



# EDGE EVO® EH400-K Networked Controller

Interface to Standard Door REX, DPS, Lock  
and Wiegand / C&D Reader

## SINGLE DOOR NETWORKED ACCESS CONTROLLER FEATURING POWER OVER ETHERNET

- **Open Architecture** - Development platform enables use of hardware with any OPIN compliant access control software from a wide variety of partners.
- **High Performance** - Powerful platform performance increases door uptime.
- **Power Over Ethernet (PoE)** - Reduces wiring costs by powering controller, reader and door lock over one CAT-5 wire.
- **High Security** - Increased security with encrypted data exchange around the door and between controller and Hi-O iCLASS® Readers.

### Cable Specifications

#### Ethernet:

- 300ft (100m), CAT-5
- ALPHA 9504C, ALPHA 9405F

#### Wiegand / C&D:

- 500ft (150m), 9-conductor stranded, overall shield
- 22AWG ALPHA 1299C

#### Input Circuits:

- 500ft (150m), 2-conductor shielded
- 22AWG ALPHA 1292C
- 18AWG ALPHA 2421C

#### Output Circuits:

- 500ft (150m), 2-conductor shielded
- 22AWG ALPHA 1172C
- 18AWG ALPHA 1897C

#### Hi-O CANbus:

- 100ft (30m) total bus length
- 30ft (10m) length between drops
- 22AWG, 0.65mm, 0.33mm

HID Global's Networked Access Solutions provide an open architecture development platform that enables HID's software partners to deploy a wide variety of versatile access control systems that protect their customers' hardware investments.

As part of HID Global's Networked Access Solutions family, the EDGE EVO® EH400-K is a single-door access control panel that enables cost-effective installation and high performance access control functionality.

The EH400-K makes local door decisions and can interface with one Wiegand/Clock-and-Data reader and one (or two) Hi-O iCLASS readers. An additional Wiegand/Clock-and-Data reader can be attached using a separate Hi-O Interface

Module. The EH400-K is mountable on single- or double-gang electrical boxes and is roughly the size of a triple-gang electrical box. The EH400-K has an optical tamper, and interface to 4 discrete inputs and 2 outputs (lock and auxiliary).

As customer requirements change over time and new software provider solutions enter the market, EDGE EVO solutions enable the replacement of head end software without visiting the access control panel, reducing change out costs.

EDGE EVO solutions are created for both on site system administration as well as service oriented offsite solutions, depending on the OEM software provider's total solution.



**Features:**

- Provides a complete and fully functional hardware/firmware infrastructure for IP access control software host systems.
- Supports Power Over Ethernet (PoE), enabling cost-effective installation utilizing existing network infrastructure.
- Stores a complete access control and configuration database for one door with one or two readers and 125,000 cardholders.
- Provide access control processing, host functionality and power for a single door, including one or two readers, lock, door status, request-to-exit device and auxiliary sounder.
- Utilizes on-board jumpers to select 12 or 24 VDC power to locks and AUX output when powering device over PoE or 24 VDC.
- Provides encrypted door bus using Hi-O technology so that controller and Hi-O enabled readers and door components communicate securely.
- Connects to the host and other devices on a TCP/IP network.
- Receives and processes real-time commands from the host software application while reporting all activity to host. Buffers up to 99,999 transactions.
- Provides fully functional offline operation when not actively communicating with the host access control software.
- Interfaces with one or two Hi-O compliant readers and one Wiegand or Clock-and-Data reader (expandable to two).
- Spacer and reverse mount accessories (sold separately).



**SPECIFICATIONS**

<b>Model (and Part #)</b>	EH400-K (82000CKE1A)
<b>Mounting Holes</b>	US Double-gang, US Single-gang and EU / APAC 60mm
<b>Dimensions</b>	6.1" W x 4.8" H x 1.5" D (154.9 mm x 122.5 mm x 37.1 mm)
<b>Weight</b>	11.3oz (320g)
<b>Housing Material</b>	UL94 polycarbonate
<b>Audio / Visual Indicators</b>	Two LEDs on RJ-45 port for network; beeper for boot and tamper
<b>Operating Temperature</b>	32° to 122° F (0° to 50° C)
<b>Operating Humidity</b>	5% to 95% relative, non-condensing
<b>Communication Ports</b>	Ethernet (10/100), Hi-O CANbus, Wiegand or Clock-and-Data
<b>Certifications*</b>	UL294 (US) Listed Component, CSA 205 (Canada), FCC Class A (US), ICES-003 Class A (Canada), CE Mark EN 301 489-3 EN 55022 EN 50130-4 (EU), C-Tick AS/NZS CISPR 22 (Australia, New Zealand) & Korea (KCC)
<b>Warranty</b>	Warrantied against defects in materials and workmanship for 18 months (see complete warranty policy for details).

**Input Power**

<b>DC Input (MAX) @ PoE</b>	14.4W (300mA @ 48VDC)
<b>DC Input (MAX) @ AUX +12VDC</b>	18W (1500mA @ 12VDC)
<b>DC Input (MAX) @ AUX +24VDC</b>	36W (1500mA @ 24VDC)
<b>Supervised Inputs Power (MAX)</b>	0.025W (5mA sink, 5V nominal) 0 to +5VCD Ref

**Output Power (MAX) for total system (all field devices)**

<b>DC Input @ PoE</b>	9.6W
<b>DC Input @ AUX +12VDC</b>	14.4W
<b>DC Input @ AUX +24VDC</b>	28.8W
<b>Hi-O CANbus Output Voltage, DC Input = PoE</b>	24VDC
<b>Hi-O CANbus Output Voltage, DC Input = AUX</b>	AUX +VDC

**Output Power (MAX) for individual field devices, DC Input = PoE**

<b>Hi-O Device on CANbus</b>	9.6W (400mA @ 24VDC)
<b>Wiegand / C&amp;D Reader</b>	7.1W (580mA @ 12.25VDC)
<b>Wet Output (@12VDC)</b>	6.9W (580mA @ 12VDC)
<b>Wet Output (@24VDC)</b>	8.6W (360mA @ 24VDC)

**Output Power (MAX) for individual field devices, DC Input = 12VDC**

<b>Hi-O Device on CANbus</b>	14.4W (1200mA @ 12VDC)
<b>Wiegand / C&amp;D Reader</b>	3.9W (320mA @ 12.25VDC)
<b>Wet Output (@12VDC)</b>	8.4W (700mA @ 12VDC)

**Output Power (MAX) for individual field devices, DC Input = 24VDC**

<b>Hi-O Device on CANbus</b>	28.8W (1200mA @ 24VDC)
<b>Wiegand / C&amp;D Reader</b>	7.3W (600mA @ 12.25VDC)
<b>Wet Output (@12VDC)</b>	8.4W (700mA @ 12VDC)
<b>Wet Output (@24VDC)</b>	16.8W (700mA @ 24VDC)

**Relay Rating**

<b>Relay Contact Rating (Dry Output)</b>	2A @ 30VDC
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\*For Plenum rating, install within NEMA Type 1 Enclosure

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# EDGE EVO®

## Standard Networked Controller

EH400-K / ESH400-K

### INSTALLATION GUIDE

82000-921, Rev D.1

October 2012

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EDGE EVO is the next evolution in access control hardware solutions. A true IP solution that meets the demands of open architecture, IP-centric environments, EDGE EVO provides fully distributed intelligence and decision making right to the door, leveraging the IT infrastructure to the maximum extent possible. Leveraging Power-over-Ethernet (PoE), EDGE EVO reduces door installation costs by not requiring a separate local power supply under many circumstances.

The Standard Networked Controller is a fully integrated single-door controller offering discrete I/O and Wiegand/Clock-and-Data interfaces to readers. Additionally, connect native Hi-O devices (readers, locks, pushbuttons) and EDGE EVO Hi-O Modules to the Hi-O bus, providing secure communication around the door. Hi-O involves devices with built-in intelligence and a CANbus that links all the devices together. Password protect or encrypt Hi-O CANbus data traffic. Each Hi-O device (such as the REX switch, electric strike, card reader and door operator) is connected to the CANbus by a single, four-wire cable. Two of the wires supply power and the other two are used for data communication.

## Specifications

CONDITIONS		VOLTAGE DC (VDC)	CURRENT (Amp)	POWER (W)	OPERATING TEMPERATURE	CABLE LENGTH	UL REF NUMBER		
Input	DC Input (NSC)	+12VDC	0.18Amp	2.16	32° - 122°F (0° - 50° C)	Hi-O CAN Bus Total Length 100 ft (30 m) - 22 AWG ● 0.65mm ● 0.33mm <sup>2</sup>  Maximum between drops 30 ft (10 m) 22 AWG ● 0.65mm ● 0.33mm <sup>2</sup>  RJ45 328 ft (100 m) - Category 5 K	KE400CX <sub>1</sub> X <sub>2</sub> N		
		+24VDC	0.14Amp	3.36					
		PoE (+48VDC NOM)	.085Amp	4.08					
	DC Input (MAX)	+12VDC	1.5Amp	18.00					
		+24VDC	1.5Amp	36.00					
		PoE (+48VDC NOM)	0.3Amp	14.40					
Supervised inputs (AC, Batt, REX, Door Mon) (MAX)		0-+5VDC Reference	0.005Amp (sink)	0.025					
Data 1/CLK , Data 0 / Data (MAX)		0-+5VDC Reference	N/A	N/A					
Output	GRN LED, RED LED, Beep, Hold (MAX)		0-+5VDC reference	0.005Amp (sink)				0.025	
	External Tamper (MAX)		+5VDC (NOM)	0.02				0.100	
	CAN DC Output (MAX)	AUX 12 / 24VDC Input		+10.8 to +24VDC				1.2Amp *	28.80
		PoE Input		+ 24VDC (NOM)				0.4Amp *	9.60
	Reader DC PWR Output (MAX)	AUX 12 VDC		+9.8 to +12.25VDC	0.32Amp *	3.92			
		AUX 24VDC		+9.8 to +12.25VDC	0.60Amp *	7.35			
		PoE Input		+9.8 to +12.25VDC	0.58Amp *	7.11			
	Strike*** / AUX Relays NC or NO DC Output (MAX)	AUX 12VDC Input	Unregulated (Wet) Jumpers	+10 to +12VDC	0.70Amp *	8.40			
			Unregulated (Wet) Jumpers	+23 to +24VDC	0.70Amp *	16.80			
		AUX 24VDC Input	Regulated (Wet) Jumpers - 12VDC	+10 to +12VDC	0.70Amp *	8.40			
			Unregulated (Wet) Jumpers	+16.5 to +24VDC	0.36Amp *	8.64			
		PoE Input	Regulated (Wet) Jumpers - 12VDC	+10 to +12VDC	0.58Amp *	6.96			
AUX / PoE Input	Jumpers Set to Dry		+12 to +24VDC External	2.00Amp **	48.00				

NSC = Normal Standby Condition  
\* Combined output rating not to exceed V\*I = W  
1.2 Amp (+24VDC AUX Input, 28.8 W)  
1.2 Amp (+12VDC AUX Input, 12.96 W)

\*\* Each relay  
\*\*\* Shared between relays.

X<sub>1</sub> = K for Black  
G for Gray  
N for non-Solo  
S for Solo  
X<sub>2</sub> =

# 1 Power Analysis

Before starting installation, determine which components will be used in the system and analyze the power requirements to avoid over-loading the EDGE EVO Hi-O Networked Controller & Reader (EH400-K).

The steps that follow illustrate sizing power requirements for the system.

## Step 1 - Identify System Components

Identify the components that will be used in the system. A typical installation may include the following components:

- Door Position Switch – Detects when the door is open or closed.
- Magnetic Lock – Holds the door locked.
- Request to Exit (REX) Switch – Unlocks the door when exiting the secured area.
- EDGE EVO Hi-O Standard Networked Controller (EH400-K) – Provides access control and manages all peripherals around the door.
- iCLASS Wiegand Reader – Provides entry into the secured area.

## Step 2 - Create System Layout

Using the components identified in “Step 1 - Identify System Components” on page 2, create the system layout.

In this example, the EH400-K is connected to the remote server through an Ethernet connection and manages door peripherals over the Hi-O bus. Controlling downstream door peripherals, the EH400-K is a fully integrated single-door controller offering discrete I/O and Wiegand/Clock-and-Data interfaces to external readers. The EH400-K receives inputs from the Door Position Switch and REX Switch to drive the Magnetic Lock output.

