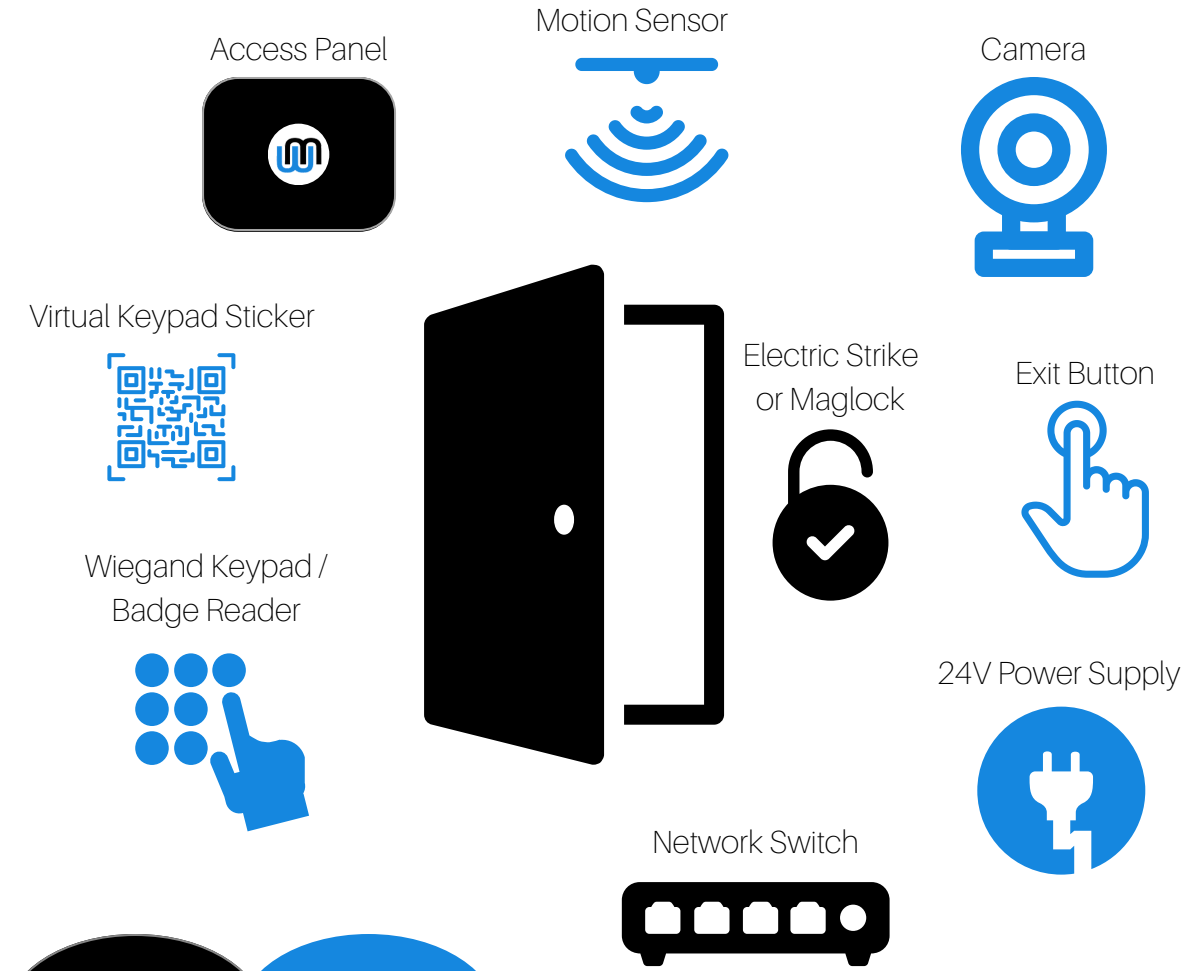
Watchmark Installation

Design Overview



Required Component

Optional Component

Simplest Design

- Watchmark access panel
- Network switch provides Power Over Ethernet (PoE) to panel
- Fail-secure strike controlling door
- Mechanical crashbar or paddle provides egress

Simplest Maglock Design

- Watchmark access panel
- Network switch provides PoE to panel
- Magnetic lock controls door
- Dedicated power supply for maglock
- Request to Exit button
- Motion sensor Recommended

Consider all local building and fire codes when designing an access control system!