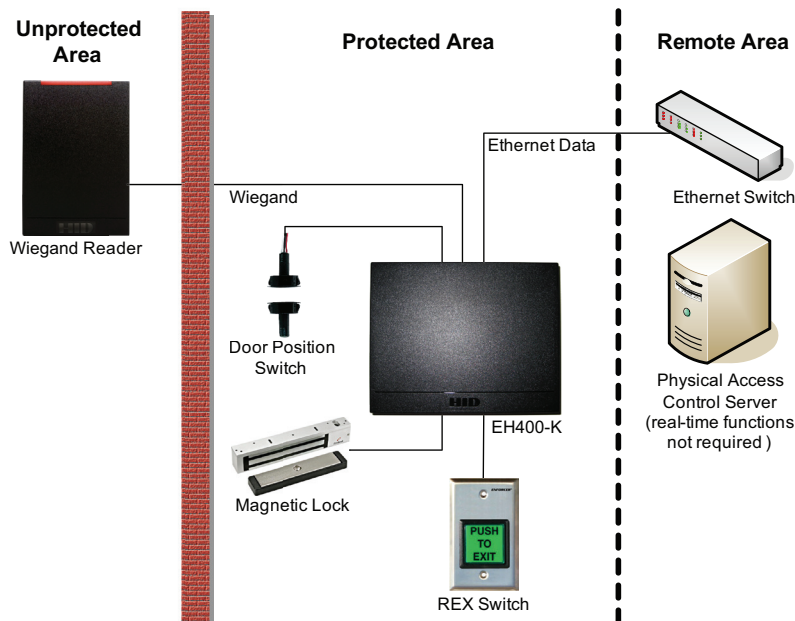


Figure 1 - System Layout Example

## Step 3 - Analyze Power Requirements

### A - Door Peripheral Operational Currents

For the door peripherals identified in “Step 1 - Identify System Components” on page 2, consult the vendor data sheets to determine the operational current draw. Typical operational current draw is provided below.

**Note:** See individual peripheral data sheets for actual operational current draw.

Device	Conditions	Typical Operational Current
Door Position Switch (For example, Securitron MSS)	V <sub>IN</sub> = 12VDC	15mA
	V <sub>IN</sub> = 24VDC	15mA
Mag Lock (For example, Securitron M32)	V <sub>IN</sub> = 12VDC	300mA
	V <sub>IN</sub> = 24VDC	150mA
REX Switch (For example, Securitron EEB)	V <sub>IN</sub> = 12VDC	28mA
	V <sub>IN</sub> = 24VDC	38mA
iCLASS Wiegand Reader	V <sub>IN</sub> = 12VDC	150mA

### B - Match I/O Requirements to the Hi-O Interface Device

For the door peripherals identified in “Step 1 - Identify System Components” on page 2, the system requires direct connection to I/O interface and Wiegand/Clock-and-Data ports of the EH400-K. A separate Hi-O Interface Device is not required.

### C - Compute and Compare Overall Current Draw

Calculate the total current draw for all door peripherals and the attached Wiegand readers with the following equation, adding terms as required.

$$I_{total} = I_{dps} + I_{mag} + I_{rex} + \dots + I_{iCLASS\ reader}$$

The following calculations provide load current computations.

$$I_{total} @ 12VDC = 15mA + 300mA + 28mA + 150mA = 493mA$$

$$I_{total} @ 24VDC = 15mA + 150mA + 38mA + 150mA = 353mA$$

Compare the required current draw ( $I_{total}$ ) to the output current capacity of the EH400-K (see Specification table, pg 1) to select the EH400-K power scheme. The CAN DC PWR Output represents the entire power output capacity of the EH400-K.

Device	Port	Conditions	Vout	I out
Standard Networked Controller (EH400-K)	CAN DC PWR Output (MAX)	AUX 12-24VDC Input	+10.8 to +24VDC	1.2Amp
		PoE input	+24VDC (NOM)	0.4Amp

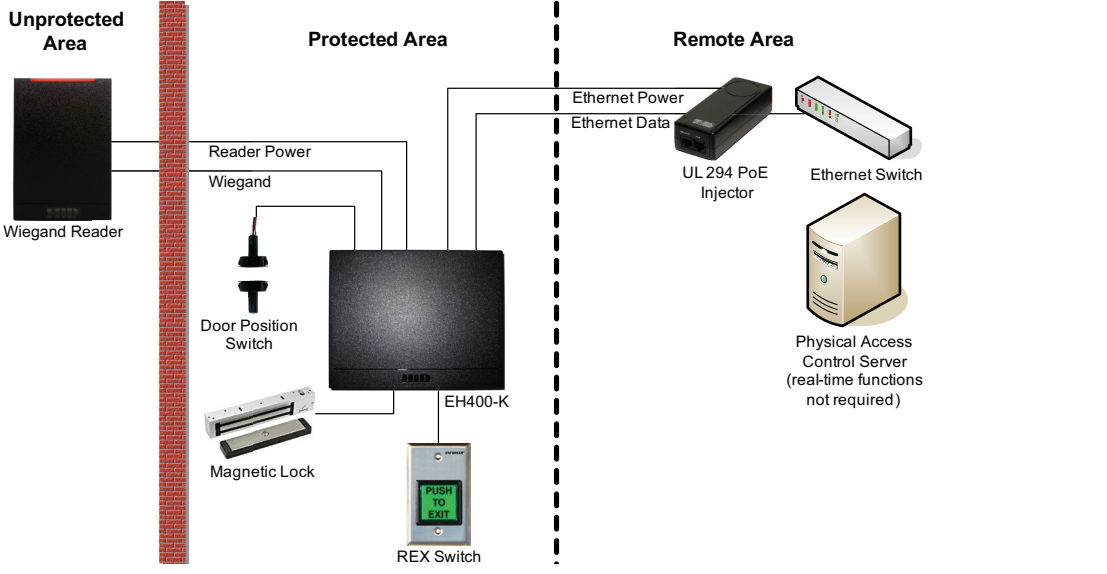
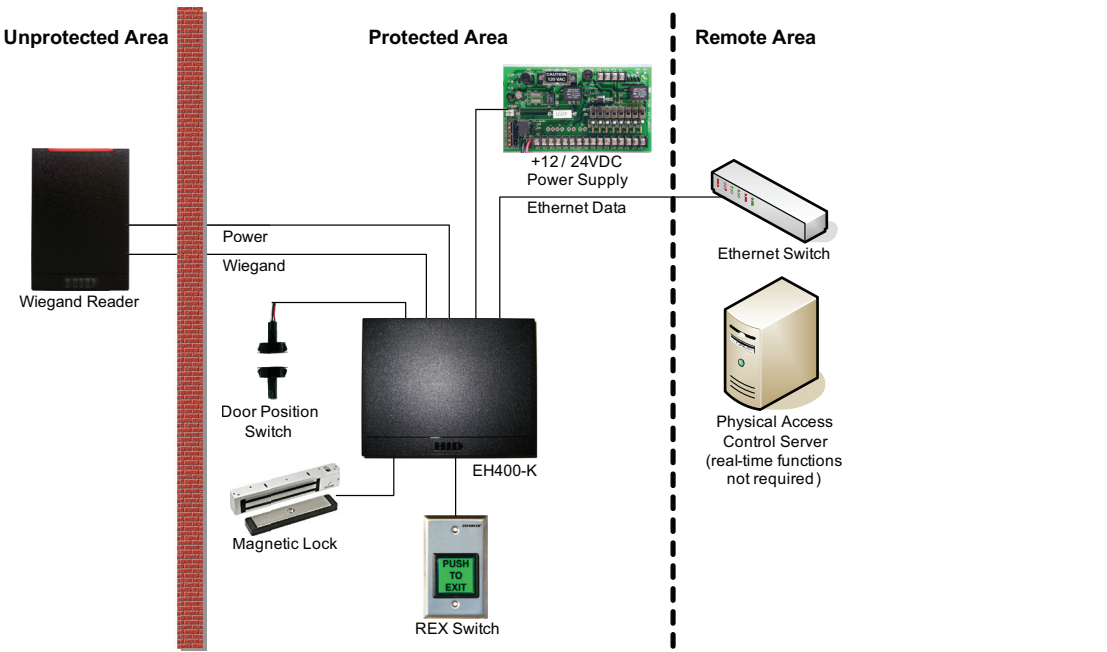
In this example, the EH400-K provides sufficient power when operated with a PoE injector, or +12/24VDC auxiliary power supplies.

Directly connect the door peripherals identified in “Step 1 - Identify System Components” on page 2 to the EH400-K I/O ports per the “Specifications” on page 1 for the selected input power scheme.

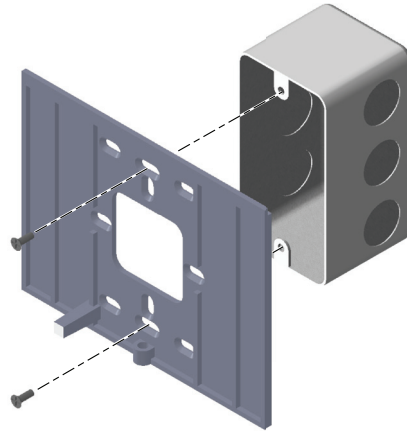
Ensure all door peripherals connected to the Strike/AUX relays and the Reader DC PWR Output or both do not exceed 1.2Amps (AUX Input) or 0.4Amps (PoE Input), combined. Alternatively, the door peripherals may be connected to the Strike/AUX relays configured for Dry contact up to 2Amps per relay.

## Step 4 - Select Power Scheme

Select the appropriate power scheme to meet overall current draw. Using the analyses from the previous sections equates to the following power scheme possibilities.

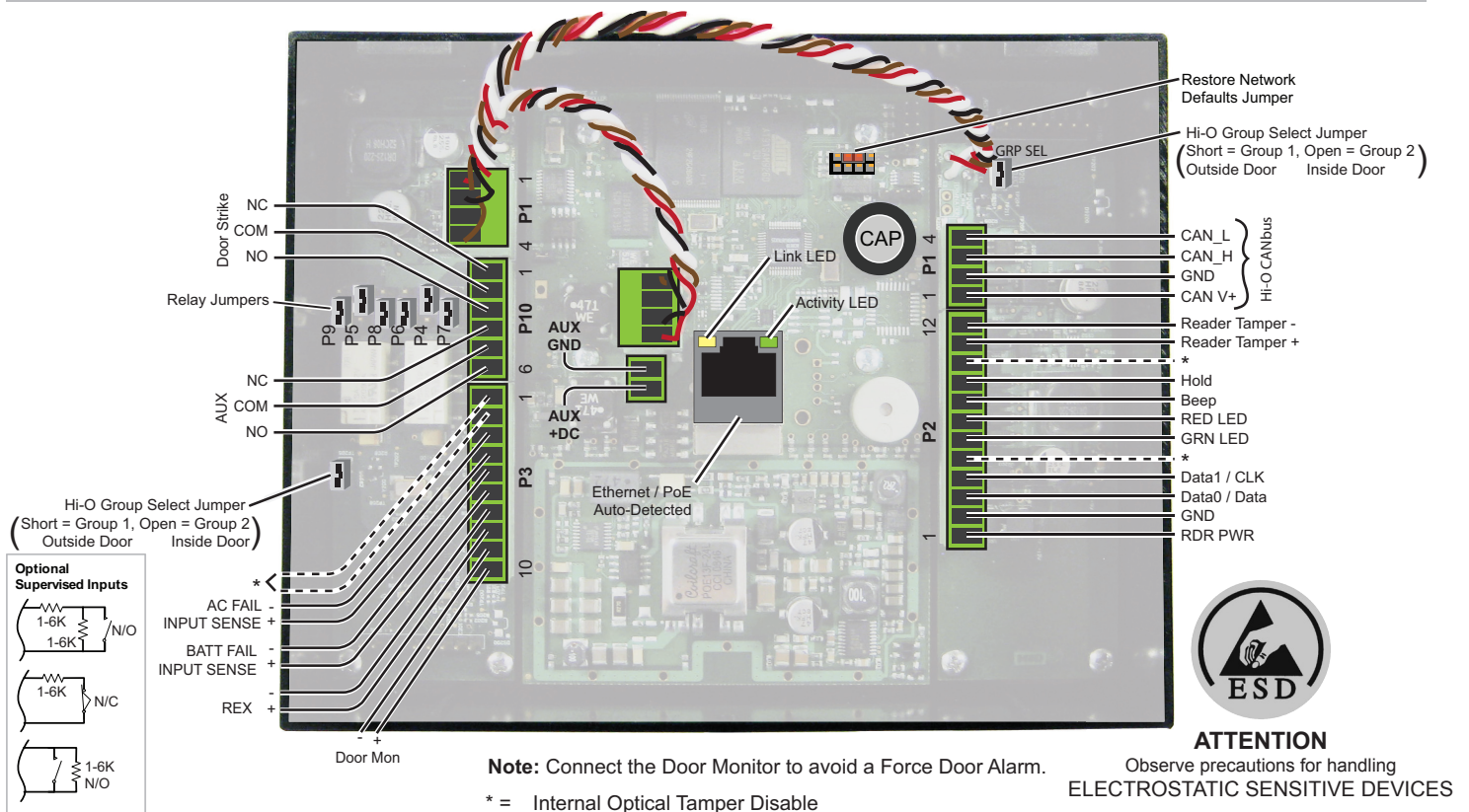
Power Scheme	Details
1	<p>Standard Networked Controller power derived from PoE.</p> <ul style="list-style-type: none"> <li>Insert a UL294 Listed PoE Injector in the Ethernet line to power the Standard Networked Controller.</li> </ul> 
2	<p>Standard Networked Controller power derived from an external +12VDC or +24VDC power supply.</p> <ul style="list-style-type: none"> <li>The Standard Networked Controller is connected directly to the Ethernet switch without a PoE injector.</li> </ul> 

## 2 Mounting



Junction box not included.

## 3 Wiring



**CAUTION:** Some magnetic locks exhibit both high inrush current when activated and a high instantaneous break voltage when de-energized due to magnetic field collapse. It is recommended you use of a snubber circuit across the controlling relay terminals to protect the controlling relay contacts. Go to [support.hidglobal.com](http://support.hidglobal.com), see Solution 891 - How do I wire a High In-Rush Current locking device to VertX/EDGE EVO. Not evaluated by UL.

## 3.1 Network Defaults Jumper

The Network Defaults Jumper requires physical access to the EDGE EVO controller. Physical access provides the necessity to place a jumper over the debug port prior to the controller rebooting. The controller reconfigures the network settings to the factory defaults when the jumper is on the debug port during a reboot. From this point, configuration (or re-configuration) proceeds normally.

Use the Network Defaults Jumper to correct potential errors in an EDGE EVO controller Network Configuration or if the admin password is forgotten.

A jumper is supplied with the EDGE EVO for the Hi-O termination; borrow this jumper to perform this process. Replace the jumper to the Hi-O termination after restoring network defaults.

1. Remove the back plate on the EDGE EVO.
2. Loosen the Mylar cover.
3. Reboot the controller and place the supplied jumper over pins 3 and 5 of the Debug port after the beep. The Debug port is an eight pin header, located above and to the right of the Ethernet connector, underneath the Mylar.

**Note: The network reset opportunity occurs for 30 seconds, while rebooting the controller. On an EDGE EVO, a second beep occurs to signal the end of the 30 second period.**

4. After 30 seconds, the beeper stays on constantly to indicate success. When an error occurs, you receive a single beep.
5. Remove the jumper; return it to the Hi-O termination header and cycle power. The controller resets in approximately 60-seconds. Once the reset is complete, you hear the single beep. After the 30-second window, you hear the second beep. The controller is fully functional during this time.

**CAUTION: During the controller rebooting process, all network configuration information is overwritten and returned to the original defaults.**

6. Configure the controller for your installation parameters.
7. Reinstall the back plate of the EDGE EVO.

## 3.2 Internal Optical Tamper

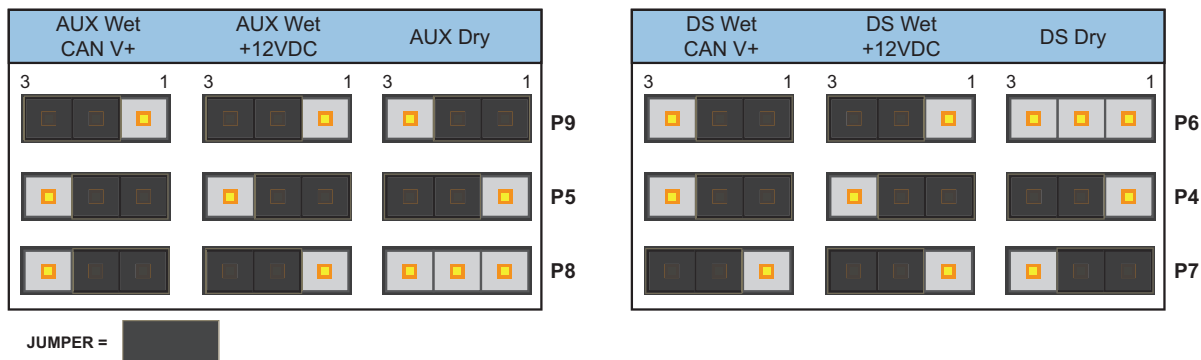
To disable the internal optical tamper sensor for the right side PCB (reader interface board), attach a jumper wire from P2 pin 10 to P2 pin 5.

To disable the internal optical tamper sensor for the left side PCB (door interface board), attach a jumper wire from P3 pin 1 to P3 pin 2.

**CAUTION: The EH400-K ships from HID with these jumpers pre-installed on the connectors. Removing these jumpers causes false tampers to trigger.**

**Note: If desiring an external tamper, wire an unsupervised Normally Closed contact, replacing one of the pre-installed jumpers.**

## 3.3 Relay Jumpers





## 3.4 Tamper (Reader Interface Board)

The Reader Tamper + and - are implemented allowing a connection for an open collector external tamper from a reader, such as iCLASS.

**Note:** Connect P2, Pin 2 (GND) from the Reader Interface Board to the same ground as the reader power, if the reader is not powered by the units 12 VDC output port.

## 3.5 Door Interface Board Groups 1 and 2

### 3.5.1 Group 1

Following are the inputs when the unit is configured for Group 1.

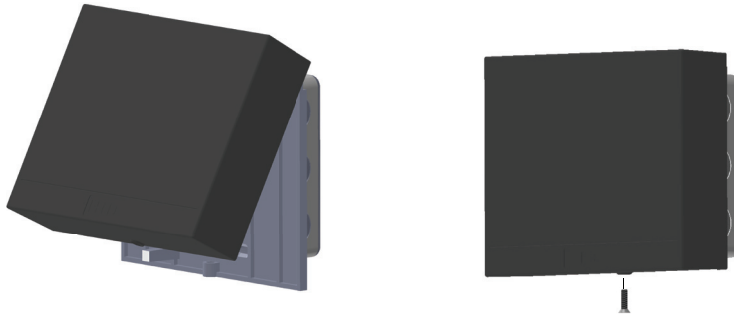
Input	Port	Pin
AC -	P3	Pin3
AC +	P3	Pin 4
BATT -	P3	Pin 5
BATT +	P3	Pin 6
REX -	P3	Pin 7
REX +	P3	Pin 8
Door Mon -	P3	Pin 9
Door Mon +	P3	Pin 10

### 3.5.2 Group 2

Following are the inputs when the unit is configured for Group 2.

Input	Port	Pin
Input 4 -	P3	Pin3
Input 4 +	P3	Pin 4
Input 3 -	P3	Pin 5
Input 3 +	P3	Pin 6
Input 2 -	P3	Pin 7
Input 2 +	P3	Pin 8
Input 1 -	P3	Pin 9
Input 1 +	P3	Pin 10

## 4 Install to Backplate



## 5 Contact

Contact EDGE EVO through one of the following methods.

### 5.1 Direct Connect

If EDGE EVO will be connected to a network using static IP addressing or if the Discovery GUI is not installed on the PC, use this method.

**Note:** The computer must be running Windows 2000 or XP and be configured for DHCP.

1. Disconnect the computer from the network and directly connect EDGE EVO to the computer with an Ethernet cable.
2. Click **Start > Run**. Enter `ipconfig /renew` ↵
3. Access a web browser and enter **169.254.242.121** into the **Address field** ↵

### 5.2 Discovery GUI (for DHCP networks)

With a DHCP network, use the HID Discovery GUI on the PC to locate and connect the Controller.

**Note:** The Controller must be connected to the network before power is applied for DHCP to function.

1. With the PC connected to the same network as the Controller, double-click **hid-discovery.exe**.
2. Select the device from the list.
3. Click **Browser**.

If the Discovery GUI is not on the PC, download the application from [www.hidglobal.com/downloads/DiscoveryClient.zip](http://www.hidglobal.com/downloads/DiscoveryClient.zip).

**Note:** Java is required for the Discovery GUI.

# 6 Configure

The web browser will prompt for login information. From the **Login** screen enter **admin**, leaving the **Password** field empty. Follow the instructions on the web browser screen to configure EDGE EVO.

For EDGE EVO Solo, reference the EDGE EVO Solo User Guide, 83000-902, rev B.x.

# 7 Power & Testing

Test the system once per year using the web Graphical User Interface to ensure all wiring and configuration is correct.

For additional installation information, such as PIR and other active Request-to-Exit (REX) devices, as well as connecting fire relays, see <http://www.hidglobal.com/edgesupport>.

## Hi-O Interface Modules

Hi-O interface modules are used to expand functionality of the EDGE EVO Networked Controller. Hi-O interface modules connect the native Hi-O bus with additional components around and behind doors and other access points.

For Hi-O interface module wiring, see their prospective Installation Guides.

Go to [www.hidglobal.com](http://www.hidglobal.com) > **Support** > **Document Library**.  
Search the document type as a **Installation Guide**.

Model	Description	Part Number
EDM-M	EDGE EVO Door Module	<a href="#">82342</a>
EIM-M	EDGE EVO Input Module	<a href="#">82340</a>
EWM-M	EDGE EVO Reader Module	<a href="#">82360</a>
EDWM-M	EDGE EVO Door & Reader Module	<a href="#">82363AM</a>
ELM	EDGE EVO Lock Module	<a href="#">82301</a>
EVM	EDGE EVO Voltage Module	<a href="#">82365</a>

## Glossary

Acronym	Description	Acronym	Description
AC Fail	AC Power Failure Input	GND	Ground
AUX	Auxillary Output	GRN LED	Green LED Output
BATT Fail	Battery Failure Input	GRP SEL	Group Select
CAN_H	Hi-O CANbus High	NC	Normally Closed
CAN_L	Hi-O CANbus Low	NO	Normally Open
CLK	Clock	PIR	Passive Infared device
COM	Common	PoE	Power over Ethernet
Data0	Wiegand Data 0 Input	RED LED	Red LED Output
Data1	Wiegand Data 1 Input	REX	Request-to-Exit Input
Door Mon	Door Monitor Input	RLY	Relay
DS	Door Strike		

# Regulatory

## UL

Connect only to a Listed Access Control / Burglary power-limited power supply, or Listed Access Control / Burglary PoE (Power-over-Ethernet) adapter.

All National and local Electrical codes apply. Install in accordance with NFPA70 (NEC), Local Codes, and authorities having jurisdiction. Host-based security, Ethernet / Host Communication, has not been evaluated by UL. Ethernet port has been evaluated for supplemental use only.

Indoor use only.

The EDGE EVO family has been evaluated for standalone Access Control.

Mount onto UL Listed Single-Gang electrical box.

Standard Networked Controller and EDGE EVO Modules are UL Listed for installation within the protected area.

All panic and alarm hardware and equipment shall be UL Listed.

All cabling and wire shall be UL Listed or Recognized and suitable for the application.

All splices and connections shall be mechanically secure and bonded electrically.

EDGE EVO was evaluated for use with all Listed HID Global Wiegand models: iCLASS, Indala Prox, HID Prox, bioCLASS, SmartID, SmartTRANS, and Mag Stripe series (with and without keypad), up to 128-bit formats. EDGE EVO was evaluated for use with all HID Global Hi-O iCLASS readers.

The Standard Networked Controller is UL Listed for installation in the unprotected area, as well as within the protected area.

**CAUTION: Any changes or modifications to this device not explicitly approved by the manufacturer could void your authority to operate this equipment.**

## 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.

## Canada Radio Certification

This device complies with Industry Canada license-exempt RSS standard(s). Operation is subject to the following two conditions: (1) this device may not cause interference, and (2) this device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes : (1) l'appareil ne doit pas produire de brouillage, et (2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

## CE MARKING

HID Global hereby declares that these proximity readers are in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.

Por el presente, HID Global declara que estos lectores de proximidad cumplen con los requisitos esenciales y otras disposiciones relevantes de la Directiva 1999/5/EC.

HID Global déclare par la présente que ces lecteurs à proximité sont conformes aux exigences essentielles et aux autres stipulations pertinentes de la Directive 1999/5/CE.

A HID Global, por meio deste, declara que estes leitores de proximidade estão em conformidade com as exigências essenciais e outras condições da diretiva 1999/5/EC.

HID Global bestätigt hiermit, dass die Leser die wesentlichen Anforderungen und anderen relevanten Bestimmungen der Richtlinie 1999/5/EG erfüllen.

HID Global dichiara che i lettori di prossimità sono conformi ai requisiti essenziali e ad altre misure rilevanti come previsto dalla Direttiva europea 1999/5/EC.

Download copies of the R&TTE Declaration of Conformity (DoC) at <http://certifications.hidglobal.com>.

## JAPAN MIC

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The said legal communications means radio communications is operated in compliance with the Telecommunications Act.

The low power radio-frequency devices must be susceptible with the interference from legal communications or ISM radio wave radiated devices.

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit (<http://www.openssl.org/>).

This product includes cryptographic software written by Eric Young ([ey@cryptsoft.com](mailto:ey@cryptsoft.com)).

## ACCESS experience.

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82000-921 Rev D.1

Patent Pending

Check reader label for current regulatory approvals.

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# Steel Door Contacts

1078/1076 Series



## OVERVIEW

The Interlogix 1078 Series Steel Door contacts are designed specifically for use in the steel doors commonly found in commercial building applications. The unique housing design features a rugged unibody construction with flexible ribbed sides for quick, secure installation without gluing. The magnet housing isolates the magnet from the surrounding steel for maximum gap distances, both make and break. Over seven models including: Wide Gap, SPDT, DPDT, and Biased for High Security applications make the 1078 Series the most widely used and comprehensive line available.

On available models a terminal connection (T) makes installation easier. Simply strip the wire, insert it into the terminal block and tighten. The terminal accepts any wire size from 14 to 22 gauge, and has a unique one piece design for added strength.

An optional Rare Earth Magnet is available. It is designed for use in metal entry/exit doors with a channel in the top of the door. The magnet eliminates the need to cut a mounting hole in the door channel. The flexible magnet housing can be compressed to accommodate a variety of channel widths for quick, easy installation. Adhesive is recommended.

The contact contains a hermetically sealed magnetic reed switch. The reed shall be potted in the contact housing with a polyurethane based compound. Contact and magnet housing shall snap-lock into a 3/4" or 1" dia. hole. Housings shall be molded of flame retardant ABS plastic. Color of housings shall be off-white, gray or mahogany brown. The magnet shall be made of Alnico V. Rare Earth Magnet shall be made of neodymium iron boron.