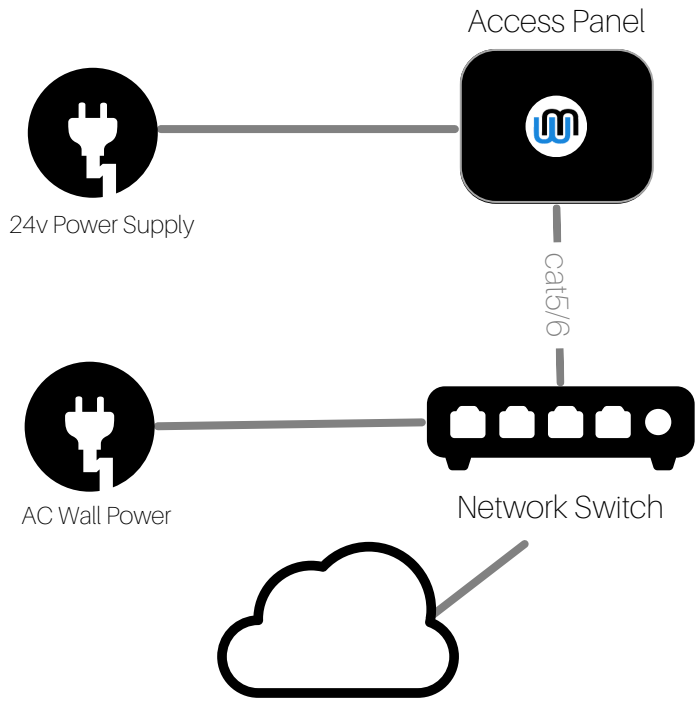
Either of these configurations allows the panel to power both a keypad and fail-secure electric strike with medium traffic

Powering the Access Panel

And Reaching the Internet

DC 24v Power Supply

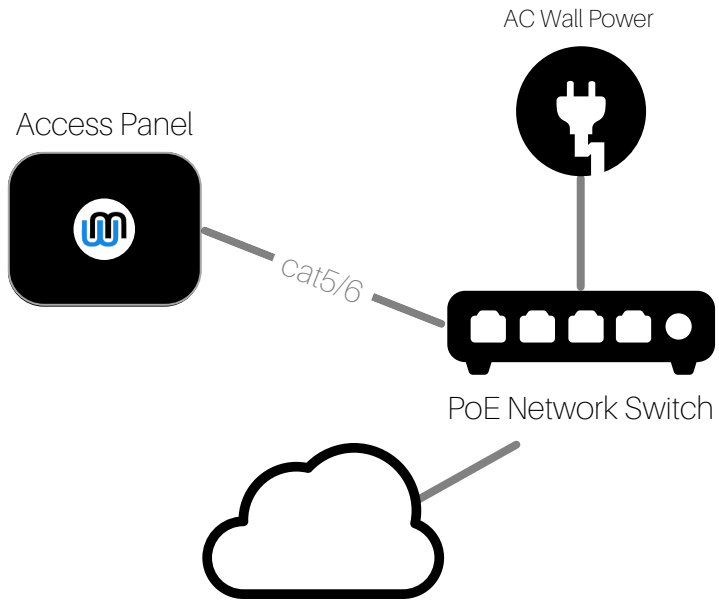
- Dedicated 24v power supply for access panel
- Separate ethernet cable to switch
- Useful if panel and lock share a battery backup that the network switch will not share