Snap-lock insulation bushing for tight fit and maximum gap in steel. Both contact and magnet plastic housings are constructed of one piece of thick-walled ABS plastic for maximum strength and durability.

## STANDARD FEATURES

- Fly leads and terminal options available
- Designed specifically for use in steel doors
- Special ribbed sides allow for easy installation
- Rugged unibody construction for maximum durability and reliability
- Terminal models available for easier installation
- Regular, Wide Gap, SPDT, DPDT, and High Security models available
- Rare Earth Magnet designed for steel door with top channel available

# Steel Door Contacts

1078/1076 Series

North America  
T 855-286-8889

Latin America  
T 561-998-6114

## Ordering Information

<b>1076CH-N</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Higher Security, Biased for Higher Security Applications, Single Pole-Double Throw, White
<b>1076C-M</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, SPDT, 3/8" Gap Size, Single Pole-Double Throw, Brown
<b>1076C-N</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, SPDT, 3/8" Gap Size, Single Pole-Double Throw, White
<b>1076CW-M</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Wide Gap, SPDT, 3/4" Gap Size, Single Pole-Double Throw, Brown
<b>1076CW-N</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Wide Gap, SPDT, 3/4" Gap Size, Single Pole-Double Throw, White
<b>1076D-G</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, DPDT, 1/2" Gap Size, Double Pole-Double Throw, Gray
<b>1076D-M</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, DPDT, 1/2" Gap Size, Double Pole-Double Throw, Brown
<b>1076D-N</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, DPDT, 1/2" Gap Size, Double Pole-Double Throw, White
<b>1076-G</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, SPDT, 1/2" Gap Size, Single Pole-Double Throw, Gray
<b>1076H-N</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, High Security, SPDT, Biased for Higher Security, 1/2" Gap, Single Pole-Double Throw, White
<b>1076-M</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, SPDT, 1/2" Gap Size, Single Pole-Double Throw, Brown
<b>1076-N</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, SPDT, 1/2" Gap Size, Single Pole-Double Throw, White
<b>1076W-M</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, SPDT, Wide Gap, 1" Gap Size, Single Pole-Double Throw, Brown
<b>1076W-N</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, SPDT, Wide Gap, 1" Gap Size, Single Pole-Double Throw, White
<b>1078C1-M</b>	1078C w/1929 Magnet, Brown
<b>1078C-G</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Closed Loop, 3/8" Gap Size, Gray
<b>1078C-M</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Closed Loop, 3/8" Gap Size, Brown
<b>1078C-N</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Closed Loop, 3/8" Gap Size, White
<b>1078CT-M</b>	Recessed Steel Door Terminal Contact, 3/4" Diameter, 7/8" Gap Size (3/8" in Steel), Brown
<b>1078CT-N</b>	Recessed Steel Door Terminal Contact, 3/4" Diameter, 7/8" Gap Size (3/8" in Steel), White
<b>1078CTW-N</b>	Recessed Steel Door Terminal Contact, 3/4" Diameter, Wide Gap, 2" Gap Size (3/4" in Steel), White
<b>1078CW-G</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Closed Loop, Wide Gap, 3/4" Gap Size, Gray
<b>1078CW-M</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Closed Loop, Wide Gap, 3/4" Gap Size, Brown
<b>1078CW-N</b>	Recessed Steel Door Contact w/Wire Leads, 3/4" Diameter, Closed Loop, Wide Gap, 3/4" Gap Size, White
<b>1078-G</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, 1/2" Gap Size, Closed Loop, Gray
<b>1078-M</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, 1/2" Gap Size, Closed Loop, Brown
<b>1078-N</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, 1/2" Gap Size, Closed Loop, White
<b>1078W-G</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, Wide Gap, 1" Gap Size, Closed Loop, Gray
<b>1078W-M</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, Wide Gap, 1" Gap Size, Closed Loop, Brown
<b>1078W-N</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, Wide Gap, 1" Gap Size, Closed Loop, White
<b>1078WN-3.3K</b>	Recessed Steel Door Contact w/Wire Leads, 1" Diameter, Wide Gap, 3.3K Ohm Resistor, 1" Gap Size, Closed Loop, White
<b>R1078-M</b>	Mini-Max Recessed Steel Door Contact w/Wire Leads, 1" Diameter, 1/2" Gap Size, Brown
<b>R1078-N</b>	Mini-Max Recessed Steel Door Contact w/Wire Leads, 1" Diameter, 1/2" Gap Size, White

## Specifications

### Form A: (R)1078, 1078W, 1078C, 1078CT, 1078CTW

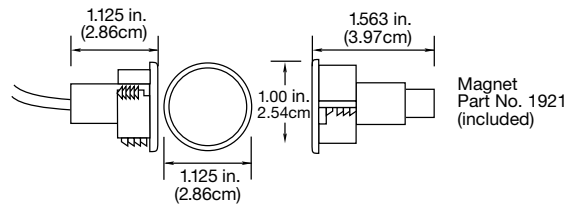
Voltage	100V AC/DC max.
Current	0.5 A max.
Power	7.5 W max.

### Form C: 1076, 1076W, 1076D, 1076C(D), 1076CW, 1076CH

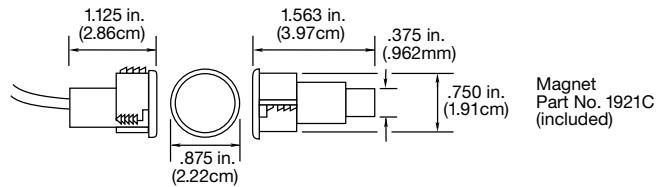
Voltage	30V AC/DC max.
Current	0.25 A max.
Power	3.0 W max.

## Dimensional Diagram

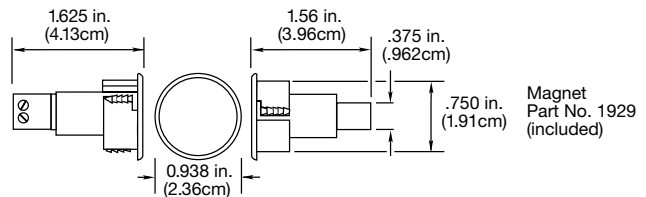
### Models: (R)1078, 1078W, 1076, 1076W, 1076D



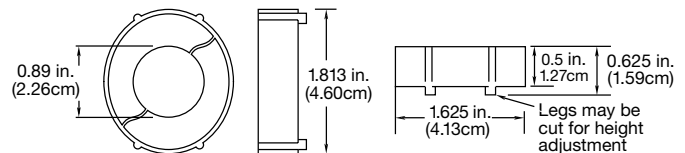
### Models: 1078C, 1076C, 1076CW, 1076CH



### Models: 1078CT, 1076CTW



### Rare Earth Magnet



(R) prefix indicates  
Rare Earth Magnet

Protected by  
U.S. Patent 5,844,458.



interlogix.com

Specifications subject to change without notice.

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306-3685 2013/11 (75103)



The 8000 Series is also available in a **Complete One Box Solution**

# 8000 Series

## The concealed electric strike solution for cylindrical locksets

*Shown with 801 Option*

The 8000 series is a compact, high performance electric strike featuring a unique concealed design for use with cylindrical locksets. No cutting on the frame is required. Simply remove the existing strike plate, adjust the vertical alignment feature to the latchbolt centerline, and install. Its strength is derived from a unique keeper pin locking design, enabling the 8000 to exceed the ratings of the frame, door and locking hardware. This field selectable fail secure/fail safe unit is easy to install and accommodates latchbolts up to 5/8" throw.



### Specifications

- UL 1034, burglary-resistant listed and suitable for outdoor use
- UL 294 (6th Edition) listed
- ANSI/BHMA A156.31, Grade 1
- RoHS compliant
- Patents: 5,934,720; 8,146,966; 8,157,302; 8,465,067

### Frame Application

- Metal
- Wood

### Electrical

- .24 Amps @ 12VDC/VAC
- .12 Amps @ 24VDC/VAC
- DC continuous duty/ AC intermittent duty only
- PoE friendly

## 8000 Models

### 8000

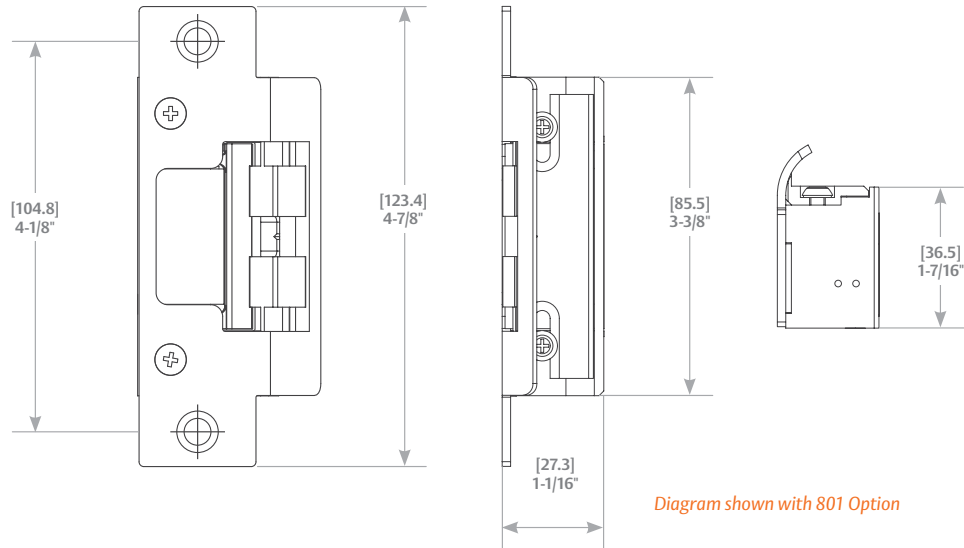
Universal electric strike  
Faceplate options ordered separately, see page 40

### 8000C

Complete electric strike  
Includes the 801 and 801A faceplates in the box



Model 8000C includes a 801 and a 801A faceplate in the box



### Standard Features

- No cutting on frame required
- Vertical adjustability to accommodate door sag and misalignment
- Tamper resistant
- Static strength 1,500 lbs.
- Dynamic strength 70 ft-lbs.
- Endurance 500,000 cycles
- Field selectable fail safe/fail secure
- Dual voltage 12 or 24 VDC/VAC
- Non-handed
- Internally mounted solenoid
- Accommodates 1/2" – 5/8" cylindrical latchbolt (5/8" with 1/8" door gap)

- Strike body depth 1-1/16"
- Strike body width 1-7/16"
- Five-year limited warranty

### Optional Features

- LBM » Latchbolt monitor

### Accessories

- 2001M » Plug-in bridge rectifier
- 2004M » ElectroLynx® adapter
- 2005M3 » SMART Pac® III
- 2006M » Plug-in buzzer

### Finishes

- 630 » Satin stainless
- 605 » Bright brass
- 606 » Satin brass
- 612 » Satin bronze
- 613 » Bronze toned
- 629 » Bright stainless steel
- BLK » Black

\*Complete Pacs are only available in the 630 finish



CYLINDRICAL  
LOCKSETS



FIELD SELECTABLE  
(12 OR 24VDC)



FIRE RATED



GRADE 1



OUTDOOR  
RATED



UL 1034  
BURGLARY  
LISTED





# 8000/8300 Series Faceplate Options



**Operation:** After releasing the latchbolt, the keeper returns to the locked position



4-7/8" x 1-1/4"

## 801 Option

**For use with:** Cylindrical locksets in ANSI metal jambs, with latchbolts up to 5/8" throw

» ANSI/BHMA Numbers: E05031, E09321, E09322, E09323



4-7/8" x 1-1/4"

Radius corners and flat faceplate

## 801A Option

**For use with:** Cylindrical locksets with latchbolts up to 5/8" throw. Includes universal mounting tabs. Aluminum frames.

» ANSI/BHMA Numbers: E05031, E09321, E09322, E09323



4-7/8" x 1-1/4"

Extended lip

## 801E Option

**For use with:** Extended lip for 'knock-down' style frame installations. For use with cylindrical latchbolts up to 5/8" throw.

» ANSI/BHMA Numbers: E05031, E09321, E09322, E09323



7-15/16" x 1-7/16"

## 802 Option

**For use with:** Cylindrical locksets with latchbolts up to 5/8" throw. Includes universal mounting tabs. Aluminum frames.

» ANSI/BHMA Numbers: E05031, #E09321, E09322, E09323



6-7/8" x 1-1/4"

Radius corners and flat faceplate

## 803 Option

**For use with:** Cylindrical locksets with latchbolts up to 5/8" throw. Includes universal mounting tabs. Aluminum frames.

» ANSI/BHMA Numbers: E05031, E09321, E09322, E09323



9" x 1-3/8"

Radius corners and flat faceplate

## 805 Option

**For use with:** Cylindrical locksets. For use with latchbolts up to 5/8" throw. Four point mounting for wood installations.

» ANSI/BHMA Numbers: #E05031, #E09321, #E09322, #E09323



# Reduce your install time by evaluating your opening

The 8000/8300 can be adjusted to compensate for frame and door irregularities. Sometimes, adjusting the frame and door back to industry standards is just not an option. Here are some tips to quickly compensate for frame twist and determine the condition of the latch bolt.

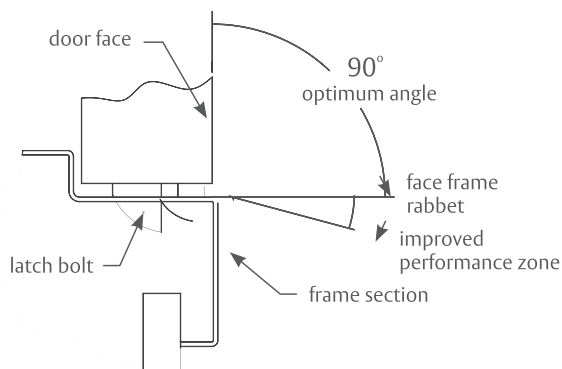


Figure 1

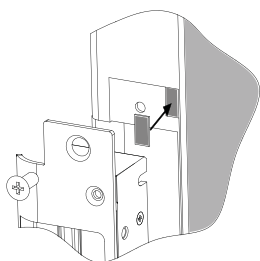


Figure 2

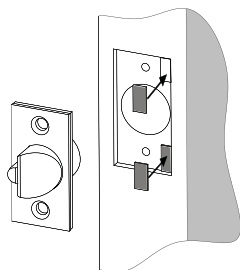


Figure 3

## Measure Frame Twist

One way to measure frame twist is to place a carpenter square on the stop and the face of the door. If the angle is less than 90 degrees, the 45 degree ramp angle of the 8000/8300 is steepened and may need to be corrected as shown at left (Figure 1).

We recommend you check the condition of the latch bolt prior to installing the 8000/8300. Poorly constructed, worn out or damaged latch bolts may not slide along a ramp at any angle. To check the condition of your latch bolt, we recommend applying a slight force to the tip of the latch bolt (about 45 degrees to the door face). Make sure the latch bolt can be pushed up into the door.

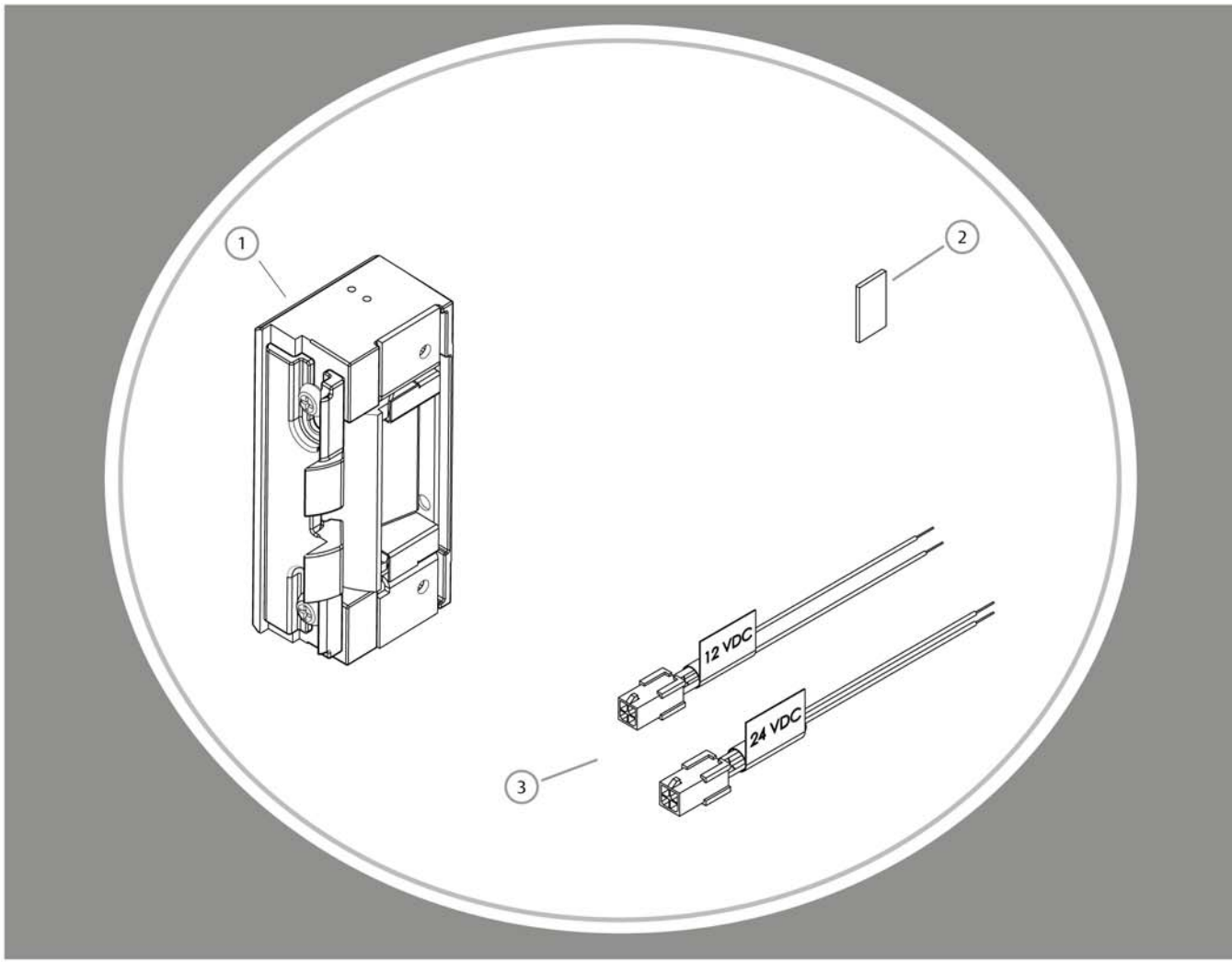
## Compensate for Frame Twist

When a frame is twisted, the relationship between the face of a closed door and of the inside face of the frame (i.e., Rabbet) may not meet the 90 degree industry standard. Untrue frames and doors impact latch bolt wear and the force required to exit, so we recommend you ensure that the angle is between 90–95 degrees.

If manipulating the frame is not possible, we recommend placing several shims under the top and bottom (stop side) of the faceplate (Figure 2). This effectively increases the 8000/8300 ramp angle and compensates for frame twist. You can also compensate for frame twist by placing shims under the top and bottom (bevel side) of the latchbolt (Figure 3).

# Product Components

- ① 8000/8300 Electric Strike Body
- ② Sticky Shims (optional use)
- ③ 12 & 24 Volt Pigtails



## Diagram 1: Electrical Specifications

ELECTRICAL RATINGS FOR SOLENOID	CONTINUOUS DUTY		INTERMITTENT DUTY*	
	12VDC	24VDC	12-16VAC	24VAC
Resistance in Ohms	50	200	50	200
Amps	.24	.12	.24-.32	.12

Solenoids are rated at +/- 10% indicated value.  
\*10% max duty cycle (2 min. max on time)

MINIMUM WIRE GAUGE REQUIREMENTS	SOLENOID VOLTAGE	
	12VDC	24VDC
200 feet or less	18 gauge	20 gauge
200 - 300 feet	16 gauge	18 gauge
300 - 400 feet	14 gauge	16 gauge

**CAUTION!** Before connecting any device at the installation site, verify input voltage using a multimeter. Many power supplies and low voltage transformers operate at higher levels than listed. Any input voltage exceeding 10% of the solenoid rating may cause severe damage to the unit and will void the warranty.

## Evaluate Opening

1. Verify opening is plumb and square. For important detail, see pages 4-5.

## Prepare Strike

2. Select the appropriate Plug In Connector that matches system power and electrically connect as illustrated in Diagram 2. For 12V AC/DC or 16V AC, the pigtail marked "12 VDC" should be used. For 24V AC/DC, the pigtail marked "24 VDC" should be used. If no connector is present, configure the wires as illustrated within Diagram 2.

3. Make sure that the electric strike is in correct mode of operation. This electric strike ships in fail secure mode. If you need to convert the unit to fail safe, see Diagram 3 on page 3.

4. If using Latchbolt Monitor (LBM), see Diagram 4.

5. Attach the faceplate to the electric strike, using the #8-32 screws provided. Be sure that the ramps are on top of the faceplate. (see Diagram 5 on page 3).

## Prepare Frame

6. Prepare door jamb per the appropriate template detail (see pages 6-8).

7. If applicable, install mounting tabs using #10-32 screws. Do not tighten.

## Finish Installing

8. If opening is not plumb and square, see pages 4-5 for recommended corrections.

9. Install the electric strike unit in jamb cutout, using #12-24 screws provided (or wood screws where necessary).

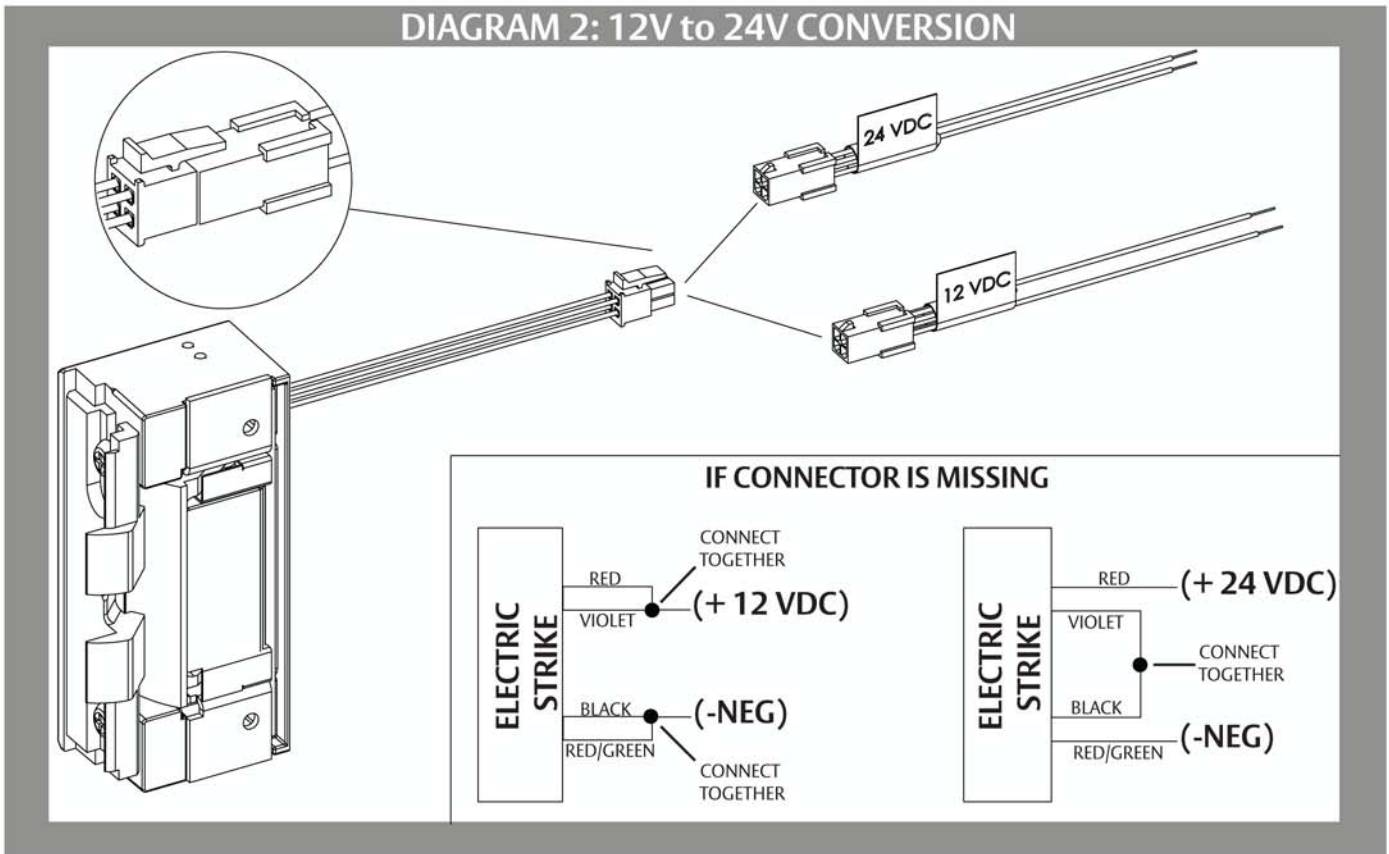
10. The deadlatch must not interfere with the 8000/8300 ramps (see Diagram 6 on page 3). If you need to adjust the ramps, mark the centerline of the deadlatch onto the 8000/8300 faceplate. Remove the 8000/8300 electric strike from jamb. Loosen screws and slide internal ramp until the groove between the ramps aligns with the mark made on the faceplate. Tighten the screws. (see Diagram 7 on page 3).