Power over Ethernet

recommended

- One Cat5 or Cat6 ethernet cable provides both power and network access
- PoE (IEEE 802.3af) and PoE+ (802.3at) compatible
- PoE specifies 100 meters maximum cable length
- Either switch must provide PoE or a IEEE 802.3af/802.3at PoE injector may be used

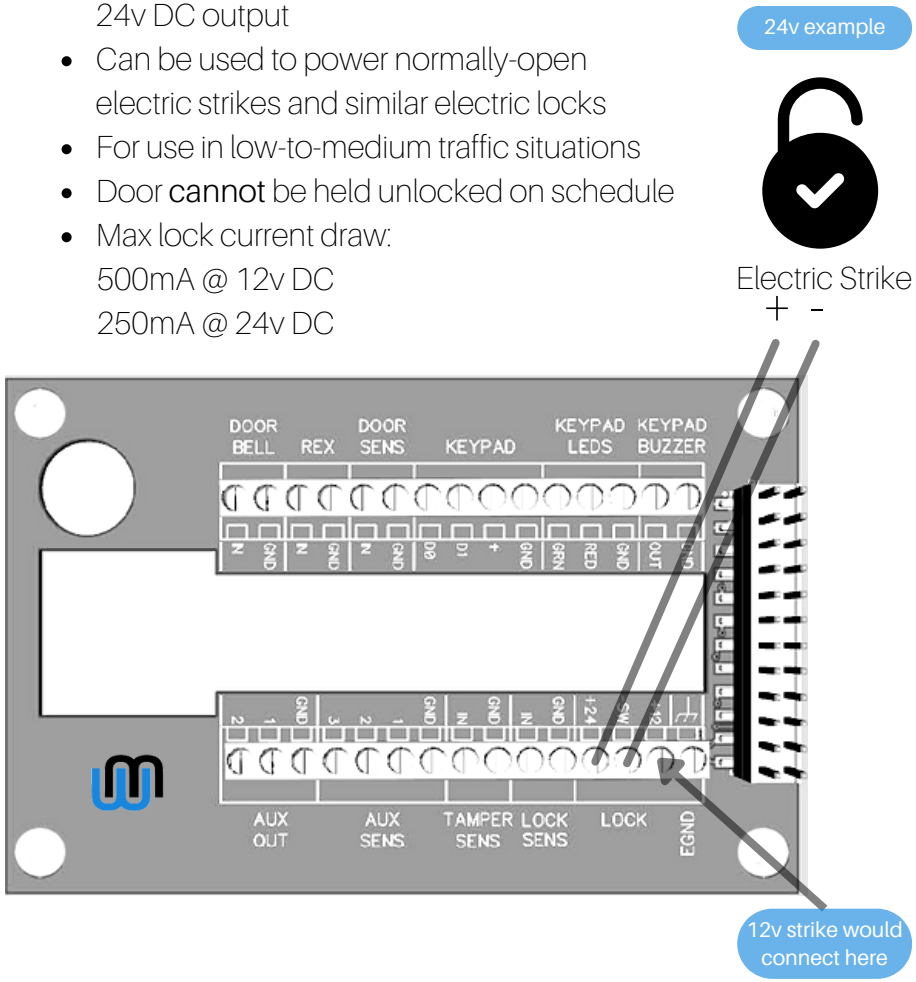


The Watchmark panel cannot supply continuous or near-continuous power to the lock