11. Connect wires from power source to the electric strike.

12. Reinstall electric strike, tighten the #12-24 screws and verify clearance of deadlatch.

13. If applicable, tighten the #10-32 screws holding the mounting tabs.

DIAGRAM 2: 12V to 24V CONVERSION



### DIAGRAM 3: FAIL SAFE TO FAIL SECURE

- a Loosen screws, but do not remove them
- b Move screws to the Fail Safe position as shown
- c Tighten screws

Fail Safe\*

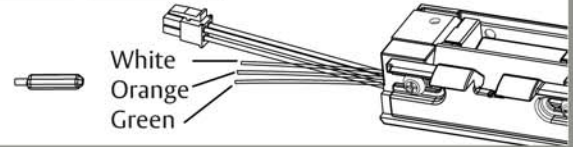


\*Fire rating only applies to Fail Secure units. Conversion to Fail Safe negates fire rating on 8300

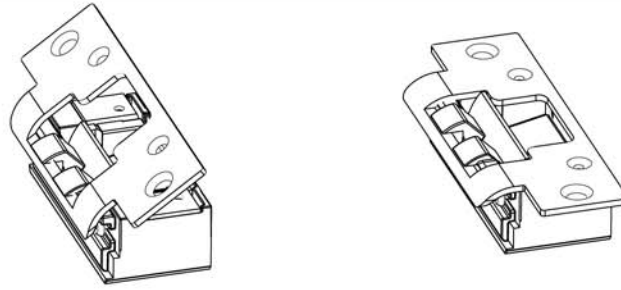
### DIAGRAM 4: LATCHBOLT MONITOR

#### LBM WIRING

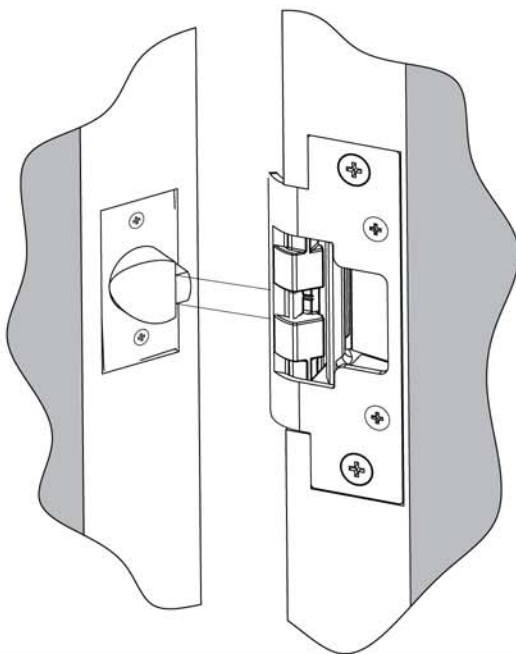
White	Common
Orange	Normally Open
Green	Normally Closed



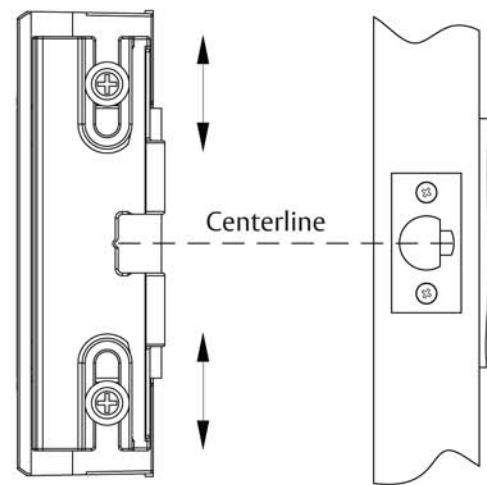
### DIAGRAM 5: FACEPLATE INSTALLATION



### DIAGRAM 6: VERTICAL ALIGNMENT

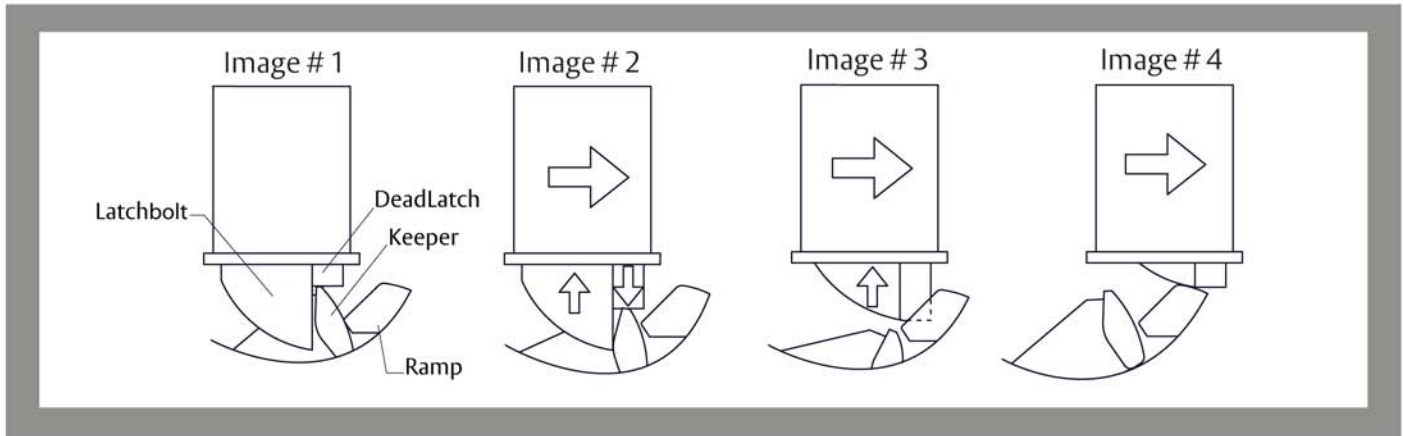


### DIAGRAM 7: VERTICAL ADJUSTABILITY



## A NEW KIND OF ELECTRIC STRIKE

A standard electric strike requires a cutout on the side of the door frame to allow the extended latchbolt to exit the frame. In contrast, the 8000/8300 is designed to utilize special internal ramps to eject the latchbolt from an unmodified frame. For the 8000/8300 to operate correctly, it is important for you to first understand the relationship between the unit's internal ramps and the position of the latchbolt.



1. Initially, the 8000/8300 operates very much like a standard electric strike. With the door in the closed position, the latchbolt is held secure by the 8000/8300's keeper (Image 1).
2. When energized, the keeper releases the latchbolt and as the door moves forward the deadlatch begins to drop (Image 2).
3. As the door continues to move forward the deadlatch and latchbolt will become fully released. The latchbolt will then pass from the keeper and begin to slide up the internal ramps (Image 3). Note: It is important that the deadlatch pass between the two internal ramps without contacting either ramp. The ramp adjustment is explained in detail within installation instructions.
4. As the door continues to open, the latchbolt and deadlatch will continue to slide up the internal ramps and out of the door frame to release the door. (Image 4)

## WHY ANGLES ARE IMPORTANT

The 8000/8300 ramps are designed with critical angles that minimize both latchbolt wear and the force required for exit. For optimum performance, the latchbolt should be positioned at a 40 to 45 degree angle in relation to the ramps of the 8000/8300. An angle more than 45 degrees will steepen the ramp and impact the performance of the 8000/8300 (Image 5).

We understand that correctly measuring this angle in the field may be difficult. The next section is designed to help you understand some simple techniques to evaluate the condition and relationships between the door, the latchbolt, the frame and the 8000/8300.

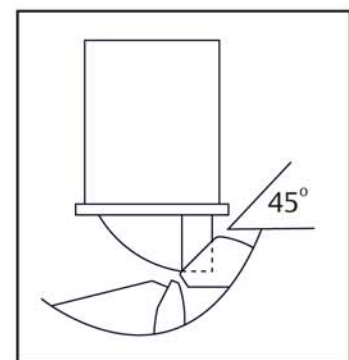


Image # 5

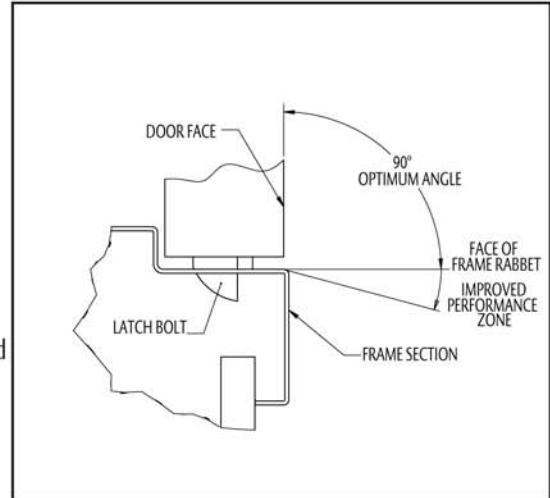
**NOTE!** The 8000/8300 electric strike requires that the opening be plumb and square to insure proper catch and release of the latchbolt.

## EVALUATE OPENING

Although the design of the 8000/8300 provides adjustability to compensate for frame and door irregularities, in some cases, adjusting the frame and door back to industry standards is just not an option. Here are some tips to quickly compensate for frame twist and to determine the condition of the latch bolt.

One way to measure frame twist is to place a carpenter square on the stop and the face of the door. If the angle is less than 90 degrees, the 45 degree ramp angle of the 8000/8300 is steepened and may need to be corrected as shown at right.

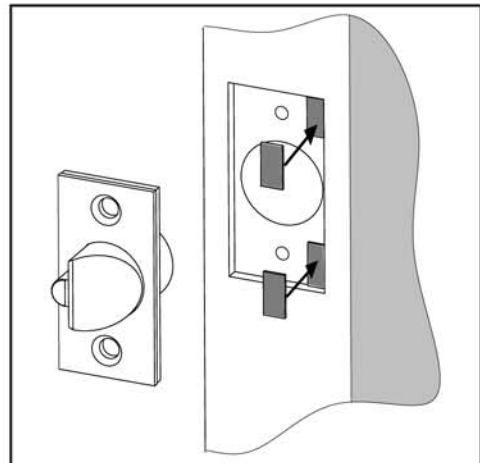
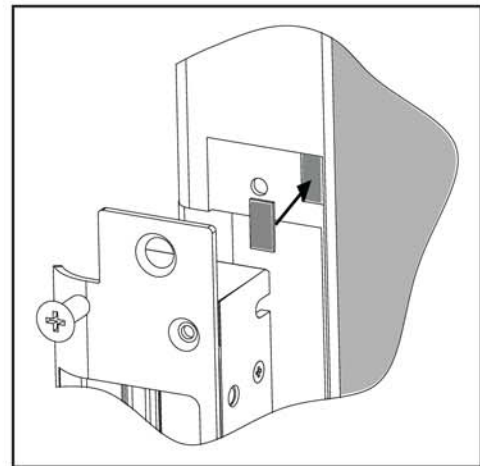
We also recommend you check the condition of the latch bolt prior to installing the 8000/8300. Poorly constructed, worn out or damaged latch bolts may not slide along a ramp at any angle. To check the condition of your latch bolt, we recommend applying a slight force to the tip of the latch bolt (about 45 degrees to door face). Make sure the latch bolt can be pushed up into the door.



## ACCOMMODATING FRAME TWIST

When a frame is twisted, the relationship between the face of a closed door and of the inside face of the frame (i.e. Rabbet) may not meet the 90 degree industry standard. Untrue frames and doors impact latch bolt wear and the force required to exit, so we recommend you ensure that the angle is between 90 ~ 95 degrees.

If manipulating the frame is not possible, we recommend placing several shims under the top and bottom (stop side) of the faceplate (Image right). This effectively increases the 8000/8300 ramp angle and compensates for frame twist. This can also be performed by placing shims under the top and bottom (bevel side) of the latchbolt (Image below right).



Inches [mm]

## 8000/8300 with 801 Faceplate

1-1/4" X 4-7/8" Square Corner Faceplate  
ANSI Metal Jamb Installations

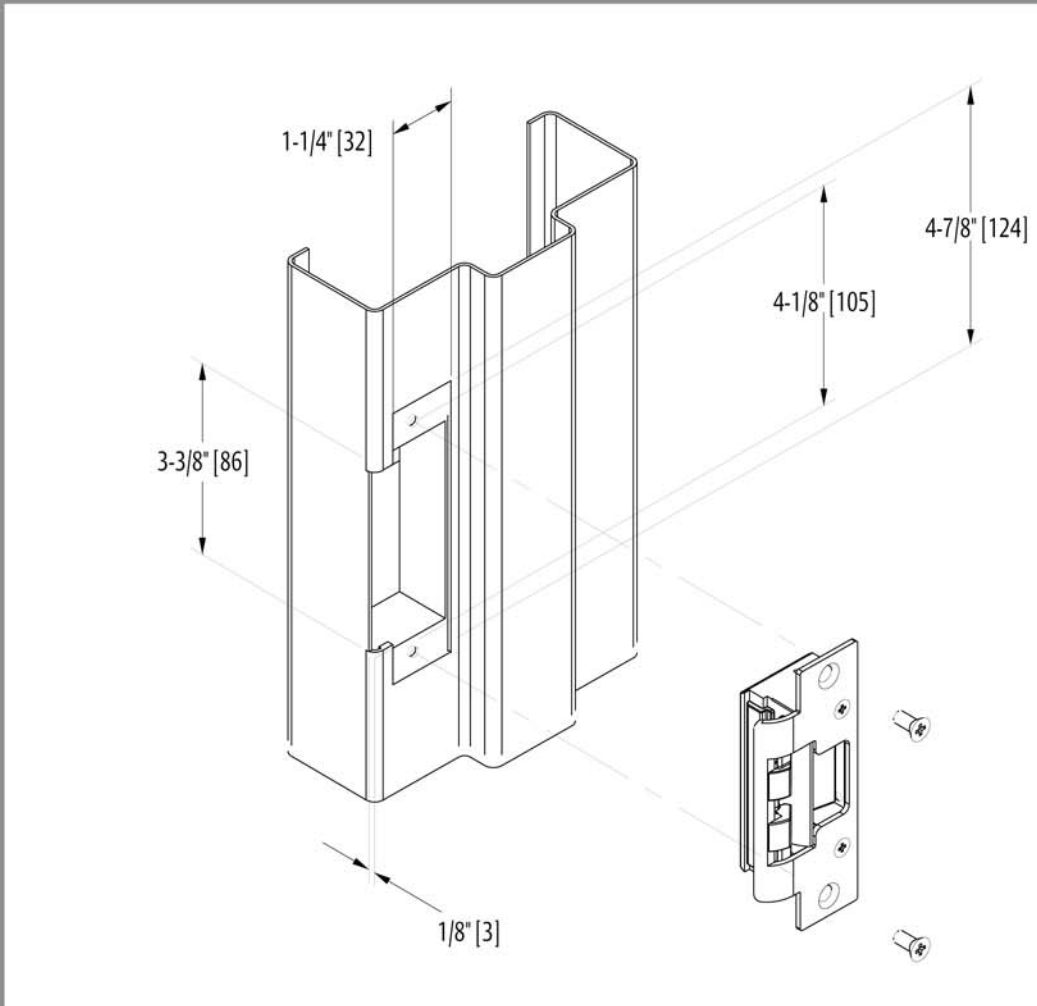
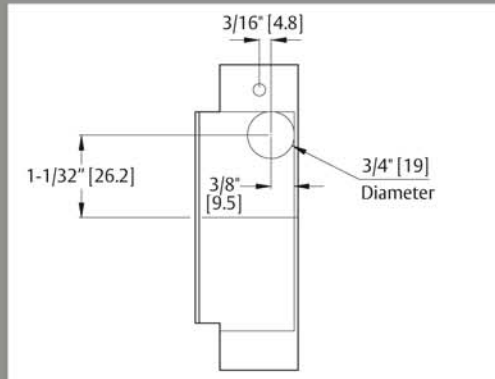


DIAGRAM 8: WIRE DRILLING

NOTE: The 8000/8300 electric strike with 801 faceplate will fit right into most standard ANSI A115.2, 1" deep dustboxes (e.g. the Curries® E-1 preparation), requiring no cutting.

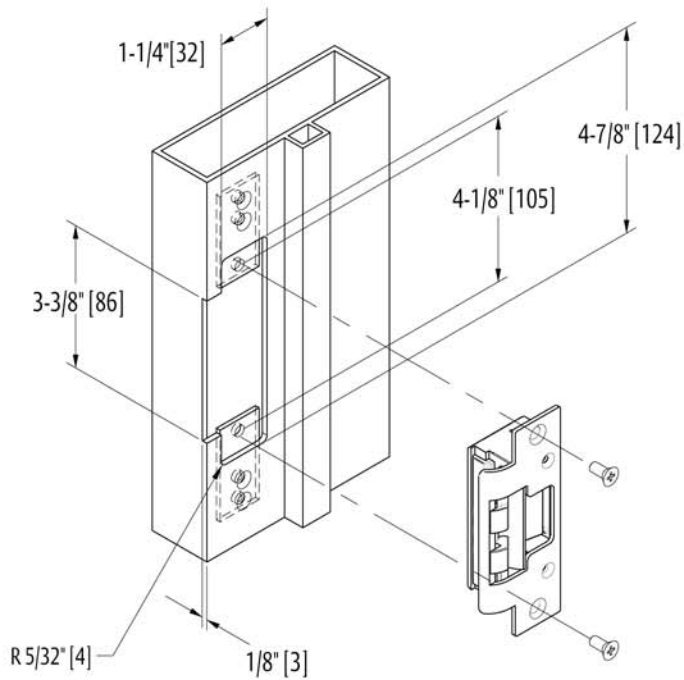
If you elect to place the 8000/8300 into the existing dustbox, simply drill for wire connections.





## 8000/8300 with 801A Faceplate

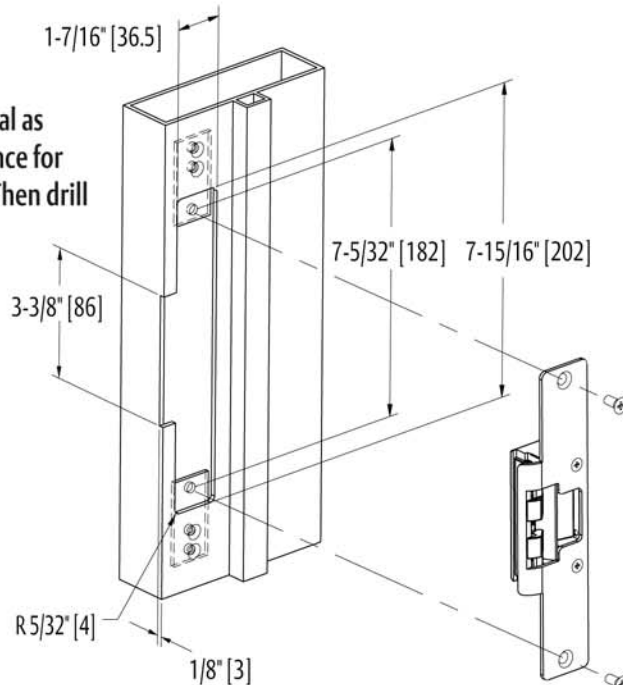
1-1/4" x 4-7/8" Radius Corner Faceplate  
Aluminum Jamb Installations



## 8000/8300 with 802 Faceplate

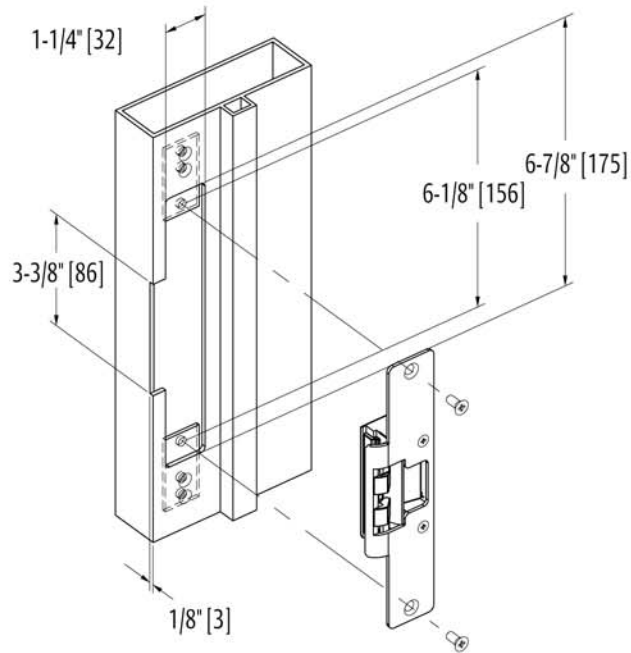
1-7/16" x 7-15/16" Radius Corner Faceplate  
Aluminum and Wood Jamb Installations

Remove additional material as needed to provide clearance for electric strike and wires. Then drill for wires (see Diagram 8)



## 8000/8300 with 803 Faceplate

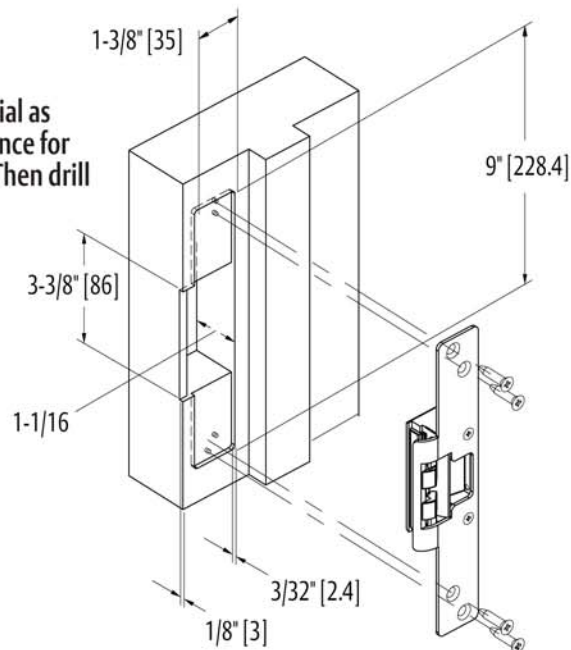
1-1/4" x 6-7/8" Radius Corner Faceplate  
Aluminum Jamb Installations



## 8000/8300 with 805 Faceplate

1-3/8" x 9" Radius Corner Faceplate  
Aluminum or Wood Jamb Installations

Remove additional material as needed to provide clearance for electric strike and wires. Then drill for wires (see Diagram 8)



# DS150i Series Request-to-exit Detectors

www.boschsecurity.com



**BOSCH**

Invented for life



- ▶ Single or double door use
- ▶ Wall or ceiling mountable
- ▶ Internal vertical pointability
- ▶ Wrap-around coverage pattern
- ▶ Selectable relay trigger mode

The DS150i Series consists of the DS150i Detector (light gray) and the DS151i Detector (black). They are specifically designed for Request-to-exit (REX) applications. The DS150i and DS151i detect motion in their coverage area and signal an access control system or door control device.

## Installation/configuration notes

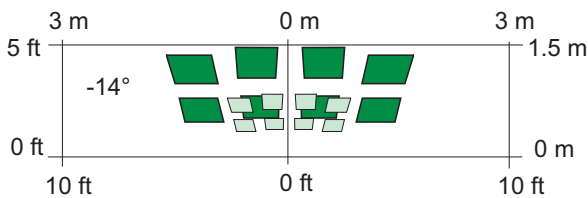
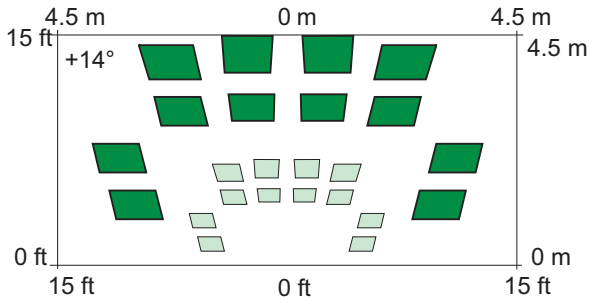
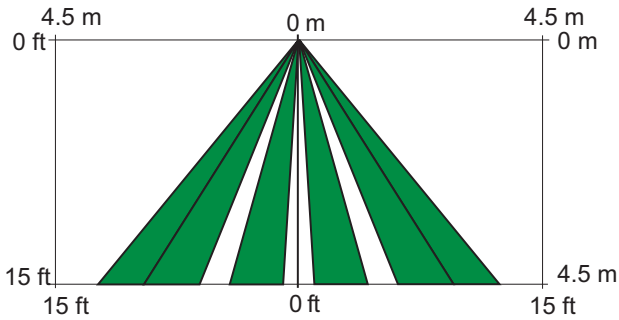
### Functions

#### Test Features

Externally visible activation LED.

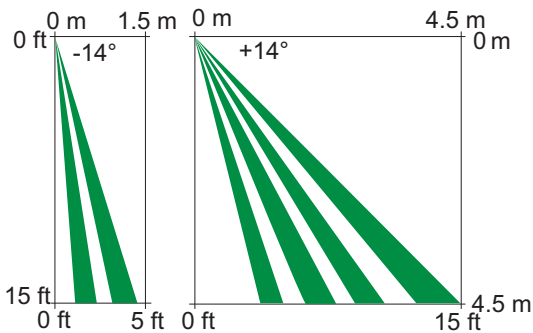
### Certifications and approvals

Region	Certification
Europe	CE 2004/108/EC EMC Directive; 2006/95/EC Low-Voltage Directive
USA	UL ALVY: Access Control Systems Units (UL294)



**Front View and Top Views**

A front view of the DS150i and DS151i coverage, as well as top views of the coverage pattern on the floor. The typical coverage measurements are 2.4 m x 3 m (8 ft x 10 ft).



**Side View**

A side view of the DS150i and DS151i coverage pattern.

**Technical specifications**

**Electrical**

Current Draw:	26 mA at 12 VDC
Voltage:	12 VAC or VDC; 24 VAC or VDC

**Mechanical**

Alarm Output:	Two Form C relay contacts
Indicators:	One activation LED
Relay Latch Time:	Adjustable to 60 sec
Enclosure Dimensions:	3.8 cm x 15.9 cm x 3.8 cm (1.5 in. x 6.25 in. x 1.5 in.)
Enclosure Material:	High impact ABS plastic enclosure
Power Loss Default Mode:	Programmable fail-safe or fail-secure modes.
Timer Mode:	Programmable reset (accumulative) or non-reset (counting) mode.
Mounting Location:	Surface mount on wall or ceiling

**Environmental**

Operating Temperature:	-29°C to +49°C (-20°F to +120°F)
Radio Frequency Interference (RFI) Immunity:	No alarm or setup on critical frequencies in the range from 26 MHz to 1000 MHz at 50 V/m.