Powering the Lock

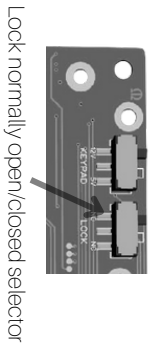
Onboard Power Supply

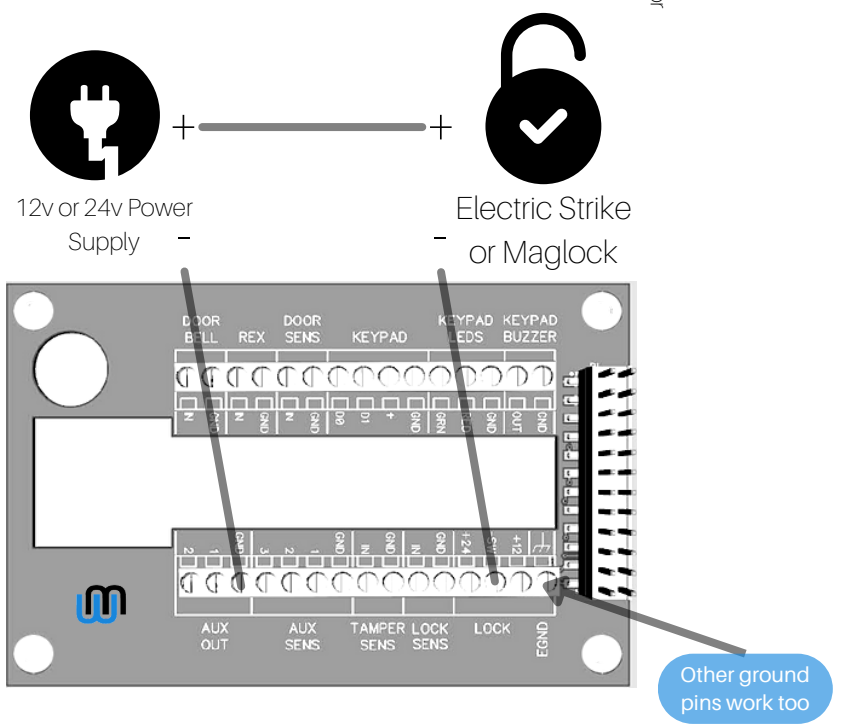
- Watchmark access panel produces 12v and 24v DC output
- Can be used to power normally-open electric strikes and similar electric locks
- For use in low-to-medium traffic situations
- Door cannot be held unlocked on schedule
- Max lock current draw:
  500mA @ 12v DC
  250mA @ 24v DC



External Power Supply

- Watchmark panel ground is tied to lock power supply ground
- Lock receives DC+ from external power supply
- Watchmark panel controls lock by providing path to ground
- Door can be held unlocked on schedule





Access Methods

	Wiegand Keypad / Badge Reader	Virtual Keypad	Mobile App	Browser	API
Installation	Install a physical keypad and/or badge reader on the exterior of the building .	Apply the included QR code in a window next to the door.	After downloading the mobile app, log in using username / password. *or* Click a secret link on your phone that logs you into the app.	Login (users) or click a secret link (passes) to open doors from the browser.	Generate API credentials, which can be used by developers or cloud-based applications to manage your account and open doors.
Works Offline	☑	☑ *	☑		
Components Required	Keypad/Reader	Included QR code	Free iOS/Android app	Modern web browser	Developers or an existing integration

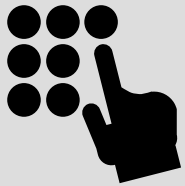
* Virtual Keypad works offline if app is already installed