**Ordering information**

**DS150i Request-to-exit PIR Detector**

Gray enclosure. For use in request-to-exit (REX) applications. Provides 2.4 m x 3 m (8 ft x 10 ft) coverage.  
Order number **DS150i**

**DS151i Request-to-exit PIR Detector**

Black enclosure. For use in request-to-exit (REX) applications. Provides 2.4 m x 3 m (8 ft x 10 ft) coverage.  
Order number **DS151i**

**Accessories**

**TP160 Trim Plate**

A light gray trim plate used when mounting the detector over a standard single-gang box.  
Order number **TP160**

**TP161 Trim Plate**

A black trim plate used when mounting the sensor over a standard single-gang box.  
Order number **TP161**

**Represented by:**

**Americas:**

Bosch Security Systems, Inc.  
130 Perinton Parkway  
Fairport, New York, 14450, USA  
Phone: +1 800 289 0096  
Fax: +1 585 223 9180  
security.sales@us.bosch.com  
www.boschsecurity.us

**Europe, Middle East, Africa:**

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5617 BA Eindhoven, The Netherlands  
Phone: + 31 40 2577 284  
Fax: +31 40 2577 330  
emea.securitysystems@bosch.com  
www.boschsecurity.com

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Fax: +86 21 22182398  
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Fax: +55 19 2103 2862  
latam.boschsecurity@bosch.com  
www.boschsecurity.com



# multiCLASS SE<sup>®</sup> Readers



## HIGHLY ADAPTABLE AND SECURE HIGH FREQUENCY ACCESS CONTROL SOLUTION

- **Powerfully Secure** – Provides layered security beyond the card media for added protection to identity data using SIOs.
- **Adaptable** – Interoperable with a growing range of technologies (iCLASS<sup>®</sup> Seos<sup>™</sup> and iCLASS SE<sup>®</sup> credential platforms, standard iCLASS<sup>®</sup>, MIFARE<sup>®</sup>, and MIFARE<sup>®</sup> DESFire<sup>®</sup> EV1 with custom data models) and form factors including mobile devices utilizing Seos<sup>™</sup>.
- **Interoperable** – Open Supervised Device Protocol (OSDP) for secure, bidirectional communication.
- **Streamlined Migration** – Support for 125 kHz HID Prox<sup>®</sup>, Indala<sup>®</sup>, AWID and EM4102 for seamless migration; field programmable for secure upgrades and extended lifecycle.

HID Global's iCLASS SE<sup>®</sup> platform goes beyond the traditional smart card model to offer a secure, standards-based and flexible platform that has become the new benchmark for highly adaptable, interoperable and secure access control solutions.

MIFARE DESFire EV1 with custom data models and other leading technologies.

Additionally, multiCLASS SE readers support mobile devices utilizing Seos, enabling a new class of portable identity credentials that can be securely provisioned and safely embedded into both fixed and mobile devices.

multiCLASS SE<sup>®</sup> readers simplify migration from legacy technologies with support 125 kHz for HID Prox, Indala, AWID and EM4102, and provide customers the assurance that their existing investments can be leveraged to enhance their system as business requirements change. The technology-independent readers also support iCLASS<sup>®</sup> Seos<sup>™</sup> and iCLASS SE credential platforms, as well as standard iCLASS, MIFARE and

As part of HID Global's iCLASS SE platform that is based on the Secure Identity Object<sup>™</sup> (SIO<sup>®</sup>) data model and Trusted Identity Platform<sup>®</sup> (TIP<sup>™</sup>), the powerfully secure multiCLASS SE readers offer advanced features such as layered security beyond the card media and tamper-proof protection of keys/cryptographic operations using EAL5+ secure element hardware.

multiCLASS SE readers include Open Supervised Device Protocol (OSDP), a new Security Industry Association (SIA) standard that together with Secure Channel Protocol (SCP) provides secure communications and central management.

### POWERFULLY SECURE:

- Multi-Layered Security – Ensures data authenticity and privacy through the multi-layered security of HID's SIO.
- EAL5+ Certified Secure Element Hardware – Provides tamper-proof protection of keys/cryptographic operations.
- SIO Data Binding – Inhibits data cloning by binding an object to a specific credential.
- Secured communications using OSDP with Secure Channel Protocol.

### HIGHLY ADAPTABLE:

- Mobile device support using iCLASS Seos – Enables HID access control.
- SIO Portability – Provides technology independence and portability to other smart card technologies.
- Upgradeable Hardware Connection – Allows all Wiegand-based communication readers to expand communication capabilities to OSDP and other bidirectional protocols.
- Field Programmable Readers – Provides secure upgrades for migration and extended lifecycle.

- Customization and management from a central location – Enables organization to make changes and manage all attached OSDP readers over RS485 wiring.
- Support for 125kHz HID Prox, Indala, AWID and EM4102.
- Flexible to support future technologies.

### SUSTAINABILITY AND MANAGEMENT:

- Intelligent Power Management (IPM) – Reduces reader power consumption by as much as 75% compared to standard operating mode.
- Recycled Content – Contributes toward building LEED credits.

### INTEROPERABLE:

- SIO Media Mapping – Simplifies deployment of third-party objects to multiple types of credentials.
- Industry standard communications using OSDP.
- Custom programming support to read custom data models on MIFARE and MIFARE DESFire EV1 credentials.



## SPECIFICATIONS

	RP10	RP15	RP30	RP40	RPK40
<b>Base Part Number</b>	900P 900L	910P 910L	930P 930L	920P 920L	921P 921L
<b>Typical Read Range* (inches)</b>	<b>13.56 MHz Single Technology ID-1 Credentials (Cards) - SIO Model Data</b>				
	iCLASS SE*: 2.5" (6.4 cm) SE for DESFire® EV1: 1" (2.5 cm) SE for MIFARE® Classic: 2.3" (5.8 cm)	iCLASS SE: 2.5" (6.4 cm) SE for DESFire® EV1: 1" (2.5 cm) SE for MIFARE Classic: 2.3" (5.8 cm)	iCLASS SE: 3.3" (8.4 cm) SE for DESFire® EV1: 2" (5.1 cm) SE for MIFARE Classic: 2.3" (5.8 cm)	iCLASS SE: 4.5" (11.4 cm) SE for DESFire® EV1: 2" (5.1 cm) SE for MIFARE Classic: 4" (10.1 cm)	iCLASS SE: 4.5" (11.4 cm) SE for DESFire® EV1: 2" (5.1 cm) SE for MIFARE Classic: 4" (10.1 cm)
	<b>13.56 MHz Single Technology Tags/Fobs - SIO Data Model</b>				
	iCLASS SE: 1" (2.5 cm) SE for MIFARE Classic: 0.5" (1.3 cm)	iCLASS SE: 1" (2.5 cm) SE for MIFARE Classic: 0.5" (1.3 cm)	iCLASS SE: 1.5" (3.8 cm) SE for MIFARE Classic: 1" (2.5 cm)	iCLASS SE: 2.3" (5.8 cm) SE for MIFARE Classic: 1.5" (3.8 cm)	iCLASS SE: 2.3" (5.8 cm) SE for MIFARE Classic: 1.5" (3.8 cm)
	<b>125 kHz Single Technology ID-1 Credentials (Cards) - Respective Prox Data Model</b>				
	HID Prox / AWID: 2" (5.1 cm) Indala Prox: 1" (2.5 cm) EM4102: 3.5" (8.9 cm)	HID Prox / AWID: 2" (5.1 cm) Indala Prox: 1" (2.5 cm) EM4102: 3.5" (8.9 cm)	HID Prox / AWID: 2.3" (5.8 cm) Indala Prox: 1" (2.5 cm) EM4102: 2" (5.1 cm)	HID Prox / AWID: 2.5" (6.4 cm) Indala Prox: 1" (2.5 cm) EM4102: 4" (10.2 cm)	HID Prox / AWID: 2.5" (6.4 cm) Indala Prox: 1" (2.5 cm) EM4102: 3" (7.6 cm)
<b>125 KHz Single Technology Tags/Fobs - Respective Prox Data Model †</b>					
HID Prox / AWID: 1" (2.5 cm) Indala Prox: 0.5" (1.3 cm) EM4102: 1.3" (3.3 cm)	HID Prox / AWID: 1" (2.5 cm) Indala Prox: 0.5" (1.3 cm) EM4102: 1.3" (3.3 cm)	HID Prox / AWID: 1.3" (3.3 cm) Indala Prox: 0.5" (1.3 cm) EM4102: 1.3" (3.3 cm)	HID Prox / AWID: 1.5" (3.3 cm) Indala Prox: 0.5" (1.3 cm) EM4102: 2.3" (5.8 cm)	HID Prox / AWID: 1.5" (3.3 cm) Indala Prox: 0.5" (1.3 cm) EM4102: 2.3" (5.8 cm)	
<b>Mounting</b>	Mini-Mullion Size; physically HID's smallest iCLASS readers and are ideally suited for mullion-mounted door installations, U.S. single-gang J-box (with mud ring) or any flat surface	Mullion Size; physically HID's second smallest iCLASS readers and are ideally suited for mullion-mounted door installations, U.S. single-gang J-box (with mud ring) or any flat surface	EU / APAC Square Size; 83.8 mm (3.3") square reader is designed to mount to and cover standard European and Asian back boxes	Wall Switch Size; designed to mount and cover single gang switch boxes primarily used in the Americas and includes a slotted mounting plate for European and Asian back box spacing	
<b>Color</b>	Black or Gray				
<b>Keypad</b>	No				Yes (4x3)
<b>Dimensions</b>	1.9" x 4.1" x 0.9" 4.8 cm x 10.3 cm x 2.3 cm	1.9" x 6.0" x 0.9" 4.8 cm x 15.3 cm x 2.3 cm	3.3" x 3.3" x 0.9" 8.4 cm x 8.4 cm x 2.3 cm	3.3" x 4.8" x 1.0" 8.4 cm x 12.2 cm x 2.4 cm	3.3" x 4.8" x 1.1" 8.5 cm x 12.2 cm x 2.8 cm
<b>Product Weight (Pigtail)</b>	4.0oz (114g)	5.2oz (149g)	5.3oz (151g)	7.8oz (222g)	9.1oz (258g)
<b>Product Weight (Terminal Strip)</b>	3.0oz (85g)	4.3oz (124g)	4.1oz (118g)	7.6oz (216g)	8.0oz (228g)
<b>Operating Voltage Range</b>	5-16 VDC, Linear supply recommended				
<b>Current Draw - Standard Power Mode (mA)†</b>	75	75	85	85	95
<b>Current Draw - Intelligent Power Management (IPM) Mode*** (mA)</b>	40	40	50	50	70
<b>Peak Current Draw - Standard Power or IPM Mode*** (mA)</b>	200	200	200	200	220
<b>NSC** Power Consumption - Standard Power Mode (W @ 16VDC)†</b>	1.2	1.2	1.4	1.4	1.5
<b>NSC** Power Consumption - w/ IPM (W @ 16VDC)</b>	0.6	0.6	0.8	0.8	1.1
<b>Operating Temperature</b>	-31° to 150° F (-35° to 65° C)				
<b>Storage Temperature</b>	-67° to 185° F (-55° to 85° C)				
<b>Operating Humidity</b>	5% to 95% relative humidity non-condensing				
<b>Environmental Rating</b>	Indoor/Outdoor IP55; IP65 if installed with optional gasket (IP65GSKT)				
<b>Transmit Frequency</b>	13.56 MHz & 125 kHz				
<b>13.56 MHz Card Compatibility</b>	Secure Identity Object™ (SIO*) on iCLASS Seos, iCLASS SE/SR, MIFARE DESFire EV1 and MIFARE Classic (On by Default) - standard iCLASS Access Control Application (order with Standard interpreter) -ISO14443A (MIFARE) CSN, ISO14443B CSN, ISO15693 CSN - Mifare and Mifare DESFire EV1 custom data models - FIPS-201 Credentials including PIV, PIV-I, CIV, CAC, TWIC, FRAC; Contactless Interface				
<b>125 kHz Card Compatibility</b>	HID Prox, AWID, Indala, EM4102				
<b>Communications</b>	Optional OSDP with SCP over RS485 Wiegand/Clock-and-Data Interface 500ft (150m) (22AWG) - Use Shielded cable for best results				
<b>Panel Connection</b>	Pigtail or Terminal Strip				
<b>Certifications</b>	UL294/cUL (US), FCC Certification (US), IC (Canada), CE (EU), C-tick (Australia, New Zealand), SRRC (China), MIC (Korea)****, NCC (Taiwan)****, iDA (Singapore)****, RoHS, FIPS-201 Transparent FASC-N Reader				
<b>Crypto Processor Hardware Common Criteria Rating</b>	EAL5+				
<b>Patents</b>	US7180403, US7439862, US7124943, US5952935, US6058481, US6337619				
<b>Housing Material</b>	UL94 Polycarbonate				
<b>Manufactured with % of recycled content (Pigtail)</b>	10.5%	11.0%	11.0%	10.5%	10.9%
<b>Manufactured with % of recycled content (Terminal Strip)</b>	10.5%	11.0%	10.0%	11.0%	12.3%
<b>UL Ref Number</b>	RP10E	RP15E	RP30E	RP40E	RPK40E
<b>Warranty</b>	Limited Lifetime				

\* Typical read range achieved in air. Different types of metal will cause some degradation (typically up to 20%).

Use spacers to space product off metal and improve read range if required.

\*\* NSC = Normal Standby Current; See Installation Guide for Details.

\*\*\* Measured in accordance with UL294 standards; See Installation Guide for Details.

\*\*\*\* Certification for 9xxP part numbers only. Not available on 9xxL part numbers.

† Values shown are for 9xxP base part numbers. See Installation Guide for Current Draw values for 9xxL base part numbers.

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