Max current draw 100mA

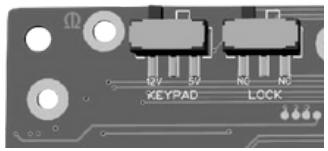
Wiegand Keypad / Reader

optional

Wiegand Keypad /
Badge Reader



Keypad Power 5v/12v selectable
on main board

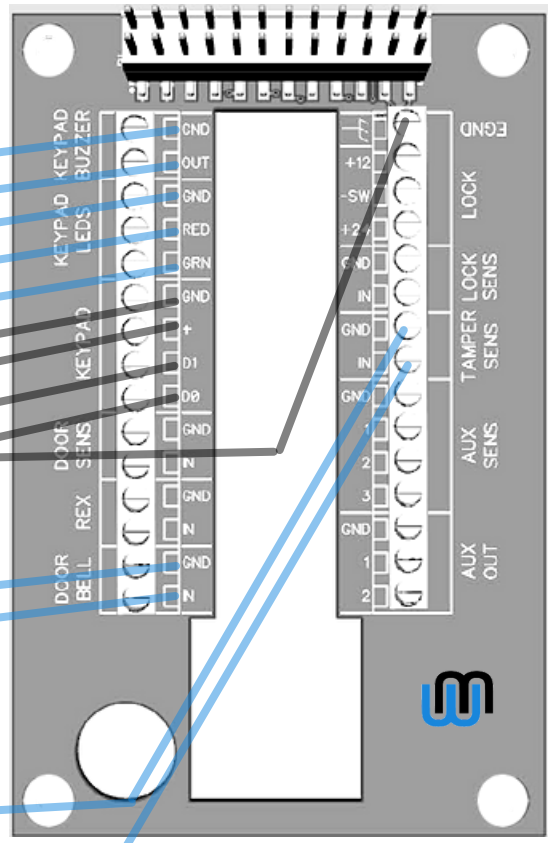


Buzzer
Buzzer
LED ground
Red LED
Green LED
Power -
Power +
Data1
Data 0
Doorbell
Doorbell
Tamper
Tamper

Shielded 18 AWG wire

cable shield NOT grounded

cable shield grounded

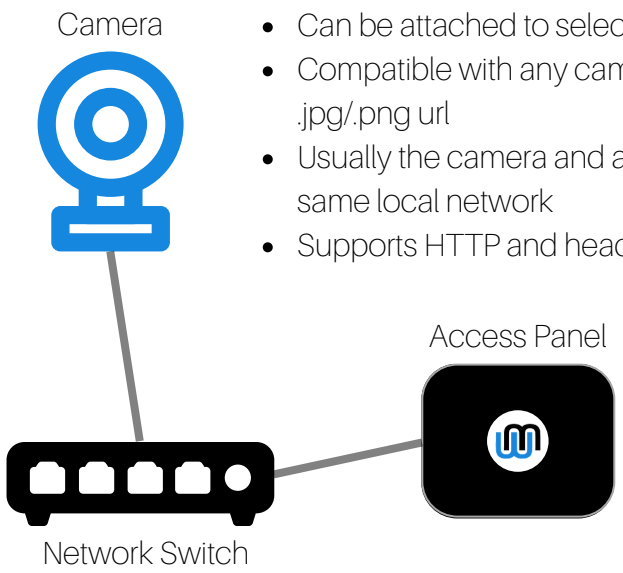


18AWG solid core wire recommended
20AWG may be used for short runs

optional connection
required connection

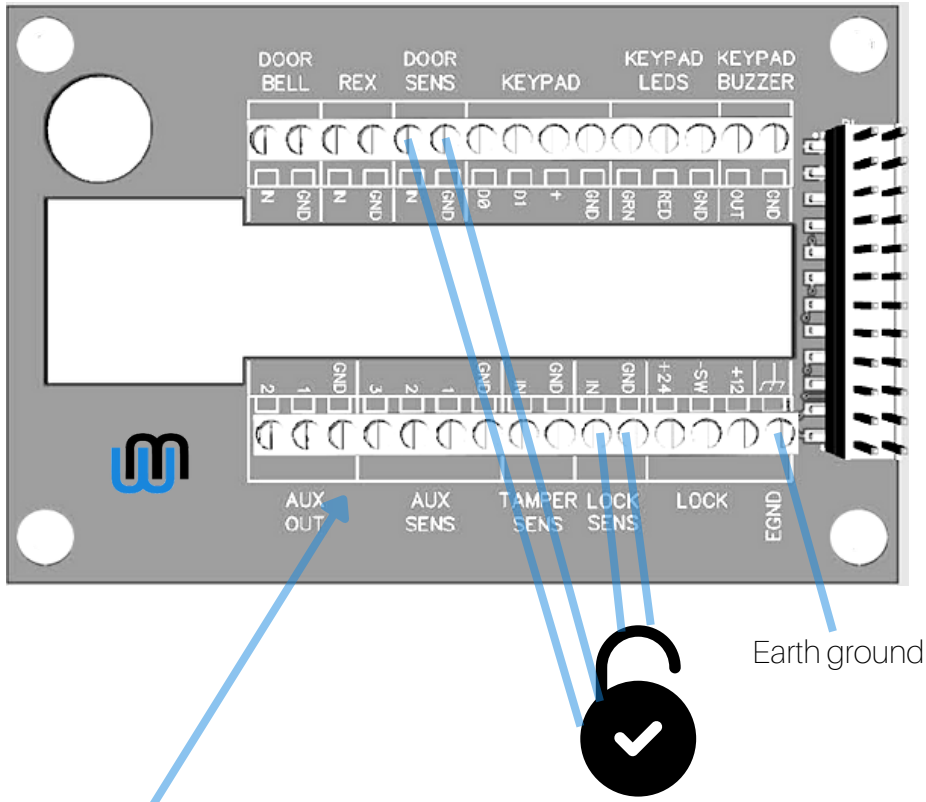
Snapshots

- Can be attached to selected access events
- Compatible with any camera that exposes a .jpg/.png url
- Usually the camera and access panel share the same local network
- Supports HTTP and header authentication



Other Features

optional



Auxiliary sensors/outputs will be used in future to connect with security alarm sensors, etc

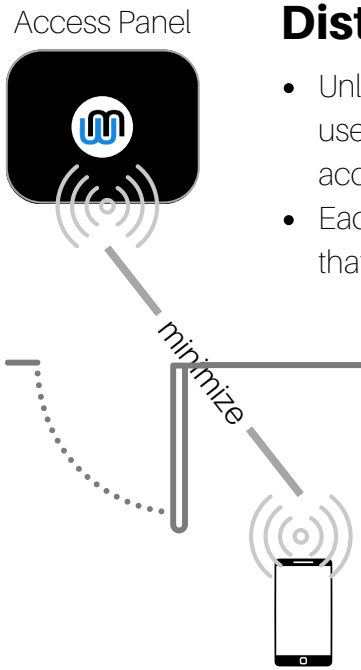
- Some locks expose lock position and/or door position sensors
- These allow alarms/alerts when doors are left unlocked or jam open

Sound & Speakers

- Doorbell sensor can trigger a doorbell sound
- Door/lock position sensors can trigger a door-left-open alarm
- Medium-volume onboard speaker, or connect to powered external speaker

Do not connect to an unpowered external speaker

Physical Design
considerations



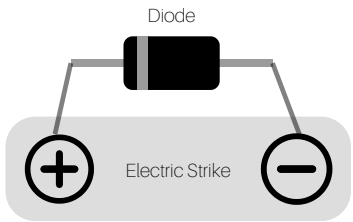
Distance from panel to door

- Unlike most access control systems, Watchmark uses no central controller - there's one small access panel installed per door
- Each panel should be installed near its door so that it can be unlocked via Bluetooth

Take brick walls, metal barriers, and other materials which dampen/block Bluetooth into consideration

Kickback voltage spikes

- If your electric strike does not contain an integrated kickback-voltage diode, install one as close as possible to the lock (ideally across the terminals on the strike itself)
- Choose a diode appropriate to the voltage of the lock used
- Diode is installed "backwards" with the cathode (-) connected to the positive terminal (+) on the strike



Electromagnetic Interference

- Keep panel and wires away from 120v AC and other noise sources, if possible
- Wiegand data wires are especially sensitive
- Properly ground shielded cable on only one end

Panel status indicator

- Booting
- Not connected to internet
- Door locked
- Door unlocked
- Data syncing from cloud